

WILD CONNECTIONS CONSERVATION PLAN



*For Protecting Biological Diversity and Ecosystem Health
in the Pike and San Isabel National Forests*



Submitted as an option for the
Pike and San Isabel National Forests Plan Revision
June 2006

Authored by:
The Upper Arkansas and South Platte Project

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Note: High resolution versions of these maps are also available in on our website, www.wildconnections.org, or by contacting UASPP.

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iv. Executive Summary



The Wild Connections Conservation Plan was created by the efforts of people who share a deep concern for the well-being of public lands spread across the Upper Arkansas and South Platte headwaters. From hunters and hikers to biologists and volunteer mappers, they worked together to map the boundaries of 100 roadless areas, explore some of central Colorado's wildest lands, and apply the science of conservation biology. Over the past decade, they developed and refined a vision of a network of protected core areas and wildlife linkages. The Wild Connections Conservation Plan describes how this vision can be a reality where it counts – in the everyday policies and management of the Pike-San Isabel National Forest.

The Pike-San Isabel National Forest encompasses 2.2 million acres from the Continental Divide south almost to the New Mexico border and from the Sawatch and Sangre de Cristo Ranges to the foothills at the edge of the eastern plains. The Arkansas and South Platte Rivers shape this extraordinary landscape and provide life to thousands of native plants and animals and the people who live here or visit the region.

As the largest public land steward in these two watersheds, the Pike-San Isabel National Forest is revising its land and resource management plan starting in 2006. The Plan Revision team will involve the public in a collaborative process to gather stakeholder input. The Wild Connections Conservation Plan presents an option for protecting the delicate balance between decreasing wildness with its biodiversity and increasing desired human uses of the Pike-San Isabel. It provides detailed recommendations for the Pike-San Isabel, and includes useful information for the Bureau of Land Management, state and local government agencies, and local conservation and civic groups.

The Wild Connections Conservation Plan has two long range goals: 1) to protect and restore the native biological diversity of the Pike-San Isabel National Forest; and 2) to promote sustainable interactions between the human society and the natural environment of this National Forest.

To move toward these goals, the Conservation Plan recommends that the Forest Service and BLM:

- Preserve large expanses of roadless land containing high-quality habitat, including lower elevation ecosystems and riparian areas, by:
 - ✓ Managing the nine Congressionally designated Wilderness areas of 446,700 acres to meet national standards.
 - ✓ Recommending 53 additions to existing Wilderness or new Wilderness Areas. When added to the National Wilderness System, these will give strongest protection to 648,300 acres of the Pike-San Isabel's largest remaining unprotected roadless areas.
 - ✓ Incorporating another 14 areas totaling 94,500 acres as Core Reserves to provide protection for roadless areas that do not meet the qualifications for Wilderness.
 - ✓ Balancing representation of ecosystems in protected areas by including lower elevation types such as ponderosa pine and pinyon-juniper in Wilderness and core reserves.
- Adopt the concept of a network of protected core areas connected by wildlife linkages as the basis for sustaining native biodiversity by:
 - ✓ Recognizing that Wilderness and core reserve areas are at the heart of a system that taken as a whole is larger than the sum of its parts. Wild roadless places like Burning Bear, Kreutzer-Princeton, Thirtynine Mile, Highline, Bruff Creek, and Purgatoire provide

lowest human presence that multiplies the functional wildlife security and connectivity to adjacent areas.

- ✓ Providing wildlife linkages among the wild cores. The Conservation Plan recommends approximately 203,500 acres to facilitate wildlife movement, whether from spring birthing areas to winter range or for young animals dispersing to new home ranges.
- Protect and restore the native biodiversity of the National Forest by:
 - ✓ Protecting existing roadless areas and important biological hotspots, which contain most of the rare plants and animals that have been driven into decline by our expanding human activities. These are areas where greenback cutthroat trout can thrive in cold headwaters streams, and where lynx can find dens and snowshoe hares and red squirrels to eat. Yellow lady-slippers, Porter feathergrass, boreal toads, Preble's meadow jumping mice, Mexican spotted owls, Pawnee montane skipper butterflies and a host of other rare plants and animals depend on such secure habitat for their existence.
 - ✓ Adopting a comprehensive list of species of concern and species of interest that will facilitate direct protection and monitoring to determine trends in numbers.
 - ✓ Controlling exotic invasive plants that threaten the existence of native species.
 - ✓ Ensuring that conditions across the forest provide for the needs of large, far ranging animals such as mountain lions and black bears.
- Allow natural processes such as fire, seasonal cycles of winter snow and spring runoff, and interactions among plants and insects to aid renewal of the land by:
 - ✓ Recognizing that in the roadless back country, far from human habitation, the cycles and processes of the natural world can continue without man's intervention.
 - ✓ Designing projects in areas close to human habitation, where intervention may be desirable, to focus on highest risk areas and mimic natural processes.
 - ✓ Adopting wildfire prevention plans for the wild-urban interface as the appropriate location for thinning overly dense trees in order to protect human life and property.
- Promote the benefits of healthy ecosystems and watersheds that sustain robust local economies, ensure high quality water, and provide clean air and other ecosystem services by:
 - ✓ Facilitating ecologically sustainable multiple uses of the Pike-San Isabel National Forest that will foster long-term economic stability for tourism, ranching and local businesses.
 - ✓ Protecting watersheds in the Pike-San Isabel that are the source of snow pack which replenishes the water table for wells and feeds municipal water supplies down stream. Healthy forested lands also sequester carbon produced by burning fossil fuels and help overcome the effects of air born pollutants.
- Provide balance among the multiples uses of forest land by:
 - ✓ Ensuring that all modes of recreation, logging, grazing, mining, energy development and other human-oriented activities are designed to sustain a healthy forest for the indefinite future.
 - ✓ Fostering recreation uses that have the least impact on the natural landscape and wildlife. As recreation is the most wide-spread human use of the Pike-San Isabel National Forest, management of a spectrum of activities in appropriate settings will prevent irreparable damage. Wilderness recreation that depends on individual challenge and self-sufficiency is clearly abundant in the Wild Connections Plan. Twenty Quiet Use Areas totaling 150,500 acres are recommended for hiking, horse packing, mountain biking, cross country skiing, and similar recreation. Vehicle-oriented recreation is widely available on



hundreds of miles of designated roads and trails. Intensive recreation is located at special sites such as the Rampart Range Motorized Recreation Area, Monarch Ski Area and Ski Cooper. Camping is available at campgrounds, with dispersed camping allowed across the forest. Opportunities for canoeing, rafting and fishing can be found on the rivers, lakes and streams. Hunting, pack trips, and guided excursions are activities for all parts of the forest. Wildlife watching, nature photography and enjoying the scenery can be found everywhere.



- ✓ Permitting limited commercial logging, mining and energy development only in suitable areas of the forest. While large commercial logging projects are not appropriate, small fuels thinning projects that reduce wildfire danger in the wild-urban interface are encouraged and provide the basis of a small fuels industry. Grazing will continue on current allotments with emphasis on protecting the rangeland and riparian zones.
- ✓ Establishing forty new Research Natural Areas to protect examples of representative ecosystems, provide scientists with sites for research in how to best sustain our national forests, and preserve a baseline for comparison over the years.
- ✓ Ensuring that all human activities will protect riparian zones, water quality and sensitive wildlife areas such as birthing or nesting areas, migration routes, and winter habitat.
- Enhance the functional capacity of wildlife linkages by:
 - ✓ Including dispersal and migration corridors in protected areas such as core reserves and Wilderness and by applying seasonal travel restrictions.
 - ✓ Reducing road densities in connectivity areas by closing and rehabilitating unused routes.
 - ✓ Working with other agencies to install wildlife passage structures along major roads and to protect adjacent habitat.
- Acknowledge the intrinsic value of wild landscapes that sustain the human spirit and provide for all our co-inhabitants in an interconnected, interrelated whole. While not easily measured, Coloradoans and visitors alike treasure the high mountain peaks, rivers and streams, stunning scenic views, and all those values that provide a quality of life that nourishes our families and communities.

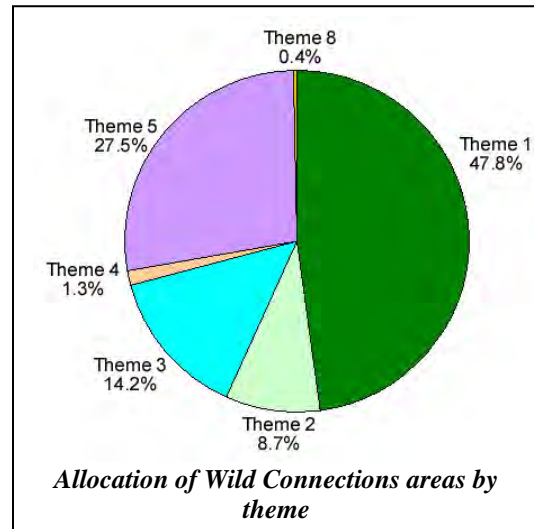
The Wild Connections Conservation Plan brings together 1) citizen field work and community workshop results; 2) conservation science using the three-track approach; and 3) the U. S. Forest Service's thematic framework for land management planning.

The first two aspects produced the larger wildlands vision for the Upper Arkansas and South Platte watersheds. Field work by trained volunteers over the last ten years gathered data on the boundaries, natural characteristics, and wilderness qualities of 100 roadless areas. A series of community workshops and extensive task force meetings brought more input into the conservation plan design process. The three-track approach, developed by conservation biologists, incorporated biological data and GIS modeling. The first track, ecosystem representation, was used to ensure that collectively the protected areas contained proportional amounts of vegetation native to these mountains. The second track, special elements, used the roadless area field work and locations of rare or sensitive species. In the third track, focal species, animals such as black bear, lynx, elk, pronghorn and others were used to identify areas that are important for their life cycle needs.

The resulting vision for the two watersheds was formulated into Themes that address the major components of the Forest planning process. The U. S. Forest Service has new planning regulations,

which only a few National Forests have used. We adapted the Thematic framework found in several other Forest draft plans to organize management recommendations. The themes used in the Wild Connections Conservation Plan are:

- **Theme 1: Natural Processes Dominate** includes existing and proposed Wilderness areas and recommended core reserves.
- **Theme 2: Special Areas** consists of Research Natural Areas, experimental forests, and wild and scenic rivers.
- **Theme 3: Natural Landscapes with Limited Management** includes quiet use areas and wildlife connectivity areas.
- **Theme 4: Recreational Emphasis Areas** is where motorized recreation areas and scenic byways are described.
- **Theme 5: Active Management** includes both active management for wildlife and for human needs such as logging or energy development.
- **Theme 8: Permanently Developed Areas** consists of ski based resorts and permanent developed recreation areas.
- **Theme 9: Significant Non-Forest Lands** is a special category used to describe BLM, state and private conservation areas outside the jurisdiction of the Forest Service that are important for a comprehensive approach to the entire watersheds.



These themes¹ are applied across the Pike-San Isabel National Forest. In order to describe the lands that are recommended for various themes, the Conservation Plan divides the landscape into eleven geographically based complexes: Arkansas Canyons, Mount Evans High Peaks, Mosquito Range, Pikes Peak Massif, Rampart Range, Sangre de Cristo, Sawatch Range, South Park, South Platte Canyons, Spanish Peaks, and the Wet Mountains Complexes. For each complex, the Plan describes natural features of the roadless areas in detail, followed by the management recommendations for each part of the complex, which are shown on a large map. The complex descriptions and management recommendations are the heart of the Wild Connections Conservation Plan as it is applied to the actual landscape.

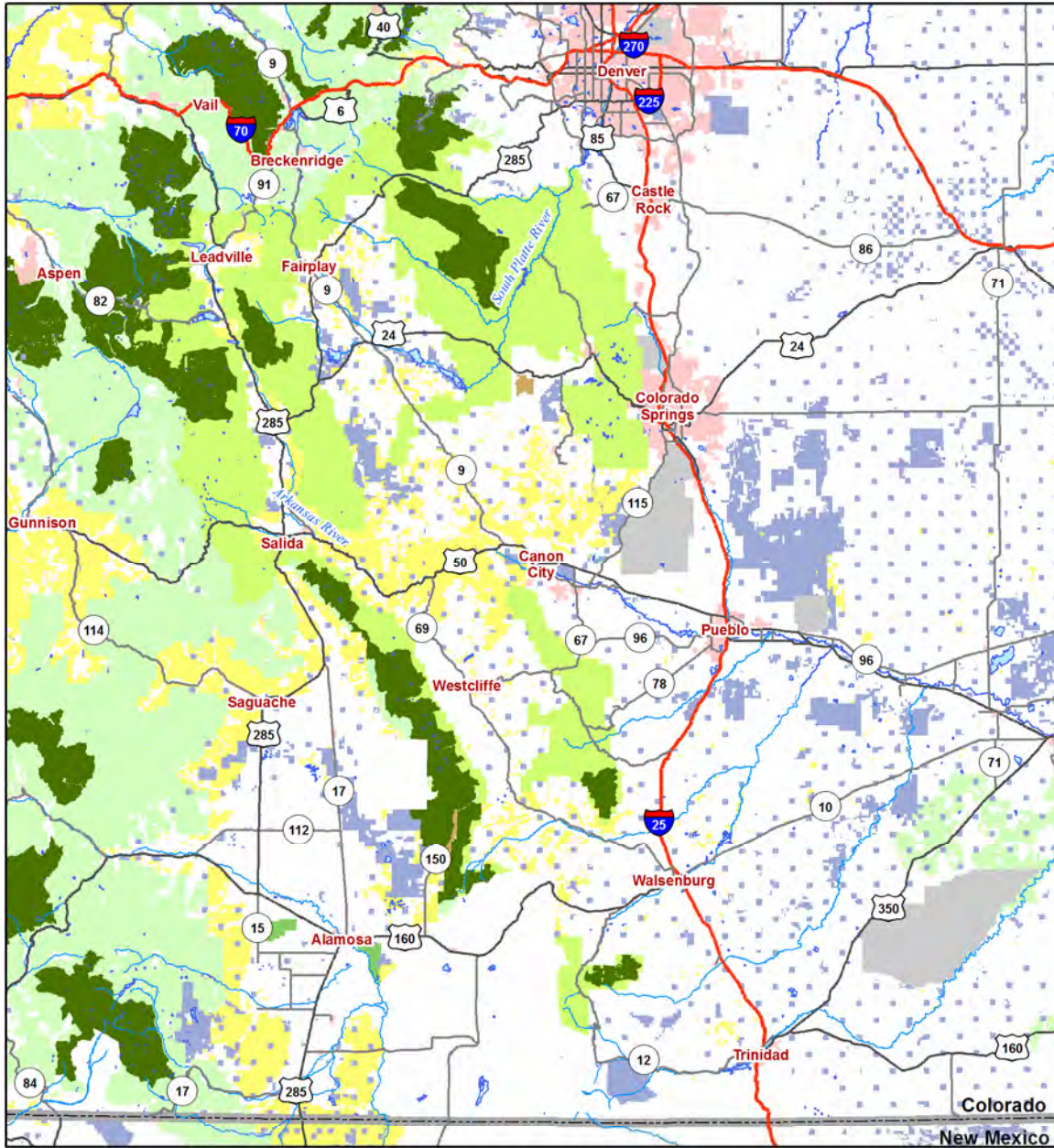
In addition to this thematic framework, there are recommendations for general management, such as grazing, invasive species management, fire management and others, that apply across the whole National Forest regardless of theme designation. Both the themes and general management sections provide detailed guidance for desired future conditions, objectives and guidelines. Thus a relatively complex expectation of uses and management is laid across the mountains and valleys of the Pike-San Isabel.

In crafting the Wild Connections Conservation Plan, UASPP collaborated with local and regional stakeholder groups, with hundreds of people giving their input and guidance. We look forward to working with the Pike-San Isabel planning team and the many stakeholders to arrive at a management plan that will sustain the Pike-San Isabel for present and future generations of native plants, animals and our own communities.

¹ Theme 6: Grasslands Ecosystems is designed for National Grasslands and Theme 7: Residential Forest Interface was incorporated in general management considerations.

v. Political Map of the Pike-San Isabel Region

Map v: Political Map of the Pike-San Isabel Region



Land Ownership in the Pike and San Isabel National Forests Region

- | | | | |
|----------------------|---|------------------------------|---------------|
| — Interstate Highway | City | USDA Forest Service | Other Federal |
| — US Highway | State Boundary | Bureau of Land Management | State |
| — State Highway | Pike & San Isabel National Forest | National Park Service | Private |
| | National Wilderness Preservation System | US Fish and Wildlife Service | |

Land ownership from the Colorado Division of Wildlife 2000 updated by Upper Arkansas and South Platte Project and from University of New Mexico 2000. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).

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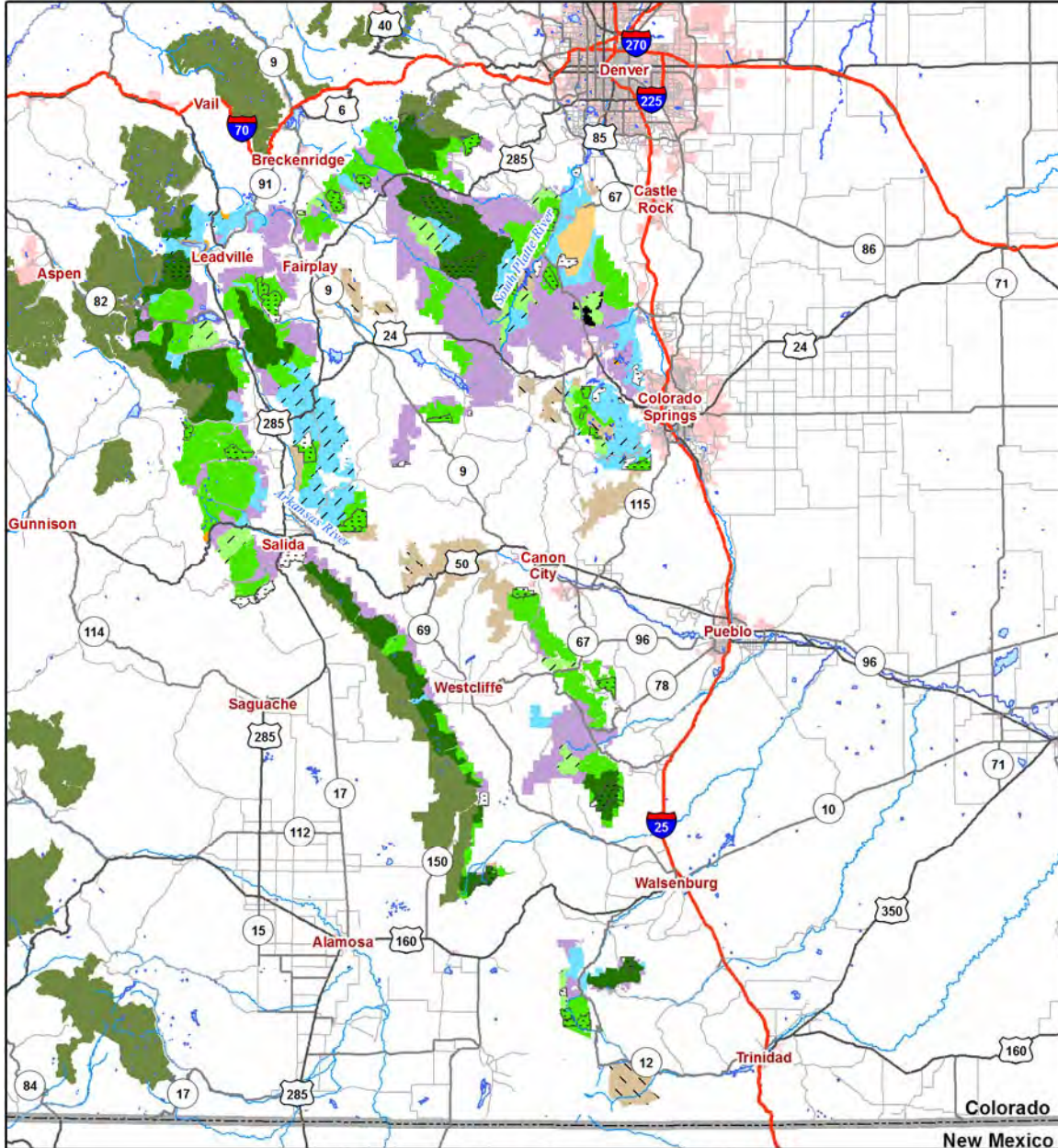
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vi. Wild Connections Proposed Management Map

Map vi: Wild Connections Proposed Management Map

Note: Detailed smaller scale proposed management maps by Complex are located in the packet at the back of the book



Wild Connections Conservation Plan

- | | | |
|----------------------|----------------------------|-------------------------------------|
| — Interstate Highway | WCCP Proposed Management | 3.2 Connectivity Areas |
| — US Highway | 1.1 Existing Wilderness | 4.1 Motorized Recreation Areas |
| — State Highway | 1.2 Recommended Wilderness | 5.1 Active Mgmt - Wildlife Habitat |
| — Major Road | 1.3 Core Reserve | 8.1 Ski Based Resorts |
| City | 2.1 Research Natural Areas | 8.2 Permanently Developed Areas |
| State Boundary | 2.2 Experimental Forests | 9.1 Non-USFS Recomend Wilderness |
| Other Wilderness | 3.1 Quiet Use Areas | 9.2 Significant Non-USFS Biological |

Wild Connections Conservation Plan (WCCP) as of May 2006. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).

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vii. About the Upper Arkansas and South Platte Project

The mission of the Upper Arkansas and South Platte Project (UASPP) is to identify, protect, and restore the areas that are needed to ensure the survival of native species and ecological richness of the Upper Arkansas and South Platte watersheds, especially in the Pike-San Isabel National Forest and adjacent BLM lands. UASPP was formed in 1995 as a coalition of volunteers and has matured into a strong organization that formally incorporated in 2002 and soon received 501(c)(3) non-profit tax status.

UASPP has worked collaboratively with conservation groups across the region, ranging from Audubon Societies and Sierra Club groups, to special focus groups such as the Quiet Use Coalition, to regional organizations such as the Colorado Environmental Coalition. UASPP is also a member of the Southern Rockies Conservation Alliance (SRCA), a broad coalition of over 30 major environmental groups. We seek to employ proactive strategies, based on solid science and the tenets of conservation biology, rather than defensive or adversarial approaches.

The Wild Connections Process

In formulating this Wild Connections Conservation plan, UASPP mobilized more than 150 volunteers who field-inventoried over 100 roadless areas on the Pike-San Isabel National Forest and adjacent BLM lands. Workers mapped boundaries and travelways utilizing GPS and GIS technology, and evaluated lands for environmental characteristics, such as present and historical use, conflicts in usage, scenery and wildness. This original research is being used to formulate draft wilderness recommendations for specific areas, as well as general ecological management for other tracts of Forest Service lands. UASPP solicited input on our draft proposal from the community at large as well as from specialized experts by:

- Holding nine regional workshops in which participants were asked to identify areas important for conservation, low intensity recreation, other multiple uses, and Wilderness.
- Giving approximately 25 slide shows for educational purposes and to solicit additional citizen input.
- Incorporating species and habitat data for wide ranging mammals, threatened and endangered species, and areas of biological richness into the management recommendations.
- Seeking expert review of this plan from environmental, scientific, and agency specialists.

Contact The Upper Arkansas and South Platte Project:

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719.686.5905
www.wildconnections.org

viii. Acknowledgements

The publication of the Wild Connections Conservation Plan is a crowning achievement, one which embodies an intense, decade-long journey. It is an honor to thank some of the wonderful people who made this project possible. On behalf of the UASPP Board of Directors, we extend our deepest gratitude to:

UASPP's field inventory volunteers. This Conservation Plan rests firmly on the field work completed by more than 150 volunteers who inventoried the boundaries of roadless areas and explored their Wilderness values. Their passion for wildlands kept them going through mud and dust until each route had been followed to the end. Although hundreds of volunteers have lent a hand over the years, we owe the greatest gratitude to Jean and Art Smith. Their vision, tenacity, love, and compassion for the land, the wildlife, and for all the people they have mentored, is a gift beyond words.

The Board of Directors of UASPP. These passionate volunteers facilitated the design of the Wild Connections Conservation Plan and wrote and edited this document. Principal authors are Deb Callahan, Jim Lockhart, Michael Rogers and Jean Smith. Additional writing, maps, tables and GIS work were produced by Alison Gallensky. Tod Bacigalupi, Dave Jones, Claude Neumann, Deb Overn, Lee Patton, John Stansfield, and Naomi Yoder added their expertise and reviewed the document. This invaluable volunteer effort is deeply appreciated.

Our expert reviewers, who helped ensure the accuracy, meaningfulness, and content of this plan: Tom Fry, Julia Kintsch, Dr. Brian Miller, Erin Robertson, and Rocky Smith.

The Southern Rockies Conservation Alliance, the state-wide network of dedicated, supportive professionals who provided financial, moral and technical expertise. Lisa Smith, our SRCA liaison, gets special thanks for her fine organizing work with local stakeholders

The Southern Rockies Ecosystem Project, who built the foundation of transforming conservation biology principles into implementable action with the publication of their Southern Rockies Wildlands Network Vision in 2005.

The Land Management Agencies, specifically the USFS and BLM, whose dedicated staff are the stewards of our unique and wild lands. We enthusiastically look forward to collaboration.

Financial support over the years made the Wild Connection Conservation Plan a reality. Major funding was received from: The Campbell Foundation, Conservation Technology Support Program, Environmental Protection Agency, ESRI, John Fielder of Westcliffe Publishers, Fund for Wild Nature, Maki Foundation, New-Land Foundation, Norcross Wildlife Foundation, and Eric and Robyn Weber of Fountainhead Communications. Conservation group contributions came from: Arkansas Valley Audubon, The Evergreen Naturalists and Greater Denver Audubon Societies; Central Colorado Wilderness Coalition; Colorado Environmental Coalition; Colorado Mountain Club Denver Group; Enos Mills, Indian Peaks, Mount Evans, Pikes Peak, Rachel Carson and South Platte Groups of Sierra Club; The Wilderness Society; Tuesday Birders; and the Wildlands Campaign and Map, Monitor and Guard programs of the national Sierra Club. Nearly 100 individual donors have also given their support, many of them every year.

Chapter 1 – Introduction

Purpose and Scope

The Wild Connections Conservation Plan (WCCP) proposes an ecological approach to managing the lands in and around the Pike and San Isabel National Forests. The Upper Arkansas and South Platte Project (UASPP) has facilitated the Wild Connections planning since 1995. Working in collaboration with local groups and individuals, we inventoried more than 100 roadless areas in the two watersheds, completed GIS analyses, sought public and expert input, and crafted this Wild Connections Conservation Plan. The WCCP provides a scientifically based framework for conservation at many levels:

- It contains specific recommendations for the Pike-San Isabel forest plan revision.
- It is part of the larger ecoregion efforts exemplified by the Southern Rockies Wildlands Network Vision created by the Southern Rockies Ecosystem Project.
- It is a framework for local conservation initiatives by civic and conservation groups.

We formally submit this Wild Connections Conservation Plan to the Pike-San Isabel Forest Plan Revision team for consideration as an option during the collaborative process for revision of the Forest's Land and Resource Management Plan. It also serves as a case study as to how principles of conservation biology can be feasibly applied to actual management practices within the Pike-San Isabel National Forest. This proposal is based on sound conservation biology principles, with supporting expert and ecological/species data sources and cited documentation. Most important, this proposal is *realistic, feasible, and implementable*. Further information on our approach is detailed in Chapter 2 – The Wild Connections Methodology.

Although this plan is designed for submission to the Forest Service for the Pike-San Isabel Forest Plan Revision, it does contain information and data on surrounding critical lands outside of the Forest Service's immediate jurisdiction. Wildlife movements and maintaining sustainable ecosystems do not adhere to political boundaries, and thus our scope is one of landscape connectivity in the spirit of conservation biology.

Goals and Objectives

Setting goals and objectives with the intent to identify and alleviate current critical threats and impacts to biological diversity will inherently address and help mitigate the underlying **causes** of current ecological dysfunction. Only by addressing and solving the underlying causes can we have the greatest potential for preventing a recurrence of the same problems in the future. Merely treating the symptoms only results in temporary relief and is ecologically and economically inefficient.

Therefore, the primary goal of this conservation plan is *to protect and restore the native biological diversity of the Pike-San Isabel National Forest*. A secondary goal is *to promote sustainable interactions between the human society and the natural environment of this National Forest*. In circumstances in which there is insufficient information available to gauge the impacts of management activity, deference must be given to protecting native biological diversity. Utilizing the framework of conservation biology, and those of Noss and Cooperrider (1994), UASPP has identified the following fundamental objectives that move towards the fulfillment of the above major goals:

- Employ proactive management strategies and policies that solve and mitigate current threats and pressures to our public lands, rather than solely rely on treating the symptoms of current

damage and imbalances;

- Protect large, remaining areas of primitive and wild habitat within the system by implementing strictly protective management;
- Represent, expand and diversify the current portfolio of protected areas to include sustainable, large areas of all native ecosystem types, including all successional stages and natural ranges of variability, as well as to include lower elevation ecosystems, such as ponderosa pine forests and piñon-juniper woodlands;
- Secure additional protection of habitat and prevent further landscape fragmentation in order to restore connectivity between the large wild ‘core’ areas to ensure the natural ability of species to disperse and migrate;
- Protect and restore ecologically effective populations of all native species once abundant to the Pike-San Isabel, including large carnivores, in natural patterns of abundance and distribution;
- After scientific study, control and eradicate invasive exotic species which are detrimental to the ecosystem;
- Protect and restore ecological and evolutionary processes, such as disturbance regimes, hydrological processes, nutrient cycles, and biotic interactions;
- Manage landscapes and natural communities to be responsive to short-term and long-term environmental change and to maintain the evolutionary potential of the biota;
- Build a model of sustainable human habitation and land use that is consistent with conserving both native biodiversity and local economies.

Layout and Design

Chapter 2 – The Wild Connections Methodology details our approach, reasoning, science based analysis, and data sources used in creating our detailed proposal.

Chapter 3 – Forest-Wide Recommendations contains over-arching management guidance, compatible with conservation principles, for general issues that are prevalent across the entire Pike-San Isabel National Forest, irrespective of theme or location. For example, invasive species, fire management, and recreation are a few of the issues addressed.

Chapter 4 – Thematic Approach to Land Management defines the terminology and sets the land management approach employed by this proposal. This proposal utilizes management *Themes*, or zones, to geographically distribute *Desired Conditions* across the forest. *Objectives*, *Guidelines*, and *Suitability of Areas* analyses serve to help guide specific project level planning that will work towards achieving the *Desired Conditions* for specific areas and themes.

Chapter 5 – Complexes: Area-Specific Management Recommendations contains our detailed, area-specific proposal utilizing the theme based approach to land management. As an organizational tool, this proposal divides the Pike-San Isabel National Forest into eleven separate *Complexes*, based on geo-physical characteristics of the land such as mountain ranges, parklands or canyon systems. Each complex narrative provides details and justifications for our management recommendations for specific areas.

Chapter 6 – Landscape Connectivity: Other Lands in the Pike-San Isabel Region discusses the other lands critical to both habitat and connectivity, such as adjacent National Forests, state parks, and BLM lands. Although out of the jurisdiction of the USFS, it is critical that Forest management considers the greater ecosystems to which it is connected. National Forest activities must be compatible with management activities on these adjacent public lands.

Additional materials are included in **Appendices**.

The National Forests

The Pike and San Isabel National Forests are located in the mountain ranges of south-central Colorado, and together they total approximately 2.2 million acres. They encompass the headwaters of the South Platte River and the Arkansas River respectively and are noted for most of Colorado's premiere Fourteeners, as well as lower montane forests, mountain grasslands and shrublands. Half a dozen mountain ranges trending northwest to southeast, the intervening valleys and parklands, and a network of rivers, streams, lakes, fens and wetlands provide great visual contrast and biological diversity. Together the National Forests span the landscape from the Continental Divide between Denver and Leadville south almost to the Colorado-New Mexico border and west to east from the Sawatch and Sangre de Cristo Ranges to the foothills of central Colorado.

The two National Forests are one administrative unit with headquarters in Pueblo. Six Ranger Districts - the South Platte, South Park, Pikes Peak, Leadville, Salida, and San Carlos - provide oversight and on-the-ground management.

Pike National Forest

Containing 1,106,600 acres, the Pike National Forest contains the headwaters of the North, Middle and South Forks of the South Platte River. The Middle and South Forks come together in South Park, and are joined by the North Fork before the river leaves the mountains to flow through metropolitan Denver and onward across the plains. This river system provides the majority of domestic water for the Denver metro area. It supports a great diversity of wildlife with 13,000-14,000 foot peaks across the northern end from Mount Evans to the Mosquito Range and on the east from Pikes Peak down to lower elevations in the canyons near Cheesman Reservoir. It includes Mount Evans, Lost Creek and part of Buffalo Peaks Wilderness Areas. Since it borders the major urban corridor from Denver to Colorado Springs, it is also a popular recreation area.

San Isabel National Forest

Containing 1,104,000 acres, the San Isabel National Forest gives life to the Arkansas River near Leadville that then flows down the valley below the Sawatch Range and through the canyons between Salida and Royal Gorge. After leaving the mountains near Pueblo, it is joined by tributaries such as the Purgatoire that drain the southern reaches of the San Isabel. Perhaps most noted for the string of Fourteeners along the Sawatch Range, including Mount Elbert, Colorado's highest peak, and the long narrow range of the Sangre de Cristo Mountains, the San Isabel also has a large amount of lower elevation land along the Arkansas canyons and in the Wet Mountains. Wilderness Areas include all or parts of Holy Cross, Mount Massive, Collegiate Peaks, Buffalo Peaks, Sangre de Cristo, Greenhorn Mountain, and the twin cones of Spanish Peaks. Recreation is also an important activity on the San Isabel National Forest.

Cimarron and Comanche National Grasslands

The Pueblo office also administers the Cimarron and Comanche National Grasslands. However, the planning process for the two Grasslands is an independent and separate process, and thus they are not directly discussed or advocated within this Wild Connections Conservation Plan.

Critical Threats to Public Lands

The stress placed upon our public lands by the following threats is a serious, difficult, and pervasive issue that management agencies must address. As substantial documentation and studies exist on the impacts of these threats, we will only acknowledge them here. However, it is critical to reiterate that ***only by addressing the underlying causes of ecological dysfunction can a truly sustainable management approach to our public lands evolve.*** These threats are key factors affecting our current land health, and thus the approach taken by this Wild Connections plan seeks to solve and mitigate these impacts.

For additional information on the following threats, references or data, refer to the bibliography or contact the staff of UASPP.

1) Loss and Fragmentation of Wildlife Habitat

Direct conversion of natural ecosystems to other uses such as agriculture, housing, and industry, as well as fragmentation of natural areas into smaller and smaller parcels have had an equally profound impact on the capacity of the land to maintain healthy and resilient populations of native species and general ecological viability. Roads are the dominant fragmenting factor. The recent population explosion in the Pike-San Isabel region has created the need for additional roads, recreational opportunities on Forest Service lands, and has led to exurban sprawl. This results in the loss and fragmentation of wildlife habitat, and specifically stresses lower-elevation habitats which enjoy the least amount of protection.

2) Loss and Decline of Native Species

Many species of native animals, especially carnivores, large ungulates and other keystone species, have been entirely lost or greatly reduced in numbers across their historical ranges. The loss of large carnivores is more complex than the simple absence of a species as it creates an ecological imbalance. Carnivores play an important role in regulating ecosystems, and predation can affect flora and fauna that seem ecologically distant from the carnivore (Terborgh, 1999).

3) Loss and Alteration of Natural Processes

Historical and present fire suppression activities have altered natural fire regimes. This has changed the forest canopy and natural meadows or other openings, altered forest stand densities and age-mix balances, and increased the size and intensity of fires due to the prevalence and widespread distribution of fuels. Water quality and regimes have also been dramatically altered by roads, dams and diversions, mine runoff, pollution, draining of wetlands, livestock grazing, and introduction of nonnative species. Although commercial logging is no longer a major threat, the increase in fuels treatment projects has brought increasing levels of manipulative activity, including road construction, to our national forest lands.

4) Invasive Species

Dale Bosworth, Chief of the US Forest Service has identified invasive species as one of the four significant threats to our Nation's forest and rangeland ecosystems. Native plants usually do not compete well with invasive plants for nutrients, sunlight, and water. As a result, our biologically diverse mountain meadows, grasslands, and wetlands are in danger of being overrun by non-native, invasive species.

5) Appropriation of Wildlands for Intensive Recreation

The dramatic increase in non-motorized recreation over the past three decades, partially fueled by new advances and technologies in extreme jeeps, 4-wheel drive trucks, ATVs, dirt bikes, and snowmobiles, has led to an unprecedented proliferation of motorized activity in our national

forests. The rampant spread of motorized use has caused unplanned roads and trails, erosion, watershed and habitat degradation, damage to cultural resource sites, and has negatively impacted survival and reproduction of some wildlife species due to the excessive noise and disturbance.

6) Economic Activities – Oil, Gas, Mining and Range Management

Currently, oil and gas development and mining are only a minor extractive use of the Pike-San Isabel. However, thousands of historical prospects and abandoned mines are present, many still causing water pollution from heavy metals and acidic flows. Ranching has greatly influenced the culture, economy, and ecology of Colorado and the Pike-San Isabel region. While many ranchers are good stewards of the land, and large intact ranches increasingly provide critical open-space habitat for wildlife in this rapidly developing region, grazing may also have many negative impacts on the ecosystems of the Pike-San Isabel. Domestic livestock have different foraging habits than native herbivores, including the tendency of cattle to congregate in riparian areas. Additionally, overgrazing has contributed to the spread of exotic weeds.

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Chapter 2 – The Wild Connections Methodology

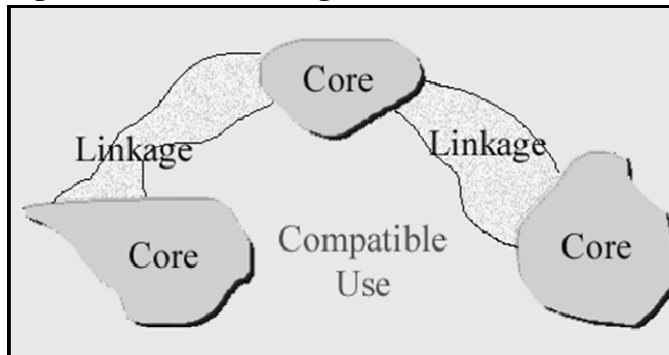
*“The last word in ignorance is the man who says of an animal or plant:
‘What good is it?’ To keep every cog and wheel
is the first precaution of intelligent tinkering.”*
– Aldo Leopold (1972)

Components of the Core Reserve System

The core reserve and linkage network model was promoted by Noss (1983), Harris (1984), and many others, who looked at conservation opportunities from a landscape or regional perspective and emphasized the need for animals to move between reserves or other areas of favorable habitat. If functionally connected, a system of reserves may be united into a whole that is greater than the sum of its parts. Although no single reserve may be able to support a long-term ecologically effective population of a species with large area requirements, such as grizzly bear or grey wolf, reserves linked by corridors or other avenues of movement may do so (Noss and Harris, 1986). Thus, whereas individual reserves are unlikely to encompass ecosystems replete with all native species, a well-connected network of reserves has a better chance of doing so (Noss and Cooperrider, 1994).

The reserve design is comprised of protected core reserves, which are large wild areas that are interconnected by linkages, which are habitats that allow for species dispersal and migration. Core areas are surrounded by compatible use areas, which accommodate medium and high-impact recreation, extraction and other human-oriented uses that are managed according to the conservation goals.

Figure 2.1: Core – Linkage Model



The Three-Track Approach to Network Design

Scientists have developed basic generalizations to consider when creating a network of cores and connecting habitat. They are useful in deciding size and configuration of optimal wildlands network units. Noss and Cooperrider (1994) summarize as follows:

- Species well distributed across their native range are less susceptible to extinction than species confined to small portions of their range.
- Large blocks of habitat, containing large populations of ecologically important species are superior to small blocks of habitat containing small populations.
- Blocks of habitat close together are better than blocks far apart.
- Habitat in contiguous or connected blocks is better than fragmented habitat.
- Interconnected blocks of habitat are better than isolated blocks, and dispersing individuals travel more easily through habitat resembling that preferred by the species in question.
- Blocks of habitat that are roadless or otherwise less accessible to humans are superior to roaded and accessible habitat blocks.

The Wild Connections Planning team utilized the *Three-Track Approach* to inform our network design. Combining the three tracks of ecosystem representation, inclusion of special elements, and protection of habitat for focal species offers a comprehensive approach toward conservation planning (Soulé and Terborgh, 1999).

1) Ecosystem Representation

Representing various ecosystem or cover types in protected areas in proportion to their occurrence across the larger landscape provides a coarse filter approach to ensuring adequate protected habitat for wildlife and plant species. The Nature Conservancy estimates that 85% to 90% of all species in a region can be protected by protecting representative samples of natural communities, although this hypothesis is as yet untested (Noss and Cooperrider, 1994). In addition, this approach is economically efficient when it comes to collecting data: “Broader vegetation schemes serve as a surrogate for data on each individual species within a given scheme, and these vegetation patterns are easier to map. In many cases such data already exist...” (Miller 2003). While vegetation is never a substitute for actual data on animal species, it may be the best information available when field studies are not available.

However, most existing protected areas do not include proportionate representation. In the Southern Rockies Ecoregion, for example, approximately 70% of the protected lands in National Parks and Wilderness Areas are above 10,000 feet, while low and the mid-elevation ecosystem types, such as grasslands and shrublands which support a high number of vertebrate species, are not sufficiently represented in protected areas (SREP, 2000). Species that depend on low and mid-elevation habitats commonly have little protected habitat.

Similarly, for the Pike-San Isabel, the present configuration of protected areas does not adequately represent all ecosystem types when compared with the whole of the forest. Table 2.1 shows the percent of various cover types across the forest in comparison with their representation in Wilderness and Research Natural Areas (RNA), the two most protective management designations.

Table 2.1: Protected Cover Types within the Pike-San Isabel

Ecosystem or Cover Type	Acres within the Pike-San Isabel	% of Pike-San Isabel	Acres Protected by Wilderness / RNA Designation	% of protected area
Shrubland and Cottonwood	114,500	5.1%	30,800	7.2%
Piñon-Juniper Woodland	61,100	2.7%	4,900	1.1%
Ponderosa Pine Forest	363,200	16.3%	7,600	1.8%
Douglas-Fir Forest	447,400	20.0%	36,600	8.6%
Lodgepole Pine Forest	206,600	9.3%	37,800	8.9%
Aspen Forest	180,800	8.1%	36,300	8.5%
Grassland	222,200	9.9%	50,800	11.9%
Limber Pine & Bristlecone Pine Forests	74,900	3.4%	14,800	3.5%
Engelmann Spruce/Blue Spruce/Subalpine Fir	395,700	17.7%	138,300	32.4%
Barren Lands/Exposed Rock	159,800	7.2%	68,400	16.0%
Open Water	7,200	0.3%	300	0.1%
TOTAL	2,233,400	100.0%	426,600	100.0%

Sources: *PSI RIS Vegetation/Cover Type Analysis October 1998*; *Wilderness Boundaries from Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, June 2005*; *Research Natural Area (RNA) Boundaries from Center for Native Ecosystems, 2002*.
Notes: Acreages are rounded to nearest 100.

Relative to the total forest vegetation, high elevation vegetation types (barren lands, exposed rock and spruce-fir forests) together make up almost 25% of the total Pike-San Isabel. But those same cover types make up 48% of the vegetation protected as Wilderness or RNAs. Ponderosa pine is substantially under-represented, at less than 2% protected within Wilderness or RNAs, leaving ponderosa pine dependent species at more risk.

These statistics clearly show the bias toward high elevation ecosystems in protected areas of the Pike-San Isabel. To remedy this imbalance, the Wild Connections Plan includes almost all wilderness quality underrepresented vegetation types within roadless areas in the most protective designations, especially Wilderness.

2) Special Elements

Protecting areas based solely on ecosystem representation may not sufficiently ensure protection of rare species and unique ecosystems, also known as special elements. Therefore, a fine filter approach targets specifically identified special element locations for protection.

a) Species and Natural Communities

The biodiversity represented in rare species on the Pike-San Isabel includes nearly 1,000 documented occurrences of 148 different amphibians, birds, fish, mammals, insects, mollusks, natural communities and plants (CNHP, 2005). UASPP captured this biodiversity by using the following elements to evaluate the appropriate level of protection when deciding on management scenarios:

- Biological hotspots and general biodiversity are represented by Potential Conservation Areas (CNHP), Research Natural Areas, Areas of Critical Environmental Concern (BLM lands only), Colorado Natural Areas, Audubon’s Important Bird Areas, and The Nature Conservancy Preserves and their Conservation Blueprint areas of high and moderately high conservation value (The Nature Conservancy, 2001).
- Important wildlife areas such as calving and lambing areas.
- Selected natural communities (extreme rich fens and various riparian and wetlands communities), animal species of state rank 1 (which includes federally listed species), and state rank 2 that are candidate species and are tracked by CNHP in the Pike San Isabel (CNHP, 2005) shown in Table 2.2.

We limited our use of special elements to those within the Pike-San Isabel National Forest and the BLM lands in the Arkansas canyon. The many other special elements found on state or private lands are thus outside the purview of this document.

Table 2.2: Animal Species as Special Elements

Group	Common name	Scientific Name	ESA Status	Colorado Protected Status	Global Rank	State Rank	Federal Sensitive
Amphibians	Boreal Toad	<i>Bufo boreas pop. 1</i>	Candidate	Endangered	G4, T1, Q	S1	USFS
Insects	Pawnee Montane Skipper	<i>Hesperia leonardus montana</i>	Threatened	--	G4, T1	S1	--
Mammals	Common Hog-nosed Skunk	<i>Conepatus leuconotus</i>	--	--	G4	S1	USFS
Mammals	Lynx	<i>Lynx canadensis</i>	Threatened	Endangered	G5	S1	--

Group	Common name	Scientific Name	ESA Status	Colorado Protected Status	Global Rank	State Rank	Federal Sensitive
Mammals	Preble's Meadow Jumping Mouse	<i>Zapus hudsonius preblei</i>	Threatened	Threatened	G5, T2	S1	--
Mammals	Wolverine	<i>Gulo gulo</i>	--	Endangered	G4	S1	USFS
Birds	American White Pelican	<i>Pelecanus erythrorhynchos</i>	--	--	G3	S1B	BLM
Birds	Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	--	--	G4, T3	S1B	BLM
Birds	Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	Threatened	G5	S1B S3N	--
Birds	Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Threatened	Threatened	G3T3	S1B SUN	--
Fish	Greenback cutthroat trout*	<i>Oncorhynchus clarki stomias</i>	Threatened	Threatened	G4, T2, T3	S2	--
Mammals	Townsend's Big-Eared Bat <i>Subsp</i>	<i>Plecotus townsendii pallescens</i>	--	Candidate	G4, T4	S2	BLM USFS
Birds	American Peregrine Falcon	<i>Falco peregrinus anatum</i>	--	Candidate	G4, T3	S2B	USFS
Birds	Mountain Plover	<i>Charadrius montanus</i>	--	Candidate	G2	S2B	BLM USFS

* Also a focal species

b) Roadless Areas

Roadless areas are *the most important special element* used in the development of this Wild Connections Conservation Plan. As roads severely fragment habitat and have many associated adverse ecological impacts, protecting remaining roadless areas is a major component in Wild Connections. Roadless areas are less accessible for intensive human activities and offer some of the best opportunities for conservation and restoration on the Pike-San Isabel National Forest.

Scale, both spatial and temporal, must be considered in conservation projects. The preservation or restoration of native species, especially wide ranging animals, and natural disturbance regimes requires quality habitat over large areas and a time frame of hundreds or more years. Scott et al. discuss the question of scale and conclude “The job of conserving biodiversity requires broadening the scope of temporal and spatial considerations beyond the traditional focus of resource management. If the goal is preservation of existing biota and its long-term evolutionary potential, this broad-scale, long term framework is absolutely essential” (Scott et al., 1999). Thus the large roadless areas of wilderness quality, as well as smaller areas contiguous with existing Wilderness, are the backbone of the Wild Connections Conservation Plan.

UASPP inventoried more than 100 roadless areas on Pike-San Isabel, BLM, or state land over the past ten years to supplement and expand the agency data from the RARE II and the Roadless Area Conservation Rule. “Roadless area” in this context refers to the UASPP citizen inventories, which in general found the actual roadless boundary to be larger than either the RARE II or Roadless Area Conservation Rule boundaries (UASPP, 2005). In addition, there are nine designated Wildernesses,

some of which extend into adjacent forests. Table 2.3 shows a breakdown of Pike-San Isabel Roadless Areas by size. The substantial body of research cited earlier reveals a tremendous potential for preventing further fragmentation and loss of habitat by protecting these areas.

Table 2.3: Roadless Areas on the Pike-San Isabel National Forest

Type	Number	Size Range (acres)	Total Acres
Roadless areas - very large	4	30,000 to 67,000	180,200
Roadless areas - large	19	15,000 to 30,000	364,000
Roadless areas - small	37	5,000 to 15,000	343,200
Roadless areas - very small	26	Less than 5,000	79,600
Total outside Wilderness	86		967,000
Wilderness	9	19,000 to 253,300*	445,600
Total RA and Wilderness	95		1,412,600

Notes: Acres for roadless areas may include private inholdings.

** Acres for Wilderness includes designated, not proposed, land in the Pike-San Isabel National Forests only.*

Specific recommendations have been made for roadless areas that are of wilderness quality and meet the USFS criteria for capability, availability, and suitability. Given the conservation potential and value of roadless areas, Wild Connections recommends:

- 1) adding contiguous roadless areas to existing Wilderness areas to protect larger blocks of habitat;
- 2) designating roadless areas between existing Wildernesses as Wilderness to increase the amount of protected land and minimize distances between blocks of protected habitat;
- 3) designating lower-elevation roadless areas as Wilderness to protect additional and more productive native ecosystem types.

More details on these areas are found in the complex narratives, Chapter 5.

c) Connectivity and Special Wildlife Areas

In spite of large areas of wild, unroaded land on the Pike and San Isabel National Forest, none of the roadless areas are individually large enough or encompass enough variety of habitats to serve as stand-alone refuges for larger wide-ranging species. Therefore, maintaining suitable connectivity between large core areas is required to allow animals to disperse from their natal areas, migrate between adjacent areas, and move seasonally among various areas used for birthing, summer, and winter ranges. Where large core areas are not contiguous or closely adjacent, the WCCP proposes connecting habitat to facilitate wildlife movement.

3) Focal Species

The third component of the three-track framework addresses the habitat needs of focal species. The requirements of focal species for survival and ecological effectiveness represent factors that are important to maintaining ecologically healthy conditions (Miller et al., 1998). These requirements were used to identify, configure and protect wildland reserves.

Focal species represent various roles in the ecosystem:

- **Ecologically interactive species, keystone and foundation species**, enrich ecosystem function in various interactions, such as predation, competition, mutualism, and habitat modification (Menge et al. 1994, Power et al. 1996, Jeo et al. 2000 and Soulé et al., 2005). Either keystone species or foundation species have a disproportionate influence beyond their

numbers. For example, some keystone species, such as the beaver, shape ecosystems into a mosaic of habitats that provide for greater diversity (Naiman et al., 1988).

Large predators are important to maintain ecosystem structure, diversity and resilience through the top-down effects of their predation (SREP, 2003, Soulé et al. 2005). Soulé et al. observe that current conservation laws, including the Endangered Species Act, generally deal with individual species in isolation from the larger interrelationships of interactive species. They propose that “that population densities of strongly interactive species must not be permitted to fall below thresholds for ecological effectiveness, and that the geographic ranges of such species should be as large as possible” (Id.).

- **Umbrella species** are those whose diverse habitat needs represent the needs of many other species. An example of an umbrella species on the Pike-San Isabel is the black bear whose optimum terrain includes subalpine coniferous forests, subalpine aspen forests, upper and lower montane closed coniferous forests, and adjacent shrublands and grasslands (SREP, 2003).
- **Indicator species** are “tightly linked to specific biological elements, processes, or qualities, and are sensitive to ecological changes” (SREP, 2003). Thus, they serve as indicators of ecosystem health and early warning systems of environmental shifts (Id.). The greenback cutthroat trout (*Oncorhynchus clarki stomias*) is an example of an indicator species for the Pike-San Isabel as they are closely tied to high quality cold mountain streams.
- **Wilderness quality species** often have large home territories, with a preference for wild areas, and/or are especially sensitive to human activity or persecution. Black bear, lynx, and bighorn sheep fulfill this role.
- **Flagship species** are charismatic animals that serve a valid ecosystem function but are also important for directing public attention toward the need for conservation. Lynx are a good example of a flagship species.

Top-level carnivores are particularly important to use as focal species for conservation because they are generally highly interactive and their far-ranging and diverse habitat needs often encompass those of numerous other species. In addition, large predators have fundamental roles in sustaining the natural balance of ecosystems via “top-down regulation” (Soulé and Terborgh, 1999, Miller et al., 2001). Many studies have shown that ecosystems are incomplete in both form and function without large predators (Soulé and Noss, 1998, Terborgh et al., 1999, Estes et al., 2001, Miller et al., 2001). For example, without natural predators like the wolf, ungulate numbers in some areas have increased until they cause significant damage to vegetation (Rocky Mountain Elk Foundation 2005, Berger et al., 2001). This imbalance often results in negative impacts on other species; for example, an overabundance of elk is detrimental to cottonwood and willow growth which in turn affects beavers (Ripple and Beschta, 2003, Ripple and Larson, 2000).

Wild Connections has selected large carnivores such as the lynx and gray wolf as focal species because of their potential role in maintaining ecological integrity in the Pike-San Isabel, as well as representing the requirements of numerous species for survival. We are also interested in mountain lion and bobcat for their predatory function and beaver and prairie dogs for their keystone roles, but have not done any analysis of these species.

WCCP Focal Species Selection and Analysis

The following were selected as focal species. Unless otherwise noted, the descriptions draw heavily on the *Southern Rockies Wildlands Network Vision* focal species accounts (SREP, 2003). Their application to the WCCP utilized data and modeling from the Colorado Division of Wildlife, the *Southern Rockies Wildlands Network Vision* (SREP, 2003) and *Linking Colorado’s Landscapes*

species modeling and expert workshops (SREP, 2005). See Tables 2.4 and 2.5 for specific data sources.

- 1. Bighorn sheep (*Ovis canadensis*)** are wilderness quality and flagship species that were used to identify wilderness areas and connectivity between lambing areas and summer and winter ranges. They prefer steep-sloped, rugged terrain and high-visibility habitats dominated by grasses and low shrubs. Escape terrain of slopes between 25-85 degrees with rock outcroppings is optimal. They are prey for large carnivores, including mountain lion, bears and wolves. Bighorn are susceptible to domestic sheep diseases which mandates domestic sheep grazing restrictions. There is only moderate dispersal to non-occupied habitat patches, and migration is seasonal between several different ranges. As occupants of rugged mountain terrain who are mostly intolerant of human activities, they are charismatic indicators of wild habitat.
- 2. Black bear (*Ursus americanus*)** is both a wilderness quality and umbrella species that was used to identify large wild areas of closed forest and woodland habitat in the WCCP. Black bears are common and widely distributed in subalpine coniferous forests, subalpine aspen forests, upper and lower montane closed coniferous forests, and adjacent shrublands and grasslands. They require large areas of suitable habitat and safe, densely forested linkages. Other important habitat needs include: hard or soft mast foods in fall, adequate spring and summer feeding areas, movement corridors, winter denning habitat, and escape cover. Usually solitary, they hibernate from mid-October to April. Ranges are large, with home ranges up to 24 km², and when long range movements are factored in, they may move over 3,000 km². Dispersal and migration needs are relatively minimal except for seasonal movements for food sources. They generally avoid roads and are wary of human beings.
- 3. Canada lynx (*Lynx canadensis*)** serves as a wilderness quality, umbrella and flagship focal species. Requiring large expanses of high-elevation boreal forest, they identify good wilderness quality land in higher elevations and exhibit the top down predation dynamic for the WCCP. Although there is little historical data for lynx in the Pike-San Isabel, there is current data that attest to significant denning and winter forage habitat, connecting linkage areas (USDA Forest Service 2004, SREP, 2005), as well as the presence of dispersing animals from the reintroduction in the San Juan mountains. Satellite locations from 43 different lynx are found across the Pike-San Isabel, with notable clusters near Guanella Pass, in the northern Mosquito Range, along the Sawatch Range, and around Spanish Peaks (Shenk, 2005). Ideal habitat is old growth in which natural disturbance regimes have resulted in continuous forest stands of varying ages with low topographic relief. Late successional/old growth forests provide denning sites and hiding cover, along with habitat for a very important secondary prey species, red squirrel, while early successional areas support high prey densities and foraging areas for their chief prey of snowshoe hare. They require connectivity for dispersal for meta-population health and may move long distances if prey is scarce. Roads and snowmobile routes provide easy winter access for competing carnivores such as coyotes.
- 4. Gray wolf (*Canis lupus*)** is a strongly interactive keystone, umbrella and flagship focal species, currently extirpated throughout Colorado. Wolves were used in the WCCP to ensure that the best habitat for future recolonization or reintroduction of this species is protected. The vitally important predator role of wolves in maintaining a healthy balance of prey species and regulating the top-down cascade of effects through trophic levels is well established in the literature. The most cogent recent studies from Yellowstone National Park attest to the change in behavior of elk and coyotes in response to wolves, and the resulting regeneration of willows and cottonwoods (formerly overgrazed by elk) which has allowed the return of beavers (Ripple and Beschta, 2003).

While the gray wolf is not currently present in the Pike-San Isabel, it may return naturally in the future, and portions of the San Isabel have been identified as secondary habitat and connecting habitat between prime reintroduction sites for wolves in western Colorado and northern New Mexico. Wolves require large areas for population persistence, and must exist in sufficient numbers over time to exert their ecological function of top-down regulation. Primarily dependent on ungulate prey, such as elk and deer, their return will help restore and maintain a healthy balance between prey and predator species. Their large range requirements and ability to travel long distances is attested to by the radio-collared Yellowstone wolf killed on I-70 near Idaho Springs, Colorado, in 2004, hundreds of miles from where it was known to reside. In addition, the core refuges for wolves in southern Colorado are smaller than those of the greater Yellowstone ecosystem, so maintaining connectivity among them is particularly critical (Carroll et al., 2003). The Colorado Division of Wildlife is facilitating a wolf working group to establish a plan for these various contingencies. Future wolf populations, whether in the Pike-San Isabel or elsewhere, will contribute to a larger meta-population from the Northern Rockies to the southwest forest of Arizona and New Mexico.

5. **Greenback cutthroat trout** (*Oncorhynchus clarki stomias*) a habitat quality indicator and flagship species, was used in the WCCP to identify remaining high quality streams. The greenback cutthroat trout was declared the State Fish of Colorado in 1994. Once widespread in the Arkansas and South Platte watershed, populations are now reduced to where only 0.7% of the historical range is occupied by strong or conservation populations. Furthermore, 75% of those populations are found within roadless areas, indicating the importance of roadless areas for the survival of these native trout (Western Native Trout Campaign, 2001). Optimum habitat is cold, well oxygenated waters; stable temperature regime; a pool to riffle ratio of 1:1; some areas of deep, low-velocity water; rocky substrate free of fine sediments, and well-vegetated stream banks. This high water quality is most readily found away from roads and their associated impacts. Greenback cutthroats are vulnerable to human uses which degrade water quality, such as livestock grazing, roads, water diversion, mineral development, and timber harvest as well as unregulated angling. Non-native stocking has been a particular issue, resulting in hybridization and competition with introduced rainbow, brown and brook trout, and possible introduction of whirling disease.
6. **Mule deer** (*Odocoileus hemionus*) are also an umbrella for other species and were used to identify general wildlife habitat connectivity between winter and summer concentration areas and ranges, as well as problem areas such as road crossings. They are a prey base for large predators. Common across the Pike-San Isabel in suitable habitat, they prefer open areas for feeding on a great variety of food sources such as leaves, twigs, lower branches of trees, and various grasses, and forested or shrubby areas for hiding cover and thermal protection. In Colorado, chronic wasting disease may be spreading into deer herds.
7. **Pronghorn** (*Antilocapra americana*) are a flagship species. Pronghorn are found in intermountain valley shrub and grassland habitats, as well as more broadly on the eastern plains. Although not a forest species, the pronghorn were used to identify wildlife habitat and connectivity across the broader area of the two watersheds. Grassland habitats provide good forage, and pronghorn seem to thrive on sub-climax rangelands maintained by fire and seasonal grazing by elk. It is not unusual to see elk and pronghorn in adjacent groups in the winter in the Wet Mountain valley. While they are constantly on the move, their overall movements are seasonal, varying with weather and rangeland conditions, and they do not migrate over long distances if there is sufficient quality forage. They too are a prey species for large carnivores, such as mountain lions, and depend on eyesight and speed to escape predators. They are

particularly vulnerable to fences, which they will not jump, to dense vegetation which impedes their line of view, and to human encroachments.

8. **Rocky Mountain elk** (*Cervus elaphus*) are an umbrella for many other species found in both forested and non-forested areas. Elk were used to identify general wildlife habitat of low road density; connectivity between calving grounds, winter and summer ranges; and areas of special concern such as road crossings. Prior to the 1800s, elk ranged from southern Arizona and New Mexico to mid Alberta and British Columbia. By 1900 in Colorado, they were nearly hunted out, later to be restored with elk from Wyoming. By 2002, the population was estimated to be approximately 300,000, and in some areas, for example Rocky Mountain National Park, it is at or above carrying capacity. Optimum habitat conditions include a landscape integrity represented by low road densities, with secure, sun-exposed low-elevation wintering areas, and a variety of ecological zones and vegetation types. Forage consists of grass, woody plants and forbs. Low hanging aspen braches are clipped off from below and trunks show teeth marks as the animals feed on the bark in hard winters. They are a prey species for bears, mountain lions, coyotes and wolves

Rewilding, A Complementary Approach

Protection of biodiversity has always been a primary concern for conservation. More recently the complementary goal of rewilding has become an important part of large scale conservation strategies (Soulé and Noss., 1998, Foreman, 2004). The key features of rewilding are:

- large, strictly protected core reserves
- connectivity
- keystone species

Soulé and Noss go on to discuss the scientific arguments that support rewilding and justify emphasis on large predators as keystone species:

First the structure, resilience, and diversity of ecosystems are often maintained by “top-down” ecological (trophic) interactions that are initiated by top predators. Second, wide-ranging predators usually require large cores of protected landscape for secure foraging, seasonal movements, and other needs; they justify bigness. Third, connectivity is also required because core reserves are typically not large enough in most regions; they must be linked to insure long-term viability of wide-ranging species (Soulé and Noss, 1998).

Rewilding is described by Foreman as a “landmark for the wilderness conservation movement as well as for those primarily concerned with protecting biological diversity. Soulé and others have crafted the *scientific basis* for the need to protect and restore big wilderness-area complexes” (Foreman, 2004).

Application of a rewilding strategy will vary depending on the remaining natural lands or lands that can be restored to a more natural condition. The Pike-San Isabel has extensive areas that fit this definition, and has habitat suitable for lynx, bears, mountain lions, and secondary habitat for wolves.

Data Sources Used in Designing the Wild Connections Conservation Plan

Information from a variety of sources was used to create the Wild Connections Conservation Plan. UASPP’s roadless area inventories, regional workshops, and expert reviews provided essential field knowledge and citizen input in the development of this conservation plan.

In addition to the information compiled from these experts and citizens, Table 2.4 lists data sources as they relate to the three-track approach, and Table 2.5 lists these data sources relative to each of the management themes. Taken together, these data sources defined the need for the various forest uses and activities, and guided the Wild Connections team in determining boundaries for the management themes.

Table 2.4: Data Sources Used Respective to the Three-track Approach

Track	Data Layer	Source
Ecosystem Representation	Colorado GAP vegetation Pike-San Isabel RIS Vegetation Elevation	Colorado GAP Project USDA Forest Service October 1998 USGS National Elevation Dataset
Special Elements	Roadless Areas	Roadless Area Inventory - UASPP
	Biodiversity hotspots: Potential Conservation Areas Research Natural Areas Areas of Critical Environmental Concern Colorado Natural Areas Important Bird Areas The Nature Conservancy Preserves and Conservation Blueprint	CNHP USFS, CNE BLM CNAP Audubon Society TNC
	Rare, threatened and endangered species and communities, including State critically imperiled (S1) ranked, ESA listed, Forest Service and BLM sensitive species.	CNHP
	Wildlife linkages and important sites for wildlife: known and modeled movement linkage, lambing, calving, fawning, etc.)	CDOW species data SREP Linking Colorado's Landscapes 2005
Focal Species	Greenback cutthroat trout	CDOW, SREP 2005, Western Trout Native Trout Campaign 2001
	Canada lynx	USFS 2004, SREP 2003 and 2005, CDOW.
	Gray wolf	SREP 2003 and 2005
	Black bear	CDOW, SREP 2003 and 2005
	Bighorn sheep	CDOW, SREP 2005
	Mule deer	CDOW
	Pronghorn	CDOW, SREP 2003 and 2005
	Rocky Mountain elk	CDOW, SREP 2003 and 2005

CDOW refers to the Colorado Division of Wildlife data available on the Natural Diversity Information Source web site.

SREP 2003 refers to the Southern Rockies Ecosystem Project's "Wildlands Vision," Miller et al, 2003

SREP 2005 refers to the Southern Rockies Ecosystem Project's "Linking Colorado Landscapes," SREP, 2005

Table 2.5: Data Sources Used Respective to Each Management Theme

Management Theme	Data Layer	Source
1.1 – Existing Wilderness	CO_Wilderness	NDIS
1.2 – Recommended Wilderness	Roadless Areas Wildlife data	Roadless Area Inventory (UASPP) CDOW, SREP 2003 and 2005
1.3 – Core Reserve	Roadless Areas Wildlife data	Roadless Area Inventory (UASPP) CDOW, SREP 2003 and 2005
2.1 – Research Natural Areas: Existing and Proposed	Existing USFS, Pike-San Isabel long and short list Citizens' recommendations	USFS CNE
2.2 – Experimental Forests	Current designated Experimental Forests	Pike-San Isabel LRMP (84).
2.3 – Eligible Wild, Scenic and Recreational Rivers	River corridor with eligible segments	Supplemental Wild and Scenic River Study Report and Draft Legislative EIS. USDA Forest Service 1999

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Management Theme	Data Layer	Source
2.4 – Special Areas: Minimal or Interpretive Use	Existing USFS, Pike-San Isabel long and short list Citizens’ recommendations	USFS CNE
3.1– Quiet Use Areas	Roadless Areas Routes – low density Elk, deer, bighorn sheep, pronghorn movements, lynx habitat Elk, bighorn sheep, black bear, wolf, lynx modeling/expert opinion	Roadless Area Inventory (UASPP) + Pike-San Isabel routes (UASPP & USFS) Wildlife movement data CDOW, SREP 2005 USFS 2004
3.2 – Connectivity Areas	Roadless Areas Routes – medium density Elk, deer, bighorn sheep, pronghorn movements, lynx habitat Elk, bighorn sheep, black bear, wolf, lynx modeling/expert opinion	Roadless Area Inventory (UASPP) + Pike-San Isabel routes (UASPP & USFS) Wildlife movement data CDOW, SREP 2005 USFS 2004
4.1 – Motorized Recreation Areas	Current heavy use areas	USFS travel routes, ROS, Pike-San Isabel LRMP (84). Roadless Area Inventory (UASPP)
4.2 – Scenic Byways	Current designated byways	http://www.coloradobyways.org/Main.cfm
5.1 – Active Management for Wildlife Habitat	Wildlife data Routes – medium to high density	CDOW Roadless Area Inventory (UASPP) + Pike-San Isabel routes (UASPP & USFS)
5.2 – Active Management for Human Needs	Wildlife data Routes – medium to high density	CDOW Roadless Area Inventory (UASPP) + Pike-San Isabel routes (UASPP & USFS)
8.1 – Ski Based Resorts	Existing ski area developments	USFS -Pike-San Isabel LRMP (84).
8.2 – Permanently Developed Recreation Areas	Major campgrounds adjacent to water bodies	USFS -Pike-San Isabel LRMP (84).
9.1 – Non-Forest Service Recommended for Wilderness	Roadless Areas Wilderness Study Areas	Roadless Area Inventory (UASPP) BLM
9.2 – Significant Non-Forest Service Biological Areas	Land ownership State Wildlife Areas	NDIS NDIS
9.3 – Non-Forest Service Connectivity Areas	Roadless Areas Routes – medium density Elk, deer, bighorn sheep, pronghorn movements, lynx habitat Elk, bighorn sheep, black bear, wolf, lynx modeling/expert opinion	Roadless Area Inventory (UASPP) + Pike-San Isabel routes (UASPP & USFS) Wildlife movement data CDOW, SREP 2005 USFS 2004

CDOW refers to the Colorado Division of Wildlife data available on the Natural Diversity Information Source web site.

SREP 2003 refers to the Southern Rockies Ecosystem Project’s “Wildlands Vision,” Miller et al, 2003

SREP 2005 refers to the Southern Rockies Ecosystem Project’s “Linking Colorado Landscapes,” SREP, 2005

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Chapter 3 – Forest-Wide Management Recommendations

This chapter contains over-arching management guidance, compatible with conservation principles, for general issues that are prevalent across the entire Pike-San Isabel National Forest, irrespective of theme or location. For example, invasive species, fire management and land tenure are a few of the issues addressed. This chapter is divided into four main sections according to type of management use and direction. Detailed, area-by-area management recommendations and justifications will be described in Chapter 5 within the complex narratives.

General Forest Management Recommendations

Roadless Areas Inventory and Protection

Historical Background

In the late 1970s, development on National Forest lands was accelerating at an alarming rate, prompting Congress to direct the Forest Service to survey its lands and evaluate them for wilderness character. As part of these evaluations (known as the Roadless Area Review and Evaluation or RARE I and RARE II), the Forest Service identified all areas larger than 5,000 acres that remained free from roads. These areas are officially named Inventoried Roadless Areas (IRAs). IRAs had a special classification and management structure within Forest Plans, although the management still remained at the forest level.

In the late 1990s, the Clinton administration initiated a federal rulemaking process with the intent to resolve the continual controversy over how these areas should be managed. This turned out to be the most extensive public process in the history of federal rulemaking. Over the next few years, approximately 1.6 million comments, the most comments ever received on a proposed federal rule, were submitted. More than 90% of those comments were in favor of roadless area protection. Therefore, the administration published the Roadless Area Conservation Rule (RACR) in January of 2001. The rule put a stop to almost all road building associated with commercial logging, coal, gas, and other mineral leasing nation-wide, including approximately 667,000 acres within the Pike-San Isabel National Forest.

In May of 2005, the Bush administration formally repealed the 2001 Roadless Rule, and replaced it with a process requiring governors to petition the Department of Agriculture in order to seek protections for roadless areas. Under the new rule, governors have to submit a petition requesting specifically which, and to what extent, roadless areas should be protected in their state. These petitions must be submitted by November, 2006. Once governors have submitted a petition, there is no guarantee that it will be granted, as it must go through another review by a national task force. The Department of Agriculture may choose to accept, modify, or outright reject a state's petition.

In Colorado, Senate Bill 05-243 created the Colorado Roadless Areas Review Task Force. The Task Force is a bi-partisan committee comprised of 13 members who will, through a public process and with expert testimony, submit recommendations to Governor Owens regarding how Inventoried Roadless Areas should be managed in Colorado.

Further, at the time of publication of this document, there are bills circulating in Congress that would create a uniform, national law regarding the management of IRAs, as well as several lawsuits challenging the validity of the 2005 repeal of the Roadless Area Conservation Rule.

The Wild Connections Recommendation for IRA Management

Given the critical role roadless areas play in ecosystem sustainability, and given that they are the most important special element utilized within this plan (see Chapter 2 – Methodology), and given the many variables with the status of IRAs described above, we recommend that the Pike-San Isabel adhere to the 2001 Roadless Area Conservation Rule until the management guidance for IRAs is settled. Further, UASPP recommends that the Pike-San Isabel also include the 16 additional roadless areas our inventory has determined to be eligible for roadless status. Finally, due to our strict field-inventory protocols, we recommend the Pike-San Isabel utilize our roadless area boundaries for currently designated IRAs. For additional comparisons, details and references, refer to Appendix C. For mapping protocols and policies, refer to the bibliography, *SRFN Manual*.

Significant Routes

UASPP has identified travel corridors, both motorized and mechanized, which are adjacent or are cherrystemmed into Theme 1 areas. These travel corridors have been determined by our planning team to be “Significant Routes.” These roads and travelways range from Forest Service system roads and trails, to state and federal highways. Although not every Significant Route is under the direct authority of the Forest Service, these travel corridors will require on-going maintenance and future construction projects.

The intent is to recognize these permanent roads and travelways which have a direct and quantifiable impact on the surrounding lands intended for strict conservation protection. It is not the intention to prescribe management of the road or travelway itself, but rather to ensure future reconstruction or maintenance is conducted in an ecologically sensitive manner, and takes into account the management criteria of the adjacent lands.

Ecosystem Management Recommendations

Restoring Natural Disturbance Regimes, Fire Management

Forest plans are, at their core, about the relationships between landscapes and people. In any landscape, there are three situations with regard to people and fire. First, there are those situations where we never want fire because it has the potential to cause great damage to people and property. Areas near communities—the wildland-urban interface—are an example. Second, there are places where fire can be used as a tool for ecological restoration as well as reducing future major wildfires, but only under tightly-prescribed conditions. And third, there are places where fire poses little risk to people and resources, and natural fires can actually help achieve management objectives. Wilderness areas, most roadless areas, and other remote lands are examples of the third category. The Pike-San Isabel forest plan must be developed to use natural fire wherever possible to achieve management objectives, whether these are social or ecological goals.

Fire Management on the Pike-San Isabel National Forest

The landscape of the Pike-San Isabel National Forest has been shaped by fire for millennia. Major vegetation types, including piñon-juniper, ponderosa pine, lodgepole pine, Douglas-fir, and shrub-grassland, are well known to have evolved with adaptations to fire. Indeed, fire is such an important force in the ecosystems of Colorado that forests and fire cannot be isolated from each other. Consequently, forest management and fire management must be seen as inextricably linked, and forest plans must include direction for preparing and revising fire plans for the forest.

The following recommendations² provide the foundation for a sound Pike-San Isabel policy on fire management, taking into account the imperative of protecting lives and homes from wildland fire and the important ecological role of fire in shaping and maintaining landscapes.

Protect Life and Property – To prevent loss of lives and homes, Pike-San Isabel fire policies must first prioritize creating and maintaining defensible space around communities in the wildland-urban interface. It is only within the wildland-urban interface that appropriate thinning can help reduce the risk to lives and homes from wildland fire. Where fire poses a direct, immediate threat to communities, aggressive suppression is appropriate. The Pike-San Isabel should work collaboratively with communities adjacent to Forest Service land to prepare community wildfire protection plans that will prioritize and help implement cross-jurisdictional risk reduction projects in the wildland-urban interface. Further, it is important to note that due to exurban sprawl, the wildland-urban interface zone is increasing annually.

Restore Ecological Health— Fuel reduction efforts should focus on the use of prescribed fire to restore natural fire cycles where it can be accomplished without substantial risk of unnaturally high intensity fire. In many cases, careful thinning of smaller trees and underbrush followed by mechanical treatment or selective burning of slash within lower elevation ponderosa pine, Gambel oak, and piñon-juniper may be required as a first step before reintroducing fire. In contrast, commercial logging of bigger, older trees or logging within aspen, lodgepole pine, or spruce-fir forest types for fire-risk reduction cannot be justified scientifically.

- **Fuels reduction, fire risk reduction and restoration treatments should not occur in aspen, lodgepole pine, or spruce-fir forest types beyond the Wildland Urban Interface** – Beyond the area immediately surrounding homes and communities, fuels reduction should be targeted to vegetative types that are outside their historic range of variability. Aspen, lodgepole pine, and spruce-fir forest types in the Southern Rockies are not currently outside of the range of natural variability; treatment efforts targeting these forest types would be a waste of resources and might do more harm than good, e. g., by adding fine fuels and increasing evaporation under a thinner canopy, thus increasing the ignition risk. There is little scientific evidence that reducing fuels in these forest types beyond the home ignition zone actually protects communities, though in rare circumstances it may help firefighters keep fire from reaching structures. Thus, such projects should only be considered in very limited circumstances (such as down slope and upwind from a community where defensible space in the home ignition zone has already been created). In such circumstances, selective thinning should be the preferred treatment used in order to reduce density of trees and, therefore, fire intensity. In all other circumstances, fires should generally be allowed to burn in these ecotypes where it can be done safely.
- **Prioritize Restoration Work** – To maximize the effectiveness of limited federal funds, restoration must be focused on the places where it is needed most. Throughout the West, the forests that are most in need of restoration are those immediately adjacent to communities, often at the base of adjacent mountain ranges. These dry, low-elevation forests of ponderosa pine, Douglas-fir, piñon-juniper, and Gambel oak have been the most altered by fire exclusion, and are the most in need of thinning to restore a fire-tolerant forest structure. Constraining the restoration zone to the area within a few miles of communities will focus

² A multi-year collaborative planning effort, *The Front Range Fuels Treatment Partnership (FRFTP) Roundtable*, is now underway to propose prioritized, comprehensive fire management transcending jurisdictional boundaries, taking into account socio-economic, political and environmental concerns. UASPP is engaged in this process, along with the Pike-San Isabel Forest Supervisor and The Wilderness Society. Therefore, general management criteria are proposed below, with additional recommendations being prepared through the Roundtable process. The initial Roundtable Report was released in May 2006.

restoration efforts where they will yield the greatest benefit. In areas with no nearby noxious weeds, both passive and active restoration techniques should be utilized, allowing natural processes of plant recolonization as much as possible or use of local genetic plant materials.

- ***Let Fire Perform Its Role Where and When It Can Be Done Safely*** – Where human lives and property are not at stake, fire suppression should be undertaken only when fire threatens critical or rare components of ecosystems (such as old growth forest and endangered species habitat) while these elements are being restored to healthy levels. The Pike-San Isabel should not base fire suppression policy and guidance based on management theme. For example, instigating suppression activities in all Theme 5 areas regardless of forest type, natural fire regime, or proximity to communities and rare ecosystem components would not be a diligent approach to ecosystem management. Such a policy can result in ecological harm by preventing cyclical fires, which regenerate fire-adapted forests, from occurring. In addition, such a policy would unnecessarily divert limited resources (money and personnel) from critical community protection work in the wildland-urban interface. To summarize, the decision to suppress fire should be made on the grounds of human life and home protection, rare ecosystem component protection, and historic range of variability, not general management themes. To more effectively address wildland fire, the Pike-San Isabel should establish zones for fire response that transcend management prescriptions. These zones should clearly articulate where and under what circumstances natural ignitions may be managed for resource benefit and conversely state comprehensively and definitively where and under what terms Fire Use (including areas for suppression, containment/confinement, and burning within acceptable limits) would be ruled out.
- ***Treat Mainly Smaller-Diameter Trees*** – In lower-elevation, fire-evolved forest types such as piñon-juniper or ponderosa pine, we support vegetation "treatments" (such as prescribed fire and appropriate thinning) where fire suppression or other activities (e.g., grazing, high-grade logging) have allowed stand densities to increase to levels above those that likely existed under natural or pre-European settlement era conditions. Such restoration treatments should preserve all pre-settlement trees and maintain or restore the natural forest composition and structure. As the Forest Service notes, "The removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk. Fire ecologists note that large trees are insurance for the future—they are critical to ecosystem resilience. Targeting smaller trees and leaving both large trees and snags standing addresses the core of the fuels problem" (Forest Service's Report to the President, 2000). Treatment should thus focus on trees that exist only because of fire suppression.
- ***Keep Roadless Areas Roadless*** – Roadless areas are critical wildlands, and are generally healthier ecosystems than logged areas. Forest Service studies have found that roadless areas account for a very small percentage of the total forest acreage at risk of unnaturally intense crown fire. "Moreover, the Forest Service [sh]ould prioritize efforts to reduce fuels in areas that have already been roaded because these areas tend to be much closer to communities and have higher fire risks" (Forest Service's Report to the President, 2000). The WCCP opposes logging in roadless areas, except in instances where these areas directly abut an occupied property, making the creation of defensible space in the home ignition zone (up to 40 meters from a structure) a priority. Beyond the home ignition zone, logging in roadless areas would not significantly reduce the risk of fire adversely affecting humans and their properties. Furthermore it would compromise the roadless area's ecosystem value and could increase fire ignition risk by creating fuels that would dry out in the opened forest. Any fuel reduction projects should also avoid construction of new permanent roads.

Invasive Plant Species Management

Dale Bosworth, Chief of the US Forest Service has identified invasive species as one of the four significant threats to our Nation's forest and rangeland ecosystems. Native plant species usually do not compete well with invasive plants for nutrients, sunlight and water. As a result, our biologically diverse mountain meadows, grasslands, and wetlands are in danger of being overrun by non-native, invasive weeds (Bliss, 2004). Noxious weeds become established in soils disturbed by a variety of activities, including construction, motorized travel, logging, concentrated livestock grazing, and natural disturbances such as fire. Noxious weed seeds are transported to new sites in numerous ways such as by wind, water, vehicle tires, machinery, and people (e.g. via boot tread), as well as wild and domestic animals (Colorado Weed Management Association 2002).

Treatment

The 2005 Forest Service document Rocky Mountain Region Invasive Species Management Strategy (Rocky Mountain Region, USDA Forest Service, 2004) is a useful resource for weed management, and its "General Weed Prevention Practices for Site-disturbing Projects and Maintenance Programs" should be required management on the Pike-San Isabel, including the formulation of an assessment and treatment plan as follows:

- Identify the Forest's priority species and populations.
- Identify the Forest's priority monitoring and treatment areas.
- Create timetables for inventory and/or treatment of all roads on the Forest/Grassland unit.
- Unless otherwise negotiated, Levels 3, 4, and 5 roadways, and major system trails will be inventoried and treated on a three-year cycle. Level 1 and 2 roads will be on a five-year cycle. More frequent monitoring and treatment is needed; monitor, and treat if necessary, for weeds every year for at least three years after weeds are first found.
- Evaluate the adequacy of existing invasive species inventories.
- Identify and establish at least one Coordinated Weed Management Area per Forest/Grassland annually with local partners.
- Identify funding needed to implement the desired program of work and incorporate this need into program budget planning.
- Schedule validation monitoring of the action plan and summary of past three years' activities.

Prevention

Because invasive species are so difficult to eradicate once established, the following methods for prevention should be adopted:

1. To prevent introduction into new areas:
 - To the extent feasible, avoid new road and trail construction and major reconstruction forest-wide.
 - Especially avoid ground-disturbing activities in remote, uninfested areas.
 - Avoid new ground-disturbing uses in uninfested areas.
 - Restrict uses/prohibit modes of travel once first instance of infestation is found.
2. To prevent spread of existing weed polygons:
 - Plan travel management to minimize travel through known infested areas.
 - Implement an aggressive education campaign.
 - Establish boot and machine-washing stations.
 - Close areas to travel where control is not possible.

Invasive Plant Species and Fire

While wildfire is a natural and recurring event in Colorado's forest ecosystems, the natural fire ecology of our wildlands is seriously compounded by the increased presence of exotic weed invaders (McClure, 2002).

Before a fire, a healthy native plant community has good ground cover and litter in the soil. All niches are filled both above ground and in the root zone with a diverse mix of native plant species. But after severe fires, native plants are suppressed for a period of two to three years. Thus these areas provide ideal locations for establishment of non-native plants. And once they are established, these weeds can be extremely difficult to eradicate.

Consequently, post-fire management should focus on the highest burn severity areas, with special attention given to fire camps, dozer lines, and other areas impacted during the fire suppression period. A strategic program of early detection and timely treatment of weeds for years after the fire will provide the best defense against the rampant spread of new weeds in the burn area and adjacent areas. Proper management of domestic livestock and wildlife numbers in line with grazing capacities, preventing the buildup of dangerous woody debris, and an on-going program of early detection of exotic plants coupled with timely eradication to minimize weed seed sources, are examples of management practices that will minimize catastrophic weed invasions following fire (McClure, 2002).

The unprecedented Colorado wildfires of the early 2000's produced alarming consequences to human safety, wildlife habitat, water quality and much more. Perhaps less dramatic, but nevertheless detrimental are the long-term effects of the advancement of noxious weeds after large wildfires. Wildfire restoration areas will need special care to prevent this long-term degradation of our precious natural heritage.

Management Criteria for Riparian, Wetland & Aquatic Ecosystems

Riparian areas are the biological and physical link between terrestrial and aquatic ecosystems, and they are one of the most important habitats in the arid West. Ninety percent of wildlife species use riparian areas at some point in their life cycles. Riparian areas are of great importance for maintaining water quality and quantity, stabilizing stream banks, and providing habitat for fish and other wildlife. Colorado riparian areas are threatened by domestic livestock grazing, gravel mining, recreation and development, and their use as motor vehicle transportation corridors.

While riparian areas are unique, they should not be considered independently of uplands. Problematic upland watershed conditions often reduce the effectiveness of management in the riparian zone. To be managed effectively, the whole area adjacent to the riparian zone and the whole watershed outside the riparian zone should be considered. Management must provide an adequate cover and height of vegetation on the banks and overflow zones to promote natural stream functions such as sediment filtering, bank holding, flood energy dissipation, and aquifer recharge.

Healthy rivers are dependent upon a natural flow regime, i.e., one that varies in magnitude, frequency, duration, timing, and rate of change. Natural flows are critical because the flow of water provides the base on which all other river functions are built. The plants, fish, and wildlife in any given river have evolved to adapt to a natural river's unique rhythms.

A prime focus of aquatic management on the Pike-San Isabel should be preserving and restoring high quality habitat, particularly for species at risk. Aggressive monitoring of stream health and cleanup of

acid mine discharge will be necessary to accomplish this.

Riparian Management Guidelines

- In each stream capable of supporting a self-sustaining fishery, ensure that projects maintain sufficient habitat, including flow, for all life history stages of native and desired non-native aquatic species. In streams where reproduction does not occur but supports a recreational fishery, sufficient habitat will be maintained to ensure recreational values.
- Naturally occurring debris shall not be removed from stream channels unless it is a threat to life, property, important resource values, or is otherwise covered by legal agreement. Removal in designated Wilderness must consider wilderness values.
- Identify and secure future introduction areas for greenback cutthroat trout (*Oncorhynchus clarki stomias*).
- Prohibit introduction of non-native salmonids in existing and future greenback cutthroat trout habitat.
- Acquire rights to water for adequate instream flows and lake levels, and meet or exceed state, federal, and any local municipal water quality standards.
- Oppose new out-of-basin, trans-mountain diversion.
- Consult with state and other federal agencies prior to implementing any depletion to critical habitat.
- Ensure full compliance with the Clean Water Act.
- Monitor watershed conditions, instream flows, lake levels, and water quality to detect changes in aquatic habitat.
- Measure abundance and diversity of aquatic insect species on an ongoing basis.
- Ensure that temperature levels, dissolved oxygen, salinity, turbidity, hardness, acidity, and alkalinity (water pH) are all within a natural range for that river and its species. A healthy river will also have minimal amounts of toxic pollution, such as pesticides, nitrogen, phosphates, fecal coliform, and heavy metals.
- Ensure that any new mining permits require permanent protection of water quality from potential discharges. Continue systemic evaluation and cleanup of acid mine discharge including heavy metals.
- Limit or prohibit livestock grazing when aquatic resources fail to meet minimum riparian habitat guidelines. Aggressively employ Best Management Practices to minimize or prevent elevated sedimentation levels, especially in streams on the state of Colorado's 303 d list and Monitoring and Evaluation list.
- Prohibit gravel mining, or other extractive stream-bed activities.
- Educate the public about the importance of maintaining healthy aquatic systems.
- Cooperate with local municipal water providers using the Pike-San Isabel for its supplies in the development of Source Water Protection Plans. Incorporate prescriptions into the land management strategies for these source watersheds, i.e., retiring grazing allotments to protect municipal water quality.

Biological Sustainability Management

One of the most important functions of a national forest management plan is to ensure perpetuation of ecological characteristics and processes. Many species found on national forest lands have much of their remaining habitat there, and could not maintain ecologically effective populations if not for habitat on national forest land. This is particularly true for species having large home ranges, such as lynx, black bear, and wolverine, or requiring large areas of late successional habitat, such as goshawk and pine marten. Similarly, important ecological processes like fire need large areas of public land in

order to be able to play their ecological roles.

The National Forest Management Act requires plans to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area to meet overall multiple use objectives...” (16 USC 1604(g)(3)(B)).

Under the 2005 Planning Regulations, Forest Plans must “provide a framework to contribute to sustaining native ecological systems by providing ecological conditions to support diversity of native plant and animal species in the plan area.” (36 CFR 219.10(b)).

Specifically, plans should “establish a framework to provide the characteristics of ecosystem diversity in the plan area.” *Id.* at 219.10(b)(1). Also, plans must supply additional components as “needed to provide appropriate ecological conditions for specific threatened and endangered species, species-of-concern, and species-of-interest”. *Id.* at 219.10(b)(2). Such components are required under the Planning Directives at FSH 1909.12, section 43.25.

One of the primary goals of this Wild Connections Plan is to maintain habitat and ecologically effective populations for all native plant and animal species. An objective is to ensure maintenance of sufficient, connected, well-distributed habitat to attain, over time, ecologically effective populations for those wildlife and plant species most at risk of extinction from the planning area. Another objective is to increase the population number and distribution of wildlife and plant species with low populations and/or a consistent downward trend in the planning area.

All native species and processes are important to the functioning of healthy ecosystems. While it is important to provide plan components that address ecosystem sustainability at the landscape scale, such an approach is unlikely to ensure that plans contain adequate monitoring and protection for all important ecosystem parts, especially some individual plant and animal species. Thus selection of species-of-concern and species-of-interest is very important. Identification of these species and federally listed species for the species diversity evaluation is required by FSM 1921.73(b).

Species of Concern, Species of Interest

With the implementation of the final 2005 Planning Rule, the Forest Service will no longer be required to monitor Management Indicator Species (MIS) to ensure the viability of species populations that occur. Though the Forest Service may designate Species of Concern (SOC) and Species of Interest (SOI), the planning rule and directives provide few mechanisms for protecting, monitoring, or ensuring sufficient habitat for them. Even more important, the directives do not provide a substantive, scientifically sound methodology for how such species should be designated, nor do they fully require any species to be designated.

Species of Concern are defined as “species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act” (FSH 1909.12, section 43.22(b)). Species of Interest are defined as “species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives” (*Id.* at 43.22(c)).

The designation of a representative list of species as SOC/SOI is of critical concern and a vital component of employing responsible, ecologically sustainable management. Evaluation at the landscape-level, such as disturbance regimes, variability and vegetation composition, is certainly important. However, landscape scale evaluation does not provide sufficient fine-scale evaluation and

protection for plant and wildlife species. The plan must contain an adequately detailed set of species to help ensure the persistence of all key biological resources in the planning area.

Therefore, the Wild Connections Plan recommends the following methodology for section of Species of Concern and Species of Interest. The Wild Connections list of recommended species is detailed in Appendix J.

Selection of Species of Concern and Interest

Under the Directives (FSH 1909.12, section 43.22a), the responsible official may select species in the following categories as Species of Concern:

1. Species identified as candidate and proposed species under the Endangered Species Act.
2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
3. Intraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
4. Species that have been petitioned for Federal listing and for which a positive “90 day finding” has been made.
5. Species that have been recently delisted including species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary.

Under the Directives (Id. at section 43.22c), the responsible official may select species in the following categories as Species of Interest:

1. Species with ranks of S-1 and S-2 on the NatureServe ranking system.
2. State listed threatened and endangered species that are not within the criteria as species-of-concern.
3. Bird species on the US Fish and Wildlife Service Birds of Conservation Concern National Priority list.
4. Additional species that valid, existing information indicates are of regional or local conservation concern due to factors that may include significant threats to populations or habitat, declining trends in populations or habitat, rarity, or restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
5. Additional species that valid existing information indicates are of regional or local conservation concern due to factors that may include:
 - a. Significant threats to populations or habitat.
 - b. Declining trends in populations or habitat.
 - c. Rarity.
 - d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

These sources may contain numerous species for which there is little concern or public interest. The Responsible Official should consider the following factors when identifying Species of Interest. The presence of one or more factors would suggest, but not compel, that a species be included as a Species of Interest (FSH 1909.12, section 43.22(c)).

1. Species habitat or population has declined significantly in the plan area.
2. Species and its habitats are not well-distributed in the plan area.
3. Species population numbers are low in the plan area.
4. Species is dependent on a specialized and/or limited habitat in the plan area.
5. Species is subject to some imminent threat (for example, invasion of exotic species into habitat or disturbance due to road systems).

6. Species habitat or population is not generally secure within its range and NFS lands act as an important refuge.
7. Species is of public interest, including those species identified cooperatively with State Fish and Wildlife Agencies consistent with the Sikes Act.
8. Species is invasive.
9. Species poses a threat to ecosystem or species diversity.

In addition to these basic criteria listed above, the Wild Connections Plan recommends the Forest Service must consider the following in identifying and designation Species of Concern and Interest:

- Ensure that any species that might need or benefit from special management are selected as species-of-interest. This would help ensure that ecosystem and species diversity are fully supported by the revised plan. A broad range of species will also help the FS in interpreting its monitoring data.
- The proposed list should include species that indicate key habitat conditions (e.g., standing snags for the three-toed woodpecker).
- The proposed list should include species extirpated from parts of their historical range.

In some cases, it may be appropriate to designate one or more invasive species as Species of Concern. This would encourage the development and implementation of plan components to facilitate eradication of these species from the Pike-San Isabel. Designation would be most appropriate for invasive species that have recently been discovered to inhabit the planning area, are only found in a relatively small number of locations, or cover a small enough area so that significant progress toward eradication of the species can be made over the life of the plan.

Information Collection

In order to “understand potential threats and identify opportunities to manage those threats,” the responsible official can consider the following information:

1. Current taxonomy.
2. Distribution (including historic and current trends).
3. Abundance (including historic and current trends).
4. Demographics and population trend.
5. Diversity (phenotypic, genetic, and ecological).
6. Habitat requirements at appropriate spatial scales.
7. Habitat amount, distribution, and trends.
8. Ecological function.
9. Key biological interactions.
10. Limiting factors.
11. Risk factors including various human disturbances (trails, roads, dams).
12. Population effects resulting from hunting, fishing, and trapping and natural population fluctuations recommendations³.

This step emphasizes the collection and summarization of existing information, but one of the key points should be to identify critical information that is currently lacking. Collection of such information as feasible or appropriate through monitoring programs should be a high priority.

Assembling Groups of Species and Using Surrogate Species for Analysis

Given the large numbers of species that maybe selected as species of concern and interest, it may be impractical to evaluate the contributions made to ecological diversity by all of them. Thus it may be appropriate to group species for analysis purposes and use surrogates species to indicate the habitat

³ Point 12 does not appear in the 2006 version of the Directives.

needs and ecological functions of other species. However, such grouping and use of surrogates should be limited, as no species truly and completely indicates the needs and ecological functions of any other species. It would be easy, in the name of efficiency and convenience, to create large groups of various species, select a surrogate for each group, and then miss important ecological functions in the analysis because each group covered too many different species with a relatively broad range of functions that were not well represented by the surrogate.

Plan Components for Species of Concern and Interest

As stated above, focusing only on the coarse filter or broad, ecosystem look will not provide sufficient protection for species of concern and interest. Thus, for most SOC/SOI or groups of them, a detailed set of desired conditions, objectives and guidelines must be established. Determining the current status of the SOC/SOI and establishing desired conditions, is fundamental to a rigorous adaptive management framework and associated monitoring program that will help the public understand the extent to which progress is being made towards desired conditions. FSH 1909.12, section 43.25 (2006) states that components do not need to be developed for each species or group “but the combination of components for ecosystem diversity and components for species diversity must be designed to help provide appropriate ecological conditions for all species that have been identified as federally listed species, species-of-concern, and species-of-interest. Plan components for species of concern and interest should be formulated, at a minimum, to address the following, as provided in the Planning Directives (FSH 1909.12, section 43.25):

- Manage for appropriate amounts and distribution of habitats used by the species, including habitat restoration, if necessary.
- Manage human disturbance factors (roads, trails, dams, and so forth) so that their impacts on the species are acceptable.
- Manage biotic interactions (for example, invasion of cheatgrass into sagebrush habitats).
- Manage for disturbances that are important to species survival (for example, frequent burns to produce dead wood for three-toed woodpeckers).
- Manage currently known species locations. This may involve all locations or a subset of locations.
- Manage newly discovered locations. This could involve all or a subset of locations.
- Manage suitable habitat that is not currently occupied but may be in the near future.

Recovery and Reintroduction of Extirpated, Endangered and Sensitive Species

All native species, including those on the brink of extinction or local extirpation, must be managed to insure their continued existence across the landscape. This is a fundamental premise underlying the WCCP Conservation Management Plan. Species that have been extirpated should be reintroduced where practical. Further, the Pike-San Isabel, “using the best science available at this point, must consider the requirements for ecologically effective populations, not just arbitrary numbers of even minimum viable populations” (Soulé et al., 2005).

Activities Management Recommendations

Introduction

The protection, maintenance and restoration of healthy, intact forest ecosystems are now a global imperative. As well as providing carbon sequestration (greenhouse gas reduction) at the global level, forests have regional and local benefits that cannot be overstated, or duplicated. They provide our clean water and air, the habitat for wildlife, opportunities for our quiet solitude and spiritual renewal,

wood for construction and heating, open spaces for recreation, and forage for our livestock, among other uses.

While the impacts of more than 100 years of human uses have been widespread, the potential for conservation and restoration of forest biodiversity on the Pike-San Isabel remains high. Future management emphasis should be shifted toward maintaining, enhancing, and restoring the diversity of native species and natural ecosystem functioning. A central element of this will be to preserve existing large blocks of unroaded habitat for reintroduction of large native carnivores.

Land Ownership Adjustment

Consolidation of the ownership within the Pike-San Isabel National Forest is an important step towards assuring long-term viability of biological diversity. As one example, consolidated ownership leaves decisions about constructing new roads entirely to the discretion of the Forest Service. Currently, owners of private inholdings within the Forest regularly demand, and under law must be granted, approval for new or improved roads and motorized access to their property.

Ownership is consolidated through direct purchases (generally funded by earmarked Congressional appropriations from the Land and Water Conservation Fund), land exchanges, and, very rarely, outright donations. Acquisitions clearly depend on willing sellers, but the Forest can assist the process by proactively encouraging land exchange proponents to offer private lands in key areas. The agency should also determine which lands would more appropriately be in private ownership and which private lands would enhance national forest management, in order to facilitate possible land exchanges.

The WCCP prioritizes consolidation efforts in the linchpins of the reserve design - current and proposed Wilderness areas, roadless areas, and wildlife linkages. Private inholdings should be pursued via purchase or exchange in the following priority:

1. Wilderness areas, recommended Wilderness, backcountry areas
2. roadless areas
3. linkages
4. "hotspots" of biological diversity such as rare plant communities or other threatened and endangered species habitat
5. riparian and wetland areas

Grazing

Introduction

Humans and domestic livestock have long been part of the Pike-San Isabel ecosystem and an instrument of ecological change. Despite being one of the most pervasive uses of Western public lands, livestock grazing is a privileged use, not an inherent right or ecological imperative, since the animals grazed are not native to this region. Livestock grazing must be practiced with care, recognizing that this activity can cause severe adverse impacts to biological diversity, soils, and water quality. The Forest Service must also recognize differences between historic and current use, changing Western population dynamics, and growing ecological knowledge.

Although livestock numbers on public lands are declining, many large areas of public rangeland remain impacted and changed, and many continue to decline due to current over-use. While ecological damage caused by overgrazing is widely acknowledged, many heavily impacted areas have recovered to properly functioning hydrologic and vegetative conditions by simply changing grazing

timing, intensity and duration. Sensitive areas or areas experiencing historic overuse and associated plant community impairment should be placed into total non-use and/or permanently retired. Active restoration should be scheduled for these lands, as needed.

Management Guidelines

- The Forest Service will enforce existing practices that are adequate to protect and restore rangeland. Grazing management practices must maintain sufficient residual vegetation on both upland and riparian sites to protect soil from wind and water erosion, and to buffer temperature extremes.
- Acceptable management practices promote plant health by addressing the kind and class of livestock, season of use, and duration, distribution, frequency, and intensity of grazing use. Management practices must provide periodic rest or deferment from grazing during critical growth periods to allow adequate recovery and re-growth of vegetation, and to provide opportunities for seed dissemination and seedling establishment.
- Rangeland will be managed to achieve and maintain, to the extent feasible, the potential natural community (PNC) of vegetation, which is the composition and structure of vegetation that would likely exist in the absence of intensive and persistent human activity. Where establishing the PNC is not feasible, the Pike-San Isabel shall develop, as part of rangeland planning, a desired plant community (DPC) that emphasizes native plant species as much as possible, and then manage the respective areas to achieve the DPC.
- The Forest will require intensive management from permittees. The Forest and permittee will work together to develop appropriate grazing systems; no single grazing system works in every location. Any planned grazing system requires frequent attentiveness to range condition and is preferable to season-long passive grazing.
- To ensure compliance with management practices generally, the Forest will employ a monitoring system such as suggested in the Forest Service Rangeland Analysis and Management Training Guide. Specifically the Forest Service should implement riparian area monitoring methods as discussed in Methods for Evaluating Riparian Habitats with Applications to Management (GTR INT-221). The Forest will encourage use of established photo points to monitor conditions/changes at specific locations.
- Range improvement projects will be consistent with overall ecological functions and processes. Natural occurrences such as fire, drought, and flooding, and prescribed land treatments will be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape. This will provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors that maximize wildlife habitat connectivity.
- Grazing management will occur in a manner that does not encourage establishment or spread of noxious weeds. In addition to various methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds, such as domestic sheep used to reduce leafy spurge, or horses to reduce non-native thistles. Where reseeding is required, native plant species and natural re-vegetation will, to the greatest extent possible, be used to sustain ecological functions and site integrity. Colorado Best Management Practices and other scientifically-developed practices to enhance land and water quality will be used in the development of activity and range improvement plans.

Range and Wetlands Management Guidelines

The most extensive human-caused influence on riparian zones in the United States has been livestock grazing (Montana BLM Tech. Bull. #3, Nov. 1997). Thus the time and duration that livestock spend in riparian areas must be very limited and carefully managed. Riparian areas cannot be used season-long or with both spring and fall use during the same year.

Implement a grazing system that:

- Limits grazing intensity and season of use to provide sufficient rest to encourage plant vigor, re-growth and energy storage;
- Ensures sufficient vegetation is left to protect stream banks during periods of high flow, to dissipate energy and trap sediments; leave 4 inches stubble height for early season use, 6 inches or greater stubble height for late use pastures, or to protect special ecosystem characteristics such as critical fisheries.
- Assesses specific needs of each unique riparian area relative to vegetative potential and capability. Stocking rates, duration and utilization levels must be monitored and adjusted to ensure post-grazing re-growth and residual cover (especially prior to high flows).

Extractive Industry

Oil and Gas

Currently in the Pike-San Isabel region, there are few economically recoverable and proven reserves of oil or gas, including coal-bed methane. Therefore, the WCCP planning team is not, at this juncture, making specific recommendations on this activity. However, should more oil, gas or coal-bed methane explorations be initiated, we will address this issue.

Mining

Currently in the Pike-San Isabel region, there are few economically recoverable and proven reserves of hard-rock minerals. Therefore, the WCCP planning team is not, at this juncture, making specific recommendations on this activity, with the exception of mitigation of historical mines. However, should mining explorations be initiated or reinitiated, we will address this issue.

Mitigation of Historical Mines

Although most historical mines are on private (patented) land, these mines carved out small island inholdings within the large public landscape. Thus, any drainage from these mines filters into creeks that run throughout the Pike-San Isabel. However, some historical mines are indeed on public lands as the inholdings were (re)acquired by the USFS, or the prospecting sites were never fully patented. The mitigation of old mines is a complex issue, subject to many laws and statues, with the responsibility and jurisdiction spread across different government agencies and mining companies. Further, the inventory of old mines is a detailed and costly process, complicated by the landownership diversity.

Abandoned mines can cause a variety of problems. They can create on-going water quality problems, public safety concerns, or a combination of both. The Colorado Inactive Mine Reclamation Program has been reclaiming non-coal mines since 1985 and has safeguarded 935 adits and 2,683 shafts during the past twelve years. A reconnaissance of mining districts in 1980 compiled information on 8,000 hazardous openings. From that inventory, Colorado estimates there are almost 22,000 openings in 36 of the state's 63 counties (Western Governors Association, 2002).

The Wild Connections recommends that during the course of the Pike-San Isabel plan revision, a commitment is made to work with other public and private agencies to inventory old mines, with the goal of prioritizing those mines which are creating the largest safety issue.

Silviculture

Currently in the Pike-San Isabel region, there is little commercial logging. However, the increase in fuels treatment projects has brought renewed interest in small scale treatments.

Management Guidelines

- Prevent construction of new roads into existing roadless areas.
- Protect and, over time, restore, late-successional forests.
- Establish areas for new pine recruitment and areas for old-growth pine to develop.
- Extend the minimum rotation period between regeneration harvests to the following:
 - Aspen 90 Years
 - Douglas-fir 200 Years
 - Spruce-fir 250 Years
 - Lodgepole 120 Years
- Refrain from logging on steep slopes of over 30 percent incline or in riparian areas.
- Utilize only harvesting techniques that do minimal damage to soil, root systems and under-story vegetation.
- Employ selective tree cutting methods when harvesting spruce-fir and ponderosa due to the potential damage from clear-cutting and the difficulty of regeneration.
- Retain clumps of pole-sized and larger trees in ponderosa pine.
- Retain an average of several snags per acre, where biologically possible, over a landscape. Snags selected for retention should be at least 25 feet high if possible. Otherwise, retain the tallest ones available. Focus on retaining soft snags (those with evidence of rot) and large snags, wherever possible.
- Retain coarse woody debris (down logs at least 10 inches in diameter if available) as follows: 50 feet per acre in ponderosa pine, and 100-150 feet per acre in all other forest types, except do not leave fresh blowdown or cut Engelmann spruce trees with bark intact. Leave some sections of the largest logs available.
- Burning slash piles should be limited to those that are no more than about 750 square feet and are mostly composed of material no more than three inches in diameter.
- All timber purchasers should employ best management practices.
- Weigh the commercial value of timber against the other values of the entire forest community—undisturbed soil, clean air and water, future late-successional forests, and intact wildlife habitat.
- Ensure that commercial timber sales provide a positive net return to the government. Below cost or taxpayer subsidized commercial timber sales are unacceptable.
- Include 100' buffer zone from wetlands and 300' buffer zone from fens.

Recreation and Travel Management

The 2005 USFS OHV Rule

The USFS issued the final OHV Rule on November 9th, 2005 requiring all National Forests to engage and complete Travel Management planning by 2009. Although Forest Plans do not make final decisions on route-specific closures, they should set the general policy, framework, and guidelines for recreation and travel management. The following guidance is recommended to ensure ecosystem sustainability.

Criteria to Manage Recreation on the Pike-San Isabel

Recreation is the dominant use of public lands in terms of numbers of participants, and this use continues to grow. It is essential that the Forest Service develop comprehensive and thoughtful recreation plans for motorized travel management as mandated by the 2005 OHV Rule as well as nonmotorized recreation. These plans will allocate uses across the landscape in such a way that cumulative and site impacts are minimized to stay or be brought within reasonable limits. Where impacts are unacceptably high (i.e., the condition of the landscape is in long-term decline as measured

by a series of biological and physical parameters), recreation uses must be reallocated to prevent further impacts and to allow the area to recover.

Recreation plans must be based primarily on a comprehensive analysis of landscape condition. An analysis of the types, amounts, and locations of recreation in demand relative to what currently exists is also fundamental.

In the planning process, the Forest Service's task is to ensure that recreational allocations, in concert with other land uses, do not impair landscape health and improve it where possible. The agency should provide a wide spectrum of opportunities within this broader mandate, and at no point can the agency sacrifice the goal of ecological sustainability to provide additional recreational opportunities.

The overall goals of the Pike-San Isabel recreation plan should be:

1. Ensure landscape sustainability and reduce landscape fragmentation.
2. Provide for a reasonable spectrum of uses within the ecological constraints of the landscape.
3. Plan for the long-term by anticipating trends in recreational use and ecological condition.
4. Utilize monitoring to facilitate compliance with standards and guidelines, and to indicate the need for adjusting desired conditions, objectives, and guidelines and/or devising new ones.
5. Protect the last remaining roadless places by allowing only recreation that is compatible with retaining the roadless character in these areas.

The mechanism to achieve these goals should be:

1. Determine the types of recreational activities that are appropriate by location on the Pike-San Isabel,
2. Develop zones for recreational access based on a comprehensive ecological and socio-economic analysis, and
3. Apply rigorous standards and guidelines to each zone. The identification of recreational activities should be based on the ecological resources of the Forest, desired and existing opportunities, the appropriateness of various types of recreation in national forests, and the ability of the Pike-San Isabel to adequately manage recreational uses to minimize resource damage and conflicts between recreationists.

Because off-road vehicles (ORVs) have and will continue to impact resources and other Forest users, the Forest Service must analyze and plan carefully for ORV recreation. The damage that modern vehicles can inflict on public lands necessitates that the Forest Service only allow ORV recreation where it can guarantee that it has the resources to manage it adequately. Furthermore, the Forest Service must implement policy that insures that significant resource damage will not occur at the site or landscape scale. Experience garnered over the last few decades has taught forest users that open ORV recreation leads to the creation of new routes. ORV recreation should be allowed only on designated trails and in certain areas that are identified in the plan as a unique category (e.g. the Rampart Range recreation area) with a customized set of standards and guidelines and which have a travel management plan that clearly defines acceptable use on designated, well designed trails systems.

Applying considerably more rigor to the management of ORVs will help preserve and restore natural quiet in the backcountry and the types of recreation that depend upon it. With the explosion of various types of more intensive recreation, it has become clear that we must proactively plan to maintain natural quiet in the backcountry. Hence, the Pike-San Isabel must create and incorporate a noise-spectrum analysis into its recreation plan by creating standards and guidelines for various themes that will ensure a quiet backcountry.

Motorized access to our public lands, while beneficial to users, can also disturb natural habitats, thus we must ensure that our recreational pursuits do not excessively impact natural and cultural resources, wildlife habitat, watersheds, special status species, and where applicable, wilderness values. High-quality recreation experiences in national forests depend on healthy and intact landscapes.

General Recreation Management Guidelines

- Restrict all motorized and wheeled vehicle travel to designated routes and trails marked as open on forest recreation/travel maps.
- Restrict snowmobile travel to designated routes and play areas marked as open on forest recreation/travel maps.
- Disallow jet-ski use, and impose speed limits on motorboats where preserving natural quiet is a priority or where limits are needed to protect fisheries or waterfowl.
- Vehicles may only travel on routes that are designated as open for the specific type of vehicle and may only travel on routes where the vehicle width does not exceed the road/trail bed width.
- Restrict travel on selected single track routes to only foot and horse, and only allow mountain bikes and/or motorcycles on other trails where ecologically appropriate. Limit user-tread to 24”.
- Use seasonal closures as necessary to protect wildlife, plant communities, soils, and water quality, and to avoid excessive resource damage, especially during wet periods and calving, fawning, and lambing seasons.
- Locate high-use areas *only* in previously disturbed zones where further impacts can be geographically contained. Use must stay well away from riparian and sensitive species habitat, Wilderness boundaries, special management areas, or other areas of special concern. Monitor high-impact areas, and relocate them or otherwise mitigate impacts when the resource shows signs of significant deterioration.
- Establish management goals and objectives based on desired future conditions (ecological and experiential) for each recreation zone. Objectives should include route density standards, and maximum noise levels and differentials.
- Set route density standards for each recreation zone. Establish standards for both open road density (ORD) (roads open to motorized vehicle use) and total route density (TRD) (which includes roads closed to motorized vehicles but not yet reclaimed and still usable by vehicles).

Recreation and Riparian Area Management

Riparian areas are particularly attractive for recreation and wildlife viewing because of their environmental features. Because of their linear nature and connectivity between urban centers, transportation and recreational planning agencies find riparian systems particularly suitable for trails. Trail corridors are planned or proposed for all major riparian areas of Colorado (Miller, Clinton K., 1994). Trails in these areas would have potentially severe detrimental ecological effects.

Effective management for general recreation includes the following guidelines:

- Minimize the number of stream crossings.
- Create and maintain hardened stream crossings and/or bridges in heavily used areas.
- Use physical barriers to keep people out of riparian areas.
- Locate new roads, trails and campgrounds outside wetland and riparian areas.
- Move existing roads and trails out of riparian areas, where possible, provided the relocated roads and trails are not more damaging than the original ones. Consider closing roads and trails which severely impact wetlands where relocation is not feasible.
- Place signage to educate users to stay on the trail.

- Limit impacts in sensitive areas (erosive soils, important wildlife habitat, etc.) by limiting numbers of users, closing or rerouting trails.
- Reduce overall road and trail density.
- Restrict or prohibit access to riparian areas for organized events, competitive races, etc.

Motorized recreation requires additional guidelines:

- Prevent upgrading trails from single-track to multiple tracks.
- Create and maintain erosion control barriers to prevent erosion and sedimentation.
- Provide education and signage to keep motorized users on the trail and out of the riparian area.
- Close or reroute motorized trails in sensitive areas to prevent resource damage.
- Limit use when wet/muddy conditions prevail. Limit or prohibit use during extreme fire hazard conditions.
- Limit numbers of motorized users.
- Restrict access to riparian areas for organized motorized events, competitive races, etc.

Roadless Areas

Preserving the remote backcountry character should be the goal of recreation management in roadless areas.

- Prohibit all non-emergency motorized use in roadless areas. Roadless Areas are the critical component within this Wild Connections plan in preserving ecosystem sustainability, and thus adherence to the desired conditions for Theme 1, 2 and 3 areas should be specifically acknowledged.
- Prohibit any new road and motorized trail construction in roadless areas of the Pike-San Isabel.
- Prohibit re-construction and new construction of staging areas in roadless areas.

Motorized Recreation Areas

These areas are zones in which motorized recreation is permitted in an intensive fashion on designated routes. Similar to a downhill ski area, the motorized area's boundary and trails are marked clearly, and the trails are built to withstand the hard use imposed by motorized recreation vehicles.

The plan includes standards and guidelines crafted especially for this type of use.

- These areas should be relatively small, have well-marked boundaries, and be constructed to withstand intensive recreation.
- Boundaries will be marked so that ORVs cannot inadvertently wander out of the area.
- Use will be restricted to designated routes marked on a map and to designated areas marked on the ground.
- Motorized recreation events will be permitted on an individual basis via the special use permitting process, and will only occur within the permitted boundary.
- The Forest Service should limit the use of two-stroke engines on public lands, phasing out such engines over a five-year period, as is recommended in the recently submitted Off-Highway Vehicle recommendations for the US Forest Service.
- Existing system routes should be closed and obliterated if they cannot be managed to limit resource damage. All non-system routes, i. e., those that have been created by passage of vehicles but that have not been designated by the Forest Service, should be closed and restored as soon as possible.

Special Uses

As recreational events grow in popularity, the Forest Service must establish consistent approaches to accepting and analyzing applications, incorporating use into capacity models, and fairly allocating use

between outfitters, event organizers, and dispersed users. Adventure races are events of super-endurance, round-the-clock, multi-sport racing that must be carefully managed to minimize impacts to wildlife and ecosystem health.

- All special recreation event applications for events greater than 49 participants or on five or more contiguous acres must submit an application at least nine months in advance of the requested event date.
- The Forest Service must complete its environmental review and issue the permit, if a permit is issued, at least two months before the event date.
- Capacity models and recreation allocations must include outfitter days and special recreation event days in the allocation process.

Outfitters from non-profit educational groups that provide services to the public directly related to furthering the mission of the Forest Service are finding it increasingly difficult to have access to the Pike-San Isabel National Forest. The Pike-San Isabel needs to allocate capacity between commercial outfitters, dispersed users, special recreation events, and non-profit education outfitters in a fair and equitable way. This includes assuring that non-profit educational outfitters are not disadvantaged in the allocation process, and even are given a priority allocation, so long as these outfitters provide services that directly further the mission of the Forest Service, e.g., leave-no-trace education, responsible backcountry travel, recreational skills and safety training, and natural history education. The permit fee structure should reflect nonprofits' public purpose and limited financial resources.

Outfitters seeking to provide a non-motorized experience to clients are having increasingly difficult time acquiring outfitting permits in areas where such experiences exist. More and more, because wilderness permits are limited, non-motorized recreation outfitters are forced to provide services in areas where motorized use precludes a wilderness-like experience. By only allowing ORV and snowmobile outfitters to operate in prescribed motorized areas, the Pike-San Isabel will help balance outfitter opportunities and assure that all outfitters have a place to operate that is appropriate to the experience they are trying to provide.

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Chapter 4 – Thematic Approach to Land Management

Introduction

The National Forest Management Act of 1976 (NFMA), in conjunction with the National Environmental Policy Act of 1969 (NEPA), regulations, and subsequent additions to the Forest Service's Directives Systems created a planning and implementation framework for National Forests. The USFS released new planning regulations in 2005, replacing the prior 1982 planning rule and approach.

The 2005 planning rule, with the associated revision of the Directives, creates an inherent challenge for the Pike-San Isabel planning process due to the lack of precedent and examples throughout the National Forest System. Furthermore, bridging the USFS land management approach and regulations with that of UASPP's conservation biology approach (as discussed in Chapter 2 – Methodology) is equally challenging.

The Wild Connections team, as of the publication of this document, does not fully know the broader layout and approach that the Pike-San Isabel will use beyond the specific plan components mandated in the new regulations. Thus, the Wild Connections planning team thoroughly reviewed the few draft forest plans that are currently available under the new 2005 planning rule in order to determine a basis for presenting our proposal in a similar language, context, and layout. We hope that any incongruence will be discussed and resolved during the collaborative process with the Pike-San Isabel Planning team.

Definitions, Terminology and Our Interpretation

This section defines the terminology and sets the management approach employed by this proposal with the goal of bridging the USFS regulations and our conservation biology focus. This proposal utilizes management *Themes* to geographically distribute *Desired Conditions* across the forest. *Objectives*, *Guidelines*, and *Suitability of Areas* analysis serve to help guide specific project level planning, which are mandated to work towards achieving the *Desired Conditions* for that specific area.

Themes – A theme is similar to zoning, in which areas with similar physical, ecological, resource use suitability characteristics, and/or management goals are defined.

Each of the management themes is associated with a range of activities that are generally suitable and consistent with desired conditions. The activities that are addressed with suitability guidance include: recreational motor vehicle use, new road construction, livestock grazing, timber harvest, and mineral development. A particular use may be unsuitable for an area because physical and biological features or values would be unacceptably impacted by the activity (GMUG website, 2006).

While Themes are not mandated in the 2005 Planning Rule, three of the four draft plans that are operating under the 2005 Regulations (San Juan National Forest; Grand Mesa-Uncompahgre-Gunnison National Forests; Bitterroot, Flathead and Lolo National Forests) all utilized the Thematic approach to land management. The Themes utilized within this proposal are similar to those of the three draft forest plans.

Desired Conditions (36 CFR 219.7(a)(2)(i)) – Aspirational in nature, desired conditions are the social, economic, and ecological attributes that guide management of the land and resources within the Plan Area. Desired conditions are not commitments or final decisions approving projects and activities. Desired conditions may be achievable only over a long time period, may be reached in the short term, or may already exist.

Objectives (36 CFR 219.7(a)(2)(ii)) – Concise projections of measurable, time-specific, intended outcomes. The objectives for the Plan are the means of measuring progress toward achieving or maintaining desired conditions. Objectives are not commitments and are not final decisions approving projects and activities in the plan area.

Guidelines (36 CFR 219.7(a)(2)(iii)) – Information and guidance for project and activity decision-making to help achieve desired conditions and objectives. Guidelines are not commitments or final decisions approving projects and activities in the plan area. Guidelines should provide the recommended technical and scientific specifications to be used in the design of projects and activities to contribute to the achievement of desired conditions and objectives.

While the 2005 regulations state that Guidelines are not commitments or final decisions approving projects and activities in the plan area, the Wild Connections team has stated our guidelines in strong language and fully expects the guidelines will be adhered to in all but the most unusual circumstances. Our expectations set the management bar high in order to protect the ecological values, and our understanding is that this is best accomplished through consistent and rigorous use of the guidelines.

Suitability of Areas (36 CFR 219.7(a)(2)(iv)) – Identifies specific areas as generally suitable for various uses. An area may be identified as generally suitable for uses that are compatible with desired conditions and objectives for that area. The identification of an area as generally suitable for a use is guidance for project and activity decision making and is not a commitment or a final decision approving projects and activities in the area. Uses of specific areas are approved through project and activity decision making.

Special Areas – Identified, evaluated, and designated for their unique or special characteristics. Special Areas may be designated by statute, by a plan, plan amendment, plan revision, or by a separate process in accordance with NEPA and other applicable laws (36 CFR 219.7(a)(2)(v)). Examples of Special Areas are botanical, historical, or archeologically significant areas. The desired conditions, objectives and guidelines for Special Areas may be either site specific or based on the type of Special Area. Special Areas are described under Theme 2.

Themes – Summary List

The Wild Connections Conservation Plan utilizes the following Themes, with details found in the following pages.

Theme 1 – Natural Processes Dominate

- Theme 1.1 – Existing Wilderness
- Theme 1.2 – Recommended Wilderness
- Theme 1.3 – Core Reserve

Theme 2 – Special Areas

- Theme 2.1 – Research Natural Areas: Existing and Proposed
- Theme 2.2 – Experimental Forests
- Theme 2.3 – Eligible Wild, Scenic and Recreational Rivers
- Theme 2.4 – Special Areas: Minimal or Interpretive Use

Theme 3 – Natural Landscapes with Limited Management

- Theme 3.1 – Quiet Use Areas
- Theme 3.2 – Connectivity Areas

Theme 4 – Recreation Emphasis Areas

- Theme 4.1 – Motorized Recreation Areas
- Theme 4.2 – Scenic Byways

Theme 5 – Active Management

- Theme 5.1 – Active Management for Wildlife Habitat
- Theme 5.2 – Active Management for Human Needs

Theme 6 – Grasslands Environment *

Theme 7 – Residential Forest Interface

Theme 8 – Permanently Developed Areas

- Theme 8.1 – Ski Based Resorts
- Theme 8.2 – Permanently Developed Recreation Areas

Theme 9 – Significant Lands (Non-USFS)

- Theme 9.1 – Non-Forest Service Recommended Wilderness
- Theme 9.2 – Significant Non-Forest Service Biological Areas
- Theme 9.3 – Non-Forest Service Connectivity Areas

** The Cimarron and Comanche National Grasslands are engaged in a separate planning process, and thus this theme is not utilized on the forest units of the Pike-San Isabel.*

Allowable Uses in Each Theme

‘X’ denotes permitted use.

Reserve Design Category	Theme	Commercial Timber Harvest	Fire Use	Compatible Fuels & Vegetation Treatments	Compatible Grazing	Motorized Recreation*	Mountain Bikes	Non-Motorized, Non-Mechanized Recreation
Core Reserves	1.1 – Existing Wilderness		X		X (Pre-existing)			X
	1.2 – Recommended for Wilderness		X	X (WUI Only)	X (Pre-existing)	X (Pre-existing, Phase Out)	X (Pre-existing, Phase Out)	X
	1.3 – Core Reserve		X	X	X	X (Pre-existing, Phase Out)	X	X
	2.1 – Research Natural Areas: Existing and Proposed		X		Decision by Area			By Special Use Permit
Linkages	3.1 – Quiet Use Areas		X	X	X	X (Pre-existing, Phase Out)	X	X
	3.2 – Connectivity Areas		X	X	X	X	X	X
Compatible Use Lands	2.2 to 2.4 – Special Interest Areas	Decision by Area	Decision by Area	Decision by Area	Decision by Area	Decision by Area	Decision by Area	Decision by Area
	4.1 – Motorized Recreation Areas			X	X	X	X	X
	4.2 – Scenic Byways			X	X	X	X	X
	5.1 & 5.2 – Active Management	X	X	X	X	X	X	X
	7 – Residential Forest Interface			X	X	X	X	X
	8.1 & 8.2 – Permanently Developed Recreation Areas			X	X	X	X	X

*Motorized Recreation is limited to designated routes. Seasonal closures may exist.

Oil and Gas leasing and Mining are not included on this table due to the very limited reserves within the Pike-San Isabel.

Sensitive areas or areas experiencing historical overuse and plant community impairment should be placed into, non-use, permanently retired or managed intensively to mimic natural regimes.

Themes Defined

Theme 1 – Natural Processes Dominate

These lands are managed to maintain highly natural conditions. Management activities are virtually unnoticeable. Existing and recommended Wilderness areas are included in Theme 1. This zone also includes semi-primitive lands that are managed to provide other user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

Desired Conditions:

- Natural processes and conditions are minimally affected by human use, and impacts from visitation do not detract from the natural setting.
- Ecological processes such as fire, insects, and disease are essentially allowed to operate relatively free from the influence of humans.
- Management emphasis is for the protection and perpetuation of essentially pristine biophysical conditions and a high degree of solitude for both wildlife and humans.
- Vegetation composition and structure result predominantly from natural processes and succession, and non-native vegetation is rare.

Management Objectives:

- All resource management activities are integrated in such a way that evidence of current human use, including permitted livestock and recreation, is substantially unnoticeable the following season, so that natural biological processes are not adversely or artificially changed over time by human use.
- Visitors will be self-reliant and should expect low levels of contact with other people.
- Few if any human-made facilities and structural improvements are present, and only within the degree permitted by the Wilderness Act.
- Invasive species are monitored and eliminated in a manner consistent with conservation principles outlined in Chapter 3, Forest-Wide Management Recommendations.
- Pursue acquisition of any existing private inholdings and mining claims.

Suitability:

- **Timber** – Wilderness areas are unsuitable for timber production, timber harvest (including salvage), commercial use of miscellaneous forest products, and public gathering of forest products, including fuelwood.
- **Fire** – Wilderness areas are generally suitable for managed fire use to promote ecosystem function. Natural fire processes through a “let burn” regimen, subject to appropriate safeguards for potentially affected resources outside wilderness, is preferred to any other type of management.
- **Travel** – These areas are unsuitable for motorized or mechanized use except in emergency or other special situations.
- **New Road Construction and reconstruction of existing roads** – New roads and reconstruction of any existing roads are prohibited.
- **New Trail Construction** – New trail construction is discouraged, other than for the purpose of re-routing sections of trails causing resource damage. In such cases, construction must be

accomplished using primitive tools, and trail sections causing resource damage must be restored.

- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Where currently established, livestock grazing can continue at the same level and intensity, provided that the integrity and sustainability of all ecological systems is maintained. When allotments become vacant, they are generally retired.
- **Other** – Wilderness areas are unsuitable for other activities or uses that do not conform to wilderness policy, such as facilities that provide user comfort, utility corridors or communication sites.

Management Guidelines:

- Area is managed pursuant to the Wilderness Act of 1964, and any additional caveats in the specific Acts that designated each Wilderness area, so as to protect and perpetuate natural conditions while providing opportunities for solitude and self-reliance. Additional guidelines necessary to ensure the maintenance of primitive conditions and intact ecosystems in individual wilderness areas may be formulated.

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

Desired Conditions:

- Until Congressional action is taken, these areas will be managed to protect their wilderness characteristics, allowing opportunities for solitude and self-reliance by the individual.
- Natural processes and conditions are minimally affected by human use, and impacts from visitation do not detract from the natural setting.
- Ecological processes such as fire, insects, and disease essentially are allowed to operate relatively free from the influence of humans.
- Management emphasis is for the protection and perpetuation of essentially pristine biophysical conditions and a high degree of solitude for both wildlife and humans.
- Vegetation composition and structure result predominantly from natural processes and succession, and non-native vegetation is rare.

Management Objectives:

- All resource management activities are integrated in such a way that evidence of current human use, including permitted livestock and recreation, is substantially unnoticeable by the following season, so that natural biological processes are not adversely or artificially changed over time by human use.
- Visitors will be self-reliant and should expect low levels of contact with other people.
- Current trail designations will be reevaluated to emphasize only non-motorized, non-mechanized use.
- Few if any human-made facilities and structural improvements are present.
- Invasive species are monitored and eliminated in a manner consistent with conservation principles outlined in Chapter 3, Forest-Wide Management Recommendations.
- Pursue acquisition of existing private inholdings and mining claims, and withdraw the entire area from mineral entry, subject to valid rights existing at the time of designation of the area as a proposed Wilderness.

Suitability:

- **Timber** – Recommended Wilderness areas are unsuitable for timber production, timber harvest (including salvage), commercial use of miscellaneous forest products, and public gathering of forest products such as fuelwood. Fuel treatment projects outside the WUI are discouraged, but any such projects should use non-motorized techniques and prescribed fire. Other projects within the WUI are allowed. Fire use is the recommended management method where feasible.
- **Fire** – Recommended Wilderness areas are generally suitable for managed fire use to promote ecosystem function. Natural fire processes through a “let burn” regimen, subject to appropriate safeguards for potentially affected resources outside recommended and designated Wilderness, is preferred to any other type of management.
- **Travel** – Trail and road designations may contain motorized or mechanized use in rare circumstances, with a management objective of moving towards non-motorized, non-mechanized designation.
- **New Road Construction and reconstruction of existing roads** – New roads are prohibited, as is reconstruction of existing roads. Existing unclassified roads should be converted to non-motorized, non-mechanized trails or closed and rehabilitated.
- **New Trail Construction** – New trail construction is discouraged, other than for the purpose of re-routing sections of trails causing resource damage. In such cases, construction should be accomplished using primitive tools, if feasible, and road sections causing resource damage must be restored.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Where currently established, livestock grazing can continue at the same level and intensity, provided that the integrity and sustainability of all ecological systems is maintained.
- **Other** – Recommended Wilderness areas are unsuitable for other activities or uses that do not conform to wilderness policy such as facilities that provide user comfort, utility corridors or communication sites.
- Recommended Wilderness areas are unsuitable for other activities or uses that have the potential to change or alter the qualities that qualify an area for wilderness recommendation.

Management Guidelines:

- Do not authorize outfitter-guide assigned campsites for longer than 14 days.
- Density of sites will be moderate, not to exceed three sites per acre or six sites per linear mile of trail in designated areas. Campsites will be minimal and well-dispersed elsewhere.
- Bridges may be necessary for user safety or to protect streamside areas but should not be provided merely for user convenience.
- A minimal number of signs, if any, should be provided for resource protection and directions at trail junctions.
- Manage historic structures, including eligible or listed National Register of Historic Places (NHRP) sites to be compatible with the wilderness setting.
- Accomplish pest management under the same guidelines as would be used for established Wilderness.
- Minimize the concentration of public uses in alpine areas when such use is creating resource damage. Use genetically local (at the ecological subsection level) native plant species for revegetation efforts when technically and economically feasible. Use seed mixtures and mulch that are weed-free. To prevent soil erosion, non-persistent, nonnative annuals or sterile perennial species may be used while native perennials are becoming established. However, the priority is to use native species.
- Activities will be managed to avoid disturbance to sensitive species that would result in a

trend toward federal listing or loss of viability.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land, usually larger than 2,500 acres, which have been shaped primarily by natural forces but that are not desirable for designation as Wilderness. Core Reserves emphasize the maintenance and sustainability of current biological diversity. Management emphasis is to protect critical habitats, seasonal wildlife concentrations, and/or birthing areas, and to allow management by natural ecological processes. Management guidance is designed to maintain or restore the natural character of these areas while providing limited opportunities for non-motorized and mechanized recreation.

Desired Conditions:

- Management emphasis is to perpetuate, and where necessary, restore, native plant and animal species, and natural processes.
- Vegetation composition and structure result predominately from natural succession, and non-native vegetation is rare.
- Ecological processes such as fire, insects, and disease are essentially allowed to operate relatively free from the influence of humans.

Management Objectives:

- All resource management activities are integrated in such a way that natural biological processes are not adversely or artificially changed over time by human use.
- Visitors will be self-reliant and should expect low levels of contact with other people.
- Current trail designations will be reevaluated to emphasize non-motorized use. New trail construction is discouraged.
- Invasive species are monitored and eliminated in a manner consistent with conservation principles outlined in Chapter 3, Forest-Wide Management Recommendations.
- Pursue acquisition of existing private inholdings and mining claims, and withdraw the entire area from mineral entry, subject to valid rights existing at the time of designation of the area as a core reserve.
- Non-manipulative human uses are allowed as long as they are compatible with maintaining the desired biological diversity.

Suitability:

- **Timber** – Core Reserve areas are unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Public gathering of forest products is discouraged. Vegetative manipulation is allowed when needed to achieve the desired conditions for the area, such as re-establishment of natural disturbances and reintroduction of extirpated native species.
- **Fire** – Core Reserve areas are generally suitable for managed fire use to promote ecosystem function and to restore to the range of natural variability. Natural fire processes through a “let burn” regimen, subject to appropriate safeguards for potentially affected resources outside core areas, will be allowed to occur where appropriate.
- **Travel** – Future trail development would be minimal and provide only for non-motorized travel. Current trail designations may contain motorized or mechanized use in rare circumstances, with the management objective of moving towards non-motorized designation. Mountain bikes are discouraged, but may be allowed if there was preexisting use, or where it is determined that they do not impair the biological resources of the area.
- **New Road Construction and reconstruction of existing roads** – New roads are prohibited, as is reconstruction of existing roads other than to access valid existing rights. Existing

- unclassified roads should be converted to non-motorized trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Where currently established, livestock grazing can continue at the same level and intensity, provided that the integrity and sustainability of all ecological systems is maintained.
- These areas are unsuitable for commercial communication sites or utility corridors.

Management Guidelines:

- Do not authorize outfitter-guide assigned campsites for longer than 14 days.
- Density of sites will be moderate, not to exceed three sites per acre or six sites per linear mile of trail in designated areas. Campsites will be minimal and well-dispersed elsewhere.
- Bridges may be necessary for user safety or to protect streamside areas but should not be provided merely for user convenience.
- A minimal number of signs should be provided for resource protection and directions at trail junctions.
- Manage historic structures, including eligible or listed National Register of Historic Places (NHRP) sites to be compatible with the wilderness setting.
- Accomplish pest management under the same guidelines as would be used for established wilderness.
- Minimize the concentration of public uses in alpine areas when such use is creating resource damage. Use genetically local (at the ecological subsection level) native plant species for revegetation efforts when technically and economically feasible. Use seed mixtures and mulch that are noxious weed-free. To prevent soil erosion, non-persistent, nonnative annuals or sterile perennial species may be used while native perennials are becoming established.
- Activities will be managed to avoid disturbance to sensitive species that would result in a trend toward federal listing or loss of viability.

Theme 2 – Special Areas

These areas are managed to protect or enhance areas with unusual characteristics, including areas such as Research Natural Areas, special biological or geological areas, cultural/historical areas, or other special designations. These lands vary in size from a few hundred to several thousand acres. Management emphasis is on protecting or enhancing the values for which they are designated, and where appropriate, conducting research or light development for interpretive public education. Intensity of management will vary based on the objectives for the particular area.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention. RNA designation requires approval of the Regional Forester and concurrence from the Research Station Director. Research Natural Areas are selected for one or more of the following reasons:

- To serve as reference areas for evaluating the range of natural variability and the impacts of management in similar environments.
- To protect and maintain representative or key elements of biological diversity at the genetic, species, population, community, or ecosystem levels.
- To serve as areas for the study of ecosystems and ecological processes, including succession.
- To support educational activities.
- To serve as baseline areas for measuring ecological change.

Desired Conditions:

- Natural processes and conditions are minimally affected by human use, and impacts from visitation do not detract from the natural setting.
- Ecological processes such as natural succession, fire, and insects and disease, are generally allowed to function with little human influence.
- Management emphasis is for the protection and perpetuation of essentially natural biophysical conditions.
- Vegetation composition and structure result predominately from natural succession, and non-native vegetation is rare.

Management Objectives:

- Allow uses that maintain or improve the ecological and research characteristics for which the RNA was designated or is proposed.
- Current levels of horseback riding, hunting, fishing, camping, and related low impact non-motorized uses by the public are allowed to continue, provided they do not interfere with research. Recreational use will be restricted or eliminated if it threatens to interfere with the objectives or purposes for which the RNA is established.
- Protect the natural condition of the ecosystem, its processes, and any species or values for which the RNA was established or is proposed.
- Until formal establishment, manage proposed RNAs to maintain and enhance the character, research potential, and ecological values for which the areas have been identified.
- Permit and encourage use by scientists and educators.

Suitability:

- **Timber** – Research Natural Areas are unsuitable for timber production, timber harvest (including salvage), vegetative manipulation projects or commercial use of miscellaneous forest products, as well as for fuelwood gathering.
- **Fire** – Research Natural Areas are generally suitable for managed fire use to promote ecosystem function, if this is consistent with the purpose for which the area is designated or proposed.
- **Travel** – Prohibit motorized and mechanized use, except when necessary for research or educational access, or in special or emergency situations. Use restrictions or closures may be necessary to protect the area from actual or potential damage due to public use.
- **New Road and Trail Construction and reconstruction of existing roads and trails** – New roads and trails and reconstruction of existing ones are prohibited, except when they are necessary to provide access for research or to reduce resource damage occurring from existing travelways. In such cases, the roads or trail sections causing the damage should be closed and obliterated. Minor new construction can also occur to access research sites.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Research Natural Areas are generally not suitable for livestock grazing except as part of research, and any existing grazing is phased out if it is likely to interfere with current and future research.
- **Other** – Research Natural Areas are generally suitable for other uses to the extent that these uses are in harmony with the purpose for which the area was designated. They are generally suitable for non-manipulative research, observation, and study of undisturbed or minimally disturbed ecosystems and unique habitats. They are generally suitable for limited interpretation facilities but not suitable for permanent facilities that provide for user comfort. These areas are unsuitable for commercial communication sites or utility corridors.

Theme 2.2 – Experimental Forests

Experimental Forests provide lands for management-based research that serves as the basis for management of forest and rangelands. Established Experimental Forests are managed according to specific plans.

Desired Conditions:

- Manage the area consistent with the reason for which it was designated.

Management Objectives:

- Experimental Forests are managed to provide the reliable scientific data on forestry principles and practices over the long term.

Suitability:

- Experimental Forests are generally suitable for other uses to the extent that these uses are in harmony with the purpose for which the area was designated and the use is agreed to by the Research Station Director and the Forest Supervisor, per 36 CFR 219.2(b)(3), 219.7(c)(2).
- **Timber** – Experimental Forests are not suitable for timber production, although timber harvest (including salvage), for research purposes can occur. These areas are generally not suitable for commercial use of miscellaneous forest products.
- **Fire** – Experimental Forests are generally suitable for managed fire use to promote ecosystem function, consistent with research purposes.
- **Travel** – These areas are generally suitable for motorized use on designated roads and trails, if not harmful to research.
- **New Road Construction** – New roads are prohibited unless needed for research. Existing unclassified roads should be converted to trails or closed and decommissioned.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Experimental Forests are generally not suitable for livestock grazing except for research purposes.
- **Other** - These areas are generally not suitable for commercial communication sites or utility corridors.

Theme 2.3 – Eligible Wild, Scenic and Recreational Rivers

This Theme is applied to river segments proposed for designation as wild, scenic, or recreational under the Wild and Scenic Rivers Act. It includes, but is not limited to, the segments of the South Platte River and its North Fork that are addressed in the South Platte Protection Plan (SPPP), a locally developed alternative to federal Wild and Scenic Rivers Act designation which was endorsed by the US Forest Service in 2004. Management details that will preserve the outstandingly remarkable values are unique to the SPPP and are detailed in the South Platte Canyons complex in Chapter 5.

Theme 2.4 – Special Areas: Minimal or Interpretive Use

Special Interest Areas may be designated to protect and manage threatened, endangered and sensitive species, or other elements of biological diversity; or for their emotional significance, scenic values, or scientific values. Special Interest Areas (SIAs) are managed to protect or enhance areas with unusual or unique ecological, zoological, geological, scenic, historic, or prehistoric, or other cultural characteristics. Management emphasis is on protecting or enhancing (and where appropriate, developing and interpreting for public education and recreation) areas with unusual characteristics.

Desired Conditions:

- The rare or outstanding values of the areas are the primary consideration. Other resource values and uses are secondary to the protection, maintenance, and restoration of an area's

special values for public education, enjoyment, and study.

- The setting is usually natural, but will vary depending on the area and the primary focus of the designation. Plant and animal species and communities will vary depending upon the characteristics of each area.
- Evidence of human activities, including interpretation and habitation, is consistent with the characteristics for which the area was established.

Management Objectives:

- Allow uses that maintain or improve the ecological and research characteristics for which the SIA was designated.
- Recreational use will vary based on the objectives or purposes for which the SIA was established.
- Protect the natural condition of the ecosystem, its processes, and any species or cultural and historical values for which the SIA was established.
- Permit and encourage use by scientists and educators.

Suitability:

- **Timber** – Special Interest Areas are unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Vegetative manipulation may be used to maintain or restore natural conditions, to protect threatened, endangered, and sensitive species, or to protect other values for which the SIA was proposed or designated.
- **Fire** – Special Interest Areas are generally suitable for managed fire use to promote ecosystem function, if consistent with the purpose(s) for which the area was designated.
- **Travel** – These areas are generally suitable for motorized use on designated roads and trails, if such use is not harmful to the values of the area.
- **New Road Construction** – New roads are prohibited unless needed to protect the values for which the area was designated. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Special interest areas may or may not be suitable for livestock grazing, depending on the impacts and reasons for area designation.
- **Livestock Grazing** – Special interest areas may or may not be suitable for livestock grazing, depending on the impacts and reasons for area designation.
- **Other** – Special Interest Areas are generally suitable for other uses to the extent that these uses are in harmony with the purpose for which the area was designated. These areas are unsuitable for commercial communication sites or utility corridors.

Management Guidelines:

- Maintain or restore the natural (or near-natural) conditions and protect the habitat of threatened, endangered, or sensitive species as well as the values for which the special interest area was established.
- Regulate motorized and mechanized travel where necessary to protect the values for which the individual area was proposed or established.
- Facilities are present to the extent needed to maintain the area or to accommodate visitor use.
- Appropriate authorizations are required for the collection of paleontological, geological or plant materials.

Theme 3 – Natural Landscapes with Limited Management

Management guidance is designed to maintain or restore the natural character of these areas while providing limited opportunities for recreation. These areas offer backcountry motorized and non-motorized settings. Travel modes include foot and horse, and may include mechanized and motorized trails. Multiple use activities such as fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common and is managed to maintain the ecological integrity of upland and riparian plant communities. In areas where motorized recreation is suitable, motorcycles, ATVs, and snowmobiles, rather than full-sized passenger vehicles, will generally be allowed, though allowable use may vary.

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with moderate or little evidence of human-caused disturbance. These areas provide non-motorized recreation and a quiet backcountry experience isolated from the sounds of motorized vehicles.

Desired Conditions:

- Improvements such as trailheads, trails, signs, bridges, fences, or shelters that enhance the recreation opportunities may be present. Trails provide hiking, horseback riding, mountain biking, Nordic skiing, and/or snowshoeing opportunities. The potential to view wildlife is high.
- A variety of uncrowded, non-motorized recreation opportunities are provided in a natural or natural-appearing setting.
- Vegetation composition and structure result predominately from natural succession. Non-native vegetation is rare.
- Ecological processes such as natural succession, fire, and insects and disease, are generally allowed to function with little human influence; fire may be re-established where feasible.

Management Objectives:

- All resource management activities are integrated in such a way that natural biological processes are not adversely or artificially changed over time by human use.
- Invasive species are monitored and treated consistent with conservation principles outlined in Chapter 3, Forest-Wide Management Recommendations.
- Pursue acquisition of existing mining claims and withdraw the entire area from mineral entry.
- There is potential for wildlife habitat improvement projects and small vegetation alterations.
- Investments in compatible resource uses such as livestock grazing may occur, but no new roads may be constructed.

Suitability:

- **Timber** – Quiet Use areas are unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Small vegetative management projects may be allowed that benefit wildlife habitat or reduce fuel loads.
- **Fire** – Quiet Use areas are generally suitable for managed fire use to promote ecosystem function.
- **Travel** – Future trail development would be minimal and provide only for non-motorized travel. Current trail designations may allow motorized use in rare circumstances, with the management objective of moving towards non-motorized designation. In general, motorized travel is prohibited except when authorized for special use permit administration, for Forest Service administration, or for emergency purposes. Mechanized travel is generally allowed.
- **New Road Construction and reconstruction of existing roads** – New roads are prohibited.

Reconstruction of existing roads is minimized. Existing unclassified roads should be converted to non-motorized trails or closed and rehabilitated.

- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Livestock grazing, where currently established, will continue and is carefully managed to maintain the integrity of rangeland and riparian systems. Current rangeland infrastructure will be maintained and accessed, but the development of new infrastructure is not common.
- **Recreation** – Discourage competitive contests and group events. Seasonal or year-round restrictions on human use may be applied to provide seclusion for wildlife such as nesting for birds and raptors, big-game rearing areas, and mammals with large home ranges (lynx, mountain lion, wolverine, etc). Recreation amenities and facilities are relatively minimal, and are installed to reduce impacts to the natural resource (e.g. a toilet facility to reduce impacts from dispersed use).

Management Guidelines:

- Management activities should replicate biological processes and strive to replicate natural vegetation pattern.
- Improvement such as trailheads, trails, signs, bridges, fences, or shelters that enhance the recreation opportunities may be present.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat. Connectivity areas are broad, heterogeneous areas that encompass multiple potential movement pathways for one or more species. Management practices maintain a natural condition to provide animals with the security, food and shelter they need to meet their life history requirements. Connectivity areas provide some security from intensive recreational and other human disturbances, and low-intensity dispersed, recreation activities are encouraged.

Desired Conditions:

- The maintenance of wildlife migration and dispersal areas to ensure connection between core areas is emphasized.
- Vegetation composition and structure result predominately from natural succession, and non-native vegetation is rare.
- Ecological processes such as natural succession, fire, and insects and disease, are generally allowed to function with little human influence; fire may be re-established where desirable and feasible.

Management Objectives:

- All resource management activities are integrated in such a way that natural biological processes are not adversely or artificially changed over time by human use.
- Invasive species are monitored and treated, consistent with conservation principles outlined in Chapter 3, Forest-Wide Management Recommendations.
- Pursue acquisition of existing mining claims.
- There is potential for wildlife habitat improvement projects and small vegetation alterations.
- Investments in compatible resource uses such as livestock grazing, mineral exploration and development etc. may occur, but no new roads may be constructed.

Suitability:

- **Timber** – Connectivity Areas are not suitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Small vegetative management projects may be allowed that benefit wildlife habitat or reduce fuel loads.
- **Fire** – Connectivity Areas are generally suitable for managed fire use to promote or restore ecosystem function.
- **Travel** – Future trail development would be minimal and ideally designed for non-motorized travel. Current trail and road designations may allow motorized use, with possible seasonal limitations on motorized use to facilitate migrations. Mechanized travel is generally allowed.
- **New Road Construction and reconstruction of existing roads** – New roads are discouraged, and reconstruction of existing roads is designed to protect the natural resources and promote safety of users. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Leasing may be allowed. Strong, non-waivable lease stipulations such as controlled surface use, timing restrictions and/or No Surface Occupancy are employed to protect natural setting and wildlife habitat. Mining is highly discouraged.
- **Livestock Grazing** – Where currently established, livestock grazing can continue, provided the integrity and sustainability of ecosystems is assured. Current rangeland infrastructure will be maintained and accessed, but the development of new infrastructure is not common.
- **Recreation** – Discourage competitive contests and group events. Seasonal or year-round restrictions on human use may be applied to provide seclusion for wildlife such as nesting for birds, big-game rearing areas, and mammals with large home ranges (lynx, mountain lion, wolverine, etc), or during birthing and periods of migration. Potential security habitats will be protected from concentrated recreational use. Recreation amenities and facilities are developed to reduce impacts to the natural resource, e.g., a toilet facility to reduce impacts from dispersed use.
- **Other** – Provide signage concerning the importance of the area for wildlife where roads or highways traverse these linkage areas. Coordinate with state and federal transportation agencies to implement appropriate restoration measures to ensure the safe passage of wildlife across roads and highways that traverse these linkage areas.

Management Guidelines:

- Adjust livestock grazing to meet wildlife habitat objectives. Limit grazing to no more than 20 percent utilization of forage production each year.
- Motorized travel is minimized to the greatest extent possible to reduce fragmentation and conflicts with wildlife.

Theme 4 – Recreation Emphasis Areas

Lands are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads. Other multiple uses activities can occur as long as those activities are compatible with the recreational goals of a specific area.

Theme 4.1 – Motorized Recreation Areas

Management emphasis is for dispersed and/or concentrated motorized recreation, restricted to designated motorized routes, and concentrated recreation on and near water bodies. These areas should provide the motorized user with safe motorized recreational opportunities in a natural setting. Motorized travel may be restricted or seasonally prohibited to protect physical and biological resources. Despite moderate-to-high levels of motorized use, biological communities are maintained

to provide varied, healthy plant communities, structural stages, and associated wildlife. The potential for contact with other users is moderate to high. Solitude or isolation is less important than the opportunity to participate in desired recreational activities.

Desired Conditions:

- A variety of plant communities, structural stages, and associated wildlife occur in patterns maintained primarily through ecological processes.
- These areas should provide the motorized user with safe and varied difficulty and types of motorized and water-based recreational opportunities in a natural setting.

Management Objectives:

- Conflict with motorized travel groups is minimized through management of roads and trails of varied difficulty and usage.
- To protect sensitive natural resources, some high-use recreation sites may be hardened or further developed, or additional restrictions may be enforced.
- Resource uses such as: livestock grazing, timber management, wildlife management are not emphasized and therefore have little impact on ecological conditions.

Suitability:

- **Timber** – Motorized Recreation Areas are unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Small projects to promote wildlife values or reduce fuel loads may be permitted. Fuelwood gathering may be allowed.
- **Fire** – Motorized Recreation Areas are generally unsuitable for managed fire use to promote ecosystem function. Some individual areas may be suitable for this use.
- **Travel** – Motorized travel is limited to designated roads and trails. Some areas may have seasonally restricted motorized travel to maintain wildlife habitat during seasons of critical use, such as breeding, brood rearing or migration. Travel restrictions are posted at trailheads. Water based activities are compatible with the aquatic and riparian resource goals, and may include restrictions on use of motorboats and personal watercraft.
- **New Road Construction** – New roads and trails may be created, but are discouraged except where need is clearly demonstrated. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Leasing may be allowed, but may be limited to protect the natural setting and recreation experience via lease stipulations, including controlled surface use, timing restrictions and/or no surface occupancy. Recreation facilities may be withdrawn from mineral entry.
- **Livestock Grazing** – Livestock grazing is allowed.
- **Recreation** – Discourage competitive contests and group events. Management controls may be implemented to protect resources or public safety. Allow uses and activities only if they do not degrade the recreational characteristics, scenic qualities, or the environment.

Management Guidelines:

- Livestock will be dispersed so as to avoid concentration in high-use dispersed recreation areas.
- To protect sensitive natural resources, high-use recreation sites may be hardened, further developed, or additional restrictions enforced.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate. These types of areas are managed to protect or preserve the scenic values and recreation uses.

Desired Conditions:

- Opportunities exist to view high-quality scenery that represents the natural, historical and cultural character of the region.
- Travel corridors along scenic byways provide recreation and interpretive facilities that promote the reasons for designation as scenic.

Management Objectives:

- When opportunities exist, vistas and other viewing opportunities are created and maintained, as appropriate.
- Forest management activities may be seen, but will be visually subordinate to the surrounding landscape.
- Because visual quality is emphasized, all activities and interactions maintain the scenic beauty for which the area is designated.
- Work with local governments where appropriate to establish generally consistent management and signage in segments that are adjacent to the forest.

Suitability:

- **Timber** – Scenic Byways are unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Vegetation alterations may be present to enhance viewing opportunities or to maintain long-term vigor and health of the vegetation and ecosystem, to promote wildlife values, or reduce fuel loads.
- **Fire** – Scenic Byways are generally unsuitable for managed fire use to promote ecosystem function. Some individual areas may be suitable for this use.
- **Travel** – Motorized travel is limited to designated roads and trails. Some areas may have seasonally restricted motorized travel to maintain wildlife habitat during seasons of critical use, such as breeding, brood rearing or migration. Travel restrictions are posted at trailheads.
- **New Road Construction** – New roads and trails may be created, but are discouraged, except where need is clearly demonstrated. Existing unclassified roads should be converted to trails or closed and rehabilitated. Reconstruction of existing roads should enhance the purpose of the scenic byway and generally maintain the existing character of the travelway.
- **Mining, Oil & Gas** – Leasing may be allowed within the viewshed of the byway, but may be limited to protect the natural setting and recreation experience via lease stipulations, such as controlled surface use, timing restrictions, and no surface occupancy.
- **Livestock Grazing** – Livestock grazing, where currently established, will continue with an adequate set back from the right of way or other safety measures to prevent animal vehicle collisions.
- **Recreation** – Management controls may be implemented to protect resources or public safety. Allow uses and activities only if they do not degrade the recreational characteristics, scenic qualities, or the environment.

Management Guidelines:

- Reasonable effort can be made to control insect and disease epidemics that threaten the scenic quality of the area, but treatments must not diminish the scenic quality more than would be expected if the epidemic were not controlled.

- These areas or parts of them will be withdrawn from mineral entry when such action is deemed necessary to meet the objectives of the management area.
- Vegetation management practices will be designed to meet scenery resource objectives.

Theme 5 – Active Management

These areas are characterized by a mix of rangeland and forested ecosystems that are managed to meet a variety of ecological and human needs. These lands are identified for active management with the potential for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production. A specific area could potentially have a few or several resource development activities, depending on the characteristics of the land.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality all-season habitat, forage, cover, escape terrain, breeding habitat, and protection for a variety of wildlife species and associated plant communities. Management will provide for a variety of plant communities and successional stages through a combination of human manipulation and natural processes.

Desired Conditions:

- These areas will balance resource uses with the maintenance of sustainable ecosystems.
- A mosaic of vegetation composition, patch size and seral structure is ideally present, some showing the effects of past management activities; but most affected predominantly by natural forces such as fire, insects, and disease.

Management Objectives:

- Landscapes may appear modified with roads and vegetation management activities evident at moderate levels.
- Management activities are designed to enhance habitat for a range of native plant and animal species.
- Management will provide for a variety of plant communities and successional stages, patch size, rotation period, and patterns through a combination of human manipulation and natural processes.
- Forage production is available for both livestock and wildlife.
- Promote development of variety in uneven-age stands appropriate to the range of natural variability of each cover type. Retain late-successional forest conditions where possible and protect old-growth stands.

Suitability:

- **Timber** – These areas are suitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products, as long as these activities do not compromise wildlife habitat. Management practices should promote late-successional stages, and emphasize the restoration and maintenance of habitat quantity and quality for native plant and animal species.
- **Fire** – These areas are generally suitable for managed fire use to promote ecosystem function and to reduce fuel levels.
- **Travel** – Motorized travel is limited to designated roads and trails. Areas may have seasonally restricted motorized travel to maintain wildlife habitat during seasons of critical use, such as breeding, brood rearing or migration. Travel restrictions are posted at trailheads.

- **New Road Construction** – New roads may be built, but the priority should be to reduce overall road density to protect wildlife habitat and reduce road maintenance costs. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activities are generally authorized. Specific areas may have restrictions or prohibitions on activities to protect resources.
- **Livestock Grazing** – Livestock grazing is allowed and is managed to maintain the integrity of rangeland, wildlife habitat and riparian systems.
- **Recreation** – Discourage competitive contests and group events. A wide range of motorized and non-motorized recreational activities exists. Recreational facilities may be present. Dispersed camping opportunities are plentiful.
- **Other** – These areas are generally suitable for commercial communication sites or utility corridors.

Management Guidelines:

- Protect wildlife areas and communities from recreational and resource extraction impacts that are providing important habitat components such as wintering areas, birthing areas, rearing areas and migration routes for wildlife.
- Temporary logging roads should be closed and rehabilitated after each entry is completed.
- Reduce road density in areas of ungulate and wide-ranging predators' concentrations, production and migration areas and areas that have sensitive plants and plant communities.
- Ground cover is adequate to protect the soil and appropriate for the habitat type.
- Range improvements are designed to be compatible with wildlife and aquatic life.
- In areas where adequate, dense, late-successional conifer habitats exist to provide security for lynx denning and movement, vegetation management activities should maintain or enhance habitats important to the lynx' primary prey species, such as snowshoe hare and red squirrel.

Theme 5.2 – Active Management for Human Needs

The Wild Connections team has included this Theme in order to acknowledge the possibility of more intensive uses of certain forest sections. However, as commercial logging is no longer a pervasive use on the Pike-San Isabel, and very little economically recoverable oil and gas reserves exist, this theme is to be used with utmost discretion. Fuels treatment projects are more common, and are allowed in nearly every theme, provided the project adheres to guidelines contained within this plan. Given the shift in forest uses and our focus on sustainable management, the Wild Connections team feels that lands that traditionally would fall into this Theme should be incorporated, save a few exceptions, under Theme 5.1.

Desired Conditions:

- These areas will balance resource uses with the maintenance of sustainable ecosystems.
- A wide variety of vegetation composition and structure is present, some showing the effects of past management activities; others affected predominantly by natural forces such as fire, insects, and disease.

Management Objectives:

- Landscapes may appear modified with roads and vegetation management activities evident at moderate levels.
- Management will provide for a variety of plant communities and successional stages, patch size, rotation period, and patterns appropriate to the range of natural variability of each cover type through a combination of human manipulation and natural processes.
- Forage production is available for both livestock and wildlife.

Suitability:

- **Timber** – These areas are suitable for timber production, timber harvest (including salvage), fuels reduction or commercial use of miscellaneous forest products. Management practices should promote late-successional stages, and emphasize the restoration and maintenance of habitat quantity and quality for native plant and animal species.
- **Fire** – These areas are generally suitable for managed fire use to promote ecosystem function and to reduce fuel levels.
- **Travel** – Motorized travel is limited to designated roads and trails. Some areas may have seasonally restricted motorized travel to maintain wildlife habitat during seasons of critical use, such as breeding, brood rearing or migration. Travel restrictions are posted at trailheads.
- **New Road Construction** – New roads may be built. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activities are generally authorized. Specific areas may have restrictions or prohibitions on activities to protect resources.
- **Livestock Grazing** – Livestock grazing is allowed and managed to maintain the integrity of rangeland and riparian systems.
- **Recreation** – Discourage competitive contests and group events. A wide range of motorized and non-motorized recreational activities exists. Recreational facilities may be present. Dispersed camping opportunities are plentiful.
- **Other** – Protect areas and communities from recreational and resource extraction impacts that are providing important habitat components such as wintering areas, birthing areas, rearing areas and migration routes for wildlife.
- These areas are generally suitable for commercial communication sites or utility corridors.

Management Guidelines:

- Soils exhibit infiltration and permeability rates that are appropriate for that soil type, climate, landform, and geologic processes. Evidence of rills, actively eroding gullies, and soil pedestals are minimal to nonexistent.
- Ground cover is adequate to protect the soil and appropriate for the habitat type.
- Range improvements are designed to be compatible with wildlife and aquatic life.
- All new roads passing through this area will avoid important wildlife forage, cover, and birthing areas.

Theme 7 – Residential Forest Interface

The Wild Connections planning team has included this theme to specifically acknowledge Forest Service lands located within the Wildland-Urban Interface (WUI). The WUI is based on the findings and definitions recommended by the Front Range Fuels Treatment Roundtable. They define the WUI as the area where structures such as private homes or community infrastructure abut or are intermixed with forest and other vegetative fuel types with a density of three structures per acre or 250 people per square mile (which translates to approximately one structure per six acres). A clear line of demarcation generally exists between the wildland fuels and residential, business, and public structures. The private lands are usually undergoing pressure from urban and private residential development (Front Range Fuels Treatment Roundtable Report, 2006).

Desired Conditions:

- Management actions are geared toward influencing the vegetation composition and structure to allow visual screening while minimizing hazardous fuel loading patterns.

Management Objectives:

- Opportunities to consolidate land ownership may be pursued.
- The predominant management objective is to reduce fire danger and fuel loading to protect life, property and public safety.

Suitability:

- **Timber** – These areas unsuitable for commercial timber production, however timber salvage or small scale operations to reduce fuel loads or diseased trees may be utilized. Vegetation treatments occur often to improve public safety, enhance scenery or reduce fuels.
- **Fire** – These areas are generally unsuitable for managed fire use to promote ecosystem function and to reduce fuel levels.
- **Travel** – Motorized travel is limited to designated roads and trails. Numerous open roads provide access to private land.
- **New Road Construction** – New roads may be built, but will be discouraged. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activity is not authorized except for valid existing rights.
- **Livestock Grazing** – Livestock grazing may continue where currently established, but is generally discouraged and is carefully managed to maintain the integrity of rangeland and riparian systems and to minimize conflicts with humans.
- **Recreation** – Prohibit competitive contests and group events. A wide range of motorized and non-motorized recreational activities exists. Dispersed recreation activities requiring overnight stays are not encouraged.
- **Other** – Protect areas and communities from recreational and resource extraction impacts that adversely affect important habitat components such as wintering areas, birthing areas, rearing areas and migration routes for wildlife.

Management Guidelines:

- Management activities are coordinated with other affected landowners.
- Develop, where appropriate and practical, coordinated multi-jurisdictional land management efforts and community fire plans.
- Minimize potential for insect and disease outbreaks through vegetation treatments, maintaining stands at a moderate or lower risk, in cooperation with landowners.
- Develop landownership adjustment patterns in cooperation with local governments, private landowners, forest users and the general public.
- Additional guidelines with respect to fuels treatment projects are listed in Chapter 3.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent ecological conditions and landscape appearances are likely outside their natural range of variability. Management emphasis is generally for a single activity such as highly developed recreation sites for skiing and other activities, utility corridors, or mineral development areas.

Theme 8.1 – Ski Based Resorts

Management emphasis provides for downhill skiing on existing sites. Management integrates ski area development and uses with other resource management to provide healthy forest ecosystems; vegetative diversity; habitat protection for threatened, endangered and sensitive species; forage production for wildlife; and opportunities for summer non-motorized recreation.

Desired Conditions:

- Ski areas provide winter sports activities and other intensively managed outdoor recreation opportunities for large numbers of national and international visitors in highly developed settings.
- Vegetation generally appears in a natural state, except where it is manipulated to provide for the intended intensive use.

Management Objectives:

- Management actions are geared toward influencing the vegetation composition and structure to promote inter-trail tree stands and to minimize hazardous fuel loading patterns.
- Vegetation is managed to avoid catastrophic changes that could result from windthrow, insects, disease, or fire. Disturbed areas are revegetated to restore scenic integrity and minimize erosion.
- Recreational uses are intensively managed during the summer and winter seasons.
- Protection of scenic values is emphasized through application of basic landscape aesthetics and design principles, integrated with forest management and development objectives.

Suitability:

- **Timber** – These areas unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Vegetation treatments occur often to improve public safety, enhance scenery or reduce fuels.
- **Fire** – These areas are generally unsuitable for managed fire use. Fires will generally be suppressed to protect infrastructure.
- **Travel** – Winter motorized travel is limited to administrative and permittee use. In snow-free seasons, designated roads and trails may be open to motorized and mechanized use. Non-motorized use is allowed year-round, as long as it does not interfere with permitted use or damage vegetation.
- **New Road Construction** – New roads may be built. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – These areas are withdrawn from mineral entry, subject to valid exiting rights.
- **Livestock Grazing** – Livestock grazing may continue where currently established, but is generally discouraged and is carefully managed to maintain the integrity of rangeland and riparian systems.
- **Recreation** – Emphasis is on the permitted intensive use. Prohibit competitive contests, except as provided in permits. Dispersed recreation activities requiring overnight stays are not encouraged.
- Management manipulation of forests and non-forest terrestrial vegetation and aquatic systems will emphasize the restoration and maintenance of healthy vegetation and public safety.
- These areas are generally suitable for commercial communication sites or utility corridors.

Management Guidelines:

- Reasonable efforts are made to limit the visibility of structures, ski lifts, roads, utilities, buildings, signs, and other man-made facilities by locating them behind landform features or by screening them behind existing vegetation. Structures should be non-reflective and blend in with the terrain as much as possible.
- Permanent outdoor advertising is not a needed public service and is not allowed.
- Facilities are designed with an architectural theme intended to blend facilities with the natural environment.
- Ski area operations, including new facilities and trails, will protect diurnal security and

nocturnal foraging opportunities for Canada lynx.

- Noise and lighting will be minimized to prevent adverse impacts on adjacent forest resources. Any new snowmobiles needed for service or ski patrol must be four-stroke or clean-technology machines.
- New ski runs may not be created in identified wildlife movement corridors.
- Snowmaking and other water depletions will be conducted in a manner that conserves stream pattern, geometry, substrate composition, and aquatic habitat in affected perennial streams.
- Snow management, including snowmaking will be conducted in a manner that prevents slope failures, gully erosion, and stream bank destabilization.

Theme 8.2 – Permanently Developed Recreation Areas

These areas contain developed recreation sites that provide an array of recreational opportunities and experiences, usually in a forested environment. These types of areas also include the surrounding terrain, resulting in an attractive setting for the developments. Areas are managed to provide concentrated recreation opportunities in multiple-site, highly developed recreation complexes. Major site modifications and facility installations may be present. These areas may appear singly or in a combination at recreational complexes. They may include both private and public facilities that are located on National Forest System lands.

Desired Conditions:

- Management actions are geared toward influencing the vegetation composition and structure to promote visual screening and to minimize hazardous fuel loading patterns.
- Vegetation is managed to avoid catastrophic changes that could result from windthrow, insects, disease, or fire. Disturbed areas are revegetated to protect scenery and minimize erosion.

Management Objectives:

- Recreational activities are emphasized, and are often enhanced by modifying the area, although vegetative cover and soil quality are maintained.
- Recreational uses are intensively managed during the appropriate season(s).
- Protection of scenic values is emphasized through application of basic landscape aesthetics and design principles, integrated with forest management and development objectives.

Suitability:

- **Timber** – These areas unsuitable for timber production, timber harvest (including salvage), or commercial use of miscellaneous forest products. Vegetation treatments may occur often to improve public safety, enhance scenery, or reduce fuels.
- **Fire** – These areas are generally unsuitable for managed fire use to promote ecosystem function and to reduce fuel levels.
- **Travel** – Motorized travel is limited to designated roads and trails. Numerous open roads provide access to roaded recreational and motorized OHV opportunities on designated roads and trails.
- **New Road Construction and reconstruction of existing roads.** – New roads may be built, and existing ones may be reconstructed. Existing unclassified roads should be converted to trails or closed and rehabilitated.
- **Mining, Oil & Gas** – Activity is not authorized except for valid exiting rights. Withdraw the area from mineral entry.
- **Livestock Grazing** – Livestock grazing may continue where currently established, but is generally discouraged and is carefully managed to maintain the integrity of rangeland and riparian systems.

- **Recreation** – Discourage competitive contests. A wide range of motorized and non-motorized recreational opportunities exist.
- Management manipulation of forests and non-forest terrestrial vegetation and aquatic systems will emphasize the restoration and maintenance of habitat quantity and quality for native plant and animal species.

Management Guidelines:

- Reasonable efforts are made to limit the visibility of structures, roads, utilities, buildings, signs, and other man-made facilities by locating them behind landform features or by screening them behind existing vegetation.
- Permanent outdoor advertising is not a needed public service and is not allowed.
- Facilities are designed with an architectural theme intended to blend facilities with the natural environment.
- Vegetation is retained to screen facilities from key viewpoints.
- Recreation sites, including new facilities and trails, will protect diurnal security and nocturnal foraging opportunities for Canada lynx.
- New recreation sites may not be created in identified wildlife movement corridors.

Theme 9 – Significant Lands (Non-USFS)

The Wild Connections planning team utilizes this theme to highlight and acknowledge other lands critical to both habitat and connectivity, such as adjacent National Forests, state parks, private and BLM lands. Although out of the immediate jurisdiction of the USFS, it is critical that Forest management considers the greater ecosystem to which it is connected. Forest activities must be compatible with management activities on these adjacent public lands.

Theme 9.1 – Non-Forest Service Recommended Wilderness

Wild Connections has also included seven large BLM managed roadless areas as they are integral to our overall vision as wilderness core reserves. In some cases they are combined with adjacent USFS land into a larger wilderness area. The Wild Connections team is working with the BLM on the management of these lands. Details are provided in Chapter 6 and in the respective complex Narrative.

Theme 9.2 – Significant Non-Forest Service Biological Areas

Wild Connections has also included State Parks and State Wildlife Areas, especially in South Park, the Wet Mountain Valley and the land between South Park and the Arkansas River due to their important biological values. These are beyond the management authority of the USFS, but as the Wild Connections Conservation Plan is focused on larger ecoregion sustainability, these lands are critical to acknowledge regardless of political ownership.

Theme 9.3 – Non-Forest Service Connectivity Areas

Wild Connections has identified large linkage corridors across other lands. Although these lands themselves are beyond the administrative authority of the USFS, it is vital to protect the entry and exit paths from USFS lands which animals are using to access these corridors.

Chapter 5 – Complexes: Area-Specific Management Recommendations

This section contains our detailed, area-specific proposal utilizing the theme based approach to land management. As an organizational tool, this proposal divides the Pike-San Isabel National Forest into eleven separate **Complexes**, based on geo-physical characteristics of the land such as mountain ranges, parklands, or canyon systems. Each complex narrative provides details and justifications for our management recommendations for specific areas. In order to emphasize the larger landscape and connectivity of these lands with the ecoregion, commentary on relationships to adjacent non-Forest lands are also included.

Evaluations of ecological value across public and private lands are used throughout this chapter. The Colorado Natural Heritage Programs rates the biodiversity of Potential Conservation Areas (PCAs) as General Biodiversity, Moderate, High, Very High, and Outranking Significance. The Nature Conservancy assesses the conservation value of its Conservation Blueprint areas as Low, Moderately Low, Moderate, Moderately High and High. The Southern Rockies Ecosystem Project's Wildlands Network Vision recommends land use designations of Core Wilderness, Core Agency, Low and Moderate Compatible Use, and Wildlife Linkages. Detailed explanations are available from the respective organizations.

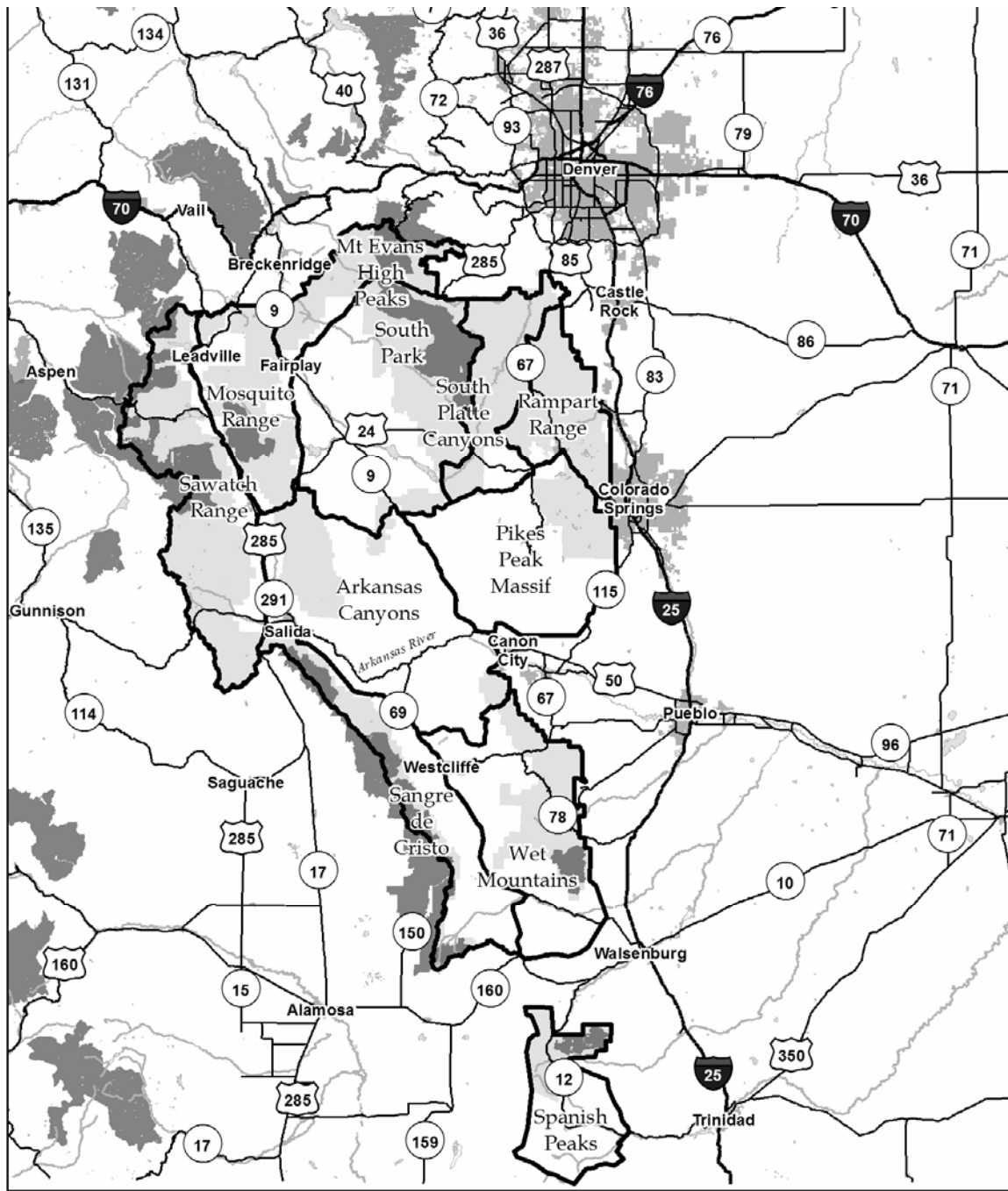
Complexes – Summary List by Watershed

Table 5.1: Summary of WCCP Complexes

Watershed	Complex	Ranger District
South Platte	Mount Evans High Peaks	South Platte & South Park
	South Park	South Platte & South Park
	South Platte Canyons	South Platte & South Park
South Platte and Arkansas	Mosquito Range	South Park, Leadville and Salida
	Pikes Peak Massif	Pikes Peak
	Rampart Range	South Platte & Pikes Peak
Arkansas	Sawatch	Leadville and Salida
	Arkansas Canyons	Salida, San Carlos & BLM Royal Gorge Resource Area
	Sangre de Cristo	Salida and San Carlos
	Wet Mountains	San Carlos
	Spanish Peaks	San Carlos

Complexes – Map Locater

Map 5.1: Wild Connections Complexes



Wild Connections Conservation Plan Geographic Complexes

- Interstate Highway
 - U.S./State Highway
 - City
 - Pike & San Isabel National Forest
 - Wilderness Area
 - WCCP Complex
- 0 25 50 Miles

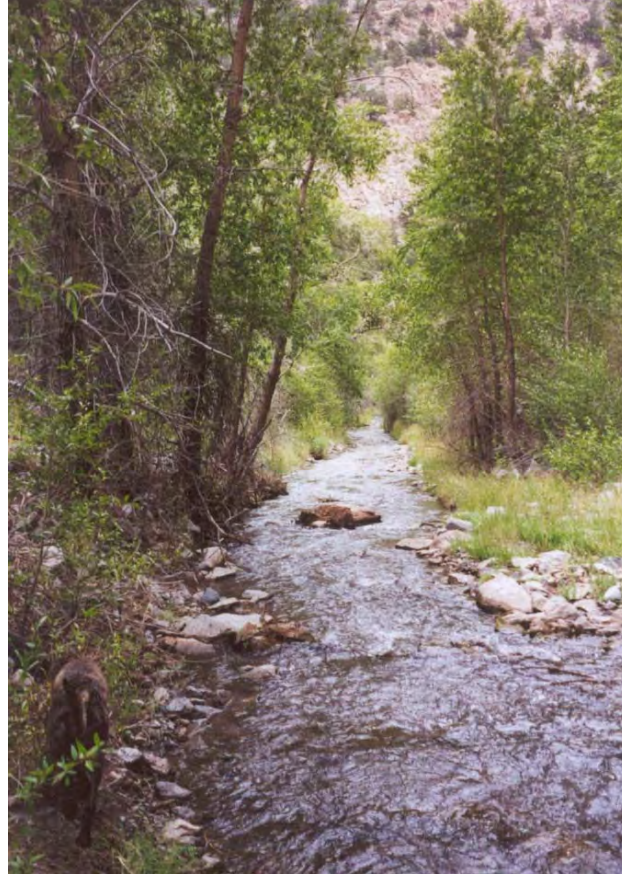
Complexes defined by the Upper Arkansas and South Platte Project as of 2006. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004).



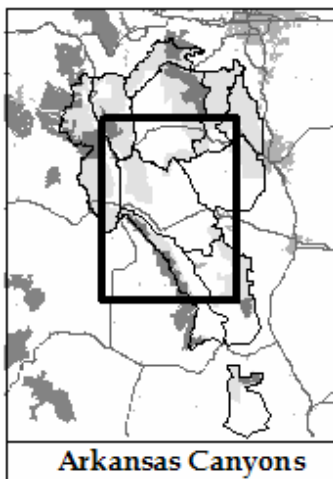
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Complex Narratives

The Arkansas Canyons Complex



Badger Creek roadless area



The Arkansas Canyons Complex includes the southern Mosquito Range and BLM lands along the Arkansas River canyon from Trout Creek Pass to the northern Wet Mountain valley and Royal Gorge.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.2: Arkansas Canyons Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Arkansas Canyons complex includes the southern Mosquito Range and BLM lands along the Arkansas River canyon from Trout Creek Pass to the northern Wet Mountain Valley. The complex ranges from rugged canyons and challenging waterways along the Arkansas River and its tributaries to open unconfined vistas on the high plateau between the river and the edge of South Park.

A description of the landscape, vegetation, wildlife and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

On the north, the watershed divide between the South Platte and the Arkansas basins at the southern edge of South Park and Highway 24/285 across Trout Creek Pass define the boundary of the complex. Highway 24 is on the west. The foothills of the Sangres and across the northern Wet Mountain Valley and Wet Mountains make up the southern boundary. On the east, the complex extends to CO 9 and Current Creek. The complex includes lands in Chaffee, Park, and Fremont Counties. The Arkansas River flows into the complex just south of Buena Vista and continues through Browns Canyon, turning southeast at Salida until it reaches Cotopaxi. Here the river turns northeast, entering Sheep Canyon with its rugged red rock formations and river rapids, until it reaches the Royal Gorge and continues on out of the complex through Cañon City. The Arkansas River descends from around 7,800 feet in the northwest to around 5,400 feet in the southeast. Waugh Mountain at 11,718 feet and Black Mountain at 11,654 feet, in the north central portion of the complex, form the high points of the complex. Significant tributaries to the Arkansas River from northwest to southeast include Trout Creek, Browns Creek, Ute Creek, Badger Creek, South Arkansas River, Texas Creek, Tallahassee Creek, Currant Creek, Cottonwood Creek, Copper Gulch, Oak Creek, and Grape Creek.

The vegetation on the National Forest lands within the Arkansas Canyons complex are fairly evenly divided among piñon-juniper near the Arkansas River, ponderosa pine east of Browns Canyon, and Douglas-fir southeast of Browns Canyon and east of Grape Creek. There are smaller areas of foothill and mountain grasslands east of Browns Canyon towards South Park, aspen on Aspen Ridge, semi-desert and sagebrush shrubland near Big Baldy Mountain, Engelmann spruce-subalpine fir mostly on Black Mountain, and prairie northeast of Browns Canyon. Black Mountain is noted for its ancient bristlecone pines. Much of the high plateau land within the complex is managed by the BLM and piñon-juniper is the most common vegetation type on these lands.

There is habitat for a large range of species including mountain lion, bobcat, black bear, mule deer, elk, bighorn sheep, a variety of raptors and smaller mammals, and many others. Pronghorn antelope, mule deer, elk, and bighorn sheep have winter range and breeding areas particularly in the canyons near the Arkansas River and Grape Creek. The bighorn sheep band that roams both sides of the Arkansas River is notable. Current and historical rare and sensitive species include strigose Easter-daisy (*Townsendia strigosa*), Arkansas Canyon stickleaf (*Nuttallia densa*), Degener beardtongue (*Penstemon degeneri*), American peregrine falcon (*Falco peregrinus anatum*), and common hog-nosed skunk (*Conepatus leuconotus*). A number of rare or sensitive natural communities that reflect

the lower elevation and riparian ecosystems, such as cottonwoods, willows, and piñon-juniper, are found in the Arkansas Canyons complex.

Ecological values of the complex

In addition to providing all the typical canyon land and lower montane vegetation types supporting a wide range of species, the Arkansas Canyons complex includes many rich and unique biological areas. The proposed Research Natural Areas (RNA) within the complex are Badger Creek, Black Mountain, Cottonwood Spring, and Tanner Peak. In addition, the Colorado Natural Heritage Program lists more than twenty-five Potential Conservation Areas (PCA) in the complex with most having high, very high, or outstanding significance. The State of Colorado protects two State Fishing Units along the Arkansas River near Salida in the complex. There are four BLM Areas of Critical Environmental Concern (ACEC) and one Colorado Natural Area, as well as three BLM Wilderness Study Areas (WSA) in the complex. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes most of the land along the Arkansas River and Grape Creek with moderate priorities. Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP’s Vision) proposes that most of the National Forest lands in the complex be protected as wilderness, wildlife linkages or low use areas. In addition, SREP’s Vision proposes wilderness and wildlife linkages on the lands along the Arkansas River outside of the National Forest. Clearly various conservation approaches rate the Arkansas Canyons complex highly for its biological richness.

Wilderness and Roadless Areas

Much of the roadless lands within the Arkansas Canyons are in the low elevation foothills and montane life zones that are not well protected as designated Wilderness in Colorado. Table 5.2 lists the roadless areas in the Arkansas Canyons.

Table 5.2: Arkansas Canyons Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Arnold Gulch	8,600	Yes
Badger Creek	25,200	Yes*
Bear Mountain	17,500	n/a**
Browns Canyon/Aspen Ridge	24,400	Yes*
Grape Creek/Tanner Peak	44,200	Yes*
Kauffman Ridge	12,200	No
McIntyre Hills	17,300	n/a**
Table Mountain	25,500	n/a**

* Includes land managed by the US Forest Service and by the Bureau of Land Management

** Entirely on land managed by the Bureau of Land Management

Wilderness Areas

There are no currently designated wilderness areas within the Arkansas Canyons complex.

Unprotected roadless areas

The Upper Arkansas and South Platte Project mapped eight roadless areas in the Arkansas Canyons complex. The roadless areas include four that were originally part of the Roadless Area Conservation Rule Inventoried Roadless Areas. Within the National Forest, one additional roadless area was found - Kauffman Ridge - that was not part of the Roadless Area Conservation Rule inventory. Outside the National Forest, typically on BLM lands, three additional roadless areas were mapped: Bear Mountain, Table Mountain, and the McIntyre Hills Wilderness Study Area (WSA). The roadless areas in the Arkansas Canyons complex are described below from northwest to southeast roughly following the Arkansas River.

Kauffman Ridge

Kaufman Ridge is a 10-mile long area that follows the ridge south of Trout Creek Pass along the Chaffee and Park County line – the first ridge above the Board Cabins Gulch area of South Park.

The 12,200 acre Kauffman Ridge roadless area was not part of the Roadless Area Conservation Rule inventory.

The vegetation in the northeast end of the Kauffman Ridge roadless area is predominately Douglas-fir mixed with aspen. Ponderosa pine is found in the west portion, with large areas of aspen in the central and south-central areas. There are some scattered areas of mountain shrubland, and grasslands found along the west, south, and east sides of the roadless area. The headwaters for Trout Creek are in the center of the roadless area. Mountain parklands, wooded areas, interesting rock outcrops, and freshwater springs are all found in this roadless area. Rushes, mountain shrubs, and other wetland species are found along the numerous creeks and gulches in this area. Natural caves and quarries are also found here.

Elk and mule deer have both summer and winter range across the whole area, with calving areas on the north and south ends and a deer winter concentration area on the east side. Bighorn sheep winter range and a lambing area are found on the northwest side.

The Southern Rockies Wildlands Network Vision proposes that the northern and southern portions of the roadless area be managed as low use areas and the central portion be managed as a wildlife linkage.

Arnold Gulch

The Arnold Gulch roadless area is near the northwest corner of the Arkansas Canyons complex and includes Triad Ridge, Bald Mountain, and Bassam Park. Arnold Gulch descends between Triad Ridge and Bald Mountain flowing westward down to the Arkansas River. The Arnold Gulch roadless area at 8,600 acres is smaller than the corresponding area in the Roadless Area Conservation Rule inventory, likely due to heavy recreational vehicle usage between Arnold Gulch and Bald Mountain Gulch.

The vegetation in the north end of the Arnold Gulch roadless area is predominately Douglas-fir. Piñon-juniper is found in the lower western part and ponderosa pine in the southeastern part of the area. Riparian species along Arnold and Bald Mountain Gulches contrast sharply with the surrounding shrubland.

Elk and deer have both summer and winter range here, while bighorn sheep winter range and a lambing area are found in the Arnold Gulch area.

Amateur and professional paleontologists surveying Bassam Park in the Arnold Gulch roadless area found fossil remains of what they believe is the oldest dipnoans (lungfish) in the United States. This species of lungfish is known to have lived in freshwater environments. The Bassam Park survey provided evidence that dipnoans were also found in marine environments.

[http://gsa.confex.com/gsa/2004AM/finalprogram/abstract_75220.htm]

The Cottonwood Spring proposed RNA includes lands in the southwestern part of the Arnold Gulch roadless area and is rated of high biological value by Center for Native Ecosystems. The Southern Rockies Wildlands Network Vision proposes that most of Arnold Gulch be managed as a wildlife linkage.

Browns Canyon

Browns Canyon is a whitewater canyon on the Arkansas River between Buena Vista and Salida. The Browns Canyon roadless area consists of 24,400 acres of the rugged canyon walls east of the

Arkansas River up to Aspen Ridge. The western half is the BLM's Browns Canyon Wilderness Study Area (not included in the Roadless Area Conservation Rule inventory) and the eastern half is the USFS Aspen Ridge Inventoried Roadless Area. The boundaries of the Browns Canyon roadless area within the National Forest correspond approximately to the boundary for Aspen Ridge in the Roadless inventory. Some of the Roadless Area Conservation Rule inventory area west of Coons Park in the northern portion was discovered to have roads and was excluded from the Browns Canyon roadless area. The area is noted for its rugged topography, which drops precipitously from Aspen Ridge down to the river, with many large rock formations and meandering side canyons.

Vegetation in Browns Canyon is predominately piñon-juniper with some areas of ponderosa pine and Douglas-fir in the higher eastern areas. There are scattered areas of bristlecone and limber pine, a few aspen stands – although most aspen are to the east of the roadless area – and isolated grassland openings.

Pronghorn antelope winter range is found five miles west of the Browns Canyon roadless area over the ridge in South Park and a migration corridor runs from there west to the Arkansas Valley, skirting the south end of Browns Canyon. Elk winter range and calving areas are found here. Bighorn sheep utilize the roadless lands for winter range and lambing areas, which are located on the northern and southern extremities of the area. Mule deer can be found here in all seasons, with a large winter concentration area in the central part of the area. Rare and sensitive plants and natural communities include the strigose Easter-daisy (*Townsendia strigosa*), narrowleaf cottonwood/Rocky Mountain juniper (*Populus angustifolia/Juniperus scopulorum*) montane riparian forests, and water birch/mesic forb (*Betula occidentalis/mesic forb*) foothills riparian shrubland.

The Cottonwood Spring proposed RNA includes lands in the northern part of the Browns Canyon roadless area and is rated of high biological value by Center for Native Ecosystems. The Browns Canyon ACEC covers all the BLM portion of the Browns Canyon roadless area. The Browns Canyon on Arkansas River PCA is rated an area of very high significance and includes the river corridor and significant lands in the lower elevations and up the Cottonwood Creek drainage. The Nature Conservancy's large Cottonwood Pass conservation blueprint area is of moderate conservation value and includes lands in the Browns Canyon roadless area. SREP's Vision proposes that the roadless area be managed as core wilderness. The Browns Canyon Wilderness Bill has been introduced in both the House and Senate with action expected during this Congressional session.

Badger Creek

Badger Creek flows south from the western edge of South Park, crossing state, BLM and National Forest land as it makes its way to the Arkansas River. The 25,200 acre Badger Creek roadless area is east of Salida and includes lands on both sides of Badger Creek north of the Arkansas River. The boundaries of the Badger Creek roadless area within the National Forest are a bit larger than the boundaries in the Roadless Area Conservation Rule inventory. The Badger Creek roadless area also includes BLM lands southeast and southwest of the roadless forest lands. These contiguous lands add additional lower elevation habitat on the south part of the roadless area.

Vegetation in Badger Creek is predominately piñon-juniper, with some areas of semi-desert shrublands and sage on the southwest. Large aspen stands and montane grasslands intermingle in the uplands, while ponderosa pine and Douglas-fir cover higher elevations in the north. There are several important riparian plant communities: narrowleaf cottonwood/coyote willow riparian

forests (*Populus angustifolia/Salix exigua*), montane wet meadows with water sedge (*Carex aquatilis*); two types of montane riparian forest, narrowleaf cottonwood/thinleaf alder (*Populus angustifolia/Alnus incana*) and narrowleaf cottonwood/water birch (*P. angustifolia/Betula occidentalis*), and two coyote willow communities (*Salix exigua*/bare ground and *S. exigua*/mesic graminoid).

Elk winter range is found throughout Badger Creek roadless area and two elk calving grounds are located just east of the roadless area. Elk migration corridors connect Browns Canyon, the Black Mountain vicinity, and Badger Creek, with one corridor passing through the northern portion of the roadless area. Mule deer have both summer and winter range across the area, with high winter concentrations on the southeast side. High summer bear activity is found across the whole area. Bighorn sheep frequent the canyon in summer, and in winter they concentrate at the north end of the roadless area in the Badger Creek canyon. There is a large bighorn lambing area in the north part, as well. The not-so-common hog-nosed skunk (*Conepatus leuconotus*) is found here. Mountain lions frequent the area and bald eagles have been observed by hikers.

The Badger Creek proposed RNA is completely contained in the Badger Creek roadless area. The southeastern corner of the roadless area is a PCA of high significance. The Nature Conservancy Middle Arkansas River conservation portfolio area of moderate significance intersects the south end of the roadless area. The Southern Rockies Wildlands Network Vision proposes that most of the roadless area be managed as core wilderness and the rest as wildlife linkage.

Bear Mountain

The Bear Mountain roadless area of 17,500 acres extends north from the Arkansas River between Bernard Creek on the west and Texas Creek Gulch and East Gulch on the east. It is northeast of Cotopaxi and northwest of the community of Texas Creek. The Bear Mountain roadless area is primarily on land managed by the BLM, identified in the agency's wilderness inventory process. It is not on Forest Service land and, therefore, was not part of the Roadless Area Conservation Rule inventory.

Vegetation in the roadless lands is predominately piñon-juniper with wetland and riparian species along the Arkansas River and along Fernleaf Gulch in the south central part of the area. At the northern end there are some areas of foothills and mountain grassland and ponderosa pine. Rare plant communities include coyote willow/bare ground (*Salix exigua*/bare ground), narrowleaf cottonwood/water birch (*Populus angustifolia/Betula occidentalis*), narrowleaf cottonwood/Douglas-fir (*P. angustifolia-Pseudotsuga menziesii*), and narrowleaf cottonwood/coyote willow (*Populus angustifolia/Salix exigua*) riparian forests. There are many locations of the rare Arkansas Canyon stickleaf (*Nuttallia densa*).

Bighorn sheep summer and winter range is found across the southeastern part of the area, with winter concentrations and a large lambing area in the south central portion of the area. Bear Mountain is part of a large winter concentration zone for mule deer that runs from east of Badger Creek to well south of the Arkansas River. High summer bear activity is found across the whole area.

The Cotopaxi PCA intersects the southwest corner of Bear Mountain and the Echo Canyon at East Gulch PCA intersects the eastern side of the roadless area – both are rated as having very high biodiversity. Much of Bear Mountain is within The Nature Conservancy Middle Arkansas River conservation portfolio area of moderate conservation value. The Southern Rockies

Wildlands Network Vision proposes that most of Bear Mountain be managed as a wildlife linkage.

Table Mountain

Table Mountain is a high plateau with elevations to 9,500 feet south and west of Tallahassee Creek and north of the Arkansas River. Texas Creek Gulch and East Gulch bound the roadless area on the west. It is northeast of the community of Texas Creek and northwest of Parkdale. The Table Mountain roadless area is approximately 25,500 acres and is primarily on land administered by the BLM, identified in the agency's wilderness inventory process. The roadless area is not on Forest Service land and, therefore, was not part of the Forest Service's Roadless Area Conservation Rule inventory.

Vegetation in the Table Mountain roadless area is predominately piñon pine and juniper. In the higher northern reaches of the area there is some mountain shrubland, semi-desert and sagebrush shrubland and ponderosa pine, as well as expanses of unusual foothills and mountain grassland. Rare plant communities include coyote willow/mesic graminoid (*Salix exigua*/ mesic graminoid), narrowleaf cottonwood/water birch (*Populus angustifolia*/*Betula occidentalis*) montane riparian forests, and narrowleaf cottonwood/coyote willow (*Populus angustifolia*/*Salix exigua*) riparian forests. There are a number of locations of the rare Arkansas Canyon stickleaf (*Nuttallia densa*) and Degener beardtongue (*Penstemon degeneri*) is found here.

Bighorn sheep summer range is found across most of the area, with winter range and a large lambing area on the south side. The sizeable Arkansas Canyon bighorn sheep band frequents this section of the canyon, on both sides of the river, generally separated into two groups, as the river and Highway 50 are a formidable barrier for wildlife moving north and south. Mule deer are found here both summer and winter, with major winter concentrations only on the far west side and into the Texas Creek/East Creek drainage and Bear Mountain roadless area. Like many other areas in this complex, high summer bear activity is found across the whole area and mountain lion frequent the area.

The McIntyre Hills BLM WSA and roadless area is located immediately to the south, separated only by the Arkansas River and Highway 50. The Southern Rockies Ecosystem Project has identified a linkage for bighorn sheep between the Table Mountain roadless area and the McIntyre Hills roadless area. The linkage is rated as having low priority for ecological significance.

The Echo Canyon at East Gulch PCA intersects the western side of Table Mountain and is rated as having very high biodiversity. The BLM High Mesa ACEC, which is also the Colorado Natural Area Program's High Mesa Grasslands Natural Area, is located in the northeast portion of Table Mountain. The Arkansas Canyonlands ACEC covers nearly all of Table Mountain. Much of the roadless area is within The Nature Conservancy Middle Arkansas River blueprint area of moderate conservation value. The SREP's vision proposes that most of the roadless area be managed as core wilderness.

McIntyre Hills

The McIntyre Hills roadless area lies south of the Arkansas River from Texas Creek to Parkdale. It is bounded on the west by Colorado Highway 69, on the east by the Copper Gulch Road, and on the south by the BLM boundary north of the Copper Gulch and Road Gulch. The McIntyre Hills roadless area covers 17,300 acres just south of the Table Mountain roadless area, separated only by the Arkansas River and Highway 50. The McIntyre Hills roadless area is managed by the

BLM as a Wilderness Study Area. The roadless area is not on Forest Service land and, therefore, was not part of the Roadless Area Conservation Rule inventory.

Vegetation in the McIntyre Hills roadless area is predominately piñon-juniper, with scattered Douglas-fir and ponderosa pine in higher southern reaches.

High summer black bear activity is found across the whole area and mountain lion frequent the area. Elk and mule deer summer and winter range is found in McIntyre Hills. The roadless lands are part of a large elk concentration area extending southwest to the Sangre de Cristos and southeast to the Wet Mountains. Bighorn sheep summer range is found across most of the area, with winter range and a large lambing area on the north side. The sizeable Arkansas Canyon bighorn sheep band frequents this section of the canyon, on both sides of the river, generally separated into two groups, as the river and Highway 50 are a formidable barrier for wildlife moving north and south. The Southern Rockies Ecosystem Project has identified a linkage for bighorn sheep between the McIntyre Hills roadless area and the Table Mountain roadless area to the north across the Arkansas River. The linkage is rated as having low priority for ecological significance. Rare and sensitive species found here include the Arkansas Canyon stickleaf (*Nuttallia densa*) and Degener beardtongue (*Penstemon degeneri*).

The Echo Canyon at East Gulch PCA barely intersects the far western side of McIntyre Hills and is rated as having very high biodiversity. The McIntyre Hills PCA intersects the northern part of McIntyre Hills along the river and is rated as having very high biodiversity. The BLM Arkansas Canyonlands ACEC overlaps the roadless area on the north and west. Much of McIntyre Hills is within The Nature Conservancy Middle Arkansas River portfolio area of moderate conservation value. The Southern Rockies Wildlands Network Vision proposes that all of McIntyre Hills be managed as core wilderness.

Grape Creek

Grape Creek's headwaters begin in the Sangre de Cristo Mountains. The creek flows through DeWeese Reservoir in the Wet Mountain Valley and then northeast to join the Arkansas River east of the Royal Gorge. The Grape Creek roadless area, located southwest of Cañon City and south of the Royal Gorge, includes 44,200 acres of land on both sides of the creek upstream from its confluence with the Arkansas. The creek traverses the Grape Creek BLM Wilderness Study Area. East of the creek is the Forest Service Tanner Peak Inventoried Roadless Area. The combined BLM-Forest Service roadless area extends southeast from South Webster Park onto the DeWeese Plateau between Copper Gulch on the west and Oak Creek on the east.

Vegetation in the Grape Creek roadless area is predominately piñon-juniper and Gambel oak shrublands on the west with Douglas-fir and some ponderosa pine and Gambel oak on the higher forested portion to the east. Arkansas Canyon stickleaf (*Nuttallia densa*) and Degener beardtongue (*Penstemon degeneri*) are rare plants found here. Several sensitive montane riparian forest and riparian woodland natural communities: Rocky Mountain juniper (*Juniperus scopulorum*), narrowleaf cottonwood/Douglas-fir (*Populus angustifolia-Pseudotsuga menziesii*), and narrowleaf cottonwood/Rocky Mountain juniper (*P. angustifolia-Juniperus scopulorum*) were identified here. There are large ponderosa pines in the Grape Creek flood plain near the confluence with Bear Creek.

Pronghorn antelope migrate through the west side of the area, moving between winter range located north of Grape Creek as far as the Arkansas River and a very large winter range in the Wet Mountain Valley. Elk and mule deer summer and winter range is found across all of Grape Creek. Bighorn sheep winter range and lambing areas are found in Grape Creek. High summer

bear activity is found across the whole area, and the more-forested eastern portion is an area of high fall activity for bears. Mountain lion frequent the area. American peregrine falcon (*Falco peregrinus anatum*) can be found here, as the canyons provide good habitat.

There are two PCAs in Grape Creek. Grape Creek at Bear Gulch follows the creek through the whole area and is rated as having very high biodiversity. Curley Peak PCA, located in the east central part of Grape Creek, is rated as having very high biodiversity. The BLM Grape Creek ACEC encompasses the center of the area, generally following the creek. The Nature Conservancy's conservation blueprint Middle Arkansas River and Greenhorn Mountain areas, which are of moderate conservation value, include land in the middle of Grape Creek. The Southern Rockies Wildlands Network Vision proposes that all of Grape Creek be managed as core wilderness.

Historical and Cultural Features of the Arkansas Canyons

Some archeological, historical and cultural features of note include the following:

- Captain Zebulon Montgomery Pike came into this area after failing to summit the peak that now bears his name. In early December 1806 he and his twenty-three man brigade went due north from Cañon City into South Park, proceeded across Trout Creek Pass and following what they thought was the Red River, to their surprise, found themselves back where they started. They noted the cold weather and wondered if they had found the source of the Red River. [McTighe, 1989]
- Salida, between the Browns Canyon and Badger Creek roadless areas, has a long history as a supply town for mining and farming. On April 29, 1855 a surprise attack near present day Salida by the US Cavalry on a tribe of Ute Indians was a major victory in the long battle with Indians in Colorado. This was a major factor in opening up the state for settlement. However, the city fathers were not successful in their bid in 1881 to have Salida declared the state capital.
- Royal Gorge at the eastern edge of the complex was the site of a struggle to secure the right of way for a railroad line. The Denver & Rio Grande railroad battled the Atchison, Topeka & Santa Fe. In 1878 and 1879 the contest was waged on the ground and in the courts with the Denver & Rio Grand railroad eventually winning the right of way. By 1880 the train had reached Salida. A unique cantilevered bridge across the gorge is a great tourist attraction to this day, although it goes to no destination other than the opposite cliff.
- A cattleman named Texas Creek, near the Bear Mountain, Table Mountain and McIntyre Hills roadless areas. The town of Texas Creek was established around 1880. [McTighe, 1989]
- Cotopaxi, near the Bear Mountain roadless area, was the site of an agricultural colony of Russian-American Jews from 1882-1884. Poor farming conditions and the greed of the colony's founder led to the colony's demise.
- Turret, near the Browns Canyon roadless area, is a historic gold mining camp that was founded in 1897. Turret had a peak of 400 residents in 1941 and has historic structures still standing.
- Numerous other mines and historic mining settlements exist in the complex.
- A short-lived railroad was constructed along Grape Creek from Cañon City to Westcliffe, but washed out in a matter of months, never to be rebuilt. The roadbed and a few small building foundations are visible in a few locations along the stream.

Management Recommendations

Overview

Because of the ecological value of permanent protection, the Wild Connections team recommends three National Forest areas for future Wilderness designation (Theme 1) in the Arkansas Canyons complex, as well as recommending five non-National Forest future Wilderness areas. There are four new proposed RNAs (Theme 2); two connectivity areas (Theme 3), and one area recommended for active management as wildlife habitat (Theme 5). Grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads, and dispersed camping is allowed throughout the complex, except for statutory restrictions on activities in designated or proposed wilderness areas. Table 5.3 lists the major management units by theme. Refer to the Arkansas Canyons Complex map for specific locations and roadless area descriptions for more details on the unit.

Table 5.3: Arkansas Canyons Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Badger Creek	16,600	1.2 Recommended Wilderness (with BLM area Badger Creek)
Browns Canyon Aspen Ridge	12,100	1.2 Recommended Wilderness (with BLM area Browns Canyon)
Tanner Peak	17,100	1.2 Recommended Wilderness (with BLM area Grape Creek)
Theme 2 – Special Areas		
Badger Creek RNA	8,500	2.1 Research Natural Areas
Black Mountain RNA	1,200	2.1 Research Natural Areas
Cottonwood Spring RNA	7,900	2.1 Research Natural Areas
Tanner Peak RNA	3,600	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Jack Rabbit Hill	35,800	3.2 Connectivity Areas
Trout Creek Pass (also in Mosquito Range)	73,900	3.2 Connectivity Areas
Theme 5 – Active Management		
Thirtynine-Thirtyone	27,900	5.1 Active Mgmt - Wildlife Habitat
Theme 9 – Significant Lands (Non-USFS)		
Badger Creek BLM	8,700	9.1 Non-USFS Recommended Wilderness
Browns Canyon WSA	7,900	9.1 Non-USFS Recommended Wilderness
Grape Creek WSA	27,200	9.1 Non-USFS Recommended Wilderness
McIntyre Hills	17,300	9.1 Non-USFS Recommended Wilderness
Table Mountain	25,500	9.1 Non-USFS Recommended Wilderness
Bear Mountain West	17,500	9.2 Significant Non-USFS Biological

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed Wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for designation of (west to east) of the Forest Service Aspen Ridge part of the larger Browns Canyon proposed Wilderness, Badger Creek, and the Tanner Peak part of the larger proposed Grape Creek Wilderness. The Browns Canyon Wilderness Bill was introduced in the House and Senate in November 2005. These proposed Wilderness areas are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless boundary. The following benefits were considered in making Wilderness recommendations: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation. Of most importance, adding these Wilderness areas will expand the representation of protected low elevation ecosystems in the Pike-San Isabel, Region 2, and the National Wilderness System. They will also maintain some balance between unroaded areas and the heavy motorized use across both the Forest and BLM lands, especially in the Texas Creek vicinity.

We believe that all of these areas meet the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These criteria are discussed for the complex as a whole, below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. They all provide opportunities for solitude, challenge, and unconfined recreation once the trailheads are left behind. There are rugged canyons, steep ravines, and deep valleys without trails, high plateau lands with long undisturbed views, and forested ridges. The imprints of humans are substantially unnoticeable, as care was taken to exclude major mining areas and recent logging operations. Historic mining operations are primarily outside of the proposed wildernesses. At the same time, remnants of human habitation and use give clear pictures of the mining history of the area, while providing a lesson in the length of time it takes for nature to heal in an unforgiving climate. Logging was limited within the proposed wilderness and old access roads are recovering, bringing an end to signs of human use.

Availability

All the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines. The watersheds and streams are already allocated, and no new water projects are planned. Major highways are not anticipated to affect the areas. The Arkansas Canyons complex is not appropriate for timber harvest. The vegetation within the area is largely intact with much of it tending toward mature and old growth characteristics. All or part of Bassam, Aspen Ridge, and Cameron C & H grazing allotments would be grandfathered in with Wilderness designation, although over time they could be retired, where feasible. Overall, there are no known or anticipated threats to the proposed wilderness areas that would preclude their designation as wilderness.

Suitability

The main uses that would be forgone in newly designated Wilderness are those of motorized recreation on newly created or illegal roads. However, the development history of this complex has created considerable motorized access to the perimeters of the roadless areas. Dispersed

camping and motorized recreation would still be permitted in and around the Arnold Ridge, Kauffman Gulch, and Aspen Ridge roadless areas near Browns Canyon and in the gulches and old mining areas between Browns Canyon and Badger Creek. The high plateau lands above the Arkansas River Canyons can be accessed through Texas Creek Gulch west of Table Mountain roadless area, while Copper Gulch between McIntyre Hills and Grape Creek provides access to the DeWeese Plateau and Wet Mountain Valley. The Tanner Peak portion of Grape Creek contains several motorized trails that would need to be converted to foot and horse travel. Wilderness designation will protect these unique wild areas from damage by off-road vehicles.

The designation of the proposed Wildernesses would enhance numerous ecological, economic, and social values present in this complex:

- The areas add low-elevation ecosystems, often with substantial riparian zones, to the National Wilderness System, including lands along the Arkansas River, Badger Creek and Grape Creek.
- Grape Creek, McIntyre Hills and Table Mountain form a unit along the Arkansas River Canyon providing ecological linkages from the Wet Mountains to South Park. Badger Creek and Browns Canyon extends the connectivity west and north towards the Mosquito Range.
- Habitat protection is provided for many rare and endangered plants and animals, including Strigose Easter-daisy (*Townsendia strigosa*), Arkansas Canyon stickleaf (*Nuttallia densa*), Degener beardtongue (*Penstemon degeneri*), American peregrine falcon (*Falco peregrinus anatum*), and the not-so-common common hog-nosed skunk (*Conepatus leuconotus*).
- Domestic agricultural water supplies are best protected from erosion and pollution when they are located on roadless lands. The Arkansas Canyons complex includes many tributaries to the Arkansas River that provides the water supply for Pueblo and many farming communities in Eastern Colorado, Kansas, Oklahoma, Arkansas and Missouri. The Arkansas is the longest tributary in the Missouri-Mississippi system and is the fourth largest river in the United States.
- Designation of this complex would help ensure that the impacts of fragmentation by roads, damage to riparian zones, loss of old-growth forests, and conversion to intensive recreation would not be exacerbated.
- Solitude and backcountry recreational challenge in the canyons or uplands greet the hiker who can enjoy dramatic views into the canyons from above and complete quiet in the valleys below.
- Rugged canyons and challenging white water are key attractions that bring recreationists, tourists, and new residents to Colorado. With the proposed wildernesses providing pristine and scenic backdrops for hundreds of thousands of Arkansas River recreationists, maintaining the area's wilderness characteristics is crucial.
- Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guided and outfitter-supported trips.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and to increase ecosystem representation, we recommend that Badger Creek, Black Mountain, Cottonwood Spring, and Tanner Peak be added to the RNA system. Each has its unique combination of ecological values that will enhance the system:

- The Badger Creek proposed RNA, some 8,500 acres, is entirely contained within the Badger Creek proposed wilderness area. The area has high-quality, diverse ecologic and geologic features, including old woodlands with excellent potential habitat for Mexican spotted owl (*Strix occidentalis lucida*). Several sensitive montane grasslands, montane meadow, and montane forest natural communities including riparian areas were identified in or near the proposed RNA. The area also possesses potential for riparian and watershed restoration research. The common hog-nosed skunk (*Conepatus leuconotus*), now rare, existed historically in the Badger Creek area where there is hope for its recovery. There are several important riparian plant communities: narrowleaf cottonwood/coyote willow (*Populus angustifolia/Salix exigua*) riparian forests, montane wet meadows with water sedge (*Carex aquatilis*); two types of montane riparian forest, narrowleaf cottonwood/thinleaf alder (*Populus angustifolia/Alnus incana*) and narrowleaf cottonwood/water birch (*P. angustifolia/Betula occidentalis*), and two coyote willow communities (*Salix exigua*/bare ground and *S. exigua*/mesic graminoid).
- Black Mountain proposed RNA of 1,200 acres provides a high-quality ecosystem at the transition between the high plateau above the Arkansas River and South Park. The oldest documented Rocky Mountain bristlecone pines occupy 1,800 contiguous acres in Black Mountain. The area also contains a good representation of montane grasslands, aspen, and Engelmann spruce. Three rare plant associations, bristlecone pine/Thurber's fescue (*Pinus aristata/Festuca thurberi*); Parry's oatgrass (*Danthonia parryi*); and bristlecone pine/gooseberry currant (*Pinus aristata/Ribes montigenum*), are present in the area. The area also contains some unique rock formations.
- The Cottonwood Spring proposed RNA, some 7,900 acres, includes lands in the northern part of the Browns Canyon roadless area and lands in the southwestern part of the Arnold Gulch roadless area. The area is primarily piñon-juniper forest and is rated of high biological value by Center for Native Ecosystems and is considered a valuable wildlife linking in the Southern Rockies Wildlands Network Vision. It includes a bighorn lambing area, an elk calving area, and a mule deer winter concentration area.
- The Tanner Peak proposed RNA, some 3,600 acres, lies within the Forest Service portion of the proposed Grape Creek wilderness area. It contains intact plant communities and a good representation of lower montane habitats, including ponderosa pine forests in climax stage, as well as high-quality, relatively old piñon-juniper woodlands. Peregrine falcons have been documented in the area. Degener beardtongue (*Penstemon degeneri*), one of the rarest and least-known penstemons in Colorado, has also been reported in the area.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

The Jack Rabbit Hill unit connects Badger Creek to Browns Canyon across the Badger Creek tributaries and the Ute Creek drainage. The forest lands here are intermingled with private parcels and there are many unimproved dirt roads which fragment the habitat. However, there is summer and

winter range for mule deer, bighorn sheep and elk, with a large east-west elk migration corridor in this connectivity unit.

The Trout Creek Pass connectivity unit east of Aspen Ridge and across Trout Creek Pass into the Mosquito Range complex is less fragmented in terms of land ownership, as it is primarily forest land, but it too has many roads. The Arnold Gulch and Kauffman roadless areas are part of this connectivity linkage. This unit includes winter and summer range for deer, bighorn sheep and elk, as well as lambing and calving grounds, and are a link to the existing and proposed Wildernesses in the Mosquito Range complex. In addition, both units provide east-west connections across the considerable state and BLM lands in the Badger Creek headwaters between Browns Canyon, Badger Creek and the Black Mountain area, which is notable for the large nexus of elk migration paths. Management emphasis will facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat. A broader discussion of connectivity is found below.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities.

The National Forest lands in the Thirtynine-Thirtyone unit connect Black Mountain to South Park. It has extensive summer and winter range for deer and elk, high summer black bear activity, and the South Park pronghorn visit the area especially on the north near the Thirtynine Mile roadless area. The unit may seem isolated from other Forest lands. In fact, it is connected to Kauffman Ridge on the west and Badger Creek to the south by other public lands, including a large parcel of state land and a number of BLM parcels. The mountain peaks, especially at the south on Black Mountain, have Engelmann spruce-subalpine fir, and much of the area is mixed ponderosa pine Douglas-fir, and aspen, with many areas of high quality montane grasslands. This multiple use designation has provisions that will enhance wildlife considerations. Seasonal or permanent restrictions should be applied to sensitive wildlife areas, such as winter range and production areas for ungulates.

Theme 9 – Significant Lands (Non-USFS)

Theme 9 management is used to highlight and acknowledge other lands critical to both habitat and connectivity, such as adjacent BLM lands. It is critical that Forest management consider the greater ecosystem to which it is connected and that forest activities be compatible with management activities on these adjacent public lands.

The Arkansas Canyons complex is unique in the larger landscape of the two watersheds from both ecological and management perspectives. It has the largest extent of low-elevation habitats, most of which are located on BLM lands. In addition there are extensive areas of state lands that contribute to wildlife habitat in the north-central part of the complex and to recreation in the Arkansas Headwaters Recreation Area. Especially representative of the Significant Lands Theme are the wilderness quality BLM lands found along the Arkansas River, discussed below. Even though these are outside the jurisdiction of the Forest Service, they are included in the Wild Connections Conservation Plan because of their contributions to wildlife habitat, biodiversity, connectivity, and recreation.

Theme 9.1 – Non-Forest Service Recommended Wilderness

Wild Connections has explicitly included seven large BLM managed roadless areas as they are integral to our overall vision as wilderness core reserves.

Browns Canyon WSA portion of Browns Canyon proposed Wilderness

A description of this part of Browns Canyon proposed Wilderness is found with the description of roadless areas above. Some highlights include large areas of piñon-juniper forest, riparian areas in tributaries of the Arkansas River, a large proposed RNA at Cottonwood Creek and backcountry recreation for hikers, horseback riders, and rafting groups. The west boundary excludes the Arkansas River and/or the railroad, and adjustments were made in the boundary to accommodate popular lunch stops for the white river rafters. The Browns Canyon portion of the Arkansas is one of the most popular whitewater runs in Colorado, and the economic contribution of the adjacent Wilderness for the tourism industry should not be underestimated. In addition, the area is a topological and ecological whole in spite of the arbitrary, straight line boundary which divides BLM and USFS jurisdictions.

McIntyre Hills WSA

McIntyre Hills is entirely BLM land that has been recommended for Wilderness designation for many years by the agency and conservation groups. Its Wilderness values are recognized in its Wilderness Study Area designation. The low elevations and piñon-juniper woodlands are valuable for bear, mountain lion, elk, and bighorn sheep, among others. Its location is strategic in that it provides protected public lands that connect Grape Creek to the southeast and Table Mountain directly north. Recreation access is challenging, as there are no established trails inside the WSA, but available year-round.

Grape Creek WSA portion of Grape Creek proposed Wilderness

The BLM WSA portion of the Grape Creek Wilderness is integral to the system of connected landscapes in this part of the Arkansas Canyons complex. Elk, mule deer, bear, and mountain lion are found in the area, and the riparian corridor of Grape Creek itself is a rare occurrence in these dry canyon lands where perennial streams are scarce. Access to the creek in Bear Gulch also provides excellent backcountry fishing, wildlife viewing, and hiking.

Table Mountain proposed Wilderness

At more than 25,000 acres, this stunning area rises from the edge of the Arkansas River to a high plateau to the north along Tallahassee Creek. East Creek and Texas Creek on the west and Echo Canyon in the center are among the many canyons incised into the roadless area. It is entirely on BLM land, and also includes the High Mesa Grasslands Colorado Natural Area and the large Arkansas Canyon ACEC. Because of its lower elevations, extremely rugged and wild character, it has been recommended by conservation groups as a Wilderness area.

Theme 9.2 – Significant Non-Forest Service Biological Areas

The BLM area west of Texas Creek, including the Bear Mountain roadless area, is important for the riparian zone in Fernleaf Gulch, the low elevation piñon-juniper woodlands which provide wildlife habitat and the roadless nature of the eastern portion. Intensive recreation along Texas Creek Gulch and East Gulch reduce the opportunities for solitude and a wilderness experience. Although the Forest Service has no jurisdiction here, it should be kept in mind as part of the larger landscape and for connectivity among various other areas.

Connectivity

An important aspect of the Wild Connections Conservation Plan vision is the preservation of connections between protected core areas. The Arkansas Canyons complex is an example of the core reserve model, which features protected core areas connected by wildlife linkages. However, the core areas proposed in the Arkansas Canyons may be smaller than is ideal for some species.

Connectivity among the roadless areas is best in the southeast portion of the complex. Here BLM's Bear Mountain, Table Mountain, McIntyre Hills and Grape Creek are adjacent to each other – although Highway 50 is a barrier. Badger Creek, Black Mountain, and Browns Canyon in the northwest are isolated from each other, and intervening public and private land contains many roads. However, the large parcels of additional Forest Service, BLM and state lands that lie between these areas do, provide good connecting habitat, especially for ungulates. Within the complex, the major barrier to animal movement is US Highway 50. The Southern Rockies Ecosystem Project has identified a linkage for bighorn sheep across US Highway 50 and the Arkansas River in the east-central Arkansas Canyons complex. Numerous Forest Service and county roads within the complex may be barriers especially to smaller animals and plants. However, the proposed management of some roaded areas for animal movement would provide an opportunity to address these issues.

There are major barriers to connectivity between the Arkansas Canyons and the Mosquito, Sawatch and Sangre de Cristo mountain ranges. Between the Arkansas Canyons complex and the Mosquito Range complex to the north, US Highway 285 is a barrier to animal movement. The land between the northwestern portion of the Arkansas Canyons and the southern Mosquito Range is primarily managed by the Forest Service and is proposed in Wild Connections to be managed for animal linkages. US Highway 285 and human settlement in the Arkansas River Valley are major barriers to animal movement between the Arkansas Canyons and Sawatch Range to the west. Similarly, US Highway 50 and Colorado Routes 69 and 96 and human settlement in the Wet Mountain Valley are barriers between the Arkansas Canyons and the Sangre de Cristo mountains, although this area is not as densely populated as the Arkansas River Valley. The Southern Rockies Ecosystem Project has identified a linkage for bighorn sheep and deer across US Highway 50 between the Sangre de Cristo complex and the Arkansas Canyons complex. Connectivity between the Arkansas Canyons and South Park area and between Arkansas Canyons and the Wet Mountains is fairly good. County and other rural roads form barriers between the Arkansas Canyons and South Park complex to the north, but there is little human habitation in that area. The Grape Creek proposed Wilderness area in the southeast portion of the Arkansas Canyons complex is directly adjacent to the Highline proposed Wilderness area in the Wet Mountains complex, separated only by the Oak Creek forest road 143.

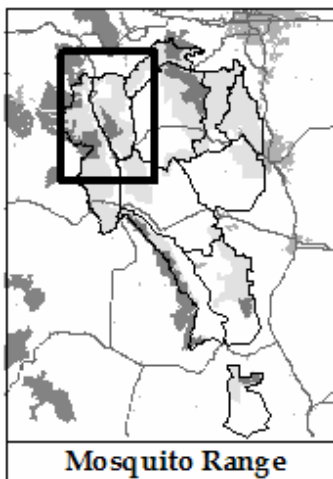
Summary

The Arkansas Canyons complex is the best example of low-elevation ecosystems and extensive canyon lands in the two watersheds. This provides variety not only within the complex, but especially adds to the range of diversity across the South Platte and Arkansas basins. It also provides opportunities for four-season backcountry recreation that may not be available in other locations. The Forest Service has jurisdiction over only part of the complex, as there are extensive BLM areas, but Forest management should take all of these lands into consideration. The deep canyons, high plateaus, and piñon-juniper, Douglas-fir, aspen, and ponderosa pine forests are important to the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

The Mosquito Range Complex



Salt Creek roadless area



The Mosquito Range Complex is located between the Arkansas Valley and South Park, from the Continental Divide south to Trout Creek Pass.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.3: Mosquito Range Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Mosquito Range is a high mountain ridge that runs north-south for approximately 40 miles between the Arkansas Valley on the west and South Park on the east. The Mosquito Range complex, as its name suggests, includes most of the Mosquito Range and lies in Lake, Park, and Chaffee counties. The landscape of the Mosquito Range complex varies from isolated 14,000 foot high mountain peaks and rugged canyons to the foothills of South Park and the riparian zone of the Arkansas Valley. The northern part of the complex is a history book of Colorado's mining industry where precious minerals, whether lead, silver, or molybdenum, created both wealth and adversity for thousands of miners.

A description of the landscape, vegetation, wildlife and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

Mount Lincoln, the eighth highest peak in Colorado at 14,286 feet, is the highest point in the Mosquito Range complex. Another four peaks rise above 14,000 feet: Mount Sherman, Mount Democrat, Mount Bross, and Mount Cameron. The range also includes 26 peaks higher than 13,000 feet. Tennessee Pass at 10,424 feet and Hoosier Pass at 11,541 feet are at northwest and northeast corners of the complex respectively, with the Continental Divide between them forming the northern boundary of the complex. East and West Buffalo Peaks in the southern portion of the complex, both above 13,000 feet, are prominent landmarks seen from South Park. The complex descends to the Arkansas River at about 8,000 feet in elevation on the southwest, Trout Creek Pass at 9,346 feet on the southeast, and around 9,000 feet along the eastern edge, in South Park.

The Mosquito Range complex contains the headwaters of the East Fork of the Arkansas River and of the South and Middle Forks of the South Platte River. The East Fork of the Arkansas River, Fourmile Creek, and Trout Creek all flow into the Arkansas River, which forms the complex's western boundary. Buckskin Creek flows east into the Middle Fork of the South Platte River, while Fourmile Creek, Twelvemile Creek, and Salt Creek flow southeast into the South Fork of the South Platte River. The Middle and South Fork later join together near Hartsel to form the South Platte River.

The primary vegetation found in the high central portions of the Mosquito Range is alpine tundra and barren rock. Lodgepole pine predominates on the lower western slopes. The northeastern area includes bristlecone and limber pine, with Engelmann spruce-subalpine fir, mixed conifer, ponderosa pine, and aspen covering the southeastern sides. On south slopes ponderosa pine and piñon-juniper woodlands are prevalent, while montane grasslands are located along the Arkansas River and at the edge of South Park. More than 30 rare plants are found in the complex; of note are Leadville milkvetch (*Astragalus molybdenus*), seven different moonworts (*Botrychium sp.*), six types of drabas/whitlow-grasses (*Draba sp.*), and Penland alpine fen mustard (*Eutrema edwardsii ssp penlandii*). In spite of the heavy mining impact near Leadville and the Climax Mine, many of these rare plants are located in that area, mostly on BLM or private lands. Numerous sensitive natural communities in the complex include extreme rich fens, upper montane and montane woodlands,

mixed foothill shrublands, timberline forests, montane riparian forest, subalpine riparian areas, wet meadows, and alpine meadows.

Although much of the complex is high tundra or rock, there is a variety of habitat for lynx, wolverine, mountain lion, bobcat, black bear, mule deer, elk, bighorn sheep, pine marten, raptors, and smaller mammals. Ungulates abound in the Mosquito Range, with elk, bighorn sheep, and mule deer living in the high peaks in the summer and moving to various lower elevation locations in the winter. Pronghorn are found on the eastern areas at the edge of South Park. Rare and sensitive species found in the complex include dwarf shrew (*Sorex nanus*), Townsend’s big-eared bat (*Plecotus townsendii pallescens*), boreal toad (*Bufo boreas*), American peregrine falcon (*Falco peregrinus anatum*), and swampy lymnaea (*Lymnaea stagnalis*), a mollusk. There are three rare insects present in the complex: the rhesus skipper (*Polites rhesus*), xanthus skipper (*Pyrgus xanthus*), and polixenes arctic (*Oeneis polixenes*).

Ecological values of the complex

The Mosquito Range complex includes many rich and unique biological areas. Two proposed Research Natural Areas (RNA) are located on Weston Peak. The Colorado Natural Heritage Program also lists twenty Potential Conservation Areas (PCAs), with most having high, very high or outstanding biodiversity significance. Most notable is the very large Mosquito Range PCA which covers the central spine of the range to the southern edge of the Weston Peak Roadless Area. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) shows the same area as having moderately high conservation value. Both the South Park PCA, of very high significance, and TNC blueprint’s South Park conservation portfolio area, of moderate significance, overlap into the southeastern part of the complex. A large BLM Area of Critical Environmental Concern (ACEC) - Top of the World – is located in the mining district east and south of Leadville. Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP’s Vision) proposes most of the National Forest and BLM lands in the complex to be protected as wilderness, wildlife linkages or low use areas. These designations highlight the biological richness of the Mosquito Range complex.

Wilderness and Roadless Areas

Much of the roadless land within the Mosquito Range complex is in the high mountain environment that typifies most of Colorado’s existing Wildernesses. However, areas around the southern portion of Buffalo Peaks Wilderness add more moderate elevations to the mix of biodiversity. Table 5.4 lists the roadless areas in the Mosquito Range complex.

Wilderness Areas

Buffalo Peaks Wilderness

At 43,400 acres, Buffalo Peaks Wilderness is the largest roadless area in the Mosquito Range complex; it is protected by Congressional designation. Twenty-five to thirty million years ago volcanic ash and lava flows filled a valley where the Buffalo Peaks Wilderness is located today. The subsequent uplifting and erosion shaped the current landscape. The Buffalo Peaks themselves mark the southern terminus of the Mosquito Range, a large faulted anticline. The Wilderness is the central feature of the Mosquito Range complex, and includes a range of elevations from 9,000 feet near the Arkansas River up to East Buffalo Peak at 13,300 feet, and West Buffalo Peak at

Table 5.4: Mosquito Range Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Big Union	18,300	Yes
Buffalo Peaks Wilderness	43,400	n/a
Chicago Ridge	11,600	Yes*
Marmot Peak	9,300	Yes
Mt Arkansas	4,700	Yes
Salt Creek	6,900	No
Weston Peak	20,900	Yes

**Roadless rule area has significantly fewer areas than UASPP inventory.*

13,326 feet. From most of South Park and much of the Arkansas River Valley, the twin Buffalo Peaks are visible as high, rounded domes.

Much of the central part of the Wilderness is either barren or alpine tundra interspersed with high wetlands, continuing a high ridge that sweeps southward from the Continental Divide. But around the edges of the Wilderness, except at Weston Pass, aspen and lodgepole predominate, with Engelmann spruce-subalpine fir in the higher forested areas. A number of stands of bristlecone/limber pine are located on the east-central and southeast sides. Rare plants include Rocky Mountain columbine (*Aquilegia saximontana*), globe gilia (*Ipomopsis globularis*), and Colorado larkspur (*Delphinium ramosam var. alpestre*), as well as montane woodlands natural communities: bristlecone pine/common juniper (*Pinus aristata/Juniperus communis*) and bristlecone pine/mesic forb (*P. aristata*/mesic forb), and Drummonds willow/mesic forb (*Salix drummondii*/mesic forb).

One of Colorado's largest herds of bighorn sheep lives in the Buffalo Peaks Wilderness where there is winter range and a large lambing area on the southern end. Summer habitat for mule deer and elk is common across most of the Wilderness, and a large elk calving area rings the lower slopes of East and West Buffalo Peaks. The forested areas provide general, winter, and denning habitat for lynx. The Forest Service has identified a lynx linkage that connects the west central part of the Wilderness across the Arkansas Valley to the Collegiate Peaks Wilderness and Elk Mountains roadless area in the Sawatch Range. The Southern Rockies Ecosystem Project identified a similar lynx linkage, as well as a medium priority linkage for wide-ranging wolverine from the Buffalo Peak Wilderness to the northern end of the Mosquito Range complex. That area is laced with large meadows and impressive beaver ponds behind elaborate dams; Fourmile Creek is a good place to see these beaver dams and lodges. American peregrine falcons (*Falco peregrinus anatum*) have been recorded on the west side of the Wilderness.

The Low Pass Gulch and Rick Creek areas are biologically diverse with aspen, willows, riparian areas, beaver ponds, peregrine falcon, and a number of rare plants and natural communities. The very large Mosquito Range PCA of outstanding biodiversity significance overlaps into the Wilderness in the Weston Pass area. Two PCAs of moderate significance are located in the upper Fourmile Creek and Brush Creek on the south side.

Unprotected roadless areas

The Upper Arkansas and South Platte Project mapped six roadless areas in the Mosquito Range complex. Three are contiguous with the Buffalo Peaks Wilderness. Five are Roadless Area Conservation Rule Inventoried Roadless Areas. An additional roadless area named Salt Creek was not part of the Roadless Area Conservation Rule inventory. The roadless areas in the Mosquito Range complex are described below in north to south order.

Chicago Ridge

Chicago Ridge, at about 12,600 feet in elevation, spans the Continental Divide along the boundary of the San Isabel and White River National Forests. The Inventoried Roadless Area of the same name encompasses 11,600 acres on the southern portion of Chicago Ridge between the headwaters for the Arkansas River and the East Fork of the Arkansas River, including 12,867 foot Buckeye Peak and 12,126 foot Mount Zion. The boundary of UASPP's roadless area, which has some cherrystemmed routes, is much larger than the Roadless Area Conservation Rule Inventoried Roadless Area. The Chicago Ridge roadless area is contiguous with over 5,000 acres of roadless land in the White River National Forest to the north. Chicago Ridge is a popular area for snowcat skiing; however, most of the skiing occurs in the White River National Forest

portion. Much of the area is dotted with old exploratory mine sites, and in some places past logging activity has left fields of nothing but stumps. The National Forest boundary along the Continental Divide forms the northern boundary of the area, with Ski Cooper and Forest Roads 102, 189 and 109, which is cherrystemmed into the area, making up the western boundary. Colorado Highway 91 runs along the east and southeast boundary, allowing the roadless area to include some roadless state and BLM lands. On the south, Forest Road 102/102A delimits the area.

The eastern half of Chicago Ridge is primarily alpine tundra, but Engelmann spruce-subalpine fir lodgepole pine, and some aspen stands are found in lower elevations on the far east, south, and western portion. The Colorado Natural Heritage Program located the rare dwarf hawkbeard (*Askellia nana*) along with sensitive Drummonds willow/mesic forb (*Salix drummondiana*/mesic forb) alpine meadows and Rocky Mountain fir-Engelmann spruce/Drummond's willow (*Abies lasiocarpa-picea engelmannii/salix drummondiana*) montane riparian forest communities in this roadless area.

The entire area is summer range for elk and mule deer. Elk calve in the western half of the roadless area and along with mule deer find some winter habitat in the southwest portion of the area. Most of the forested area is potential habitat for lynx, and the Colorado Department of Wildlife has recorded radio signals from reintroduced lynx in the area. Both the Southern Rockies Ecosystem Project and the Forest Service consider the Tennessee Pass area to be a high priority lynx linkage connecting Chicago Ridge to Holy Cross Wilderness and to the north into the White River National Forest.

The eastern edge of the Chicago Ridge roadless area is adjacent to both the East Fork of the Arkansas River at Delmonica Gulch PCA, of very high biodiversity significance and The Nature Conservancy's Mosquito Range conservation area, of moderately high value. The southwestern portion of the roadless area is overlapped by TNC's Elk Ridge portfolio area of moderately low conservation value. The Southern Rockies Wildlands Network Vision proposes that the Chicago Ridge roadless area be managed for low use.

Mount Arkansas

The Mount Arkansas roadless area is located south of Fremont Pass and the Climax Mine. Mount Arkansas at 13,795 feet and nearby 13,672 foot Mount Tweto are the headwaters for the East Fork of the Arkansas River; the terrain is steep and rugged with striking scenic views. Evidence of past mining activities includes tailings and mine shafts. The roadless area boundary follows the railroad tracks on the northwest and the Forest boundary on the north, east, and south. Nearly all of its 4,700 acres is currently managed for non-motorized recreation, and the eastern boundary corresponds to the boundary of this designation.

The Mount Arkansas roadless area is almost entirely alpine tundra including large areas of bare tundra. Drainages to the west feed into the East Fork of the Arkansas River located east of the railroad tracks. Rare and sensitive plant species include a great number of moonworts: Mingan, common, lance leafed, reflected, Western, and least moonworts (*Botrychium minganense*, *B. lunaria*, *B. lanceolatum* var *lanceolatum*, *B. echo*, *B. hesperium* and *B. simplex*), and Penland alpine fen mustard (*Eutrema edwardsii* ssp *penlandii*). Water sedge (*Carex aquatilis*) montane wet meadows, strapleaf willow (*Salix eriocephala* var. *Ligulifoli*) montane willow carr, and Wolf's willow/water sedge (*Salix wolfii/carex aquatilis*) subalpine riparian willow carr are sensitive natural communities found in this area.

The entire roadless area is summer range for elk and mule deer. Bighorn sheep are found in the

eastern half of the roadless area during the summer. A large elk calving area between the Arkansas River and Mount Arkansas overlaps the northwestern corner of the roadless area. Although the tundra environment is not typical lynx habitat, the Southern Rockies Ecosystem Project identified a high priority lynx linkage west across Chicago Ridge and Tennessee Pass to Holy Cross Wilderness, which corresponds with the large linkage identified by the Forest Service.

Most of the Mount Arkansas roadless area is in the Mosquito Range PCA with outstanding biodiversity significance, and the southern half is in The Nature Conservancy's Mosquito Range portfolio area of moderately high conservation value. The Bureau of Land Management's Top of the World Area of Critical Environmental Concern lies less than two miles south of the roadless area and includes Mosquito Pass. The Southern Rockies Wildlands Network Vision proposes that the Chicago Ridge roadless area be managed for low use.

Weston Peak

The Weston Peak roadless area lies along the high peaks of the central Mosquito Range with the area dropping to the east into the forested edge of South Park at 10,000 feet. At 13,572 feet, Weston Peak is the westernmost of a series of mountain peaks in the area that include Ptarmigan Peak (13,739 feet) and Horseshoe Mountain (13,898 feet). Straddling the ridge between the South Fork of the South Platte and Fourmile Creek, the roadless area encompasses 20,900 acres in both the Pike and San Isabel National Forests. Although the region was extensively mined in the past, the vastness of this rugged roadless area left much of the land untouched. The boundaries of the roadless area correspond roughly to the boundaries of the Roadless Area Conservation Rule Inventoried Roadless Area. The power line near Weston Pass road forms the south and southwestern boundary of the roadless area. The 111/111A network of Forest Routes and private inholding parcels are the boundary to the northwest and north. Forest Routes 175, 426, 455.A, the National Forest boundary, and private parcels form the roadless area boundary on the east. The roadless area includes the headwaters of the Middle Fork of South Platte River and of Twelvemile Creek, with smaller streams west of the watershed divide flowing into the Arkansas River.

The northwest two-thirds of the Weston Peak roadless area consist of alpine tundra including bare rock areas, but with a number of wetlands. On the eastern side, Engelmann spruce-subalpine fir, intermixed with bristlecone/limber pine, gives way in the lower elevations to lodgepole pine and large aspen stands. Extremely rich fens of Bellardi bog sedge/alpine meadow-rue (*Kobresia myosuroides-thalicttrum alpinum*), Geyer's willow/water sedge (*Salix geyeriana/carex aquatilis*) montane willow carr, Analogue sedge (*Carex simulata*) wet meadow, and snow-grass (*Phippsia algida*) alpine wetland natural communities add to the diversity of vegetation. Rare plants include alpine and arctic brayas (*Braya humilis* and *B. glabella var glabella*); altai cotton grass (*Eriophorum altaicum var neogaeu*); Avery peak twinpod (*Physaria alpina*); Canadian single-spike sedge (*Carex scirpoidea*); woods and clawless drabas (*Draba oligosperma* and *D. exunguiculata*); Yellowstone, Gray's Peak, and Colorado Divide whitlow-grasses (*Draba incera*, *D. grayana*, *D. crassa*, and *D. streptobrachia*); Colorado tansy-aster (*Machaeranthera coloradoensis*); common and pale moonworts (*Botrychium lunaria* and *B. pallidum*); globe gilia (*Ipomopsis globularis*); kotzebue grass-of-parnassus (*Parnassia kotzebuei*); Leadville milkvetch (*Astragalus molybdenus*); lime-loving willow (*Salix lanata ssp calcicola*); Penland alpine fen mustard (*Eutrema edwardsii ssp penlandii*); Rothrock Townsend-daisy (*Townsendia rothrockii*); snow grass (*Phippsia algida*), and Weber saussurea (*Saussurea weberi*). The list attests to the species richness of the Weston Peak roadless area.

The Weston Peak roadless area contains some lynx habitat, but only in the lower elevations on

the east side. Black bear and mountain lion are found in suitable locations, and there is summer range for elk and mule deer, with a large elk calving area and winter range for deer on the northeast side. Bighorn sheep use summer range across most of the area and a substantial amount of winter range in the central portion.

Two proposed RNAs, Weston Peak and Weston Peak North, are highly recommended by the Center for Native Ecosystems for their excellent alpine tundra and wetlands. Most of the roadless area is included in the Mosquito Range PCA of outstanding biodiversity significance and TNC's Mosquito Range conservation portfolio area of moderately high conservation value. The Weston Pass PCA crosses the pass between Weston Peak and Big Union roadless areas, intersecting both areas. The Southern Rockies Wildlands Network Vision proposes that the Weston Peak roadless area be managed as core wilderness.

Big Union

The Big Union roadless area forms a horseshoe of some 18,300 acres around the eastern, northern, and western sides of Buffalo Creek Wilderness – roadless wilderness quality land that was not included in the Buffalo Peaks Wilderness boundary. It is the headwaters for the South Fork of the South Platte River and of several smaller tributaries of the Arkansas River, including Big Union Creek, for which the area is named. The eastern side is in the Pike National Forest and western side is in the San Isabel National Forest. Elevations range from 12,892 feet at South Peak near Weston Pass to 9,200 feet on the west side near the Arkansas River, and 9,900 feet on the east in the slopes above South Park. The UASPP roadless area is larger than the Roadless Area Conservation Rule Inventoried Roadless Area boundary in the northwest near Spring Creek and southeast near Lynch Creek. Weston Pass Road is the northern boundary, and the South Fork of the South Platte River is on the northeast side, with Rough and Tumbling Creek and Forest Routes 142, 158, and the 163 network forming the eastern boundary of the roadless area. Forest Roads 396 and the 397 network are the southwestern boundary and further north the western boundary follows the Forest boundary.

At the higher elevations near Weston Pass, the Big Union roadless area consists mostly of alpine tundra. On the western side, lodgepole pine intermixed with aspen and some Engelmann spruce-subalpine fir or Douglas-fir predominates, with a small amount of sage shrubland. On the east there is a mixture of Engelmann spruce, subalpine fir, aspen, and lodgepole pine with smaller pockets of bristlecone/limber pine. The southeastern portion in the Lynch Creek drainage was logged at least twenty-five years ago and has revegetated to the point that logging spurs are invisible in the deadfall and understory and 6-8 foot trees are growing in former logging roads in the higher elevations. Big Union is unusually rich in natural communities including Rocky Mountain fir-Engelmann spruce/Drummond's willow (*Abies lasiocarpa-Picea engelmannii/Salix drummondiana*) montane riparian forest, Analogue sedge (*Carex simulata*), extremely rich fens of Bellardi bog sedge/alpine meadow-rue (*Kobresia myosuroides-Thalictrum alpinum*), bristlecone pine/Arizona fescue (*Pinus aristata/Festuca arizonica*) montane woodlands, Geyer's willow/water sedge (*Salix geyeriana/Carex aquatilis*) montane willow carr, barren-ground willow/water sedge (*Salix brachycarpa/Carex aquatilis*) subalpine riparian/wetland carr, Rocky Mountain willow/mesic forb (*Salix monticola*/mesic forb) montane riparian willow carr, and Geyer's willow-Rocky Mountain willow/mesic forb (*Salix geyeriana-Salix monticola*/mesic forb) communities. Big Union shares many rare plants found in the adjacent Buffalo Peaks Wilderness and Weston Peak roadless area. Rare plants include Rocky Mountain columbine (*Aquilegia saximontana*), Leadville milkvetch (*Astragalus molybdenus*), pale moonwort (*Botrychium pallidum*), alpine braya (*Braya humilis*), clawless draba (*Draba exunguiculata*), woods draba (*Draba oligosperma*), Colorado Divide whitlow-Grass (*Draba streptobrachia*), Penland alpine fen mustard (*Eutrema edwardsii ssp. penlandii*), globe gilia (*Ipomopsis globularis*), swampy

lymnaea (*Lymnaea stagnalis*), Avery Peak twinpod (*Physaria alpina*, intermountain bitterweed (*Picradenia helenioides*), and Weber saussurea (*Saussurea weberi*).

Most of the area, except near Weston Pass where it is open tundra, is denning or winter habitat for lynx, and the lynx linkage that connects the west central part of the Buffalo Peaks Wilderness across the Arkansas Valley to the Collegiate Peaks Wilderness and Elk Mountains roadless area in the Sawatch Range crosses the southwest part of Big Union. The entire area is within the overall range for black bear and mountain lion and summer range for mule deer and elk. Elk calve in the Lynch Creek drainage in the southeast and in several places on the west side. On the west a large area of winter elk and deer habitat overlaps Big Union. Bighorn sheep can be found in the summer, primarily on the eastern side, and the Lynch Creek drainage on the far southeast portion of the area overlaps a larger area of winter habitat. American peregrine falcon (*Falco peregrinus anatum*), and Townsend's big-eared bat ssp. (*Plecotus townsendii pallescens*) have been recorded here.

The Weston Pass PCA overlaps the northeast part of Big Union as does the Mosquito Range TNC conservation area of moderately high conservation interest. The land along the South Fork South Platte River and Rough and Tumbling Creek east of Lynch Creek in the eastern portion of the Big Union Roadless Area is part of the South Fork of South Platte River PCA identified as having very high biodiversity significance and the South Park portfolio area identified by The Nature Conservancy. Southern Rockies Ecosystem Project recommends that the Big Union roadless area be managed as core wilderness.

Salt Creek

The Salt Creek roadless area of 6,900 acres is contiguous with the Buffalo Peaks Wilderness to the west. Its northern boundary is Pony Park Road, the eastern boundary follows the Forest boundary and Forest Road 433, and the southern boundary is Salt Creek road (Forest Road 435). Short cherrystems in the roadless area are included for Forest Roads 434 and 433.2B on the north. Salt Creek was not part of the Roadless Area Conservation Rule roadless area inventory. Salt Creek itself, with headwaters in the Marmot Peak roadless area, flows through the southern portion of the Salt Creek roadless area and into the Antero Reservoir, part of the water system for the Denver metropolitan area. Salt Creek ranges in altitude from almost 11,000 feet at the border of the Buffalo Creek Wilderness on the west down to about 9,000 feet in the northeast. East and West Buffalo Peaks dominate the western views from the roadless area and South Park is visible to the east.

The Salt Creek roadless area contains substantial aspen woodlands on the west, changing to areas of limber and bristlecone pine, Douglas-fir, foothills and mountain grassland, and ponderosa pine as one moves to the east. Although the area does not have the species richness of some others in the complex, it has some sensitive natural communities of note: Drummond's willow/mesic forb (*Salix drummondiana*/mesic forb) communities, mountain mahogany/needle-and-thread grass (*Cercocarpus montanus*/*Stipa comata*) mixed foothill shrublands, and strapleaf willow (*Salix eriocephala* var. *ligulifolia*) montane willow carr.

USAAP field workers saw a black bear on the southern boundary of the roadless area, and mountain lion can be found here. There is some very scattered habitat for lynx. Mule deer are widespread and the most of the area is winter range. Pronghorn antelope might be seen occasionally on the eastern edge of the roadless area as it is very similar to their main range in South Park. Elk calve and spend the summer and winter in portions of this roadless area.

The eastern half of the roadless area is part of the large South Park PCA that has very high

biodiversity significance, and a small part of the extreme western corner is included in the Brush Park PCA of moderate biodiversity significance. The land directly to the east of the roadless area is the Antero/Salt Creek Colorado State Land Board Stewardship Trust Area. The Southern Rockies Wildlands Network Vision recommends managing the roadless area as core wilderness.

Marmot Peak

The Marmot Peak roadless area of 9,300 acres is contiguous with the Buffalo Peaks Wilderness, sharing a boundary on the north. The area's other boundaries are Forest Roads 436, 436.2C, and 309A on the northeast and east, and 311, 373, 373A, 375, and the Homestake pipeline on the south and west. Marmot Peak itself at 11,730 feet is the highpoint of the roadless area, and the land descends to 9,000 feet in the west and to 9,400 feet in the east. There are scenic views of rugged Marmot Peak, the rounder twin Buffalo Peaks, and the high Collegiate Peaks to the west. The headwaters for Salt Creek, a tributary to the South Fork of the South Platte River, rise here. Fourmile Creek, a tributary of the Arkansas, traverses the western boundary of the area and has its headwaters nearby in the Buffalo Peaks Wilderness.

Vegetation is a diverse mix of Engelmann spruce-subalpine fir, lodgepole pine, aspen, ponderosa pine, Douglas-fir, and some bristlecone/limber pine in the northeast

Much of the roadless area is habitat for lynx, although the denning and winter habitat is somewhat scattered. However, SREP identified several low priority lynx linkages from Marmot Peak south toward the Browns Canyon area. The entire area is within the overall range for black bear and mountain lion and summer range for mule deer, with some winter mule deer habitat on the south side. Elk find summer habitat across the area and the large calving area in the Wilderness comes down into the northern portion, along with another smaller area on the east side. Bighorn sheep lamb and spend the summer and winter in large portions of this roadless area, with the lambing area covering the whole west side and into the Buffalo Creek Wilderness.

The Southern Rockies Wildlands Network Vision recommends managing the roadless area as core wilderness.

Historical and Cultural Features of the Mosquito Range

Some archeological, historical and cultural features of note include the following:

- The Colorado Historical Society recorded Ute and other Native American chipped stones at Bear Gulch and elsewhere.
- The Colorado Historical Society recorded Euro-American remnants, including remains of the Leadville Stage Road, Colorado Midland Railroad, Weston Stage Stop, Briggs Brothers Creek Saw Mill circa 1900 to 1916, and artifacts from the Belle of Granite, Pioneer, and other mining operations.
- Gold was discovered in California Gulch in 1860. Although the gold in the area did not rival California, the heavy sands containing lead and silver produced real wealth. Leadville, first known as Oro City, became a boomtown. Horace Tabor's "Little Pittsburg Mine," claimed in 1877, earned \$100,000 a month and his Matchless Mine put \$2,000 a day into his pockets. However the repeal of the Sherman Silver Purchase Act in 1893 left Tabor nearly destitute.
- Weston Pass served as an important link between the mining community that eventually became known as Leadville and South Park and the Front Range cities to the east. The pass became part of a stage route, and a skier brought mail across the pass in the 1860s.
- Near Salt Creek and Antero Reservoir, the Buffalo Salt Works provided salt to Denver in the 1860s.

- Malta, at the mouth of California Gulch, was home to a smelter in the 1870s-1880s that handled the ores of the Homestake region.
- Buena Vista in the 1880s was the terminus of the Denver and Rio Grande Railway and served as a supply depot for Leadville and surrounding mining camps.

Management Recommendations

The ecological value of protecting large roadless areas prompted the Wild Connections team to recommend new Wilderness designations or additions to existing Wilderness (Theme 1) for four of the six roadless areas in the Mosquito Range complex. There are two proposed RNAs (Theme 2); quiet use and connectivity areas (Theme 3); a number of areas proposed for active management (Theme 5); and one area proposed for permanent recreation (Theme 8). Grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas. Table 5.5 lists the major management units by theme. Refer to the Mosquito Range Complex map for specific locations and roadless area descriptions for more details on the unit.

Table 5.5: Mosquito Range Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Buffalo Peaks Wilderness	41,200	1.1 Existing Wilderness
Big Union	18,300	1.2 Recommended Wilderness (add to Buffalo Peaks)
Marmot Peak	9,300	1.2 Recommended Wilderness (add to Buffalo Peaks)
Salt Creek	6,900	1.2 Recommended Wilderness (add to Buffalo Peaks)
Weston Peak	20,900	1.2 Recommended Wilderness
Theme 2 – Special Areas		
Weston Peak North RNA	3,000	2.1 Research Natural Areas
Weston Peak RNA	9,100	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Chicago Ridge	11,600	3.1 Quiet Use Areas
Mount Arkansas	4,700	3.1 Quiet Use Areas
Salt Creek Forks	5,700	3.2 Connectivity Areas
Tennessee Pass (also in Sawatch Range)	2,900	3.2 Connectivity Areas
Trout Creek Pass (also in Arkansas Canyons)	73,900	3.2 Connectivity Areas
Tumble Creek (also in Sawatch Range)	2,100	3.2 Connectivity Areas
Weston Pass	2,500	3.2 Connectivity Areas
Theme 4 – Recreation Emphasis Areas		
Top of the Rockies Scenic Byway	200	4.2 Scenic Byways
Theme 5 – Active Management		
Elephant Rock	7,800	5.1 Active Mgmt - Wildlife Habitat
Empire Gulch	30,000	5.1 Active Mgmt - Wildlife Habitat
Holmes Gulch	1,400	5.1 Active Mgmt - Wildlife Habitat
Jones Hill	16,500	5.1 Active Mgmt - Wildlife Habitat
Lower Mount Zion	1,100	5.1 Active Mgmt - Wildlife Habitat
Mount Ross	21,100	5.1 Active Mgmt - Wildlife Habitat
Mount Arkansas West	2,000	5.1 Active Mgmt - Wildlife Habitat
Mount Zion	100	5.1 Active Mgmt - Wildlife Habitat

Name	Acres	Recommended Management
Sawmill Gulch	1,500	5.1 Active Mgmt - Wildlife Habitat
Theme 8 – Permanently Developed Areas		
Ski Cooper	800	8.1 Ski Based Resorts

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Buffalo Peaks is the only existing Wilderness in this complex. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act.

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation

The Wild Connections Conservation Plan calls for designation of (from north to south) Weston Peak, Big Union, Lynch Creek, Salt Creek, and Marmot Peak areas as Wilderness. The latter four areas are recommended as additions to the existing Buffalo Peaks Wilderness in light of the heavy concentration of roads across the Pike-San Isabel National Forest in the lower elevations of the Mosquito Range complex. The following benefits were considered in making these recommendations: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species, and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation.

We believe that all of these areas meet the capability, availability and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. All provide opportunities for solitude, challenge, and unconfined recreation once the trailheads are left behind. There are mountain peaks with stunning undisturbed views, rugged cirques and steep ravines, valleys without trails, and forested ridges. The imprints of humans are substantially unnoticeable, as care was taken to exclude major mining areas, and recent logging operations. While there are old mines in some areas, especially in Weston Peak, most are slowly disappearing and these remnants illustrate the mining history of the area, while providing a lesson in the length of time it takes for nature to heal in an unforgiving climate. Logging was limited within the proposed wilderness and old cuts are recovering, as are old access roads, eliminating signs of human use.

Availability

Likewise all the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines. The watersheds and streams are already allocated, and no new water projects are planned. Access to the Homestake pipeline and the transmission line along Weston Pass Road has been maintained. Major highways are not anticipated to affect the areas. The Mosquito Range complex is not appropriate for timber harvest. The vegetation within the area is largely intact with much of it tending toward mature and old growth characteristics.

All or part of the Arkansas, Bross, Weston and Horseshoe S&G; and the Union, Sheep Creek, McQuaid, Fourmile, and Chubb Park C&H grazing allotments would be grandfathered in with Wilderness designation, although over time they could be retired, where feasible. Overall, there are no known or anticipated threats to the proposed wilderness areas that would preclude their designation as wilderness.

Suitability

The main uses that would be forgone in newly designated Wilderness are motorized recreation on newly created or illegal roads and cross-country snowmobile use off currently designated routes. However, there is continued motorized access to the perimeter of the roadless areas, and in most cases between the areas. Dispersed camping and motorized recreation would still be permitted in and near the areas surrounding the expanded Buffalo Peaks Wilderness, south to Trout Creek Pass and north to Fremont Pass. If the Lynch Creek drainage in the Big Union is scheduled for another logging entry, Wilderness designation would cut off this possibility.

Many values can be listed for the designation of the proposed Wildernesses in this complex:

- Big Union, Salt Creek and Marmot Peak additions offer remote and challenging terrain in lower elevation ecosystems.
- The Buffalo Peaks Wilderness additions provide wildlife linkages across the Mosquito Range and into South Park and the upper Arkansas Valley.
- Weston Peak has challenging alpine terrain with cirques and cliffs, and except along Weston Pass road, the area is remote.
- The Weston Peak area provides scenic views of South Park, the upper Arkansas Valley, and the mountains of the Mosquito Range.
- Solitude can be found in the distant views and absence of visitors in the alpine areas and in the forested terrain at lower elevations.
- Habitat for rare and endangered species including American peregrine falcon (*Falco peregrinus anatum*), Townsend's big-eared bat (*Plecotus townsendii pallescens*), boreal toad (*Bufo boreas*), the swampy lymnaea mollusk (*Lymnaea stagnalis*), and many plants.
- Foothills, montane, subalpine and alpine natural communities including riparian areas and very rare rich fens would be protected.
- Domestic and agricultural water supplies are best protected from erosion and pollution when they are located on roadless areas. The Mosquito Range complex includes many tributaries to the South Platte and Arkansas Rivers which serve mountain communities, as well as Front Range cities.
- Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guiding and outfitter trips.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas, or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention

To supplement the range of research opportunities and increase the ecosystem representation UASPP recommends that Weston Peak North and Weston Peak be added to the RNA system. Each has its unique combination of ecological values that will enhance the system.

- The Weston Peak proposed RNA, about 9,100 acres, is in the southeastern portion of the proposed Weston Peak Wilderness and also includes a significant amount of land outside the proposed Wilderness. It features diverse plant communities, including many coniferous forest types such as bristlecone pine, limber pine, and a possible spruce ribbon forest, aspen, and a post-fire natural succession. It has good quality wetlands, including old beaver dams in good condition. It has six rare plants or plant communities: Avery Peak twinpod (*Physaria alpina*); bristlecone pine common juniper (*Pinus aristata/Juniperus communis*); extreme wet fens of Bellardi bog sedge/ alpine meadows (*Kobresia myosuroides/Thalictrum alpinum*); Alalogue sedge (*Carex simulata*) community; Hoosier Pass ipomopsis (*Ipomopsis globularis*); and bristlecone pine/Arizona fescue (*Pinus aristata/Festuca arizonica*) community. The RNA is included in TNC's Mosquito Range conservation area of moderately high value and the Mosquito Range PCA of outstanding significance.
- The Weston Peak North RNA of about 3,000 acres lies in the north central portion of the Weston Peak proposed wilderness. It includes a large number of rare plants, including five not found in other potential RNAs in the area -- Raymond whitebristle cotton grass (*Eriophorum altaicum var. neogaeum*); Penland's eutrema (*Eutrema edwardsii ssp. penlandii*); wooly willow (*Salix lanata ssp. calcicola*); Weber saussurea (*Saussurea weberi*); Rothrock's Townsend daisy (*Townsendia rothrockii*) -- and five additional rare plants: smooth northern rockcress (*Braya glabella var. glabella*); low northern rockcress (*Braya humilis*); northern singlespike sedge (*Carex scirpoidea*); Kotzebue grass-of-Parnassus (*Parnassia kotzebuei*); and Avery Peak twinpod (*Physaria alpina*). The proposed RNA intersects the Mosquito Range PCA, of outstanding significance; the Mount Sheridan and Weston Pass PCAs of very high significance. The TNC conservation blueprint includes it in Mosquito Range area of high uniqueness and moderate landscape integrity.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings.

Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance

The Chicago Ridge Quiet Use unit, lying west of State Route 91, connects with additional roadless acreage in the White River National Forest. Its designation as a quiet use area will promote connectivity through the northern Mosquito Range between roadless areas and will help protect a significant elk migration corridor from motorized recreation disturbances. Back country recreation in a quiet setting will be featured.

The Mount Arkansas Quiet Use unit is currently managed by the Forest Service as non-motorized. Its designation as a quiet use area will promote connectivity through the northern Mosquito Range between roadless areas, protect a lynx linkage and elk calving area from motorized recreation disturbances, and provide quiet backcountry recreation.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Weston Pass, Tennessee Pass, and the Tumble Creek area (the latter two areas partially in the Sawatch complex) surround roads with significant vehicular traffic, particularly in the case of Tennessee Pass and Tumble Creek, which are crossed by US Highway 24. The Salt Creek Forks area is a narrow corridor between the Salt Creek and Marmot Peak proposed wildernesses and adjacent to the Trout Pass connectivity unit.

The large Trout Pass connectivity unit on the south end of the complex connects the Wilderness areas on the north across US Highway 24 and Trout Creek Pass south to Browns Canyon proposed Wilderness in the Arkansas Canyons complex. At 73,900 acres, roughly divided equally north and south of Highway 24, this is the largest connectivity area recommended in the Wild Connections Conservation Plan, and recognizes the importance of maintaining north-south connections for elk, bighorn sheep, mule deer, black bear and mountain lion. The recent Fourmile Travel Management Plan has designated roads and motorized trails across much of this area, and these routes are a substantial impact on wildlife movement, winter range and production areas. Enforcement of route designations and possible seasonal closures to protect wildlife will be important management activities. Designation of these areas as connectivity areas recognizes the need to give special protection to wildlife movements in light of the cumulative impact of multiple roads or motorized trail networks as an impediment wildlife migration. Management emphasis will facilitate daily, seasonal and natal dispersal movements of native wildlife between larger blocks of suitable habitat. A broader discussion of connectivity is found below.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate.

The Top of the Rockies Scenic Byway runs along the western boundary of the Mosquito Range complex for a short distance south of Tennessee Pass before exiting San Isabel National Forest. Special management options should be designed to protect the surrounding Tennessee Pass connectivity area, the scenic qualities of the byway, and significant wildlife values.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities

Mount Arkansas West, Mount Bross, Jones Hill, Elephant Rock, Empire Gulch, Holmes Gulch, Mount Zion, Lower Mount Zion, and Sawmill Gulch are included in this theme. These lands connect the Buffalo Peaks and other central portions of the Mosquito Range to South Park on the east or to the Arkansas River valley on the west, and provide connectivity through the northern Mosquito Range. These lands have road densities ranging from low to high. Many of them are lower elevation areas of particular value to wildlife on a seasonal basis; some include roaded riparian valleys which will require some oversight to protect riparian vegetation and water quality. Seasonal or permanent restrictions should be applied to sensitive wildlife areas: mule deer fawning, elk calving, and bighorn sheep lambing areas, winter range for ungulates, locations of rare, endangered or sensitive species, and accommodation for larger carnivores such as lynx.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent ecological conditions and landscape appearances are likely outside their natural range of variability. Management emphasis is generally for highly developed recreation sites such as ski areas and campgrounds, utility corridors, or mineral development areas.

Theme 8.1 – Ski-Based Resorts

These areas are primarily devoted to downhill skiing on existing sites with natural vegetation substantially altered and managed to create ski slopes.

Ski Cooper is directly west of the Chicago Ridge Roadless Area, east of Highway 24, and north of Leadville and includes lands in the San Isabel and White River National Forests. Most of the downhill ski area is in the White River National Forest, while most of the less-intensively developed Nordic (cross-country) ski area is in the San Isabel National Forest. This ski area provides an affordable, family friendly ski area, including opportunities for cross-country skiing and more extreme backcountry snow-cat skiing.

Connectivity

An important aspect of our conservation perspective is connections between protected core areas. The Mosquito Range complex is an example of the core reserve model with protected core areas connected by wildlife linkages. However the protected core areas proposed in the Mosquito Range complex may be smaller than is ideal for some species.

Within the complex, a major barrier to animal movement is Colorado Highway 91 from Leadville over Fremont Pass, cutting across the northern-most portion of the complex. Other barriers are primarily geographic rather than man-made. The high peaks of the Mosquito Range limit animal movement to the most hardy high elevation species. Forest roads crossing Mosquito Pass and Weston

Pass can also be barriers to animal movement and should be monitored during times of animal migration to ensure the safety of the animals and of the drivers.

There are several major barriers to connectivity between the Mosquito Range and all adjacent complexes. US Highway 24 and the populated Arkansas valley and Leadville region is a barrier between the Mosquito Range and the Sawatch Range to the west. Colorado Highway 9 is a barrier between the Mosquito Range and the Mount Evans High Peaks complex to the northeast. US Highway 285 is a barrier between the Mosquito Range and South Park to the east and the Arkansas Canyons complex to the south.

The Southern Rockies Ecosystem Project identified several corridors for animal movement in and out of this complex. There is a high priority corridor for wolverine that crosses several forest service roads in the northern and central portions of the complex. Both the Forest Service and SREP identified a very high priority linkage for lynx across the northern portion of the complex that provides east-west and north-south connectivity across Fremont and Tennessee Passes. The Southern Rockies Ecosystem Project also identified a linkage for lynx from the Mosquito Range to the Sawatch Range across US Highway 24 south of Clear Creek Reservoir.

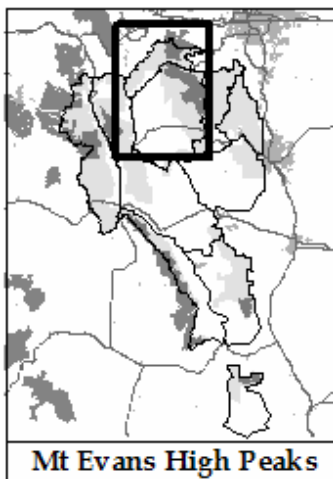
Summary

The Mosquito Range complex is an excellent example of the rich biodiversity that is found as parkland and river corridors give way to forests, riparian areas, and high alpine tundra. Although its historical mining heritage has left major disturbed areas in the north, even there many areas are intact and rare plants and natural communities abound. In the south, a major part of the complex is already protected in the Buffalo Peaks Wilderness, where dense forests and riparian zones contribute their ecological values. These are all are important to the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

The Mount Evans High Peaks Complex



Square Top roadless area



The Mount Evans High Peaks Complex lies along the Continental Divide at the northern edge of South Park between the foothills east of Mount Evans to Hoosier Pass.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.4: Mount Evans High Peaks Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Mount Evans High Peaks complex lies along the Continental Divide in the northern Pike National Forest from Mount Evans on the east to Hoosier Pass on the west. It rims the northern edge of South Park and is primarily in Park County with a small section in Clear Creek County. Most of the complex can be seen to the north from Highway 285, and Mount Evans is clearly visible from many vantage points, including Denver.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

The mountain range in the Mount Evans High Peaks complex is broken into a series of peaks with intervening passes and valleys. Peaks include Mount Evans, Mount Bierstadt, Epaulet Mountain, Mount Spaulding, Kataka Mountain, Mount Logan, Square Top Mountain, Landslide Peak, Red Cone, Handcart Peak, Whale Peak, Glacier Peak, Mount Guyot, Boreas Mountain, and Red Peak, to name just a few. Overall elevation ranges from 14,264 at Mount Evans to 13,000 feet along the crest of the Continental Divide, and 9,000 feet in the lower edges of the forest. The complex contains the headwaters and tributaries of the North and Middle Forks of the South Platte River in Hall Valley and the Wheeler Mountain area respectively. Other significant streams include, east to west, Elk Creek, Deer Creek, Scott Gomer Creek, Geneva Creek, Jefferson Creek, Michigan Creek, Tarryall Creek, Trout Creek, and Beaver Creek. Duck Lake, near Guanella Pass, and Jefferson Lake, a water supply reservoir, are relatively large bodies of water.

The predominant vegetation in Mount Evans High Peaks is alpine tundra, Engelmann spruce-subalpine fir, and lodgepole pine. There are stands of Douglas-fir and ponderosa pine in the lower elevations on the southeastern side. Engelmann-spruce/subalpine fir and bristlecone forests in the complex have areas of old growth and mature forests moving toward old growth characteristics. Aspen, bristlecone pine, willows, and other wetland species are scattered across the complex, and open areas contain montane grasslands with many wildflowers.

There is habitat for a large variety of species, including lynx, mountain lion, bobcat, black bear, mule deer, elk, bighorn sheep, pine marten, a variety of raptors, and smaller mammals such as ground squirrels and snowshoe hares, and the introduced mountain goats. Mule deer, elk, and bighorn sheep have winter range particularly on the southern edges. In addition to lynx occurrences, overall and denning habitat, the Mount Evans High Peaks complex includes the Guanella Pass, Kenosha Pass, and Boreas Pass lynx linkages. Rare species include boreal toad (*Bufo boreas*), greenback cutthroat trout (*Oncorhynchus clarki stomias*), wolverine (*Gulo gulo*), and numerous plant species and plant communities.

Ecological values of the complex

In addition to providing all the typical montane and alpine vegetation types to support a wide range of species, Mount Evans High Peaks includes many rich and unique biological areas. Research Natural

Areas (RNA) include the existing Hoosier Ridge RNA and four proposed RNAs. The Colorado Natural Heritage Program lists more than a dozen Potential Conservation Areas (PCAs) ranging in significance from moderate to outstanding. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes most of the complex in its moderately low and moderate conservation priorities, with moderately high priority areas across Boreas, Hoosier Ridge, and Silverheels roadless areas. The Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP Vision) includes all the roadless areas as core wilderness, with the remainder of the complex as moderate or low compatible use. Clearly various conservation approaches value the Mount Evans High Peaks complex highly for its biological richness.

Wilderness and Roadless Areas

The large proportion of roadless land in the Mount Evans High Peaks results in a good distribution of high quality ecological characteristics. (See Table 5.6). The areas are described below.

Table 5.6: Mount Evans High Peaks Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Boreas	11,400	Yes*
Burning Bear	20,700	Yes
Elk Creek	22,300	Yes*
Hoosier Ridge	5,000	No
Jefferson	19,900	Yes*
Mount Evans Wilderness	74,400	n/a**
Silverheels	14,000	Yes*
Square Top	8,700	Yes

Wilderness Areas

Mount Evans Wilderness

Mount Evans Wilderness, some 74,400 acres, is administered by both the Pike and Arapaho National Forests. Approximately 35,000 acres is in the Pike National Forest, located between the eastern foothills and Guanella Pass road, Highway

285, and the Continental Divide. The Continental Divide anchors the eastern end of the complex, and includes a range of elevations from around 9,300 feet up to Mount Evans and Mount Bierstadt, the two Fourteeners in the middle of the Wilderness. As with most Colorado Wildernesses, Mount Evans is predominantly alpine tundra and bare rock, but there are significant spruce-fir and lodgepole pine forests, many wetlands and montane meadows, and excellent habitat for elk, bighorn sheep, and lynx, among other notable animals. There is a high human presence on the Mount Evans summit road (mostly located in the Arapaho Forest) during the summer, but this is generally limited to the immediate road corridor and several nearby trails. Trailheads are high use areas, and the trail to Mount Bierstadt has many climbers on summer days. There is a trail network of some 105 miles in the immediate area, including 77 miles within the Wilderness boundary.

*Roadless rule area has significantly fewer areas than UASPP inventory.

**Includes land in an adjacent National Forest.

Lynx have been recently documented in the Wilderness area by the Colorado Division of Wildlife. The Guanella Pass lynx linkage provides north-south connections to the adjacent Arapaho and White River Forests, while the Kenosha Pass lynx linkage at the south end of the Wilderness provides connections to Lost Creek Wilderness. Expert workshops conducted by Southern Rockies Ecosystem Project identified Mount Evans and Lost Creek Wildernesses as areas with secondary gray wolf habitat, which may be of some importance as wolves disperse from the Yellowstone area. Mountain lions are found here in appropriate habitat. Virtually the whole Wilderness is bighorn sheep range, with two large winter range areas on the west side, a winter concentration area near Highway 285, and lambing areas scattered across the west side. Elk move across the whole Wilderness in summer and to lower elevations in winter, and there are scattered calving areas in the interior. Mule deer summer across the Wilderness and have winter

range and concentration areas on the south side. Mountain goats, which were introduced as a game animal and are favorites with tourists on the Mount Evans road, are found in the higher elevations. White-tailed ptarmigan are of note, especially in the Guanella Pass area, where they can be found in summer or winter with some diligent searching. Down in the forest to the south, greenback cutthroat trout (*Oncorhynchus clarki stomias*) are recorded in the Francis Creek area, along with hoary or silver willow, Nangoon berry (*Cylactis arctica* spp. *acaulis*), two rare sedges (*Carex scirpoidea* and *C. oreocharis*, Porter feathergrass (*Ptilagrostis porteri*) and bristlecone pine/Arizona fescue (*Pinus aristata*/*Festuca arizonica*) montane woodlands community

Guanella Pass proposed RNA is located in the Wilderness in the basin between Guanella Pass road and Mount Bierstadt, Mount Spaulding, and Gray Wolf Mountain. It would “preserve the area as an outstanding example of upper subalpine willow and fen wetlands and alpine tundra communities in excellent condition.” (Karin Decker, Colorado Natural Areas Program, March 1998) . A Potential Conservation Area of high significance is located from Guanella Pass to south of Geneva Mountain. The TNC blueprint also shows parts of Mount Evans Wilderness as moderate significance, with the southeast corner of the Wilderness as high conservation significance.

Unprotected roadless areas

There are seven unprotected large roadless areas in the Mount Evans High Peaks complex. All except Hoosier Ridge were inventoried as roadless under the Forest Service’s Roadless Area Conservation Rule, but UASPP field inventories determined that four areas were larger than the Roadless Conservation Rule boundaries. In addition to their value as roadless areas, five also include areas recommended as RNAs. The Square Top roadless area is contiguous to the Square Top North proposed Wilderness in the Arapahoe National Forest. These areas are described from east to west below.

Elk Creek

The Elk Creek roadless area is contiguous with the Mount Evans Wilderness on the north and west, is bounded by the Harris Park community and some adjacent forest roads on the east, and is bounded by US Highway 285 on the south. The extent of the roadless area as inventoried by UASPP at 22,300 acres is considerably larger than that shown in the Roadless Area Conservation Rule Inventory.

Elk Creek is predominantly Engelmann spruce-subalpine fir and lodgepole pine, with ponderosa pine and Douglas-fir near Harris Park and along US Highway 285. Slender cotton grass (*Eriophorum gracile*), a rare plant, is found in the northeast portion. Black bear and mountain lion might be sighted in any part of the area. Bighorn sheep, elk, and mule deer have winter range here, with mule deer winter concentrations along US Highway 285 and three elk calving areas in or adjacent to the unit. There is lynx habitat across most of the area with denning habitat on the northeast side.

The Harris Park fuels treatment project, recently approved, would potentially alter parts of the roadless area and impact the wilderness qualities of Elk Creek.

The proposed North Elk Creek RNA eastern end of the roadless area is rated of high biological value by Center for Native Ecosystems. It includes the rare slender cotton grass (*Eriophorum gracile*). The Mud Lakes PCA of general biodiversity interest overlaps the roadless area in the headwaters area of North Elk Creek. SREP’s Vision shows the Elk Creek roadless area as core wilderness.

Square Top

The 8,700-acre Square Top roadless area is immediately north of the Burning Bear roadless area and west of Mount Evans Wilderness. It is bounded on the east by the Guanella Pass road, on the north and west by the Continental Divide and the Pike-Arapaho Forest boundary, and on the south by the Geneva Creek road. Its northern boundary at the Continental Divide is rather artificial, as the actual roadless area goes well over into the Arapaho National Forest. This additional area, known as Square Top North, was proposed for Wilderness designation by conservationists for the Arapaho-Roosevelt forest plan revision. All of Square Top was identified as roadless under the Roadless Area Conservation Rule inventory.

Because of its high elevations, a large portion of the area is alpine tundra or rock, with Engelmann spruce-subalpine fir and lodgepole pine, and some pockets of aspen, in the forested areas. There are many significant wetlands, especially near Guanella Pass and in the Geneva Basin area. Plant communities such as barren-ground willow/mesic forb (*Salix brachycara/mesic forb*) alpine willow scrub are important here. Rare plants such as Porter feathergrass (*Ptilagrostis porteri*), Nagoon berry (*Cylactis arciap spp.*), Rocky Mountain columbine (*Aquilegia saximontana*), and Weber monkey-flower (*Mimulus gemmiparus*) have been found here. Unique iron fens are located in Geneva Basin at the historical Geneva town site.

Black bear can be sighted in forested parts of the area. Bighorn sheep, mule deer, and elk have summer range in appropriate habitat, and mountain goats are found in the higher elevations. Lynx habitat is located on the south in the forested areas, including habitat suitable for denning, and radio-collared lynx have been documented in the Guanella Pass area. The Guanella Pass lynx linkage provides north-south connections to the adjacent Arapaho National Forest. Boreal toads (*Bufo boreas*) are present in the Geneva Creek area, and the reconstruction of the Guanella Pass road includes structural crossings for the toads.

Part of the CNHP's Geneva Park PCA of high significance is found on the southeast corner of the area. The Guanella Pass potential conservation area of moderately high significance is located on the northeast corner and overlaps the Square Top North area. In addition small parts of Argentine Peak and Collier Mountain PCAs are here. The TNC conservation blueprint shows most of Square Top as having moderate to moderately low conservation value and the SREP Wildlands Vision shows it as a core wilderness.

Burning Bear

The Burning Bear roadless area is located immediately west of Mount Evans Wilderness. It is bounded by Highway 285 on the south, the North Fork of the South Platte on the west and south, and the Geneva Creek road on the north. Only the Guanella Pass road, now under major reconstruction, separates it from Mount Evans Wilderness on the east. The whole area of some 20,700 acres was deemed roadless under the Roadless Area Conservation Rule inventory.

Habitat is predominantly lodgepole pine in the south, Engelmann spruce-subalpine fir in the higher forested elevations, and alpine tundra and rock in the north near the Continental Divide, with some areas of limber pine, ponderosa pine, and aspen. There are significant wetlands, especially in Geneva Basin where Burning Bear Creek, Buno Creek, and Geneva Creek join. CNHP lists several significant plant communities and rare plants: two sedges, five draba species, Porter feathergrass (*Ptilagrostis porterii*) Nagoon berry (*Cylactis arciap spp.*), and tundra buttercup, as well as listing greenback cutthroat trout (*Oncorhynchus clarki stomias*) and boreal toad (*Bufo boreas*) in the Geneva Creek area.

Black bear are found throughout the area. Elk are also found across the area, with elk winter range on the southern end. There are two large elk calving areas in the north and south central parts, as well as a large migration corridor from the south end of Burning Bear into South Park, where there is a high incidence of animals crossing Highway 285. Mule deer also range across the area in the summer and concentrate along Highway 285 in the winter. There is a small bighorn sheep lambing area near Burning Bear Creek, although the main bighorn sheep concentrations are in the adjacent Mount Evans Wilderness. Mountain goats may be found in the higher elevations in summer. Lynx habitat is found across the forested part of the roadless area with denning habitat scattered throughout, and radio collared lynx have been located in the Guanella Pass area.

Colorado Natural Heritage Program's Geneva Park PCA is rated of very high significance. The west side of Burning Bear intersects the Sullivan Mountain and part of Jefferson Hill PCAs, rated of high and very high significance, near the North Fork of the South Platte River. The TNC rates all of Burning Bear as moderate conservation value and the SREP Vision shows it as a core wilderness.

Jefferson

Lying east of the Continental Divide between the North Fork of the South Platte in Hall Valley and Georgia Pass, the Jefferson roadless area is bounded on the east by several forest roads, on the south by the forest boundary and forest roads, on the southwest by the Georgia Pass road, and on the north by the Continental Divide. The major portion of Jefferson was listed as roadless in the Roadless Area Conservation Rule, although the UASPP boundary as determined by field inventories extends the area significantly farther east to total 19,900 acres. The larger streams in the area include the North Fork of the South Platte River, Jefferson Creek, and Michigan Creek. Jefferson Lake lies in the center of the area and is a popular recreation area, as well as a municipal water supply. There is a long cherrystem road into the roadless area to Jefferson Lake to accommodate visitors to the lake and to the Colorado Trail which traverses the southern edge of the roadless area.

The northwestern part along the Continental Divide is alpine tundra and rock, while moderate elevations have a mixture of Engelmann spruce-subalpine fir, lodgepole, aspen, and bristlecone/limber pine. There are significant wetlands, especially along Jefferson Creek and the North Fork of the South Platte River. Rare plants and plant communities listed by CNHP include bristlecone pine/Thurber fescue (*Pinus aristata/Festuca thurberi*) and bristlecone pine/alpine clover (*Pinus aristata/Trifolium dasyphyllum*) montane woodlands, aspen/black twinberry (*Populus tremuloides/Lonicera involucrata*) montane riparian forests, diamondleaf willow/mountain marsh-marigold (*Salix planifolia/caltha leptosepala*) subalpine riparian willow carr, northern rockcress (*Draba borealis*), Porter feathergrass (*Ptilagrostis porterii*), sea pink (*Armeria scabra ssp sibirica*), and Weber saussurea (*Saussurea weberi*).

Boreal toads (*Bufo boreas*) are located in the Jefferson Creek area. Black bear are found throughout the area. Bighorn sheep range across the higher elevations with winter range in the central parts northwest of Jefferson Lake. Elk and mule deer are found across the area in the summer and both have winter range, as well as mule deer winter concentrations, along the southern boundary. Mountain goats may be found in the higher elevations in summer. Forested areas on the north, east, and south central portions are lynx habitat with extensive denning areas, and radio-collared lynx have been documented in the area. The Forest Service lynx amendment notes that the Georgia Pass lynx linkage is the best forested and least developed habitat connection that provides for north-south movements from South Park across the Continental Divide to Summit County. (USDA Forest Service 2004).

The proposed Guernsey and Deadman Gulches RNA is located southeast of Jefferson Lake. The Guernsey Creek fen is one of the features included in Senator Ken Salazar's legislation to designate the South Park National Heritage Area. CNHP shows the forested portions as the Jefferson Hill PCA of high significance, and part of the South Park PCA of very high significance overlaps the southern boundary of the roadless area. TNC Conservation Blueprint shows the northeastern part as moderately low and the southwestern part as moderate conservation value. SREP's Vision shows the whole area as core wilderness.

Boreas

The Boreas roadless area of some 11,400 acres lies between the Georgia Pass/Michigan Creek drainage and Boreas Pass/Tarryall headwaters. It is bounded on the east by the Georgia Pass road 54 and several forest roads east of Michigan Creek and near the forest boundary; on the south by the forest boundary; on the west by the Boreas Pass road, and on the north by the Continental Divide between the two passes. The extent of the roadless area as inventoried by UASPP is larger than the Forest Service Roadless Area Conservation Rule Inventoried Roadless Area. The major headwater tributaries of both Michigan and Tarryall Creeks are outside the roadless area.

The majority of the central part of Boreas is alpine tundra and rock, running south from the Continental Divide to within a mile or so of the southern boundary. On each side of this central spine are forests of Engelmann spruce-subalpine fir, lodgepole pine, aspen, and some bristlecone/limber pine. There are also montane meadows and wetlands. Rare plants and plant communities in this area listed by CNHP include Subalpine riparian willow carr, diamondleaf willow/water sedge (*Salix planifolia/carex aquatilis*), Colorado larkspur, (*Delphinium ramosum var alpestre*), four species of moonworts (*Botrychium lunaria*, *B. lanceolatum var lanceolatum*, *B. simplex*, *B. echo*), globe gilia (*Ipomopsis globularis*), hoary or silver willow (*Salix candida*), Leadville milkvetch (*Astragalus molybdenus*), Rocky mountain columbine (*Aquilegia saximontana*), slender cotton grass (*Eriophorum gracile*), and Weber saussurea (*Saussurea weberi*).

Black bear are found throughout the area. Bighorn sheep are found in the alpine areas, with some winter range on the east side. Elk summer across most of the area, and there is a large elk calving area along the east side. Mule deer are found across the area in the summer and have both winter range and winter concentrations along the extreme southern boundary. Mountain goats may be found in the higher elevations in summer. Lynx habitat is limited to a band of forested areas on the east, south, and western perimeter of the roadless area, but lynx have been documented in the area. The Georgia Pass lynx linkage is one of the best forested, undeveloped connections from South Park to Summit County. (USDA Forest Service 2004.) Boreal toads (*Bufo boreas*) are found in the Tarryall Creek riparian zone just to the west of Boreas.

The southern and central portion of the area includes the Boreas Mountain proposed RNA. A very small part of the CNHP's South Park PCA overlaps the southern boundary of the roadless area, and a portion of the Boreas Pass PCA (high significance) and the extensive Mosquito Range PCA (very high significance) overlaps in the Boreas Pass area. The TNC Blueprint shows the majority of the area as moderately high conservation value and SREP's Vision lists the area as core Wilderness.

Hoosier Ridge

The Hoosier Ridge roadless area, about 5,000 acres, runs along the Continental Divide from Boreas Pass to the National Forest boundary just east of Hoosier Pass. It is bounded on the east

by North Tarryall Creek or the Boreas Pass Road, on the south by roads and mining claims in the Deadwood Gulch/Iron Mountain area, on the west by the forest boundary near Highway 9 and on the north by the Continental Divide. It is a very irregularly shaped area due to surrounding roads and mining claims. Hoosier Ridge was not included in the Roadless Conservation Rule inventory as roadless. Tarryall Creek, located outside the roadless area, drains the central portion.

Because of its high elevation, Hoosier Ridge is primarily alpine tundra and rock, with Engelmann spruce-subalpine fir, and lodgepole pine found in the southeast portion adjacent to the Tarryall Creek headwaters. It includes significant examples of montane riparian forests. Rare plants include common, lance leafed, least, and reflected moonworts (*Botrychium lunaria*, *B. landeolatum* var., *B. simplex* and *B. echo*), globe gilia (*Ipomopsis globularis*), Leadville milkvetch (*Astragalus molybdenus*), alpine braya (*Braya humilis*), Colorado Divide whitlow (*Draba streptobrachia*), northern rockcress (*Draba borealis*), Rocky mountain columbine (*Aquilegia saximontana*), Weber saussurea (*Saussurea weberi*), and Penland alpine fen mustard (*Eutrema edwardsii* ssp *penlandii*).

Black bear are found across the area. Elk and mule deer summer in the area, but their winter ranges are further south. Lynx habitat and denning habitat are limited to the southeast forested area. There are records from 1979 of wolverine (*Gulo gulo*) in this area.

The Hoosier Ridge designated RNA lies along the Continental Divide in both the Pike and White River National Forests just east of Hoosier Pass. It was designated as a “typical example of alpine ecosystems in excellent condition, containing unique plant populations or demonstrated scientific and public interest.” (ROD, PSI, 1995) The Pike National Forest side of the RNA drains into Beaver Creek, the water supply for Fairplay. The RNA is entirely alpine grasslands, and at least ten rare plants are found here, including the federally threatened Penland alpine fen mustard (*Eutrema penlandii*). The major part of Hoosier Ridge roadless area along the Continental Divide is included in the large Mosquito Range PCA of CNHP, which they consider to have outstanding significance. The TNC Blueprint includes the whole roadless area as moderately high conservation value, and SREP’s Vision lists the roadless area as core wilderness and core agency.

Silverheels

Near Fairplay, the Silverheels roadless area is located in the “Y” formed by the junction of US Highway 285 and Colorado Highway 9. The eastern boundary is roughly defined by Tarryall Creek, the south by roads near the forest boundary, the west by Beaver Ridge, and the north by private lands in the Iron Mountain area. Forest road 194, which goes up Trout Creek between Little Baldy and Palmer Peak, is cherrystemmed out of the roadless area. The headwaters of Tarryall Creek, Trout Creek, and Beaver Creek are in this roadless area. The Roadless Conservation Rule inventory lists the western portion – primarily Mount Silverheels – as roadless, but UASPP field surveys documented that the eastern portion around Little Baldy Mountain is also roadless making the whole area is approximately 14,000 acres.

The northwest part of the Silverheels roadless area, dominated by Mount Silverheels, is alpine tundra or rock. The more moderate elevations across the south are Engelmann spruce-subalpine fir and lodgepole pine, with significant stands of aspen, some bristlecone/limber pine, and wetlands, especially in the northwest, south, and central areas. The wetlands areas include noted examples of Rocky Mountain willow/beaked sedge (*Salix monticola/carex utriculata*) and barren-ground willow/water sedge (*Salix brachycarpa/carex aquatilis*) willow carr communities. There are occurrences of Porter feathergrass (*Ptilagrostis porteri*), Penland alpine fen mustard (*Eutrema penlandii*), and snow grass (*Phippisia algida*).

Bighorn sheep are found in the upper elevations in the summer, with winter range to the south outside the roadless areas. Elk and mule deer summer across the area and mule deer have some winter range and concentration areas on the southern boundary, with elk winter range being further to the south. There is a large elk calving area along Trout Creek. Lynx overall and denning habitat covers most of the east part of Silverheels as well as some on the south side. There are also 1979 records of wolverine (*Gulo gulo*) and two rare insects, Alberta and polixenes arctic skippers (*Oeneis alberta* and *Oeneis polixenes*), are currently found in this area.

Little Baldy Mountain is a biologically rich subalpine area that conservationists recommend for further research as a potential RNA. The southern end of the Mosquito Range PCA, rated as outstanding conservation significance by CNHP, comes well down into the Silverheels roadless area and the South Park PCA overlaps somewhat on the southern boundary. The TNC Blueprint includes Silverheels in its moderately high category and SREP's Vision shows the whole roadless area as core Wilderness.

Historical and Cultural Features of Mount Evans High Peaks Complex

Some archeological, historical, and cultural features of note include:

- While the Mount Evans High Peaks complex is not in the main Colorado mineral belt, there was significant mining here. Prospects, tailings piles, and major mine structures can still be seen, although many are fading into oblivion. Miners found pay dirt in the Tarryall River near Fairplay, and later dredging was a prominent activity as miners sought the last remnants of gold.
- The Guanella Pass Scenic Byway is located between Burning Bear/Square Top and Mount Evans Wilderness. Once a pack trail, the road was created by Byron Guanella, a Clear Creek county official, and is currently undergoing major reconstruction and partial paving. This will bring more visitors to the area, highlighting the need to protect areas that are currently roadless.
- The road which divides Burning Bear and Square Top leads to the historical Geneva town site.
- The museum at Como highlights the railroad history of the area. The Denver South Park and Pacific Railway pioneered routes from Denver west across much of the Pike-San Isabel. One route was a railroad route from Morrison, across Kenosha Pass to Fairplay, continuing to Trout Creek Pass and onward to Leadville. A short-cut railroad across Boreas Pass connected Como to Breckenridge and then to Dillon.

Management Recommendations

Overview

The ecological value of protecting large roadless areas prompted the Wild Connections team to recommend Wilderness additions, new Wilderness designations, or Core management (Theme 1) for all but one of the roadless areas in the Mount Evans complex. There are several proposed RNAs (Theme 2); quiet use and connectivity areas (Theme 3); recreation emphasis areas (Theme 4); and a number of areas recommended for active management (Theme 5). There is a permanently developed recreation area recommended (Theme 8) at Jefferson Lake. Grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas. Table 5.7 lists the major management units by theme. Refer to the Mount Evans High Peaks complex map for specific locations and refer to the roadless area descriptions for more details on the unit.

Table 5.7: Mount Evans High Peaks Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Mount Evans Wilderness	35,000	1.1 Existing Wilderness
Boreas	11,400	1.2 Recommended Wilderness
Burning Bear	20,600	1.2 Recommended Wilderness
Elk Creek	22,300	1.2 Recommended Wilderness (add to Mount Evans)
Jefferson	14,400	1.2 Recommended Wilderness
Silverheels	14,000	1.2 Recommended Wilderness
Square Top	8,000	1.2 Recommended Wilderness
Hoosier Ridge	5,100	1.3 Core Reserve
Theme 2 – Special Areas		
Boreas Mountain RNA	4,700	2.1 Research Natural Areas
Guanella Pass RNA	3,400	2.1 Research Natural Areas
Guernsey & Deadman Gulch RNA	2,800	2.1 Research Natural Areas
Hoosier Ridge RNA	700	2.1 Research Natural Areas
North Elk Creek RNA	5,100	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Jefferson West	4,700	3.1 Quiet Use Areas
Duck Creek	2,600	3.2 Connectivity Areas
Geneva Creek	800	3.2 Connectivity Areas
Theme 4 – Recreation Emphasis Areas		
Guanella Pass Scenic Byway	500	4.2 Scenic Byways
Theme 5 – Active Management		
Beaver Ridge	2,500	5.1 Active Mgmt - Wildlife Habitat
Beaver Trout	4,600	5.1 Active Mgmt - Wildlife Habitat
Black Mtn	2,900	5.1 Active Mgmt - Wildlife Habitat
Boreas Pass	1,600	5.1 Active Mgmt - Wildlife Habitat
Deer Creek	4,300	5.1 Active Mgmt - Wildlife Habitat
Georgia Pass	2,700	5.1 Active Mgmt - Wildlife Habitat
Hall Valley (also in South Park)	18,700	5.1 Active Mgmt - Wildlife Habitat
Jefferson Creek	700	5.1 Active Mgmt - Wildlife Habitat
Montgomery Gulch	2,200	5.1 Active Mgmt - Wildlife Habitat
Theme 8 – Permanently Developed Areas		
Jefferson Lake	100	8.2 Permanently Developed Areas

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Mount Evans Wilderness is the only Wilderness in this complex. It is described in detail in the roadless area descriptions above. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act.

(http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation

The Wild Connections Conservation Plan calls for designation of (east to west) Square Top, Burning Bear, Jefferson (east portion), Boreas, and Silverheels roadless areas as Wilderness. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless boundary, except for Jefferson where the roadless area is larger. The following benefits were considered in making these recommendations: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species, and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation.

We believe that all of these areas meet the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. They all provide opportunities for solitude, challenge, and unconfined recreation once the trailheads are left behind. There are rugged mountains, and deep valleys without trails, long alpine ridges covered in tundra and rock, and forested ridges. The imprints of humans are substantially unnoticeable, as care was taken to eliminate major mining areas and recent logging operations. While there are old mines in some areas, especially in Silverheels, most are slowly disappearing. At the same time these remnants of human habitation and use give clear pictures of the mining history of the area, while providing a lesson in the length of time it takes for nature to heal in an unforgiving climate. Logging was limited or nonexistent within these proposed wildernesses, and logged areas and old access roads are recovering, bringing an end to overt signs of human use.

Availability

Likewise all the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines, though there is gold panning adjacent to the Silverheels area. The watersheds and streams are already allocated, and no new water projects are planned. The Roberts Tunnel passes underneath the Burning Bear roadless area, but we believe this is not a deterrent to designation.

Major highways are not anticipated to affect the areas, although the reconstruction of the Guanella Pass road will increase visitation and bring pressure to bear on the adjoining designated and proposed Wildernesses. The proposed Wilderness boundary of Jefferson was drawn to exclude the Colorado Trail, so that mountain bike use will not be affected there.

The Mount Evans High Peaks complex is not appropriate for timber harvest. Some mistletoe management plans have been implemented around campgrounds outside of the proposed wilderness, but the vegetation within the area is largely intact, with much of it tending toward mature and old growth characteristics. All or part of the Geneva, Elk Creek, Kenosha, Jefferson, Geneva, Boreas and Silverheels grazing allotments would be grandfathered in with Wilderness

designation, although over time they could be retired, where feasible. Overall, there are no known or anticipated threats to the area that would preclude its designation as Wilderness.

Suitability

Uses forgone in these proposed Wildernesses are motorized recreation on illegal roads and cross country snowmobile use off currently designated routes, as well as some restrictions on implementation of potential fuels reduction project. However, the very nature of these Wildernesses allows continued motorized access up to the perimeter of most of the areas, and in most cases between the areas. Roads in Geneva Creek, Hall Valley, Michigan Creek, Boreas Pass, and Beaver Creek will still provide motorized access to the Continental Divide.

There are numerous values that undergird the designation of the proposed Wildernesses and contribute to the National Wilderness System:

- Although the complex is primarily montane and alpine ecosystems, it will add substantial riparian areas and wetlands to the National Wilderness System, including the willow carrs and lakes on Square Top, the beaver ponds on Burning Bear, and extensive riparian zones on Jefferson, Boreas and Silverheels.
- Habitat and areas for potential reintroduction of large native carnivores, including lynx, would be protected. Numerous radio signals from lynx dispersing from the San Juans reintroduction were reported in this complex by the Colorado Division of Wildlife.
- Habitat for a host of rare and endangered plants, mammals, amphibians, insects, and birds, including boreal toad (*Bufo boreas*), greenback cutthroat trout (*Oncorhynchus clarki stomias*), arctic willow carrs, and lynx would be protected.
- Domestic water supply sources are best protected from sediment and pollution when they are located on roadless areas. The Mount Evans High Peaks proposed Wildernesses include tributaries to the North Fork of the South Platte River which transports part of metropolitan Denver's water supply to the South Platte River many miles downstream.
- There are outstanding opportunities for solitude, quiet backcountry recreation, and challenge throughout the area.
- Historical access to the forest in general is maintained on existing roads on Guanella Pass, in the Hall Valley, to Jefferson Lake, to Georgia Pass, over Boreas Pass, and up Beaver Creek.
- The Colorado Trail would be preserved as a non-motorized hiking and mountain biking trail.
- Designation of additional Wilderness in this complex would help ensure that the impacts of fragmentation by roads, damage to riparian zones, loss of old-growth forests, and conversion to intensive recreation will not be exacerbated.
- The high mountain ridges and valleys exemplify the wildness that now brings recreationists, tourists, and new residents to Colorado. With both the Continental Divide and the Colorado Trails running through the Mount Evans High Peaks complex, along with increasing requests for additional developed and motorized recreation, maintaining the area's wilderness characteristics is crucial.
- Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guided and outfitter trips.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

- Hoosier Ridge, although roadless and meeting many of the requirements for Wilderness, is recommended as a Core Reserve. Its irregular shape and many adjacent mining claims led us to recommend this less restrictive designation. The Hoosier Ridge designated RNA is partially located in Hoosier Ridge.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention

To supplement the range of research opportunities and increase the ecosystem representation, Boreas Mountain, Guanella Pass, Guernsey and Deadman Gulches, and North Elk Creek areas, in addition to the designated Hoosier Ridge RNA, should be recommended for addition to the RNA system. Each has their unique combination of ecological values which will enhance the system:

- The Hoosier Ridge designated RNA, 700 acres, lies along the Continental Divide in both the Pike and White River Forests just east of Hoosier Pass. It was designated as a “typical example of alpine ecosystems in excellent condition, containing unique plant populations or demonstrated scientific and public interest.” (ROD, PSI, 1995) The Pike National Forest side of the RNA drains into Beaver Creek, the water supply for Fairplay. The RNA is entirely alpine grasslands, predominantly tufted hairgrass/golden avens (*Dece/Acro*), and kobresia/golden avens (*Komy/Acro*) with other area of willow and krummholz communities. Pika and yellow-bellied marmot are the most common animals, but elk mule deer, and coyotes have been observed. At least ten rare plants are found here, including the federally threatened Penland alpine fen mustard (*Eutrema penlandii*), as well as sea pink (*Armeria scabra*), globe gilia (*Ipomopsis globularis*), Leadville milkvetch, (*Astragalus molybdenus*), Weber saussurea (*Saussurea weberi*), Porsild’s whitlow grass (*Draba porsildii*), northern rockcress (*Draba borealis*), Colorado Divide whitlow (*Draba streptobrachia*), alpine poppy (*Papaver kluanenes*) and snow grass (*Phippsia algida*).
- The Boreas Mountain proposed RNA, some 4,700 acres lying in the central part of the Boreas roadless area, covers most of high slopes of Boreas Mountain itself, with a fringe of forest around all but the northern edge. In addition to the tundra, it is noted for good examples of subalpine vegetation such as Engelmann spruce, bristlecone pine, and aspen, as well as montane riparian forest Rocky Mountain fir-Engelmann spruce/mountain or ciliate bluebell (*Abies lasiocarpa-Picea engelmannii/Mertensia ciliata*). Headwaters of Frenchman Creek, which Center for Native Ecosystems notes is of biological significance, Volz Gulch, Holthusen Gulch, and tributaries of North Tarryall Creek, are in the proposed RNA.
- Guanella Pass proposed RNA of 3,400 acres is located in the Mount Evans Wilderness in the basin between Guanella Pass road and Mount Bierstadt, Mount Spaulding, and Gray Wolf Mountain. The rocky cliffs above the cirques, especially the ridge called the Sawtooth, provide dramatic contrast to Scot Gomer creek and wetlands below. The Guanella Pass proposed RNA would “preserve the area as an outstanding example of upper subalpine willow and fen wetlands and alpine tundra communities in excellent condition.” (Karin Decker, Colorado Natural Areas Program, March 1998) These alpine meadows and subalpine wetlands provide some of the best examples of their type in Colorado and are not

represented in other Pike-San Isabel RNAs. Five rare plant species include the not-so-common moonwort (*Botrychium lunaria*), mud sedge (*Carex limosa*), slender cotton grass (*Eriophorum gracile*), alpine poppy (*Papaver lapponicum* ssp. *occidentale*), and Kotzebue grass-of-Parnassus (*Parnassia kotzebuei*). Another wetland plant community, diamondleaf willow/water sedge (*Salix phylicifolia* ssp. *planifolia*/*Carex aquatilis*), is in excellent condition here and is tracked by CNHP because high-quality examples are rare.

- The 2,800-acre proposed Guernsey and Deadman Gulches RNA, located southeast of Jefferson Lake, has rare plant communities of Rocky Mountain willow/mesic graminoid (*Salix monticola*/mesic graminoid) montane riparian willow carrs, bristlecone pine/Thurber's fescue (*Pinus aristata*/*Festuca thurberi*) lower montane woodlands, and bristlecone pine/alpine clover (*Pinus aristata*/*Trifolium dasyphyllum*) upper montane woodlands, as well as good stands of bristlecone pine. It is included in the Jefferson Hill PCA of high significance and an arm of the large South Park PCA comes into the proposed RNA. The TNC conservation blueprint includes it in its large South Park area of moderate conservation interest.
- The 5,100-acre proposed North Elk Creek RNA on the eastern end of the complex is rated of high biological value by Center for Native Ecosystems. It includes the rare slender cotton grass (*Eriophorum gracile*), along with unique rock features and possible habitat for Mexican spotted owl (*Strix occidentalis lucida*) according to CNE. It is the lowest in elevation of the proposed RNAs in this complex. North Elk Creek runs through the center of the area providing good riparian habitat. The RNA includes the Mud Lakes PCA of general biodiversity interest.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance

The Jefferson roadless area was split along Trail 643, with the northeast recommend for Wilderness and the southwest recommended for quiet use providing opportunities for non-motorized recreation. This designation will preserve the roadless and non-motorized character of the southeastern part while allowing mountain bike use on Trail 643, and the Colorado Trail to the southwest. It will also help protect a sizeable area of lynx habitat from motorized recreation disturbances.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Geneva Creek and Duck Creek areas require some special attention to protect wildlife movement in an area of higher levels of motor vehicle in the corridor between Square Top, Burning Bear, and Mount Evans Wildernesses. The Guanella Pass lynx linkage area is located here. Management emphasis will facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat. A broader discussion of connectivity is found below.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate.

Guanella Pass Scenic Byway begins at Grant and goes northward over Guanella Pass along Forest Road 118 into the Arapaho Forest and down to Georgetown. Because of the major reconstruction of the Guanella Pass road and subsequent anticipated higher traffic volume, special management options should be designed to protect the surrounding Wildernesses, the scenic qualities of the byway, and significant wildlife values.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities

Black Mountain, Deer Creek, Hall Valley, Jefferson Creek, Georgia Pass, Boreas Pass, Montgomery Gulch, Beaver/Trout Creeks, and Beaver Ridge are included in this theme. They primarily are located between recommended Wildernesses or along the forest boundary, with road densities ranging from low to high. By nature many of them are located in a riparian valley with a road and will require some oversight to protect riparian vegetation and water quality. Seasonal or permanent restrictions should be applied to sensitive wildlife areas: mule deer fawning, elk calving, and bighorn sheep lambing areas, winter range for ungulates, locations of rare, endangered or sensitive species, such as boreal toad (*Bufo boreas*), and areas for accommodation of larger carnivores such as lynx.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent that ecological conditions and landscape appearances are likely outside their natural range of variability. Management emphasis is generally for highly developed recreation sites (ski areas), campgrounds, utility corridors, or mineral development areas.

Theme 8.2 – Permanently Developed Recreation Areas

These areas contain developed recreation sites that provide an array of recreational opportunities and experiences, usually in a forested environment.

Jefferson Lake has heavy use for camping, fishing, as stopover on the Colorado Trail, and as a domestic water supply. It is accessed by cherrystemming Forest Road 37 into the proposed Jefferson Wilderness area, and management will include sustainable camping practices and protection of water quality.

Connectivity

An important aspect of our conservation perspective is the potential for wildlife linkages between protected core areas. The Mount Evans High Peaks complex has natural connectivity because of the proximity of roadless areas. Most are separated by only one low to medium use road, and while these roads are barriers to some extent, most species of animals can move relatively freely between the Wildernesses and adjoining management areas. The notable exception to this is the Guanella Pass Road which will become a higher speed, high use road after the reconstruction. The Forest Service and Federal Highway Administration should consider wildlife crossings structures and strict enforcement of speed limits. The natural connectivity within the Mount Evans High Peaks Complex helps the complex function effectively as a large relatively continuous landscape.

Three linkage areas for lynx are located here (USDA Forest Service 2004). The Guanella Pass linkage bridges the high ridgeline between the PSI and the Arapaho Forest; Kenosha Pass linkage lies across US Highway 285 connecting the Mount Evans/Burning Bear areas south to Lost Creek Wilderness and environs. Georgia Pass linkage is characterized as “the best forested, and least developed habitat connection that provides for north-south movements from South Park across the Continental Divide to Summit County.” (USDA Forest Service 2004)

Connections between the complex and other nearby complexes are less than ideal. The Arapaho National forest to the north is contiguous, but the high elevations of the Continental Divide are a natural barrier to many animals. To the east, the Mount Evans High Peaks complex is hemmed in by rural mountain and suburban communities. US Highway 285 and private lands lie to the south. US Highway 285, also undergoing reconstruction, is potentially a major barrier to wildlife movement from Mount Evans High Peak to Lost Creek and South Park complexes. Already there is significant wildlife and automobile collisions along the highway and some wildlife crossing structures are being considered in the US Highway 285 reconstruction plans. Ranch lands in South Park may be of benefit to some ungulates, especially in winter, but also bring hazards of fences and of conflicts with livestock and residents. To the west, Colorado Highway 9 is also a major barrier as it is heavily traveled. This isolation of the High Peaks complex makes it all the more important to ensure the landscape integrity within the National Forest Lands.

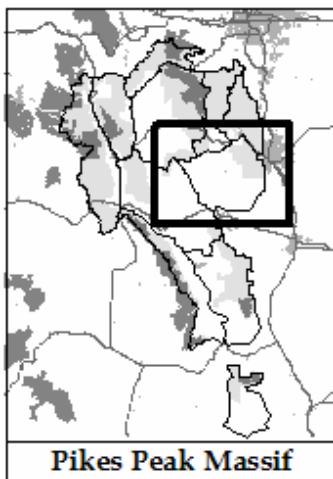
Summary

The Mount Evans High Peaks complex epitomizes the best of wilderness scenic views and provides a great diversity of higher elevation habitat for wildlife and rare plants and animals, as well as excellent recreation opportunities. Lynx habitat and linkages are a notable feature. These high mountain ridges from Mount Evans west along the Continental are an integral part of the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

The Pikes Peak Massif Complex



Pikes Peak West roadless area



The Pikes Peak Massif Complex includes Pikes Peak and the lower elevation areas across BLM lands to the south, as well as a large area of mixed ownership to the west

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.5: Pikes Peak Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Pikes Peak Massif Complex is anchored by Pikes Peak on the northeast and includes Forest Service, BLM, State, County, City, and private lands west to the rolling hills south of Thirtynine Mile Mountain and south to the Cañon City and Penrose area. Major roadways, watersheds or agency boundaries define the complex: US Highway 24 from Colorado Springs through Woodland Park to Divide; southwest following the watershed divide between the South Platte and Upper Arkansas basins to the south side of Thirtynine Mile Mountain north of Guffy; Colorado Highway 9 to its intersection with US Highway 50; Highway 50 briefly before departing and staying north of Cañon City along the BLM lands; and finally Colorado Highway 115 north to rejoin Highway 24. The bulk of the complex is located on private or BLM lands, such as the Beaver Creek Wilderness Study Area, with Pike National Forest land concentrated on the northeast around Pikes Peak. Other land ownership includes Mueller State Park (State of Colorado) as well as the City of Colorado Springs watershed areas and Teller County open-space lands. The complex includes lands in Teller and Fremont Counties, with parts of El Paso County on the east. The internationally famous Pikes Peak is the domineering landscape formation from virtually any perspective across the complex.

A description of the landscape, vegetation, wildlife and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end

The Landscape and Wildlife

At 14,110 feet, Pikes Peak is not the highest peak in Colorado; however, when you look in all directions from the top, easily accessed now by a road, you understand how Katherine Lee Bates who ascended the summit in 1893, came to write “American the Beautiful.” The low point of the Pikes Peak Massif complex is along Fourmile Creek in the south portion at about 5,700 feet. The highest peaks that surround Pikes Peak are Sachett Mountain at 12,599 feet, Sentinel Point at 12,527 feet, Sheep Mountain at 12,397 feet and Almagre Mountain at 12,367 feet. Other notable mountains in the Pikes Peak complex are Cow Mountain at 11,143 feet, Rosa Mountain at 11,499, Big Chief Mountain at 11,224 feet, and Cheyenne Mountain at 9,565 feet, along with Thirtynine Mile Mountain at 10,815 feet. A number of creeks, all in the Arkansas drainage, flow across the complex, including Beaver Creek, Fourmile Creek, West Fourmile Creek, Eightmile Creek, Wilson Creek, Turkey Creek, and Currant Creeks.

Vegetation coverage is incredibly diverse due to the large elevation range within this complex. There are three predominant patterns. The Forest Service lands are ponderosa pine and Douglas-fir in the lower elevations that transitions on Pikes Peak to Engelmann spruce-subalpine fir, bristlecone, limber pine and tundra as elevation increases. Across the northern part of the complex to the west of Pikes Peak, beautiful patches of aspens intermingle with ponderosa pine and mountain grasslands. The southern part of the complex transitions from Douglas-fir and aspen to piñon-juniper woodlands and Gambel oak shrublands as the complex drops into the lower elevations of the Arkansas basin.

Black bear, bighorn sheep, deer, elk, and pronghorn habitat is found across various parts of complex. There are bighorn sheep production areas and winter range covering most of Pikes Peak itself, as well

as a small part of Mueller State Park and on some BLM lands in the center of the complex, with an important corridor south from Pikes Peak to Beaver Creek (BLM). Elk, mule deer and black bear ranges include almost the entire complex, with large elk calving areas and winter range on the north slope of Pikes Peak and in Mueller State Park. Several of the few remaining pure populations of greenback cutthroat trout (*Oncorhynchus clarki stomias*), along with Mexican spotted owl (*Strix occidentalis lucid*), and peregrine falcon are found in this complex. There are many rare plants, as well, such as alpine bluebells, various moonworts, Pikes Peak spring parsley, Rocky Mountain columbine and yellow lady's-slipper to name a few.

Ecological values of the Pikes Peak Massif Complex

Five proposed Research Natural Areas (RNA) in addition to the Hurricane Canyon designated Research Natural Area; three BLM Areas of Critical Environmental Concern (ACEC); seventeen Colorado Natural Heritage Program’s Potential Conservation Areas, five State Wildlife Areas, the Aiken Canyon Nature Conservancy Preserve and Mueller State Park attest to the ecological importance of the Pikes Peak Massif. In addition, the majority of the complex is rated by The Nature Conservancy’s Conservation Blueprint (TNC Blueprint) be of moderate biological value and Southern Rockies Ecosystem Project’s Vision (SREP Vision) shows three roadless areas as core wilderness, with the rest of the National Forest Land as low use and the BLM lands as wildlife linkages.

Wilderness and Roadless Areas

Although the western part of the Pikes Peak Massif Complex is non-federal land, the eastern part has large roadless areas on Forest Service lands including Pikes Peak itself and the south slopes as the land drops in elevation to become BLM lands toward the Arkansas River. Table 5.8 lists the roadless areas and they are described below.

Wilderness Areas

There are currently no Congressionally designated Wilderness Areas within the Pikes Peak Massif complex. However, most of the Beaver Creek roadless area is a BLM Wilderness Study Area, which means that it is managed essentially as Wilderness until Congress acts on its designation.

Unprotected roadless areas

The Roadless Areas exhibit a great diversity of vegetation and wildlife, with great elevational contrast between the high tundra of the two areas on Pikes Peak and the low elevation in the southern Beaver Creek area. Table 5.8 lists the roadless areas in the Pikes Peak complex. The roadless areas on National Forest lands are described below from north to south.

Pikes Peak East

The Pikes Peak East Roadless Area, located in the north-east corner of the complex, is bounded on the south by the forest boundary and the cog railway, on the west by the Pikes Peak Highway, and on the northeast by forest road 334, the forest boundary, and forest road 329. One cherrystemmed route on the northeast, forest road 330, provides access to the North Fork of Frenchman Creek and popular canoeing and fishing lakes for the public. The roadless area at

Table 5.8: Pikes Peak Massif Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Beaver Creek /Gray Back Peak	38,200	No*
Catamount Ranch	1,300	n/a**
Colorado Springs Water South	7,300	n/a**
Mueller State Park	11,900	No
Pikes Peak East	15,800	Yes
Pikes Peak West	25,600	Yes†

* Includes land managed by the US Forest Service and by the Bureau of Land Management.

**Lands not managed by the US Forest Service.

†Roadless rule area has significantly fewer areas than UASPP inventory.

15,800 acres is larger than the Roadless Area Conservation Rule Inventoried Roadless Area, as the North Fork of Frenchman Creek boundary is moved to the cherrystemmed road and some smaller expansions were made on the south and east.

The Pikes Peak East roadless area increases in elevation from east to west as it nears the summit of Pikes Peak. Therefore, ponderosa pine, Douglas-fir and aspen dominate the eastern edges, transitioning to Engelmann spruce-subalpine fir and bristlecone/limber pine, then to alpine tundra and the bare rock that characterizes the summit. Several creeks originate and drain to the east of the roadless area, including the North and South Forks of Frenchman Creek, Ruxton Creek which flows down through Manitou Springs, and Severy Creek which joins Cascade Creek, all providing areas of riparian vegetation. Rare plants include alpine bluebells (*Mertensia alpina*), clawless draba (*Draba exunguiculata*), James' telesonix (*Telesonix jamesii*), narrowleaf grapefern (*Botrychium lineare*), pale and reflected moonwort (*Botrychium pallidum* and *B. echo*), Pikes Peak spring parsley (*Oreoxis humilis*), Rocky Mountain columbine (*Aquilegia saximontana*) and yellow lady's-slipper (*Cypripedium calceolus ssp parviflorum*).

Black bear have a summer activity area on the east half of the roadless area with a narrower band of high fall activity on the extreme east. Elk, mule deer, and mountain lion are found in suitable habitat, with elk wintering in the lower elevations to the northwest in the adjacent Pikes Peak West roadless area and toward Mueller State Park. Bighorn sheep have a large production area and concentrate in summer on the higher elevation western section of this area, moving down the slopes to the southwest into the Colorado Springs Watershed and Pikes Peak West roadless area. Mule deer and elk have summer range across the whole area. Perhaps the most notable species is found in Severy Creek – the greenback cutthroat trout (*Oncorhynchus clarki stomias*). Introduced populations of greenbacks have been established in Bear Creek and North Cheyenne Creek. These are part of only a dozen or so healthy populations in the southern Front Range Mountains. Another population is in the Boehmer Creek drainage and reservoirs to the south in the Colorado Springs Watershed

The Pikes Peak East roadless area is biologically rich, with a number of noteworthy locations. The western edge of the roadless area includes part of the large Pikes Peak Potential Conservation Area of outstanding significance (PCA), extending from the summit area nearly ten miles to the south; the Cascade Creek corridor on the northeast likewise is of outstanding significance, and Severy Creek is of very high significance. RNAs in the roadless area include the proposed Crystal Creek RNA and the currently designated Hurricane Ridge RNA. The whole roadless area is rated as moderate conservation value by the Nature Conservancy, while the two RNAs are highlighted in SREP's Vision as core agency and the remainder as low use.

Pikes Peak West

The Pikes Peak West roadless area is adjacent to Pikes Peak East, separated only by the Pikes Peak Highway and the cog railroad. These western and southern flanks of Pikes Peak West are bound by the National Forest boundary on the north and west, except for a detour around Raspberry Mountain and a cherrystem of forest road 383 that leads to the Mennonite Camp and the Craggs Campground, as well as providing access to a major private land inholding. On the far southeast, forest road 376 is the boundary north to the Colorado Springs Watershed, where the roadless area then follows the watershed northwest, then southeast and finally northeast to rejoin the cog railway. The Roadless Area Conservation Rule Inventoried Roadless Area is much smaller the 25,600 acre area inventoried by UASPP because the land southeast of the West Fork of Beaver Creek into Sheep Mountain and Bull Park has been included in Pikes Peak West. The landscape is dominated by Pikes Peak to the east and Raspberry Mountain in the northwest corner.

Pikes Peak West is dominated by Engelmann spruce-subalpine fir and large alpine meadows and tundra as you climb in elevation to the summit of Pikes Peak, with large pockets of limber/bristlecone pine, aspen and Douglas-fir on the north and west sides, as well as considerable aspen on the south. Rare plants include alpine bluebells (*Mertensia alpina*), Pikes Peak spring parsley (*Oreoxis humilis*), arctic and clawless draba (*Draba fladnizensis* and *D. exunguiculata*), James' teleonix (*Telesonix jamesii*), lance-leaved, pale, reflected western moonwort (*Botrychium lanceolatum* var *lanceolatum*, *B. pallidum*, *B. echo* and *B. hesperium*), and Rocky Mountain columbine (*aquilegia saximontana*). A natural community of bristlecone pine/Arizona fescue (*Pinus aristata*/*Festuca arizonica*) montane woodlands is found on the far south side.

Bighorn sheep summer and winter ranges cover the south two-thirds of the area, and there is a large lambing area from the summit south to the forest boundary. Black bear and mountain lion are found here. Elk and deer use the area in the summer, with the deer concentrated in the southern part. A small area of elk winter range is found on the south central side overlapping the Colorado Springs Watershed, but the major wintering habitat is south and west of the roadless area. A large elk calving location is on the north side. Like Pikes Peak East, the greenback cutthroat trout (*Oncorhynchus clarki stomias*) in the Boehmer watershed is of great importance as the trout slowly recover from near extinction. American peregrine falcons (*Falco peregrinus anatum*) have been recorded here in the south portion.

Three proposed RNA's are within the boundary: South Catamount Creek, Oil Creek and Sheep Mountain. The large Pikes Peak PCA curves from the summit south and east across the eastern third of the roadless area. Pikes Peak West is part of the larger Nature Conservancy's large Pikes Peak area of moderate conservation value, and SREP's Vision shows the area as core wilderness.

Beaver Creek

The 38,200-acre Beaver Creek roadless area, in the southeast of the complex, is defined by agency land ownership more than by roads. The BLM has designated the vast majority of the area as a Wilderness Study Area (WSA) up to Grayback Peak on National Forest land to the north. The portion of the Beaver Creek roadless area on Forest Service land was never included in the Roadless Area Conservation Rule inventory. The south boundary of the Beaver Creek area is approximately 6 miles north of Highway 50 near Cañon City and Penrose; the west boundary follows the Phantom Canyon Road for a few miles before the road goes westerly toward Victor while the area boundary continues north along the BLM boundary. Near the Teller-Fremont County line the area is defined by BLM boundaries and a number of 4WD roads in the headwaters of East and West Forks of Beaver Creek and south of the Penrose Rosemont Reservoir. The northern boundary is along forest roads 369 and 371 located north of Grayback Peak. The eastern boundary follows the BLM land southwest paralleling Highway 115. The defining topography of Beaver Creek are the exceptionally rugged and steep canyons of East and West Beaver Creeks that join together about 1.5 miles before the stream exits the WSA on the southeast side.

The southern two-thirds of the roadless area is dominated by piñon-juniper, transitioning to Douglas-fir, aspen and ponderosa as you move upslope to the north-east. The Forest Service portion is primarily Douglas-fir with some aspen in the Turkey Creek headwaters, ponderosa pine on the east and a few scattered areas of mountain shrubland near the BLM boundary. The great range in elevation from 6,000 feet in the south to 9,300 feet in the north, the headwaters of Rock Creek and Little Fountain Creek on Grayback Peak, and the major riparian zones of East and West Beaver Creek all contribute to the biodiversity of the area. Natural communities of importance include three types of montane riparian forest narrowleaf cottonwood-Douglas-fir

(*Populus angustifolia/Pseudotsuga menziesii*), narrowleaf cottonwood/thinleaf alder (*Populus angustifolia/Alnus incana*), and narrowleaf cottonwood/Rocky Mountain juniper (*Populus angustifolia/Juniperus scopulorum*), as well as thinleaf alder/mesic graminoid (*Alnus incana/mesic graminoid*) montane riparian shrubland, water birch/mesic forb (*Betula occidentalis/mesic forb*) foothills riparian shrubland, and Geyer's willow-Rocky mountain willow/mesic forb (*Salix geyeriana-Salix monticola/mesic forb*) riparian shrubland. Rare plants include birdbill day-flower (*Commelina dianthifolia*), gay-feather (*Liatris ligulistylis*), New Mexico cliff fern (*Woodsia neomexicana*), prairie goldenrod (*Unamia alba*), and yellow lady's-slipper (*Cypripedium calceolus ssp parviflorum*).

As a low-elevation area, it provides critical habitat for a number of species. Summer bear activity is high across the whole area, with high fall activity concentrated in the north. Bighorn sheep have both summer and winter range across the central portion. Mule deer and elk move across whole area in summer, with deer winter range concentrated on the south and east, and elk winter range is found in the north central area. This is also mountain lion country. Mexican spotted owl (*Strix lucida occidentalis*) and American peregrine falcon (*Falco peregrinus anatum*) are rare birds of Beaver Creek, with the canyons providing ideal habitat. The owls frequent Phantom Canyon on the west and the general Turkey Creek canyons on the east, migrating seasonally up and down the canyon and east to Ft. Carson. They are one of the few breeding populations left on the southern mountain front.

Beaver Creek ACEC covers East and West Beaver Creeks in the center of the area, and a part of Phantom Canyon ACEC is found on the western edge of the roadless boundary. Beaver Creek State Wildlife area also follows the mainstem and two forks of Beaver Creek. Four PCAs are located here. Blue Mountain PCA on the north third is of high significance; Windmill Gulch in the central section is of moderate significance, while Cliffside PCA encompasses all of the Beaver Creek drainage and Adelaide is located in Phantom Canyon, both of very high conservation significance. The southern two-thirds of the Beaver Creek roadless area is included in The Nature Conservancy's designation of moderate conservation value, while the northern third is considered of moderately high conservation value. Beaver Creek is listed as core Wilderness in SREP's Vision. The Nature Conservancy's Aiken Canyon Preserve is adjacent to the Beaver Creek area on the northeast, providing an important area of protected land in the rapidly developing exurban area west of Highway 115. Outstanding features of Aiken Canyon include two globally rare plant communities - piñon, one-seeded juniper/Scribner needlegrass woodland and Gambel oak-mountain mahogany shrubland, several native tall grass species and more than 100 species of birds, including a good representation of raptors with Coopers and sharp-shinned hawks, golden eagles, prairie falcons, and northern harriers are found here.

Historical and Cultural Features of Pikes Peak Massif

Some archeological, historical and cultural features of note include the following:

- The Ute Indian people, perhaps the region's earliest residents, gave the mountain known today as Pikes Peak the name of Tava, meaning the mountain of the sun. The mountain became a revered landmark for their homeland
- Pikes Peak inspired the penning of "America the Beautiful" by Katharine Lee Bates in 1893. She remembered her journey: "One day some of the other teachers and I decided to go on a trip to 14,000-foot Pikes Peak. We hired a prairie wagon. Near the top we had to leave the wagon and go the rest of the way on mules. I was very tired. But when I saw the view, I felt great joy. All the wonder of America seemed displayed there, with the sea-like expanse."
- In the late 1850's, Pikes Peak was a symbol to the gold seekers heading west. "Pikes Peak or Bust" became their slogan.

- Pikes Peak is a destination for countless people every year, including those hiking and biking the Barr Trail that was completed to the summit in December of 1918. Others ride the Manitou Springs Cog Railroad, built in 1889-90, and drive up the Pikes Peak Toll road Highway, begun in 1915, which follows the old carriage road built between 1886 and 1888.
- The Pikes Peak Timber Reserve was created in 1892 by President Benjamin Harrison. In 1907, President Theodore Roosevelt designated the reserve and lands to the north and west the Pike National Forest, a part of the nationwide resource system.

Management Recommendations

Significant portions of the eastern part of the complex are recommended for Theme 1, with Beaver Creek (the National Forest land and Beaver Creek WSA) and Pikes Peak West being recommended for Wilderness (Theme 1.2), with adjacent lands to the west and south of Pikes Peak West as Core Reserve (Theme 1.3). Five Research Natural Areas (Theme 2.1) are proposed along with one existing Research Natural Area. The northeastern part of the complex is recommended primarily for Theme 3, with Pikes Peak East and adjacent land north of Trails 666 and 667 recommended for 3.1 Quiet Use and the remainder of the forest lands south of Trails 666 and 667 as 3.2 Connectivity Area. The Pikes Peak Massif also contains valuable non-Forest lands (Theme 9) on the northeast and southern range. Table 5.9 lists the management units in the Pikes Peak Massif Complex by theme. Refer to the Pikes Peak Massif complex map for specific locations and refer to the roadless area descriptions for more details on the unit.

Table 5.9: Pikes Peak Massif Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Beaver Creek FS	4,300	1.2 Recommended Wilderness (with BLM area Beaver Creek)
Pikes Peak West	17,700	1.2 Recommended Wilderness
Bison Creek	3,600	1.3 Core Reserve
Putney Gulch	2,900	1.3 Core Reserve
Raspberry Mountain	1,300	1.3 Core Reserve
Theme 2 – Special Areas		
Crystal Creek RNA	2,500	2.1 Research Natural Areas
Gray Back Peak RNA	6,000	2.1 Research Natural Areas
Hurricane Canyon RNA	500	2.1 Research Natural Areas
Oil Creek RNA	1,100	2.1 Research Natural Areas
S. Catamount Creek RNA	2,000	2.1 Research Natural Areas
Sheep Mountain RNA	1,700	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Pikes Peak	23,000	3.1 Quiet Use Areas
Mount Rosa	28,600	3.2 Connectivity Areas
Tracy Hill	1,900	3.2 Connectivity Areas
West Fork West Beaver	500	3.2 Connectivity Areas
Theme 9 – Significant Lands (Non-USFS)		
Beaver Creek BLM	33,900	9.1 Non-USFS Recommended Wilderness
Aiken Canyon	1,600	9.2 Significant Non-USFS Biological
Catamount Ranch	1,300	9.2 Significant Non-USFS Biological
Colorado Springs Water South	7,300	9.2 Significant Non-USFS Biological
Mueller State Park	12,500	9.2 Significant Non-USFS Biological

Theme 1 – Natural Processes Dominate

Lands in Theme 1 are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness and semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation

The Wild Connections Conservation Plan calls for Wilderness designation of Pikes Peak West and the Forest Service part of the greater Beaver Creek proposed Wilderness. These areas are described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary of Pikes Peak West is the same as the UASPP roadless boundary except on the west side. There the boundary is drawn along the proposed Ring the Peak trail, with the roadless sections west of the trail recommended for Core Reserve. The Beaver Creek Forest Service area recommended for Wilderness is located at Grayback Peak. It is part of the Citizens' Wilderness Proposal for BLM Lands which was introduced as legislation by Representative Diana DeGette. The following benefits were considered in recommending these areas for Wilderness designation: permanent protection to enhance wildlife habitat and connectivity, protect sources of domestic water, provide for native plant and animal species, and balance motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation. The Pikes Peak West and Beaver Creek Wilderness recommendations will also increase the effectiveness of wildlife connectivity, protection, and dispersal by adding Wilderness Areas in a complex which currently does not have any exiting permanent protective status designations.

We believe that both of these areas meet the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

These areas meet the general requirements for Wilderness. The Pikes Peak West area is larger than 5,000 acres and, while the Forest Service Beaver Creek proposed Wilderness is less than 5,000 acres, it should be considered part of the much larger Beaver Creek proposed Wilderness. The areas do not have system roads and the imprints of human activities are substantially unnoticeable. There are excellent opportunities for solitude and challenging back country recreation.

Availability

To the best of our knowledge, there are no major impediments to designation of these areas as Wilderness areas. There are no immediate projects planned in this complex which would preclude Wilderness designation. Private inholdings are mostly located along the boundaries of the wilderness areas and are excluded from the designation. The proposed Ring the Peak Trail, which allows mechanized use, and the motorized Pikes Peak Highway are excluded from the Wilderness boundaries. Parts of the Fourmile C&H grazing allotment would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. This does not present a problem for Wilderness designation.

Suitability

Mountain biking would be foregone on the Crags Trail to Devil's Playground, which passes

through very steep and ecologically fragile terrain. Recommendations for Wilderness might limit the type of fuels treatments available.

There are numerous values that support the designation of the proposed Wildernesses and contribute to the National Wilderness System:

- Add montane and alpine ecosystems to the Pike-San Isabel and Region 2 Wilderness System
- Protect important wildlife habitat for all the species that depend on ecosystems in these areas (including the BLM portion of the Beaver Creek proposed Wilderness), such as greenback cutthroat trout (*Oncorhynchus clarki stomias*), Mexican spotted owl (*Strix lucida occidentalis*), American peregrine falcon (*Falco peregrinus anatum*), elk, and bighorn sheep.
- Protect rare plants in these areas (including the BLM portion of the Beaver Creek proposed Wilderness), including alpine bluebells (*Mertensia alpina*), Pikes Peak spring parsley (*Oreoxis humilis*), arctic and clawless draba (*Draba fladnizensis* and *D. exunguiculata*), James' telesonix (*Telesonix jamesii*), lance-leaved, pale, reflected western moonwort (*Botrychium lanceolatum var lanceolatum*, *B. pallidum*, *B. echo* and *B. hesperium*), Rocky Mountain columbine (*Aquilegia saximontana*), birdbill day-flower (*Commelina dianthifolia*), gay-feather (*Liatris ligulistylis*), New Mexico cliff fern (*Woodsia neomexicana*), prairie goldenrod (*Unamia alba*), and yellow lady's-slipper (*Cypripedium calceolus ssp parviflorum*).
- Enhance the opportunities for challenging and unconfined non-motorized recreation, including some four-season backcountry recreation.
- Provide scenic and natural settings in a range of ecosystem types.
- Reduce the fragmentation of landscapes within the Wilderness boundaries by confining motorized recreation to a system of designated trails outside of important wildlife habitat areas.
- Protect the crucial ecological link along Beaver Creek between the alpine high country of Pikes Peak and the arid rangelands of the high plains.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but that are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

Raspberry Mountain, Putney Gulch and Bison Creek, though essentially roadless, did not fully meet Wilderness standards and so are recommended instead for Core designation.

- Raspberry Mountain is located north of the Crags Campground. Rising to 10,605 feet, Raspberry Mountain transitions from aspen and some Douglas-fir to Engelmann spruce-subalpine fir, with significant areas of bristlecone/limber pine forests. Raspberry Mountain was excluded from the proposed Pikes Peak West Wilderness area to accommodate for the mechanized Ring the Peak Trail which separates the two areas. Although Raspberry Mountain is not suitable for Wilderness due to this trail, it contains intact wildlands and provides critical wildlife habitat and migration access to Mueller State Park.
- Putney Gulch is located south of the Crags Campground and west of Sentinel Point with the eastern boundary along Trails 704 and 704A, part of the proposed Ring the Peak Trail system. This allows mechanized use adjacent to the Pikes Peak West proposed Wilderness. Vegetation is a mixture of Douglas-fir, aspen, bristlecone/limber pine, and Engelmann spruce-subalpine fir. It provides important connecting habitat between Pikes Peak West proposed Wilderness and Dome Rock State Wildlife Area especially for bighorn sheep.

- Bison Creek is located just south of the proposed Pikes Peak West Wilderness, lying south of Sheep Mountain and the Colorado Springs Watershed South lands, bounded on the east by Forest Road 376, stretching south to Gold Camp Road. It is predominantly aspen and limber pine with some Engelmann spruce-subalpine fir. It includes an excellent representation of montane woodlands composed of bristlecone pine and Arizona fescue grass (*Pinus aristata*/*Festuca arizonica*) in the proposed Cathedral Park PCA, which is also noted for its magnificent rock formations.

Theme 2 – Special Areas

These special areas will protect or enhance a number of important or unusual biological characteristics. Intensity of management will vary based on the area objectives.

Theme 2.1 – Research Natural Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

To supplement the range of research opportunities and increase the ecosystem representation, Gray Back Peak, Crystal Creek, Oil Creek, South Catamount Creek and Sheep Mountain should be added to the already designated Hurricane Canyon RNA. Each proposed RNA has its unique combination of ecological values which will enhance the RNA system. Four are within proposed Wilderness and two are in the Pikes Peak proposed Quiet Use area.

- Hurricane Canyon RNA encompasses 500 acres of Douglas-fir-dominated mixed conifer forest, montane grassland, and oak thicket cover types. The mixed conifer forest of Hurricane Canyon RNA is a complex mosaic of intergrading plant associations. It is located at the north-east corner of the Pikes Peak Massif complex, along the rugged flank of Mount Manitou. It was established as RNA in 1931, and was designated a Colorado Natural Area in 1980. The Colorado Natural Areas survey noted (Colorado Natural Areas Program Site Summary for Hurricane Canyon, December, 1996): Fire and disease are closely related in the lower montane forest ecosystem. The last major fire in the RNA occurred about 1850, according to the 1929 Establishment Record. Fire suppression since that time resulted in a dense forest highly susceptible to outbreaks of spruce budworm. Severe infestations occurred in the 1970s, resulting in the mortality of 20%-75% of the Douglas-fir canopy within the RNA. The Wild Connections Conservation Plan recommends sustaining the RNA designation for Hurricane Canyon to further study the effects of fire and insect disease, specifically due to the relatively large number of inventory reports on hand for this site. CNAP files contain several site visit and condition reports, dated 1929 (US Forest Service), 1966 (US Forest Service), 1979 (CNAP), and post-1980 (CNAP).
- Gray Back Peak potential RNA encompasses 6,000 of ponderosa pine, mixed-conifer, aspen, and oak thicket cover types. It is located at the southeast boundary of the National Forest just north of the BLM Beaver Creek Wilderness Study Area, and is included within the Wild Connections proposed Beaver Creek Wilderness Area. The Colorado Natural Areas survey noted (Decker, Karin. Colorado Natural Areas Program Ecological Evaluation for Gray Back Peak, March, 1998):

The area supports outstanding examples of plant associations typical of the Pike's Peak region, including ponderosa pine, mixed-conifer, and oak shrubland communities. Plant communities at this site are superior to those at nearby proposed or established RNAs. The extensive acreage of closed canopy coniferous forest provides good habitat for Mexican spotted owls (*Strix occidentalis lucida*), which

have been reported from this area. The quality of the site is further enhanced by the presence of the state-imperiled yellow lady's-slipper orchid (*Cypripedium calceolus ssp. parviflorum*).

- Crystal Creek potential RNA encompasses 2,500 acres of wetland, alpine meadow, and mixed-conifer, Engelmann spruce, aspen, and limber pine forest cover types. It is located due north of the summit of Pikes Peak, on the northern slope. Elevation ranges from 8960 to 11,838 feet. The Colorado Natural Areas survey noted (Sanders, Mary. Colorado Natural Areas Program Ecological Evaluation for Crystal Creek, March, 1998):

The large wetland at the head of Severy Creek is significant both within the potential RNA and when compared to other established and potential RNAs. Although the wetland shows signs of moderate to heavy elk use, it has not been affected by domestic livestock grazing. Inclusion of this wetland within the potential RNA will result in the protection of most of the upper watershed of Severy Creek. No other significant wetland areas exist within the potential RNA, and wetlands of this size are not currently well represented within the RNA system. On the south edge of the large wetland mentioned above, there are old-growth stands of Engelmann spruce. These stands are of good quality and show very little sign of human disturbance. High elevation ridges and steep upper slopes support conifer stands containing very old bristlecone pine. These old trees measure up to 27.1 inches (68.8 cm) DBH and are estimated to be well over 500 years old. Like the old-growth Engelmann spruce forest, these stands are of good quality and show little or no sign of human impact. Older trees have multiple fire scars, suggesting that this type is persistent on high ridges.

- Oil Creek potential RNA of 1,100 acres is predominantly high elevation grasslands and includes occurrences of the rare white arctic draba (*Draba fladnizensis*). It is located between West Beaver Creek and Sentinel Point and is the headwaters of Oil Creek, which is part of the Fourmile Creek watershed. It is part of the Pikes Peak PCA of outstanding significance and the Pikes Peak TNC portfolio site of high uniqueness. Winter range and lambing areas for bighorn sheep area found here as well.
- South Catamount Creek potential RNA encompasses 2,000 acres of ponderosa pine, aspen, bristlecone/limber pine, Douglas-fir and Engelmann spruce-subalpine fir forests. It is located within the Wild Connections proposed Pikes Peak West Wilderness area, along the northern boundary. Four different moonwort species (*Botrychium hesperium*, *Botrychium lanceolatum var. lanceolatum*, *Botrychium echo*, and *Botrychium pallidum*) listed as state imperiled plants have been sighted in area. Two of these moonwort species are also globally imperiled. One of these moonwort species is not found in other proposed RNAs in region.
- Sheep Mountain potential RNA is 1,700 acres of intermixed Engelmann spruce and aspen stands, with many alpine meadows and wetlands. It is located near the center of the Pikes Peak Massif complex, running along the southern boundary of the Colorado Springs Watershed South land in the headwaters of East Fork of Beaver Creek. Boehmer Creek, which flows across the north part of the RNA, is habitat for the critically important greenback cutthroat trout (*Oncorhynchus clarki stomias*). The RNA is within the Wild Connections proposed Pikes Peak West Wilderness area.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance.

The Pikes Peak proposed Quiet Use Area is located on the east and northern flank of Pikes Peak, with the western boundary following the Pikes Peak highway, the northern and eastern boundary along the Forest boundary, and the southern boundary following the Bear Canyon Trail and Bear Creek. The majestic and historical Barr Trail is located within this area; however the Cog Railroad was cherrystemmed out due to its motorized use. The motorized area and private land in Bear Creek south of Mount Arthur and Mount Garfield are also excluded from the Quiet Use area. There are numerous trails for hiking that make this an ideal quiet use area overlooking the city of Colorado Springs.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Tracy Hill, even though it is roaded and in isolated parcels, serves as connectivity land between Raspberry Mountain and Putney Gulch Core Reserves and Mueller State Park. It is particularly important for elk, as it is summer and winter range, part of a larger elk calving area and overlaps the large winter elk concentration area in Mueller State Park.

Mount Rosa is located between the Pikes Peak area, Bison Peak area, and the Grayback Peak RNA and Beaver Creek proposed Wilderness. It has many motorized and nonmotorized trails and the northern boundary follows the Bear Canyon Trail and Bear Creek. Although the trails fragment the habitat, it still provides connections for black bear in an area of high summer and fall activity, bighorn sheep winter ranges in Bison Creek area and the central Beaver Creek WSA/proposed Wilderness. In addition Bear Canyon has a population of greenback cutthroat trout (*Oncorhynchus clarki stomias*).

West Fork West Beaver is a small area adjacent to the southwest corner of Pikes Peak West Wilderness that was excluded from the wilderness primarily because of indefensible boundaries. It is a deer concentration area and winter range for bighorn sheep.

Theme 9 – Significant Lands (Non-US Forest Service)

Theme 9 management is used to highlight and acknowledge other lands critical to both habitat and connectivity, such as adjacent BLM lands. It is critical that National Forest management considers the greater ecosystem to which it is connected and that forest activities be compatible with management activities on these adjacent public lands.

Theme 9.1 – Non-Forest Service Recommended Wilderness

Wild Connections has explicitly included seven large BLM managed roadless areas as they are integral to our overall vision as wilderness core reserves.

Beaver Creek WSA and the adjoining Beaver Creek National Forest area at Grayback Peak are proposed for Wilderness designation. These lands are located in Fremont, Teller, and El Paso counties, midway between Colorado Springs and Cañon City. The BLM's Royal Gorge Field office manages the southern seven-eighths of the proposed Wilderness Area. Suitable Wilderness lands extend to the north of the BLM WSA onto Forest Service Lands, including the proposed Gray Back Peak RNA. This whole area is described in the Beaver Creek roadless area description above. Beaver

Creek proposed Wilderness forms a crucial ecological link between the alpine high country of Pikes Peak and the arid rangelands of the high plains.

Theme 9.2 – Significant Non-Forest Service Biological Areas

Mueller State Park is, in a way, a large stand alone island of protection and biological diversity. The critical value of Mueller is in its lower elevation lands, to complement the higher elevation Pikes Peak West, Pikes Peak East, and Colorado Springs Watershed South roadless areas, which lay just to the east across Colorado Highway 67. Mueller was originally acquired by The Nature Conservancy, and is now managed by Colorado State Parks and the Colorado Division of Wildlife primarily for wildlife and low impact recreation. The Dome Rock State Wildlife Area on the southern boundary is named for the 800 foot-high dome of granite rising above the valley floor. Once a working ranch, most of the network of ranch roads have been closed to motorized traffic with several serving as established hiking and mountain biking trails. The campground on the north end, with 130 sites and the amenities associated with a state park, is an area of high human use in the summer.

Mueller State Park provides bear, mountain lion, elk, mule deer, and bighorn sheep with year round habitat here, especially as it is at lower elevation. The Dome Rock portion sees high bear activity in both summer and fall, and there is a large area of bighorn sheep winter range, with a substantial lambing area. Dome Rock is closed from December 15 to May 15 for bighorn grazing and lambing. Mueller is a major nexus for the greater Pikes Peak elk herd which historically ranged over the lower mountain slopes and north, west, and south to Florissant Fossil Bed National Monument area and High Park. Today, seasonally migrating elk must navigate across highways and around subdivision, so Mueller and Florissant Fossil Bed remain areas of security, especially during the fall rut and spring calving. There is an established elk calving area in the northwest part of the roadless area.

Catamount Ranch is managed primarily for long-term natural resource conservation and will remain commercially undeveloped. Teller County acquired the Catamount Ranch through its county open space program. The original Resource Protection Plan (1997) provides a management vision to preserve the wild, unique beauty of this land on the north slope of Pikes Peak as a significant, protected wildlife habitat.

Colorado Springs Watershed South lies across the south-eastern flank of Pikes Peak, and is one of the most critical areas for watershed protection for the municipality of Colorado Springs. Although it is not federal land and is not totally roadless, it is described here because of its biological diversity, connectivity role between Pikes Peak East and West, and its contribution to municipal water sources. It ranges in elevation and ecosystem type from the southeast to the northwest tundra, progressing from ponderosa pine and aspen to Engelmann spruce-subalpine fir and to alpine tundra and meadows. Alpine bluebells (*Mertensia alpina*) and Pikes Peak spring parsley (*Oreoxis humilis*) are two rare flowers of this area. Five reservoirs and one lake contain and store vital water supplies for Colorado Springs.

This large municipal watershed has many wildlife values. Black bear and mountain lion are found across the area. The large Pikes Peak bighorn sheep habitat, which includes summer and winter range and a substantial lambing area, covers the higher elevation western section of this area. Mule deer and elk have summer range across the whole area. Boehmer Creek flows south and east through the watershed, and harbors greenback cutthroat trout (*Oncorhynchus clarki stomias*) in the creek and associated reservoirs. An area of biological richness is found in the higher elevation lands. The large Pikes Peak PCA of outstanding significance covers the western third of the area and overlaps the southern and eastern boundary. Colorado Springs Watershed South is included in the larger Nature Conservancy conservation area of moderate conservation value, and SREP's Vision shows the area as core agency.

Aiken Canyon Preserve is managed by The Nature Conservancy for long-term natural resource conservation and public education. In 1991, the Conservancy signed a 99-year conservation lease, giving it exclusive right to manage 1080 acres of state land. Since then, the Conservancy has acquired another 541 acres, bringing the entire Aiken Canyon Preserve to 1,621 acres. Aiken Canyon is one of the last high-quality examples of the southern Front Range foothills ecosystem. The preserve is composed of a mosaic of habitat types, including shrublands, tall grass prairie meadows, piñon-juniper woodlands and mixed coniferous woodlands.

Connectivity

An important aspect of the Wild Connections conservation perspective is connections between protected core areas. Connectivity between the roadless areas is nearly restricted to the Forest Service lands on Pikes Peak and to BLM Beaver Creek WSA lands, forming a reverse-crescent shape along the eastern edge of the complex. However, these lands are generally contiguous with no major barriers, other than topographical ones, between them. The western two-thirds of the complex is dominated by a complicated mix of land ownership, with small, intermixed parcels of BLM, private and state lands. Within the complex, the major barrier to animal movement is US Highway 67 from Divide to Cripple Creek. Gambling in Cripple Creek has increased traffic along this narrow route during the last decade. The popularity of this route during the fall aspen season also creates increased traffic during times of critical migration.

There are major barriers to connectivity between the Pikes Peak Massif and the Rampart Range, South Platte Canyons, South Park, and Arkansas Canyons Complexes. The major barrier between the Pikes Peak Massif, Rampart Range, and the South Platte Canyons Complexes is US Highway 24. Running east-west along the valley floor, Highway 24 has exponentially increased in traffic use levels during the last decade, predominantly due to exurban development in Teller county, as well as growth around Woodland Park. The major barrier between the Pikes Peak Massif, South Park, and Arkansas Canyons Complexes is the complicated mix of land ownership within the western two-thirds of the Pikes Peak Complex. The major barrier between the Pikes Peak Massif and Wet Mountain is US Highway 50. The designation of Beaver Creek as a Wilderness Area is critical in ensuring a vital corridor link between the Pikes Peak Massif and the Wet Mountains. However, there still exists a large gap of unprotected land between the two, further complicated by Highway 50 and Cañon City.

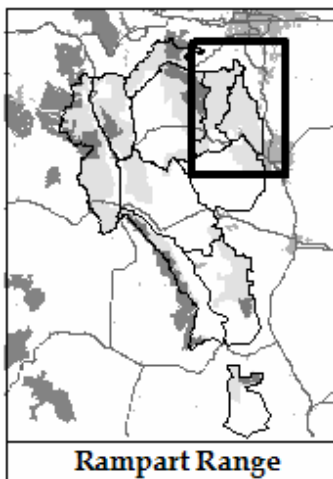
Summary

The Pikes Peak Massif complex provides a great variety of ecosystems and land forms from the summit of Pikes Peak to the canyon lands in Phantom Canyon to the high meadows and mixed conifer forests on private and state lands to the west. Its location adjacent to metropolitan Colorado Springs and Cañon City makes many recreation opportunities available to residents and tourists alike. It is an important part of the wildlands network that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

The Rampart Range Complex



Limbaugh Canyon roadless area



The Rampart Range Complex lies at the eastern edge of National Forest adjacent to the urbanized corridor and from Colorado Highway 67 south to the Ute Pass corridor.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.6: Rampart Range Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Rampart Range complex is the portion of Pike National Forest within the Rampart Range south of Colorado Highway 67, plus a substantial portion of similar terrain lying to the west of the Rampart Range proper, between Trout Creek and Trail Creek. More than 80% of the land within the complex is owned by the federal government, and most of the remainder is in private ownership, often in the form of inholdings of various sizes within the boundaries of the national forest.

A description of the landscape, vegetation, wildlife and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

Rampart Range is a moderately low elevation range of mountains running from Waterton Canyon in the north to the Ute Pass corridor in the south. The broad crest of the range comprises a relatively flat, post-Laramide erosion surface, interspersed with granite peaks and rocky outcrops, and dissected on the eastern side by several significant canyons, such as Limbaugh, Stanley, and Queens Canyons. High points along the range include Devil's Head (9,748 feet) in the north and Blodgett Peak (9,423 feet) and Ormes Peak (9,727 feet) in the south. Overall elevation ranges from approximately 6,800 feet along the eastern boundary of Pike National forest to 9,748 feet at the summit of Devils Head.

Streams along the eastern side of the range flow into Monument Creek, a tributary of the Arkansas, and the headwaters of Cherry Creek, a tributary of the South Platte. The western slope of the range is almost entirely within the South Platte drainage, with Trout Creek being the principal tributary, while the southernmost portion of the range feeds Fountain Creek, a tributary of the Arkansas. Most streams flow only a few miles before exiting the National Forest.

The Rampart Range complex lies almost entirely within the montane zone. Over 90% of its 262,900 acres is forested. The predominant vegetation is Douglas-fir intermixed with ponderosa pine, with some lodgepole pine in the central part of the complex.

There is habitat for a large range of species including mountain lion, bobcat, black bear, mule deer, elk, bighorn sheep, a variety of raptors and smaller mammals. Mule deer and elk have winter range particularly along the eastern boundary or down in the foothills outside the National Forest boundary, and bighorn sheep have winter range and lambing areas in the south. Black bear have a large area of summer and fall high activity along the National Forest edge. While the area is generally rather dry, there are many riparian areas in the canyons, and in the south there is extensive suitable habitat and occupied stream segments for Preble's meadow jumping mouse (*Zapus hudsonius preblei*). Records of rare birds include Mexican spotted owl (*Strix lucida occidentalis*) American peregrine falcon (*Falco peregrinus anatum*), and ovenbird (*Seiurus aurocapillus*).

Ecological values of the complex

In addition to providing all the typical montane vegetation types to support a wide range of species, the Rampart Range includes many rich and unique biological areas. Bridge or Polhemus Gulch and

Blodgett Peak are proposed as Research Natural Areas (RNA) because of their biological values. The Colorado Natural Heritage Program lists seven Potential Conservation Areas (PCA) ranging in significance from moderate to outstanding. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes the northern half of the complex in its large Cheesman conservation area of moderate value. The Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP Vision) recommends Front Range roadless areas for core wilderness and most of the rest of the complex for low use. These various conservation approaches demonstrate the ecological value of the Rampart Range complex.

Wilderness and Roadless Areas

Roadless areas contribute significantly to the biological diversity and wild character of the Rampart Range even though it is located just west of Colorado’s major urbanized corridor (see Table 5.10).

Wilderness Areas

There are no currently designated wilderness areas in the Rampart Range complex.

Unprotected roadless areas

There are eight unprotected large roadless areas in the Rampart Range complex. Four were inventoried as roadless under the Forest Service’s Roadless Area Conservation Rule, but UASPP field inventories determined that four additional areas existed, some with significant cherrystems to exclude open but little used routes. These are described from north to south.

Table 5.10: Rampart Range Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Blodgett Peak	8,000	No
Front Range	30,400	Yes
Jackson Creek	4,900	No
Jenny Gulch	6,000	Yes*
Limbaugh Canyon	4,300	No
Long Hollow	4,500	Yes*
Rampart West	16,000	Yes
Stanley Canyon	10,700	No
Trout Creek	5,100	Yes

**Roadless rule area has significantly fewer areas than UASPP inventory.*

Rampart West

The Rampart West roadless area, some 16,000 acres, lies in the northern portion of the complex. It is bounded on the east by the Rampart Range Road and Trails 649 and 650, on the south by private land in the Rainbow Park area, on the southwest by State Route 67, on the west by the power transmission line and then state 67 again. When UASPP inventoried this general vicinity, the part of the Roadless Conservation Rule Inventoried Roadless Area south of Trail 649 along Eagle and trout Creeks was split off into the Trout Creek roadless area and the part west of Trails 672, 677 and 678 was called the Jenny Gulch roadless area (in the South Platte Canyons Complex), with the remainder retaining the name of Rampart West. The redefined Rampart West roadless area has no major roads, but it is laced with the motorized trail system of the Rampart Range Recreation Area.

The northern part of the area is primarily Douglas-fir interspersed with ponderosa pine, while the south has proportionately more ponderosa pine and less Douglas-fir. There are some aspen stands along the east side, as well. The natural community of thinleaf alder/mesic forb (*Alnus incana/mesic forb*) riparian shrubland and the rare Peck sedge (*Carex peckii*) are located in this roadless area. The Hayman fire stopped in the Trout Creek area just short of the Rampart West roadless area.

In the Rampart West roadless area, there is summer range for mule deer and elk, with small areas

of deer winter range on the south and west. Mountain lion and black bear can be found in the area. Rare species include American peregrine falcon (*Falco peregrinus anatum*), Bald eagle (*Haliaeetus leucocephalus*), Mexican spotted owl (*Strix occidentalis lucida*), Pawnee montane skipper butterfly (*Hesperia leonardus montana*), and Preble's meadow jumping mouse (*Zapus hudsonius preblei*). The best habitat for the Preble's meadow jumping mouse is in the Trout Creek drainage where there are a half dozen occupied stream segments.

A Potential Conservation Area (PCA) of high significance is located on the northeast side of the area, while the whole roadless area is included in The Nature Conservancy's large Cheesman conservation area of moderate interest. Bridge or Polhemus Gulch proposed RNA, located across the south end of the area, is home for several rare species.

Jackson Creek

The 4,900-acre Jackson Creek roadless area in the Rampart Range southwest of Sedalia lies to the east of the Rampart Range Road. It is bounded on the northwest by the Jackson Creek road (forest road 507) and by the Dakan road (forest road 563) on the east. Jackson Creek is a spectacular canyon with numerous rock outcrops, and is a noted rock climbing area. Devil's Head, a well known landmark that rises above the range and can be seen for miles in all directions, is west of Jackson Creek. The terrain is rough and varied, and it is bisected by forest road 503 and motorized trail 679, effectively cutting it into several pieces. A new single-track motorcycle trail would be added as part of the recently adopted Rampart Range Recreation Area Motorized Roads and Trails Plan. Jackson Creek is visited often due to its close proximity to Denver and Front Range metro populations.

The Jackson Creek roadless area is predominantly Douglas-fir and lodgepole pine forest and has some unparalleled scenic ridge tops and wetlands, including montane willow carrs (*Salix bebbiana*), as well as the rare Selkirk violet (*Viola selkirkii*). Watson Park Creek drains across the area into Jackson Creek which runs along the western boundary.

Summer range for deer across the whole Jackson Creek area and elk in the southwest end is complemented by winter range for both on the northeast end. Mountain lion and black bear find suitable habitat here. Rare animal species found in the area includes American peregrine falcon (*Falco peregrinus anatum*) and historical records of Mexican spotted owl (*Strix lucida occidentalis*).

The Devils Head at Jackson Creek PCA is of very high significance and overlaps the Jackson Creek roadless area in the pocket between forest road 503 and trail 679. The Southern Rockies Ecosystem Project (SREP) includes Jackson Creek as a low use area in their Vision.

Front Range

The Front Range roadless area, comprising some 30,400 acres, lies along the eastern side of the Rampart Range north of Monument Hill. It is bounded by the National Forest boundary adjacent to the gentle foothills of Perry Park on the east, by Dakan Road (forest road 563) and the Rampart Range Road on the west, and by forest road 324 on the south. The extent of the roadless area as inventoried by UASPP is larger on the north and south ends than that shown in the Roadless Area Conservation Rule Inventory.

The vegetation is predominantly Douglas-fir and ponderosa pine, with lodgepole pine on the crest of the range along the western boundary and some very scattered aspen and Engelmann spruce-subalpine fir. To add to the diversity there are montane riparian forests Rocky Mountain fir-

Engelmann spruce/mountain or ciliate bluebell (*Abies lasiocarpa-Picea engelmannii/Mertensia ciliata*) and strappleaf willow (*Salix eriocephala var. ligulifolia*) montane willow carrs. Other riparian species are found in Dry Gulch, Bear Creek, Plum Creek, East Plum Creek and their tributaries.

As the largest and least human-impacted area remaining along the rapidly-growing Front Range urban corridor, Front Range forms both a critical core area for wildlife and an important connecting link between plains and mountain ecosystems. Preble's meadow jumping mouse (*Zapus hudsonius preblei*) suitable habitat is found along drainages on the east side boundary, with several historical records of Preble's in the roadless area, and there are occupied segments in Bear Creek and Plum Creek just east of the roadless area. Mountain lion and black bear are in the area, with high fall activity areas for black bears along the eastern boundary. Elk have summer range across the whole area, while their wintering range is primarily on the northeast side and out into Perry Park. Mule deer also summer across the area, and winter range is located on the north east and up the Bear Creek drainage, as well as on southeast side of the roadless area around Stone and Butler Canyons. Mule deer concentrate in the foothills just east of these Rampart Range roadless areas in winter, stretching from Spruce Mountain north to the Denver suburbs. A significant linkage for elk and mountain lion migration, the I-25 Conservation Corridor, extends from the central part of this roadless area, running eastward north of Larkspur. Other rare species documented in the area are American peregrine falcon (*Falco peregrinus anatum*) and Mexican spotted owl (*Strix lucida occidentalis*).

The Southern Rockies Ecosystem Project's Vision lists all of Front Range roadless area as core wilderness.

Long Hollow

The Long Hollow roadless area of 4,500 acres is located to the west of the Rampart Range Road about five miles south of Devils' Head. It is bounded by the Rampart Range Road and the Long Hollow road (forest road 348) on the east and is separated from Trout Creek roadless area to the west by a motorized OHV trail (forest route 650).

The area is predominantly Douglas-fir forest, with ponderosa pine on hotter, drier slopes and some aspen in drainages on the north side. Long Hollow Creek, a tributary of Trout Creek, drains the area.

Mule deer have a small wintering area on the southeast side of the Long Hollow roadless area, in addition to summer range across the whole area for both deer and elk. Mountain lion and black bear are found in the area, as well.

Long Hollow is part of SREP Vision's large area of low use that extends south to the National Forest boundary.

Trout Creek

The Trout Creek roadless area, some 5,100 acres, lies east of Colorado Highway 67, approximately 15 miles north of Woodland Park. It is centered upon Trout Creek, a large tributary of the South Platte River draining most of the west slope of the Rampart Range. It is bounded by trail 649 on the north, which follows Eagle and Trout Creeks, Colorado Highway 67 on the west, and by substantial private inholdings on the south, and is separated from the Long Hollow roadless area to the east by a motorized OHV trail (forest route 650). Trout Creek, which flows northwards across the area provides fishing opportunities.

The Trout Creek roadless area is a mix of Douglas-fir and ponderosa pine, with aspen and other riparian species on the north boundary along Eagle and Trout Creeks. The 2002 Hayman Fire burned with low to moderate severity west of Trout Creek, but was contained in the wet areas of Trout Creek.

The most notable rare species here is the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), which has extensive suitable habitat in the Trout Creek drainage through the center of the area and in West Creek tributaries on the western edge of the area. There are eight occupied segments within the roadless area, with others in the Rampart West roadless area and a large nexus of occupied segments about three miles southeast of the Trout Creek roadless area near the confluence of Missouri Gulch and Trout Creek. Like most of the other roadless areas in this part of the complex, there is summer range for mule deer and elk, and there is a large elk and mule deer winter range along Trout Creek just south of the roadless area. Mountain lion and black bear also are found here.

All of Trout Creek is included in TNC's large Cheesman conservation area of moderate significance, and SREP's Vision shows the roadless area as part of the large area of low use that extends south to the Forest boundary.

Limbaugh Canyon

The Limbaugh Canyon roadless area of some 4,300 acres is on the edge of the National Forest not far west of Palmer Lake and Monument Creek flows through the rugged Limbaugh Canyon in the center of the area. The Mount Herman Road (forest road 320) is the south and southeast boundary; private lands define the northeast boundary, and forest roads 322 and 320D make up the north and west boundaries.

The vegetation in the Limbaugh Canyon roadless area is primarily Douglas-fir forest, particularly on its cooler northern slopes, but the area also contains some ponderosa pine, lodgepole pine, and mountain scrub on drier south facing slopes. The area includes riparian areas with beaver dams and some areas of aspen forest.

The roadless area is currently managed by the Forest Service as a sensitive wildlife area with year-round restrictions on off-road vehicular recreation, including a ban on winter snowmobile use. A large area of high activity for black bears in both summer and fall extends from Limbaugh Canyon roadless area south to Pikes Peak along the edge of the National Forest. Elk and mule deer have summer range in this area, and there is winter range for deer on the east below the steep slopes. There is some suitable habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) on the eastern edge of the area, with many occupied stream segments out in the valley in Monument Creek and its small tributaries.

The SREP Vision shows the Limbaugh Canyon roadless area as low use.

Stanley Canyon

The Stanley Canyon roadless area is a large roadless area of nearly 11,000 acres along the edge of the National Forest. Located north and east of Rampart Reservoir and west of the Air Force Academy, it is bounded on the north by the Mount Herman Road, on the east by the Pike National Forest boundary, on the south by forest road 303A and West Monument Creek, and on the west by a complex network of motorized trails and by private inholdings. Two substantial cherrystem roads, forest roads 318 and 311, extend into the area from the west to a mile or less from its eastern boundary.

Elevations within the area range from 7,000 to 9,000 feet. The area includes several deep and rocky canyons including Stanley Canyon and West Monument Creek on its southern boundary, both noted for their spectacular scenery. Public access to the Stanley Canyon and West Monument Creek trails is permitted across the Air Force Academy grounds, but is subject to Academy restrictions and closure periods.

The northern portion of the Stanley Canyon roadless area is a mix of ponderosa pine and Douglas-fir, with some small areas of aspen, as well as some mountain shrubland on the east side. The southern half is almost all Douglas-fir, but there are several locations of mountain shrubland along the eastern boundary. Two rare plants - Porter feathergrass (*Ptilagrostis porteri*) and Richardson alum-root (*Heuchera richardsonii*) have been recorded in Stanley Canyon. In addition to West Monument Creek on the south, a creek drains the northern portion, and Stanley Canyon and Reservoir No. 2 are located in the center of the area, providing additional biodiversity.

The Stanley Canyon roadless area is an important location for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) with approximately 15 occupied stream segments and many documented animals here and in the Blodgett Peak roadless area to the south. To the east Monument Creek has many occupied segments in the main stream and many small tributaries. Two rare birds species have also been recorded here, the Mexican spotted owl (*Strix occidentalis lucida*) and ovenbird (*Seiurus aurocapillus*). More common animals are like those found in all these roadless areas along the National Forest edge in the complex. There is black bear high activity in both summer and fall, elk use the area in the summer with a high concentration of animals on the Air Force Academy grounds in the winter, and mule deer follow a similar pattern. More unusual in this complex are the bighorn sheep which are located primarily further south, but have a lambing area on the south end of the Stanley Canyon area in the West Monument Creek Canyon.

TNC's very large Piles Peak area of moderate conservation value overlaps into the southern part of the Stanley Canyon roadless area, and the Monument Creek PCA of very high significance also overlaps the southeastern corner of the area. SREP's Vision shows the Stanley Canyon roadless area as a low use area.

Blodgett Peak

Blodgett Peak is a roadless area of some 8,000 acres in the Rampart Range east of Rampart Reservoir and west of the Air Force Academy. It is bounded by West Monument Creek on the north, by the Pike National Forest boundary on the east, by the Rampart Range Road on the south, and by private inholdings and forest road 303 on the west. Elevations within the area range from 7,000 to 9,000 feet. The area contains several deep and rocky canyons, including Queens Canyon and West Monument Creek Canyon, on its northern boundary, both noted for their spectacular scenery. Access to West Monument Creek is possible across the Air Force Academy grounds, but is subject to Academy restrictions and closure periods.

The Blodgett Peak roadless area is primarily Douglas-fir with small areas of ponderosa pine and mountain shrubland.

Blodgett Peak is noted for its wildlife values, including bighorn sheep winter range and two production areas and contains habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and Mexican spotted owl (*Strix occidentalis lucida*). Preble's meadow jumping mouse suitable habitat is found in the drainages all along the eastern edge and in B Creek, and there are some occupied segments in West Monument Creek. Elk are confined to the less rugged

northwest part, but mule deer use the whole area in summer, and both have winter range with significant concentrations of animals to the east on the Air Force Academy grounds. There is black bear high activity in both summer and fall, and mountain lion can be found here.

TNC's very large Piles Peak area of moderate conservation value covers the whole Blodgett Peak roadless area, and the Monument Creek PCA of very high significance also intersects the north eastern corner of the area. SREP's Vision shows the Blodgett Peak roadless area as a low use area. Blodgett Peak proposed RNA is located across the eastern half of the roadless area.

Historical and Cultural Features of Rampart Range

Some archeological, historical and cultural features include:

- In July, 1802 Major Stephen H. Long traveled along the edge of the Rampart Range on his way from the South Platte towards the Arkansas River.
- The nation's first US forest ranger was William "Billy" Kreutzer who patrolled the Plum Creek Timber Reserve between the Palmer divide and the South Platte. Raised on a ranch west of Sedalia, his job was to put out forest fires, stop unauthorized logging, and encourage local ranchers to comply with the government's management of grazing on public lands.
- Most of the human activity of the 1800s and 1900s took place in the valleys just to the east of the Rampart Range, including settlement of Castle Rock, Perry Park, Palmer Lake and Monument. The Denver and Rio Grande Railroad narrow gauge railroad featured engines built to the specifications of General William Jackson Palmer. They were reputed to be small, but very powerful. William Walk, the engineer of the 12.5 ton Montezuma, said his engine was so well balanced that even a glass of water set in the windows did not lose a drop of water. However, a very strong Chinook wind blew her off the siding near Monument one July day in 1871.
- The Rampart Range Road was built by the Civilian Conservation Corps during the Great Depression of the 1930s. It is a gravel-surfaced road passable to standard vehicles that runs 60 miles along the crest of the Rampart Range south from Route 67 to Woodland Park, then east to Rampart Reservoir and, as a rougher road more suitable to high-clearance vehicles, beyond the National Forest Boundary to Garden of the Gods Park in Colorado Springs. Devils Head, a massive rock outcrop on the crest of the range is a popular spot for visitors to climb the fire tower for a 360 degree view of the plains to the east and mountains to the west.
- The Air Force Academy was sited at the foothills of the Rampart Range near Colorado Springs in 1954.
- The Colorado Highway 67 corridor from Woodland Park northward to Manitou Lake is an area heavily used for recreation, primarily for camping at several National Forest campgrounds and fishing in the lake. A paved foot and bicycle trail, the Manitou Park Bike Trail parallels this portion of the highway.

Management Recommendations

Overview

Because of the ecological value of protecting large roadless areas, the Wild Connections team recommends new Wilderness designation (Theme 1) for the largest remaining roadless area in the Rampart Range complex. Two areas are proposed RNAs (Theme 2). All but one of the remaining roadless areas is recommended for quiet use management (Theme 3). The roadless area adjacent to the Rampart Range Motorized Recreation area is recommended as a recreation emphasis area (Theme 4). Two large, substantially roaded areas are recommended for active management for wildlife habitat (Theme 5). There is also a permanently developed recreation areas (Theme 8) at Rampart Reservoir. Grazing, sustainable logging/fuels reduction projects, mining or energy development,

recreation on designated trails and roads and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas. Table 5.11 lists the major management units by theme. Refer to the Rampart Range Complex map for specific locations and read roadless area descriptions above for more details on the unit.

Table 5.11: Rampart Range Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Front Range	30,400	1.2 Recommended Wilderness
Theme 2 – Special Areas		
Blodgett Peak RNA	3,100	2.1 Research Natural Areas
Bridge or Polhemus Gulch RNA	3,500	2.1 Research Natural Areas
Manitou Experimental Forest	16,300	2.2 Experimental Forests
Theme 3 – Natural Landscapes with Limited Management		
Blodgett Peak	4,900	3.1 Quiet Use Areas
Jackson Creek	4,900	3.1 Quiet Use Areas
Limbaugh Canyon	4,300	3.1 Quiet Use Areas
Long Hollow	4,500	3.1 Quiet Use Areas
Stanley Canyon	10,700	3.1 Quiet Use Areas
Trout Creek	5,100	3.1 Quiet Use Areas
Theme 4 – Recreation Emphasis Areas		
Rampart Range (also in South Platte Canyons)	31,600	4.1 Motorized Recreation Areas
Theme 5 – Active Management		
Mount Herman	1,100	5.1 Active Mgmt - Wildlife Habitat
Rampart Range South(also in South Platte Canyons)	132,400	5.1 Active Mgmt - Wildlife Habitat
Theme 8 – Permanently Developed Areas		
Rampart Reservoir	1,600	8.2 Permanently Developed Recreation Areas

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation

The Front Range roadless area is recommended for Wilderness designation. The area is described in detail in the roadless area descriptions above. The proposed Wilderness boundary is essentially the same as the UASPP roadless boundary. In making this recommendation we considered the value of permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species, and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation.

We believe that the proposed wilderness area meets the capability, availability and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed below, with

notations as to particular values or potential conflicts.

Capability

The proposed Front Range Wilderness meets the capability requirements of the Wilderness Act of 1964 for designation. Despite its proximity to the rapidly-growing Front Range urban corridor, the area provides opportunities for solitude, challenge and unconfined recreation once the trailheads are left behind. The rugged eastern slope of the Rampart Range includes craggy peaks and deep, often trail-less canyons and valleys. The imprints of humans are substantially unnoticeable. Although portions of the Front Range roadless area were logged during the late Nineteenth and early Twentieth Century, the forest has since grown back into a mature forest, and old logging roads are recovering, leaving little overt evidence of these activities. While some prospecting also took place in the area during this same period, evidence of this activity is also slowly disappearing. Care has been taken to exclude old access roads that have received substantial, recent motorized recreational use. Although portions of the Front Range roadless area have been heavily impacted by past human activities, the regeneration and rehabilitation of this area has largely been left to nature, and can continue to do so, furnishing a useful means of comparison between natural and human-assisted processes. It offers a unique opportunity for visitors to experience solitude and a low-elevation ecosystem largely devoid of human impacts.

Availability

The proposed Front Range Wilderness has no known impediments. It contains no active mines or timber stands suitable to and proposed for logging. The watersheds and streams are already allocated, and no new water projects are planned

Major highways are not anticipated to affect the area. The Rampart Range Road lies to the west of the proposed Wilderness, and increased use of this road will increase visitation and bring pressure to bear on the adjoining Wilderness. The proposed Wilderness boundary was drawn to exclude roads connecting the Rampart Range road to the urban corridor to the east.

The proposed Wilderness is not appropriate for timber harvest, with steep canyons and heavy recreation use just to the west. The vegetation within the area is largely intact with some of it tending toward mature and old growth characteristics. There are no grazing allotments. Overall, there are no known or anticipated threats to the area that would preclude its designation as Wilderness.

Suitability

The main uses that would be forgone in newly designated Wilderness are motorized recreation on illegal roads and off-highway vehicle and snowmobile use off currently designated routes. Although most of the proposed Wilderness is currently designated for snowmobile use, the low elevation and consequent lack of snowfall make the Rampart Range proposed Wilderness marginal for this form of recreation. Motorized recreation will continue to be a major use of National Forest land in this complex, and is a factor which only calls for greater and more permanent protection of those areas which presently are not heavily impacted by this activity. The motorized trail network in the vicinity of the perimeters of the proposed Wilderness is adequate to allow long-distance motorized recreational travel. Roads within the complex, including particularly Colorado Highway 67 and the Rampart Range Road, together with the network of Forest roads leading off of them are adequate to provide motorized access within the complex, and designation of the proposed Wilderness, by the nature of its location and terrain, will not impede vehicular travel within the complex, but will provide badly-needed protection from off-road vehicular use.

Wilderness designation would result in some restrictions on implementation of potential fuels reduction projects. However, recent experience in the aftermath of the 2002 Hayman Fire shows that methodologies which are permitted within designated wildernesses, such as controlled burns, are at least as effective in preventing destructive crown fires as means that are not permitted such as mechanical thinning, as well as being more cost-effective.

There are numerous ecological values that support the designation of the Front Range Wilderness:

- The area comprises lower elevation montane ecosystems, which are poorly represented within the existing system of designated wildernesses, both within Pike/San Isabel National Forests and within Colorado National Forests as a whole.
- Significant wetlands and riparian areas
- This proposed Wilderness will preserve habitat necessary to protect a number of species which require isolation and undisturbed habitat such as the Mexican spotted owl (*Strix occidentalis lucida*) and the Preble's meadow jumping mouse (*Zapus hudsonius preblei*).
- Domestic and municipal water supplies would be protected from erosion associated with motorized routes.
- There are outstanding opportunities for solitude, quiet backcountry recreation and challenge within the proposed Wilderness area.
- Existing, intensive motorized recreation and motorized routes within the complex would not be adversely affected, and the considerable ecological impacts of this intensive recreational use would to some degree be mitigated by protection of presently unimpacted areas.
- Designation of wilderness within this complex would help ensure that the adverse impacts caused by habitat fragmentation by roads, damage to riparian zones, loss of old-growth forests, fire, and intensive recreation would be mitigated.
- Maintaining a portion of this complex in its natural state would protect the scenic and environmental values which draw recreationists of all types to the Rampart Range, and which draw tourists and new residents to Colorado.
- Local economies will be enhanced by the designation of a Wilderness area by increasing the spectrum of available types of recreation.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention

To supplement the range of research opportunities and increase the ecosystem representation, Blodgett Peak and Bridge or Polhemus Gulch are recommended for addition to the RNA system. Each has its unique combination of ecological values which will enhance the system:

- Blodgett Peak, some 3,100 acres, is located in the southern Rampart Range a short distance northwest of Colorado Springs. It is primarily Douglas-fir forest, together with ponderosa pine and hillside oak scrub, and noted for its wildlife values, including bighorn sheep winter

range and production areas. There are numerous recorded occurrences of Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in the area, as well as occurrences of Mexican spotted owl (*Strix occidentalis lucida*). The area contains some interesting geological features.

- Bridge or Polhemus Gulch, some 3,500 acres, located east of Deckers and west of the Rampart Range Road in the northwestern portion of the Rampart Range, is primarily low-elevation mixed-conifer forest. A population of Preble's meadow jumping mice (*Zapus hudsonius preblei*) is located in the vicinity of Trout Creek. There are records of Pawnee montane skipper butterflies (*Hesperia leonardus montana*) in the area and also occurrences of Mexican spotted owl (*Strix lucida occidentalis*). Polhemus Gulch was the site of the largest prescribed burn ever in Colorado and illustrates the effectiveness of such mitigation measures in the wake of a large wildfire, the 2002 Hayman burn.

Theme 2.2 – Experimental Forests

Experimental Forests provide lands for management-based research that serves as the basis for management of forest and rangelands. Established Experimental Forests are managed according to specific plans

The existing Manitou Experimental Forest is the only experimental forest in the Pike-San Isabel. Established in 1936, this is one of the oldest experimental forests in the country, and has been used to conduct long-term studies of the flammulated owl, watersheds, and the ponderosa pine ecosystem, and as a site for the Colorado Front Range Ecosystem Management Project.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance.

Limbaugh Canyon, Stanley Canyon, and the portions of Blodgett Peak not included in the proposed RNA, in the southern part of the Rampart Range are recommended for quiet use and non motorized recreation. This designation will preserve the roadless and non-motorized character of the southeastern part of the complex while allowing quiet recreation including mountain bike use on trails branching off of the Rampart Range Road in the vicinity of Rampart Reservoir and northward.

Also recommended for Quiet Use designation are Jackson Creek, Long Hollow, and Trout Creek. This designation recognizes the intensive recreational use of the Rampart Range and the need for areas suitable for nonmotorized recreation such as hiking and mountain biking, thereby providing a broader spectrum of recreational experience while protecting wildlife habitat from already considerable environmental impact of motorized recreation within the complex. Much of the area surrounding the existing Rampart Range Motorized Recreation Area is therefore recommended to be designated as nonmotorized, quiet use recreation areas. Adjustments may need to be made in the boundaries to accommodate motorized use designated in recent travel management plans.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas,

and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.1 – Motorized Recreation Areas

Management emphasis is for dispersed and/or concentrated motorized recreation, restricted to designated motorized routes, and concentrated recreation on and near water bodies.

A substantial portion of the Rampart Range is currently devoted to seasonal and year-round motorized recreation, with approximately 150 miles of motorized trails located within the 91,000-acre Rampart Range Motorized Recreation Area, and motorized trail connections to other portions of the National Forest. It is a popular recreation site for off-highway vehicle enthusiasts and camping. The area is bisected by the Rampart Range Road, which is used extensively for road-based recreational activities, particularly in the vicinity of the historic Devil's Head lookout tower. We recommend that this use continue within the Rampart Range unit that encompasses most of the Rampart Range Road, the Rampart West roadless area, and the currently designated connecting routes. The Rampart Range West roadless area falls within the Rampart Range unit, and we strongly recommend that all roadless lands be managed under the provisions of the Roadless Area Conservation Rule with additional guidance from the management objectives and guidelines of this theme.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities.

Much of the National Forest in the southern part of the complex, land north and west of Woodland Park, and southeastward along the southernmost portion of the Rampart Range, with road densities ranging from low to high, is recommended for active management for wildlife habitat. This portion of the National Forest contains numerous motorized routes and trails, including concentrations of motorized trails in the Rainbow Falls OHV area and the North Divide OHV area, located north of the town of Divide and west of Colorado Highway 67. These areas are connected by motorized routes to the Rampart Range Motorized Recreation Area (Theme 4.1). The small Mount Herman area east of Limbaugh Canyon is also within this theme. Consideration should be given to the sensitive wildlife areas: deer fawning, elk calving, and bighorn sheep lambing areas, winter range for ungulates, and accommodation of larger carnivores such as mountain lion.

Also recommended for this classification is the Mount Herman area, a small 1,100-acre area to the east of Limbaugh Canyon containing the Monument Fire Center and adjacent Memorial Grove, an area including a memorial grove of trees, signs, plaques, a picnic area, and other related facilities. This area includes the base for an Interagency Hotshot fire crew, but also contains a number of popular hiking and mountain biking trails, surrounded on three sides by rapidly-developing private land.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent ecological conditions and landscape appearances are likely outside their natural range of variability. Management emphasis is

generally for highly developed recreation sites, campgrounds, utility corridors, or mineral development areas.

Theme 8.2 – Permanently Developed Recreation Areas

These areas contain developed recreation sites that provide an array of recreational opportunities and experiences, usually in a forested environment.

Rampart Reservoir is a heavily used recreation area in the southern part of the Rampart Range, a few miles east of Woodland Park. In addition to water-based recreational activities, the area around its 10-mile shoreline is used for picnicking, camping, hiking, mountain biking, and cross-country skiing. Management will include practices and restrictions designed to protect water quality.

Connectivity

Maintaining connections between protected core areas and other areas of particular biological significance is an important aspect of our conservation perspective. The Rampart Range lies between the South Platte Canyons Complex to the west, the Front Range urban corridor to the east, and the Pikes Peak Massif to the south, within a region that has experienced heavy human impacts, past and present, and can be expected to see even greater human impacts in future years. Roads and motorized routes and trails within the complex already pose a substantial barrier to wildlife movement, creating a significantly fragmented landscape.

Connections between the Rampart Range Complex and the South Platte Canyons are fairly good; the chief barrier to wildlife movement to the west being Colorado Highway 67, a heavily-traveled road running from Woodland Park northward. To the east, except for a few public parks, isolated parcels of State land, and the Air Force Academy, the entire urban corridor is in private ownership. Uses vary between ranching and residential use, with the latter increasing in significance, particularly between Castle Rock and Monument Hill. A conservation easement covering approximately 9,000 acres protects the Greenland Ranch area north of Monument Hill, and allows wildlife movement several miles eastward. With increasing residential development in this corridor, preservation of wildlife migration routes is a problem. The Forest Service should work with the Air Force Academy to jointly maintain connectivity across the interface between the National Forest and Academy grounds, since this area includes wildlife migration routes and habitat for both Mexican spotted owl (*Strix occidentalis lucida*) and Preble's meadow jumping mouse (*Zapus hudsonius preblei*).

To the south, the Ute Pass corridor, separating the Rampart Range from the Pikes Peak Massif, is almost entirely residential, except for a 3-mile segment between Manitou Springs and Cascade. US Highway 24, a four-lane highway, bisects the corridor and constitutes a major barrier to wildlife movement. Establishment and maintenance of wildlife crossings across this corridor are important.

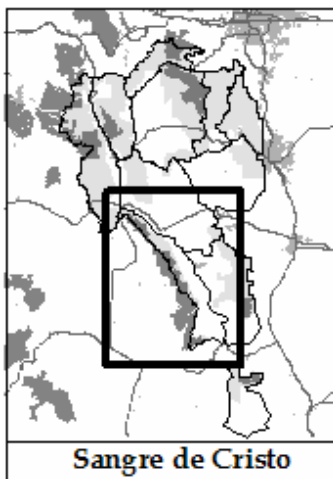
Summary

The Rampart Range complex offers a unique opportunity within the Pike-San Isabel National Forest to integrate intensive recreational use of an area near a growing urban corridor with long-term preservation of the environment, and to do this on a broad, ecosystem-wide basis. Identification and protection of unique and critical areas and the providing of protected linkages between these areas can best accommodate increasing human population and recreational pressure while minimizing impacts to the natural environment. By emphasizing the integrity of the ecosystem and focusing on the protection of its most sensitive components, a network of wildlands can be created that will sustain the integrity of the Pike-San Isabel National Forest, now and in the foreseeable future.

The Sangre de Cristo Complex



Blanca Peak roadless area



The Sangre de Cristo Complex extends some 70 miles along the eastern side of the Sangre de Cristo range from Poncha Pass to la Veta Pass and includes part of the Wet Mountain valley.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.7: Sangre de Cristo Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Sangre de Cristo range is a steep, block-faulted mountain range extending from central Colorado to northern New Mexico. The portion identified as the Wild Connections Sangre de Cristo complex extends some 70 miles along the eastern side of the range from Poncha Pass to la Veta Pass. It is bounded on the east by the Arkansas River Valley and central Wet Mountain Valley. This portion of the Sangre de Cristo is very narrow, less than ten miles wide in most places, causing a number of habitat zones to be compressed into relatively small cross-sectional bands.

The higher portions of the range are largely protected the 186,400-acre Sangre de Cristo Wilderness, which extends also onto the west side of the range in Rio Grande National Forest. The lower forested lands east of the Wilderness and the open grasslands of the Wet Mountain Valley are largely in private ownership. A relatively small band of non-Wilderness National Forest land, seldom more than three miles wide, lies between. The Sangre de Cristo range is crossed by two roads, the Hayden Pass Road and the Medano Pass Road, both suitable only for 4WD vehicles. In addition, three other roads - the Methodist Mountain road, Hermit Pass road, and the Mosca Pass road - are vehicle-accessible from the east all the way to the summit of the range. A motorized trail, the Rainbow Trail, extends from Poncha Pass to the road network in the vicinity of Medano Pass. Most spur trails leading up into the range are non-motorized above the Rainbow Trail.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

The mountainous portion of the Sangre de Cristo complex is broken up into approximately forty valleys and intervening ridges. Most valleys are roadless, but many contain nonmotorized trails. Overall elevations range from over 14,000 feet in Crestones and Blanca Peak massif to 7,000 feet along Muddy Creek in the Wet Mountain Valley.

The northern portion of the Sangre de Cristo complex is located in the Arkansas River drainage. A number of streams from Oak Creek northward feed directly into the Arkansas River; southward, the streams feed into Texas Creek and Grape Creek, the two streams draining the Wet Mountain Valley. The portion of the complex south of the Custer/Huerfano County line comprises the headwaters of the Huerfano River and its northerly tributary, Muddy Creek.

Vegetation in the area ranges from alpine tundra to piñon-juniper forest. The forested belt consists mostly of ponderosa pine/Douglas-fir mix in the lower elevations, and Engelmann spruce/subalpine fir at the higher elevations, with occasional patches of lodgepole and bristlecone/limber pine. The area contains large stands of aspen and large montane meadow areas on drier, south-facing slopes. Portions of the Wet Mountain Valley down slope of the National Forest boundary are largely devoted to livestock grazing, with large acreages irrigated for production of hay crops.

There is suitable habitat in the larger complex for animal species including elk, bighorn sheep, mountain lion, and lynx, with pronghorn out in the valley. Mule deer and elk winter range extends into the area along the Arkansas River and in the Huerfano/Muddy Creek headwaters area, generally down slope of the existing designated Wilderness. The upper headwaters of the Huerfano and Muddy Creek, centered upon the Bruff Creek area, are important elk production areas. An elk production area and migration corridor lies down slope of the Lake Creek area. Bighorn winter range lies upslope of Horn Creek, Crystal Falls, Upper Grape Creek, and northeast of Slide Mountain, while the area upslope of Bruff Creek is both winter range and a bighorn production area. Virtually the entire eastern slope of the range is potential lynx habitat, with particularly large, contiguous areas of suitable habitat centered on Bruff Creek and Slide Mountain. A medium priority linkage for mountain lion and lynx extends from Bruff Creek roadless area northeast along the Custer/Huerfano County line toward the Wet Mountain complex.

Current and historical rare and sensitive species include greenback cutthroat trout (*Oncorhynchus clarki stomias*), wolverine (last verified sighting in 1978), and several plant species and plant communities, which are noted in their respective roadless area descriptions.

Southern Rockies Ecosystem Project's modeling shows a swath of secondary wolf habitat from Poncha Pass along the Sangres and Culebra Range into northern New Mexico, as well as a black bear linkage in the same locations that connects large bear cores in the west to those south of the Spanish Peaks and into New Mexico. The lynx linkage from Monarch Pass to Poncha Pass was identified by both the Forest Service and SREP as of highest priority.

The mountain parts of the larger complex are popular for recreation. Mountain climbing is among the best in Colorado, with a number of Fourteeners and other high peaks. Except for the restriction of non-mechanical travel in the Wilderness area and proposed additions, most types of recreation are allowed across the whole complex. In addition to human powered travel, there are many opportunities for motorized use on the five 4WD roads, which either cross the range or access the mountain crest from the east, as well as along the motorized Rainbow Trail, approximately 100 miles in length, and its connectors. The Sangre de Cristo complex contains a number of high-use campground areas, which are too small to map, but which include the Hayden Creek Campground at the foot of the Hayden Pass Road, the Lake Creek Campground west of Hillside, and the Alvarado Campground south of Westcliffe. These campgrounds provide access to both the Sangre de Cristo Wilderness and the motorized Rainbow Trail.

Ecological values of the complex

The Sangre de Cristo complex includes a number of rich and unique biological areas. There are three proposed Research natural Areas (RNAs), and the Colorado Natural Heritage Program lists seven Potential Conservation Areas (PCAs), including Comanche/Venable that is of very high conservation significance. The Nature Conservancy's Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes much of the complex in its moderately low and moderate priorities, with moderately high areas across Carbonate Mountain, Crystal Falls, Greenleaf Creek, Horn Creek, Lake Creek, May Creek, Slide Mountain and Upper Grape Creek.

Wilderness and Roadless Areas

The large proportion of roadless lands in the complex that are adjacent to the Sangre de Cristo Wilderness results in a good distribution of high quality ecological characteristics. See Table 5.12. The areas are described from north to south below.

Table 5.12: Sangre de Cristo Roadless Areas

Wilderness Areas

Sangre de Cristo Wilderness

The 186,400-acre Sangre de Cristo Wilderness, the third-largest Wilderness in Colorado, dominates the mountain part of the Sangre de Cristo Complex. About half of the Wilderness is located on the west slope of the Sangre de Cristo range in the Rio Grande National Forest, with approximately 95,500 acres within San Isabel National Forest. Elevations within the Wilderness range from approximately 8,000 feet to 14,294 feet. This Wilderness, like most in Colorado, is predominantly a high elevation wilderness, containing primarily alpine tundra and spruce-fir forests. However, it also contains significant aspen, mixed conifer, Douglas-fir, and ponderosa pine forests. Most valleys contain relatively undisturbed wetlands and riparian corridors. There is a significant human presence on many trails within the Wilderness and along the Rainbow Trail Corridor, which runs along the edge of the Wilderness beyond its lower boundary from its northern end nearly to the Custer/Huerfano County line.

Name	Acres (UASPP)	Roadless Under Roadless Rule
Blanca Peak	1,500	Yes*
Bruff Creek	2,700	Yes
Carbonate Mountain	3,600	Yes
Crystal Falls	2,500	Yes
Greenleaf Creek	1,600	Yes
Horn Creek	3,800	Yes
Lake Creek	6,800	Yes
May Creek	1,800	Yes
Methodist Mountain	3,600	Yes
Sangre de Cristo Wilderness	186,400	n/a**
Slide Mountain	3,100	Yes†
Upper Grape Creek	3,100	Yes*

*Roadless rule area has significantly fewer areas than UASPP inventory.

**Includes lands in an adjacent National Forest.

†Roadless area includes lands managed by the US Forest Service and lands managed by the Bureau of Land Management.

A number of notable rare species are found in the Wilderness, including greenback cutthroat trout (*Oncorhynchus clarki stomias*) in Cottonwood Creek, Cascade Creek and possibly Prong Creek (Han, Cindy Hsu. “The CSI: Mapping Mission Success.” Trout. Spring 2006.p. 30), and historical records of wolverine (*Gulo gulo*). Rare plants include pale blue-eyed grass (*Sisyrinchium paldium*), canyon bog-orchid (*Limnorchis ensifolia*), autumn willow (*Salix serissima*), altai chickweed (*Stellaria irrigua*), arctic draba (*Draba fladnizensis*), and Smith whitlow grass (*Draba smithii*). Two rare montane woodlands plant communities, bristlecone pine/alpine clover (*Pinus aristata/Trifolium dasyphyllum*) and bristlecone pine/Thurber fescue (*Pinus aristata/Fustuca thurberi*) are found here.

The Nature Conservancy’s Conservation Portfolio has a very large unit of moderately high conservation value which spans the Sangre de Cristo Mountains, and includes virtually the entire Wilderness. A PCA of very high significance is located at Comanche/Venable Lakes.

Unprotected roadless areas

The Sangre de Cristo complex also contains eleven smaller roadless areas not currently within the designated Wilderness. All of these were inventoried as roadless under the Forest Service’s Roadless Area Conservation Rule. However, UASPP inventories determined that Blanca Peak and Upper Grape Creek were significantly larger than the Roadless Area Conservation Rule boundaries indicated. Of these roadless areas, three include areas that have been recommended for Research Natural Areas.

Methodist Mountain

The Methodist Mountain roadless area, 3,600 acres, is the complex's northernmost roadless area, lying at the extreme northern end of the Sangre de Cristo Wilderness north and west of the summit of Methodist Mountain and east of Poncha Pass. On the east, the area is bounded by an unpaved road accessing the summit of Methodist Mountain, but except for this road corridor it is essentially contiguous with the existing Sangre de Cristo Wilderness.

The Methodist Mountain roadless area is predominantly Engelmann spruce/subalpine fir forest and Douglas-fir, with some aspen lodgepole pine and bristlecone/limber pine areas.

The area includes summer and winter range for both mule deer and elk. There are winter elk concentrations and an elk calving area on the north side, and an elk migration corridor passes just to the south of the area. Mountain lion and black bear can be found in appropriate habitats. In addition to lynx denning and winter habitat for lynx it is part of the larger Monarch Pass to Poncha Pass high priority linkage identified by both the Forest Service and The Southern Rockies Ecosystem Project. This linkage provides a key migration corridor for lynx and other wildlife, connecting large areas of suitable habitat along the east slope of the Sangre de Cristo with even larger areas in the Sawatch/Cochetopa Hills nexus west of Poncha Pass.

Methodist Mountain is shown in SREP's vision as a low use area. The roadless area comprises about half of the larger, proposed 7,700-acre Methodist Mountain RNA. The Rainbow Trail passes through the proposed RNA and forms the northern boundary of the roadless area. Some non-system motorized use is occurring south of the Rainbow Trail.

Lake Creek

The Lake Creek roadless area is 6,800 acres on the east side of the Sangre de Cristo range at the northern end of the Wet Mountain Valley approximately four miles west of Hillside, and directly adjacent on the north, west, and south to the Sangre de Cristo Wilderness.

The Lake Creek roadless area is predominantly alpine tundra, barren ground, and Engelmann spruce/subalpine fir forest, with Douglas-fir and lodgepole pine in the lower elevations on the east side. Rare plants found in the area include dwarf hawkbeard (*Askellia nana*) and grassyslope sedge (*Carex oreocharis*).

On the eastern edge of the area there is high summer bear activity, and mountain lions can be found in suitable habitat. Elk and mule deer use summer range across the area, with summer concentrations of elk on the east side and sizeable calving area immediately to the north along the National Forest front. An elk migration corridor extends from the Lake Creek area into the Wet Mountain Valley. There is very little lynx habitat in Lake Creek area itself, but it adjoins a large area of suitable habitat within the designated Wilderness to the north.

The South Lake Creek drainage is without trails and leads to a rocky, seldom-visited valley below Eagle Peak, perhaps the least human-impacted of the drainages excluded from the 1993 Wilderness designation. The North Lake Creek drainage contains a large cherrystem road corridor extending to past Balman Reservoir, an area heavily used by anglers and campers, to Rainbow Lake and a number of smaller glacial lakes, and then on up the valley to the Cloverdale Mine.

The Nature Conservancy's Conservation Portfolio has a very large unit of moderately high conservation value which spans the Sangre de Cristo Mountains, and overlaps all but the eastern

side of Lake Creek. The roadless area is shown in SREP's vision as core wilderness.

Greenleaf Creek

The Greenleaf Creek roadless area of 1,600 acres lies between the existing Sangre de Cristo Wilderness and the Rainbow Trail east of Gibbs Peak, less than ten miles northwest of Westcliffe. It is a lower-elevation area than the directly adjacent Sangre de Cristo Wilderness, and is predominantly Douglas-fir, with areas of ponderosa pine forest, along with some aspen and Engelmann spruce-subalpine fir. Lack of direct public access across private land to the east of the National Forest boundary makes this a relatively unvisited area compared with others on the east side of the Sangre de Cristo.

On the eastern edge of the Greenleaf Creek roadless area there is high summer bear activity, and mountain lions can be found in suitable habitat, as well as elk and mule deer in the summertime. Lynx general, denning, and winter habitat occurs here.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit overlaps all but the southeastern side of Greenleaf Creek. The roadless area is shown in SREP's vision as core wilderness

Horn Creek

The Horn Creek roadless area comprises 3,800 acres in the lower portions of Dry, Horn, and Macey Creeks and represents a swathe of lower-elevation National Forest which was not included in the directly adjacent Sangre de Cristo Wilderness in 1993. The area is very popular for day hiking, horseback riding, camping, and fishing, particularly in the Dry Creek Lakes, Horn Lakes, and Macey Creek drainages, and the Horn Creek trailhead is a major access point for people climbing Fourteeners in the Crestone area to the south.

The Horn Creek roadless area is predominantly aspen forest and Engelmann spruce/subalpine fir forest, with some lodgepole pine and bristle/limber pine areas. Mule deer and elk use summer range across the area. On the eastern edge of the area there is high summer bear activity, and mountain lions are found in suitable habitat. Lynx denning and winter habitat is somewhat scattered across the area.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit encompasses all of Horn Creek. The roadless area is shown in SREP's vision as core wilderness

Crystal Falls

The 2,500-acre Crystal Falls roadless area, located approximately ten miles south of Westcliffe, is directly adjacent to the existing Sangre de Cristo Wilderness, but was not included within it when it was designated in 1993. It includes the Marble Mountain trail and the trail-less Crystal Falls Creek, and continues south to the Music Pass road.

The Crystal Falls roadless area is predominantly Douglas-fir with areas of Engelmann spruce/subalpine fir and aspen forest, and is particularly noteworthy for its wildlife values.

On the eastern edge of the area there is high summer bear activity, and mountain lions are found in suitable habitat. Mule deer and elk use summer range across the area, with elk winter range and a small calving are just to the east. Lynx denning and winter habitat is found across the area. There is a historical record of wolverine (*Gulo gulo*) in the Crystal Falls-Upper Grape Creek

vicinity. Rare plants include Smith's whitlow-grass (*Draba smithii*).

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit covers all of Crystal Falls. The roadless area is shown in SREP's vision as core wilderness.

Upper Grape Creek

The Upper Grape Creek roadless area, some 3,100 acres, is approximately 15 miles south of Westcliffe. The area, which is directly adjacent to the Sangre de Cristo Wilderness, lies south of the Music Pass Road, a road presently open to 4WD travel to the top of the pass. Because the road turns northward to follow the ridgeline north of the creek, the road does not significantly impact the Grape Creek riparian area. The area includes gentler sloped, lower elevation forest between the existing Sangre de Cristo Wilderness boundary and the Rainbow Trail southward as far as North Muddy Creek in Huerfano County.

The Upper Grape Creek roadless area is predominantly Engelmann spruce/subalpine fir forest, with some smaller areas of Douglas-fir and aspen. Rare plants include Smith's whitlow-grass (*Draba smithii*).

On the eastern edge of the area there is high summer bear activity, and mountain lions can be found in suitable habitat. Mule deer and elk use summer range across the area, with elk winter range on the extreme northeast. Lynx denning and winter habitat is found across the area, and a priority linkage identified by the Forest Service connects this general area across the Wet Mountain Valley to the Wet Mountain range. Mule deer and elk use summer range across the area. There is a historical record of wolverine (*Gulo gulo*) in the Crystal Falls-Upper Grape Creek vicinity.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit encompasses all of Upper Grape Creek. The roadless area is shown in SREP's vision as core wilderness

Bruff Creek

The Bruff Creek roadless area of 2,700 acres lies at moderate elevation north of the Medano Pass 4WD road on the east side of the Sangre de Cristos, drained by North, Middle, and South Bruff Creeks. It includes virtually all of the proposed Bruff Creek RNA. The area contains a broad mix of vegetation types, including areas of aspen forest, Engelmann spruce/subalpine fir forest, and mixed conifer/Ponderosa pine forest, including some stands of old-growth forest, as well as significant wetlands and riparian areas, and even some piñon-juniper stands, resulting in a high diversity of plant communities and animal habitats. There are several rare plant communities found in the area, including montane aspen/tall forb (*Populus tremuloides/tall forbs*) and aspen/Drummond's willow (*P. tremuloides/Salix drummondiana*) forests and thinleaf alder/mesic forb (*Alnus incana/mesic forb*) riparian shrublands.

There is high summer bear activity across the Bruff Creek roadless area, and mountain lions are found in suitable habitat. Elk and mule deer use summer range across the area, with some winter range for both on the east side and out into the foothills. The upper headwaters of the Huerfano and Muddy Creek, centered upon the Bruff Creek area, are large and important elk production areas. The Bruff Creek area adjoins a very high priority pronghorn migration route to the east. Lynx denning and winter habitat is very scattered, but a priority linkage identified by the Forest Service connects this general area across the Wet Mountain Valley to the Wet Mountain range.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit encompasses all of Bruff Creek. The roadless area is shown in SREP's vision as an agency core area.

May Creek

The May Creek roadless area is 1,800 acres in a long, narrow strip of relatively low-elevation roadless land that lies north of the Mosca Pass Road, which is open up the east side of the range to the top of the pass. The roadless area was not included in the directly adjacent Sangre de Cristo Wilderness when it was designated in 1993. The area is accessible to hikers not only from the Mosca Pass Road, but also from Great Sand Dunes National Park on the other side of the ridge by means of the Mosca Pass Trail.

The May Creek roadless area is predominantly aspen forest, with some Douglas-fir, ponderosa pine and Engelmann spruce-subalpine fir, merging with foothills and montane grassland along its eastern boundary, thereby representing lower elevation plant communities.

On the eastern edge of the area there is high summer bear activity, and mountain lions are found in suitable habitat. There is a large area of winter range for pronghorn just to the east of May Creek. Elk and deer use summer range across the area, with some winter range for both on the east side. There are elk calving areas on the north side. Lynx denning and winter habitat is found across the area. Because of the relatively low elevation of the Sangre de Cristo crest in this area, it forms the lower portion of a natural migration corridor over the range and into the Great Sand Dunes National Preserve, on the west side of the range, and on into the San Luis Valley.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit covers all of May Creek. The roadless area is shown in SREP's vision as core wilderness.

Carbonate Mountain

The Carbonate Mountain roadless area is another relatively narrow, roadless area of 3,600 acres lying south of the Mosca Pass. The area is predominantly aspen forest, with some Engelmann spruce-subalpine fir on the west side, but merging with foothill and mountain grassland along its eastern boundary, representing lower-elevation land that was not included in the directly adjacent Sangre de Cristo Wilderness in 1993. There is particular value to wildlife moving along the range or traveling up or down slope. The National Forest boundary closely approximates the transition between forest and foothills grassland.

The Carbonate Mountain roadless area is accessible to hikers not only from the Mosca Pass Road, but also from Great Sand Dunes National Park and Preserve on the other side of the ridge by means of the Mosca Pass Trail.

On the eastern edge of the area there is high summer bear activity, and mountain lions can be found in suitable habitat. Bighorn sheep use summer range across the area, and there is winter range and winter concentration to the east in the Huerfano Valley. Elk and deer use summer range across the Carbonate Mountain area, with some winter range for both on the east side and out into the valley. The whole area is part of a very large elk production area which extends eastward into the Huerfano valley. Lynx denning and winter habitat is found across the area.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit encompasses all of Carbonate Mountain. The area is shown in SREP's

vision as core wilderness

Slide Mountain

The Slide Mountain roadless area lies at the headwaters of the Huerfano River east of the Blanca Peak massif, and was part of the original Blanca Peak Roadless Area Conservation Rule Inventoried Roadless Area, but was not included in the directly adjacent Sangre de Cristo Wilderness when it was designated in 1993. Public access is possible only through the Wilderness area to the west, and, as a result, the area receives less recreational visitation than the designated Wilderness. Its 3,100 roadless acres include 2,300 acres of National Forest land and an additional 800 roadless acres managed by the Bureau of Land Management.

The Slide Mountain roadless area is predominantly Engelmann spruce/subalpine fir forest, interspersed with substantial areas of subalpine and montane grassland, aspen, and Douglas-fir forest.

There is high summer bear activity area on the northeast side of the area, and mountain lions are found in suitable habitat. Deer use summer range here in appropriate habitat. Bighorn sheep are found in the eastern part, and in the winter they concentrate in the Huerfano valley. Lynx habitat is scattered across the area. The Slide Mountain roadless area includes a part of the large elk production area that extends across the Huerfano River drainage. Elk winter range is also found here. The Slide Mountain roadless area and the existing Sangre de Cristo Wilderness encompass to the entire headwaters of the Huerfano River, including the upper reaches of Cascade Creek, which contains a high-quality population of greenback cutthroat trout (*Oncorhynchus clarki stomias*).

Some 300 acres of the Strawberry Creek proposed RNA are within the area, while the remainder is within the existing Sangre de Cristo Wilderness. The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de Cristo Mountains unit encompasses all of Slide Mountain. The PCA called Cascade Creek at Slide Mountain, located primarily in the Wilderness to the east and of general biodiversity interest, comes over into the Slide Mountain roadless area. The roadless area is shown in SREP's vision as core wilderness

Blanca Peak

The Blanca Peak roadless area is at the extreme southern end of the Sangre de Cristo Wilderness. The area encompasses 1,500 acres on the northern slopes of Blanca Peak, including what is reputed to be the southernmost glacier in the United States. Although the Blanca Peak roadless area includes the highest peak in the Sangre de Cristo range, a magnet for hikers and climbers, it was excluded from the directly adjacent Sangre de Cristo Wilderness when it was designated in 1993 because of concern over access to old mining claims in the upper basin south of Lily Lake.

The Blanca Peak roadless area is predominantly alpine tundra, with some Engelmann-spruce subalpine fir in the valley below the north face. Gary's Peak whitlow-grass (*Draba grayana*) is a rare plant found here.

Bighorn sheep can be found in the area, and there is a lambing area immediately to the north in the Wilderness. In the winter the bighorn sheep concentrate in the Huerfano valley. A high priority linkage for deer and elk goes southeast from the Sangre de Cristo Wilderness just east of the Blanca Peak roadless area and continues southeast of the National Forest.

The Nature Conservancy's Conservation Portfolio moderately high conservation value Sangre de

Cristo Mountains unit covers all of Blanca Peak. The roadless area is shown in SREP's vision as core wilderness

Historical and Cultural Features of Sangre de Cristo complex

Some archeological, historical and cultural features of note include the following:

- The complex has unusual geology, for in contrast to most of Colorado's mountains, the Sangres were uplifted suddenly in massive blocks, resulting in high peaks and many fault zones, and an enduring impression of steep vertical ascents.
- Although it cannot match the Sawatch Range for Fourteeners, there are four located together, including Crestone Needle (14,197 feet). Many climbers consider the Needle to be Colorado's most challenging 14,000-foot peak. Ellingwood Peak, Mount Blanca, and Little Bear Peak are located together at the south end of the Sangre de Cristo Wilderness. Blanca Peak forms a triangle with Ute Mountain and San Antonio Mountain, considered to be sacred mountains by Native Americans.
- Medano Pass, also known as Sand Hill pass, and Mosca Pass, also called Robidoux's Pass, were well known to Native Americans, providing passage from the Wet Mountain Valley to the San Luis Valley. Later these were used by settlers, and a toll road was established in the 1870's along the Mosca Pass Road. It was used by stage coaches and for mail until about 1911. After being washed out repeatedly by floods, it is now a hiking trail.
- Zebulon Pike and his company, searching for the Red River, after realizing they had traveled in a circle and returned to an earlier campsite on the Arkansas River, crossed the Sangres at Medano Pass in 1807 and descended into the sand dunes at the base of the mountains. In 1848, John C. Fremont also crossed the range in winter, proving that it could be done, but suffered disastrous results as he pushed on westward.
- The western part of the Wet Mountain Valley, from a landscape scale perspective, is integral to the wildlife habitat and scenic beauty of the complex. Silver Cliff had the first permanent settlers in the valley in 1869. The following year a colony of more than 100 German families from Chicago took up homesteads. In 1878 rock composed of 75% silver was discovered. A few years later, the terminus of the Denver and Rio Grande railroad was placed a mile to the west at Westcliffe. Eventually the mining boom ended, the mines and mills closed, and the railway was abandoned. Silver Cliff and Westcliffe now serve as business and cultural centers for the surrounding ranches of the Wet Mountain valley.
- Today the Sangre de Cristo complex is crossed by five roads, several going only to the crest of the range. Hayden Pass Road crosses the range from the Coaldale area on the east to the Villa Grove area in the San Luis Valley, and the Medano Pass Road crosses a few miles south of the Custer/Huerfano County line. Other roads extend to the crest: Hermit Pass Road, west of Westcliffe; the Music Pass Road a few miles north of the Custer/Huerfano County line; and the Mosca Pass Road west of Sharpsdale. A sixth road extends nearly to the western boundary of the complex in the South Colony Lakes area southwest of Westcliffe. All of these roads receive moderate to heavy motorized use during the summer and particularly on weekends. A combination of use and lack of maintenance has caused deterioration of these roads, and the South Colony Creek road and Huerfano River roads, in particular, have become nearly impassible even to 4WD vehicles. The South Colony Lake route has been recommended by the Forest Service for closure farther east in order to preserve and rehabilitate the habitat.

Management Recommendations

Overview

Because the area is already dominated by the existing Sangre de Cristo Wilderness, the Sangre de

Cristo Complex offers a unique opportunity to manage an entire block of National Forest land with an emphasis on preservation of natural values. The existing Wilderness in general protects only higher-elevation areas. Because of the value of providing permanent protection for lower-elevation roadless areas, and preserving connectivity within the ecosystem, nine of the roadless areas adjoining the existing Wilderness are recommended for future Wilderness designation (Theme 1). Three areas are recommended for RNAs (Theme 2). Of the remaining roaded parts of the Forest, one unit is recommended for Connectivity (Theme 3) and the remaining units are recommended for Active Management for Wildlife Habitat (Theme 5). Table 5.13 lists the major management units by theme. Refer to the Sangre de Cristo Complex map at for specific locations and refer to the roadless area descriptions above for more details on the units.

Table 5.13: Sangre de Cristo Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Sangre de Cristo Wilderness	95,500	1.1 Existing Wilderness
Carbonate Mountain	3,600	1.2 Recommended Wilderness (add to Sangre de Cristo)
Crystal Falls	2,600	1.2 Recommended Wilderness (add to Sangre de Cristo)
Greenleaf Creek	1,600	1.2 Recommended Wilderness (add to Sangre de Cristo)
Horn Creek	3,800	1.2 Recommended Wilderness (add to Sangre de Cristo)
Lake Creek	6,800	1.2 Recommended Wilderness (add to Sangre de Cristo)
May Creek	1,800	1.2 Recommended Wilderness (add to Sangre de Cristo)
Blanca Peak	1,600	1.2 Recommended Wilderness (add to Sangre de Cristo)
Slide Mountain	2,300	1.2 Recommended Wilderness (with BLM area Slide Mountain)
Upper Grape Creek	3,100	1.2 Recommended Wilderness (add to Sangre de Cristo)
Theme 2 – Special Areas		
Bruff Creek RNA	2,600	2.1 Research Natural Areas
Methodist Mountain RNA	7,700	2.1 Research Natural Areas
Strawberry Creek RNA	4,900	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Hermit Pass	1,700	3.2 Connectivity Areas
Theme 5 – Active Management		
Eagle Peak Front	7,200	5.1 Active Mgmt - Wildlife Habitat
Hayden Pass	5,800	5.1 Active Mgmt - Wildlife Habitat
Hermit Horn Front	6,400	5.1 Active Mgmt - Wildlife Habitat
Huerfano South Fork	300	5.1 Active Mgmt - Wildlife Habitat
Manzanares Creek	300	5.1 Active Mgmt - Wildlife Habitat
Medano Pass	3,200	5.1 Active Mgmt - Wildlife Habitat
Methodist Howard	9,600	5.1 Active Mgmt - Wildlife Habitat
Music Pass	300	5.1 Active Mgmt - Wildlife Habitat
Theme 9 – Significant Lands (Non-USFS)		
Slide Mountain BLM	800	9.1 Non-USFS Recommended Wilderness

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include designated Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- The Sangre de Cristo Wilderness covers much of the Forest Service lands in this complex. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act.
(http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for wilderness designation of (north to south) Lake Creek, Greenleaf Creek, Horn Creek, Crystal Falls, Upper Grape Creek, May Creek, Carbonate Mountain, Blanca Peak, and Slide Mountain. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless area boundary. The following benefits were considered in making these recommendations: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species, and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation.

We believe that all of these areas meet the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. Like the existing Sangre de Cristo Wilderness, these areas provide opportunities for solitude, challenge, and unconfined recreation. The imprints of humans are substantially unnoticeable. Many areas adjoining the Sangre de Cristo Wilderness have long been recognized as having the qualities required of Wilderness areas, but were excluded from the 1993 Colorado Wilderness Bill because of various perceived conflicts. For example, the Blanca Peak area was excluded because of concern over access to old mining claims in the Lily Lake area; this issue has since been resolved.

Availability

Likewise all the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines. The watersheds and streams are already allocated, and no new water projects are planned. Planned fuels reduction projects are, to the best of our knowledge, located outside the proposed Wilderness areas. All boundaries were drawn so as to exclude the motorize Rainbow Trail from the Wildernesses. May Creek may contain an easement that would require closure. Overall, there are no known or anticipated threats to the areas that would preclude their designation as Wilderness.

Grazing allotments include a small portion of Allotment 211 on the southern edge of Upper Grape Creek; Allotments 214-220 across May Creek and Carbonate Mountain; and Allotment 221 on Slide Mountain would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. These do not present a problem for Wilderness

designation.

Suitability

One use which would be forgone in newly designated Wilderness additions would be motorized recreation on non-system routes. The additions are located between the Rainbow Trail and the existing Wilderness boundary, and any non-system motorized routes in these areas would be relatively short spurs and should be closed. Possibly fuels reduction projects could not be expanded.

Numerous values support the designation of the proposed Wildernesses and contribute to the National Wilderness System:

- The proposed additions to the Sangre de Cristo Wilderness, other than Blanca Peak, represent lower elevation ecological zones than are in the currently designated Wilderness. In particular, Greenleaf Creek contains predominantly ponderosa pine forest, and both Crystal Falls and Slide Mountain additions contain substantial areas of Douglas-fir. Protection of these areas would protect species which rely on these ecosystems or which use them as migration corridors.
- Habitat and areas for large native carnivores, including lynx, would be protected. Radio signals from lynx dispersing from the San Juans reintroduction were reported in this complex, especially at the north end of the range and the Wet Mountain valley, by the Colorado Division of Wildlife.
- Habitat for many rare and endangered species, including greenback cutthroat trout (*Oncorhynchus clarki stomias*), as well as many rare plants, would be protected.
- There are outstanding opportunities for solitude, quiet backcountry recreation, and challenge throughout the area.
- Local economies will be enhanced by their proximity to the expanded Sangre de Cristo Wilderness, as this Wilderness is a prime destination for self-guided and outfitter trips.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas, or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and increase the ecosystem representation we recommend that Methodist Mountain, Bruff Creek, and Strawberry Creek be added to the RNA system. Each has its unique combination of ecological values which will enhance the system. All are adjacent to or within designated and proposed Wilderness.

- The 7,700-acre Methodist Mountain proposed RNA overlaps the Methodist Mountain roadless area and thus is partially roadless. An area of very diverse vegetation, it includes an unusual narrowleaf cottonwood/Douglas-fir (*Populus angustifolia/Pseudotsuga menziesii*) plant community. A valuable area for wildlife, it includes an elk production area, and an elk migration corridor passes just to the south of the area.
- The Bruff Creek proposed RNA of 2,600 acres contains a broad mix of vegetation types, including areas of aspen forest, Engelmann spruce/subalpine fir forest, and mixed conifer

forest, including some stands of old-growth Douglas-fir, white fir, and ponderosa pine forest. It has significant wetlands and riparian areas, containing examples of coniferous riparian, deciduous riparian, and riparian shrubland communities, as well as playa lake-type wetlands. There are even some piñon-juniper-juniper stands, resulting in a high diversity of plant communities and animal habitats. Although no threatened or endangered species were noted in CNHP's ecological evaluation, Bruff Creek would "preserve the area as an example of mixed-conifer and aspen forests, piñon-juniper-juniper woodland, and riparian plant communities in very good condition." (Carsey, Katherine. 1997. Ecological Evaluation for the Bruff Creek Potential RNA. Colorado Natural Areas Program.)

- The Strawberry Creek proposed RNA comprises 4,900 acres near the southern end of the Sangre de Cristo Wilderness is almost entirely within the existing Wilderness, with a small portion within the proposed Slide Mountain Wilderness area. The area contains examples of many plant associations, including outstanding old-growth stands of spruce-fir, climax stands of ponderosa pine, as well as exceptionally high-quality subalpine wetlands, aspen stands of varying ages in old burn areas, and grassland communities in good condition. The area has a population of only slightly-hybridized greenback cutthroat trout (*Oncorhynchus clarki stomias*). Designation of Strawberry Creek as a RNA would require the closure of part of the South unit of the Huerfano cattle and horse grazing allotment.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Hermit Pass is designated as a connectivity area between the two portions of the designated Sangre de Cristo Wilderness. It includes bighorn sheep summer range and a lambing area, as well as mule deer and elk summer range.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities

Most of the remaining National Forest land around the more protected areas is recommended for this wildlife habitat management theme. These units are named Hayden Pass, Hermit Horn Front, Huerfano South Fork, Eagle Peak Front, Medano Pass, Methodist Howard, Manzanares Creek, and Music Pass.

This multiple use designation has some provisions which will enhance wildlife considerations. Seasonal restrictions may be needed for sensitive wildlife areas such as: deer fawning, elk calving, and bighorn sheep lambing areas; winter range for ungulates; for locations of rare, endangered or sensitive species, such as greenback cutthroat trout (*Oncorhynchus clarki stomias*) and wolverine (*Gulo gulo*), and accommodation of larger carnivores such as lynx.

Connectivity

Unlike most of the complexes covered in this conservation plan, the Sangre de Cristo complex is already dominated by a single, large designated Wilderness. Consequently, connectivity concerns between core areas exist with respect to the Methodist Mountain area in the north. Land between the proposed RNA and the Wilderness is recommended for Active Management for Wildlife Habitat, and some special restrictions may be needed to protect the connectivity for lynx and other species crossing between the Sawatch and the Sangres in this area. However, the Sangre de Cristo Wilderness within the complex is bisected by five 4WD roads, which should be managed to recognize their proximity to unspoiled designated Wilderness or proposed Wilderness, and to protect these wilderness values.

The connection with the adjoining Rio Grande National Forest is continuous and the common boundary lies almost entirely within the existing Sangre de Cristo Wilderness. However, the high elevations of the Sangre de Cristo crest pose a significant barrier to wildlife movement. The three most significant passes crossing the range, Hayden, Medano, and Mosca Pass, all have 4WD roads and significant human visitation, particularly during the summer season. Although Forest land extends westward from the Sangre de Cristo Range to the Sawatch Range, the Sangre de Cristo complex is separated from the Sawatch complex by the heavily-traveled US 285 Highway corridor, which poses a substantial barrier to wildlife movement. Since the Monarch Pass-Poncha Pass linkage is identified by SREP as one of the 12 highest priority in the state, especially for lynx, this barrier is of concern. The Sangre de Cristo complex is contiguous with a small portion of the Arkansas Canyons complex lying south of the Arkansas River, but is separated from the bulk of that complex by the heavily-traveled US Highway 50 corridor. The common boundary between the Sangre de Cristo complex and the Wet Mountain complex, as well as the southernmost portion of the Arkansas Canyons complex, is located in the central Wet Mountain Valley, an area almost entirely in private ownership, which contains large areas of irrigated agricultural land and fenced, private grazing land. Largely in private ownership, but of particular significance for National Forest planning purposes, are the significant wildlife corridors between the two complexes in the vicinity of Promontory Divide along the Custer/Huerfano County line.

Summary

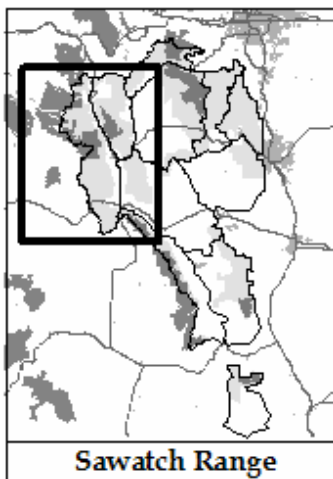
The stunning high peaks and deep riparian valleys in the Sangre de Cristo Complex are not only mostly protected by Wilderness, but stand in sharp contrast to the Wet Mountain Valley to the east beyond the Forest land. Wildlife values include populations of the endangered greenback cutthroat trout (*Oncorhynchus clarki stomias*), found now in only a few isolated watersheds, and potential permanent populations of lynx. The steep elevation gradient compresses the ecosystems or life zones into narrow bands, leading to a great diversity of vegetation as one ascends the trails. Mountain climbing, backcountry hiking, horse packing, and camping are among the most popular back country activities. The Rainbow Trail along with several 4WD routes provide motorized access along the whole front and to the crest of the range. These high mountains supplemented by the intermountain valley are integral part of the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

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The Sawatch Range Complex



Collegiate Peaks Wilderness



The Sawatch Range is located west of the Arkansas River from the Cochetopa Hills in the south to the Holy Cross Wilderness in the north and is noted for its Fourteeners.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers

Map 5.8: Sawatch Range Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Sawatch Range is located west of the Arkansas River from the Cochetopa Hills in the south to the Holy Cross Wilderness in the north. The Fourteeners all lie to the east of the crest of the range and, except for Mount of the Holy Cross, are all located in San Isabel National Forest. The Sawatch complex encompasses the part of the range that is located south and east of the Continental Divide. The complex is located primarily in Chaffee and Lake Counties, with a small portion in Saguache County at the southern end of the range.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end

The landscape and wildlife

The Sawatch Range is the highest range in Colorado, including not only the highest peak in the state, Mount Elbert, but also the second, third, and fifth highest. It contains more 14,000-foot peaks than any other single range in the contiguous United States, a total of fourteen named peaks. From Chalk Creek north to Hagerman Pass, a distance of approximately sixty miles, the crest never descends below 12,000 feet. At its southern end, the mountain range merges with the Cochetopa Hills – the lowest elevation on the Continental Divide in Colorado, a mountain range trending toward the southwest for nearly eighty miles to merge with the San Juan mountain region. Across Poncha Pass, the Sawatch Range merges with the Sangre de Cristo range, a narrow band of mountains extending more than two hundred miles into New Mexico.

The complex is drained by a number of streams running eastward from the Continental Divide to the Arkansas River, including Lake Fork of the Arkansas River, Lake Creek, Clear Creek, Cottonwood Creek, Chalk Creek, the South Arkansas River, and Poncha Creek, dividing the complex into a series of east-west running mountain ridges separated by deep valleys. Elevations range from over 14,000 feet to below 8,000 feet along the eastern National Forest boundary.

Vegetation within the Sawatch Complex extends across several life zones, from piñon-juniper and foothills grassland through ponderosa pine to higher elevation types. However, much of the area, especially within the designated wildernesses, is alpine tundra or barren rock, and most of the remainder is either Engelmann spruce-subalpine fir or lodgepole pine forest. Aspen occurs occasionally and in some locations forms large stands, as does bristlecone and limber pine. Douglas-fir is common only in the southernmost part of the complex. There are extensive lakes, riparian areas and wetlands across the complex at all elevations, and as the complex extends into private lands in the valley, there are the aquatic and riparian zones along the Arkansas River. Overall approximately 33 percent of the total acreage is lodgepole pine forest, 21 percent is alpine tundra, 16 percent is barren rock and about 13 percent is Engelmann spruce-subalpine fir, demonstrating the vegetation characteristics of the very high elevations.

The Sawatch Range contains habitat for a large range of species, including predators such as mountain lion, lynx, bobcat, coyote, and pine marten; omnivores such as black bear; a variety of

raptors; and numerous herbivores, including big-game species, mule deer, elk and bighorn sheep, which have critical winter range located along the lower margins of the National Forest. The eastern boundary of the large Sawatch complex generally follows the Arkansas River, and this low elevation valley bottom provides substantial elk winter range throughout, with major migration corridors north of the central Collegiate Peaks area, and winter range and migration corridors for pronghorn from the central Collegiate Peaks area south. Mountain goats, an introduced non-native species, are also found here. Other current and historical rare and sensitive species include boreal toad (*Bufo boreas*), American peregrine falcon (*Falco peregrinus anatum*), greenback cutthroat trout (*Oncorhynchus clarki stomias*), and wolverine (*Gulo gulo*), together with many plant species and natural communities.

Although the Sawatch complex includes three designated wildernesses, it has many other equally high, remote, untouched, and beautiful areas that are not permanently protected.

Ecological values of the complex

The high valleys and ridges of the Sawatch Range provide refuge for many species of animals, while its slopes provide a nearly continuous belt of forest through which wildlife can migrate. Lynx, recently reestablished in Colorado, have made the Sawatch Range one of their two prime ranges, with extensive recent records from radio collared animals, and there are a number of high priority linkages along the mountain range and into adjacent forests. In addition, the Southern Rockies Ecosystem Projects' analysis has shown the value of the complex for secondary wolf habitat across the Wilderness areas between Cottonwood Pass and Monarch Pass, and potential effective linkages across Monarch Pass to Poncha Pass connecting to the Sangre de Cristo Range for wolves, black bears and lynx. (Miller et al, 2003, SREP, 2005).

The Colorado Natural Heritage Program lists 20 Potential Conservation Areas (PCA) – most of them in roadless areas - ranging from moderate to outstanding biodiversity significance, and the area also contains five proposed Research Natural Areas (RNA). The Nature Conservancy's Southern Rocky Mountains Conservation blueprint (TNC blueprint) has a very large area of moderate biodiversity significance that extends from Browns Canyon and Buena Vista westward across Cottonwood Pass and the nearby mountains to Taylor Park and the East River in the Gunnison National Forest. The South Arkansas is another sizeable area of moderate biodiversity significance. An area of moderately low biodiversity is located in the south from Mount Antero to the Arkansas River. In general the Southern Rockies Ecosystem Project's Wildlands Network Vision (SREP's Vision) shows most of the Sawatch Range as core areas, interspersed with wildlife linkages and low use areas.

The ecological values of the Sawatch complex can be summarized as providing extensive alpine and high elevation ecosystems with a full complement of most native species, a number of rare and imperiled species and excellent linkages for ungulates and major predators. The large amount of roadless lands in the complex not only protect these values, but provide major ecosystem services of clean water, clean air and nutrient recycling.

Wilderness and Roadless Areas and Wilderness

The Sawatch complex contains three designated Wildernesses, as well as 14 roadless areas that exhibit many wild qualities and biological values that if given protective management will result in ecological characteristics that are best found where the presence of people is minimized. (See Table 5.14). The areas are described from north to south below.

Table 5.14: Sawatch Range Roadless Areas

Wilderness Areas

Holy Cross Wilderness

Holy Cross Wilderness totaling 122,600 acres lies largely in the adjoining White River National Forest, but a significant portion of the wilderness – 9,000 acres - is in the Sawatch complex of the San Isabel National Forest. The portion of Holy Cross Wilderness in the San Isabel National Forest is primarily Engelmann spruce-subalpine fir or tundra. Vegetation is lodgepole pine on the east with Engelmann spruce-subalpine fir on the west, interspersed with some montane meadows, mountain shrubland and wetlands.

Elk, mountain goats and bighorn sheep summer ranges are located within the Wilderness, with some elk summer concentration areas and a small migration corridor in the south east side. Mountain lion and black bear are found in suitable habitat. SREP identifies Lake Fork Creek above Turquoise Lake as a significant watershed for greenback cutthroat trout (*Oncorhynchus clarki stomias*). There is some lynx habitat on the south side of the Wilderness, and radio-collared lynx have been recorded by the Colorado Division of Wildlife in the Wilderness. A high priority linkage for lynx extends from the Holy Cross Wilderness in the White River National Forest eastward into the Mosquito Range Complex by way of Tennessee Pass.

Mount Massive Wilderness

Mount Massive Wilderness totaling 30,500 acres lies entirely within San Isabel National Forest, and shares its western boundary with the Hunter-Fryingpan Wilderness in the White River National Forest. Mount Massive Wilderness also includes 2,600 acres of federal lands within the Leadville Federal Fish Hatchery, the only federal land in Colorado within a designated wilderness which is administered by the US Fish and Wildlife Service. The Wilderness is an area of high, extensively glaciated ridges and peaks, and includes Mount Massive, the second-highest peak in the state, together with valleys containing glacial features such as cirques, tarns, paternoster lakes and kettle ponds.

The area contains extensive lodgepole pine forests, the result of series of fires which destroyed the previous coniferous forest between 125 and 175 years ago, as well as Engelmann spruce-subalpine fir and alpine tundra and wetlands.

Elk, mule deer, mountain goats, and bighorn sheep all have summer range across most of the Wilderness, with a large mountain goat production area on the south. There is an elk calving area on the east side south of the fish hatchery and two elk migration corridors, one on the north side in the Buck Creek area and another on the east side just outside the Wilderness that runs north-

Name	Acres (UASPP)	Roadless Under Roadless Rule
Antora Peak	3,800	Yes
Chipeta	33,700	Yes
Collegiate Peaks Wilderness	167,400	n/a**
Elk Mountains	24,800	Yes
Frenchman Creek	2,500	No
Holy Cross E	7,600	Yes
Holy Cross Wilderness	122,900	n/a**
Kreutzer-Princeton	50,200	Yes
La Plata Gulch	4,000	Yes
Mount Antero	66,800	Yes*
Mount Elbert	22,700	Yes
Mount Massive Wilderness	30,500	n/a
North Cottonwood Creek	5,700	Yes
Pine Creek	6,900	Yes*
Porphyry	3,500	Yes
Romley	8,600	Yes
Starvation Creek	7,600	Yes

*Roadless rule area has significantly fewer areas than UASPP inventory.

**Includes lands in an adjacent National Forest.

south parallel to the Arkansas River. Mountain lion and black bear are found in the Wilderness, and there is a broad swath of lynx general, winter and denning habitat along the whole east side. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the Wilderness.

Mount Massive Wilderness includes the North Willow Creek proposed RNA, which is noted for its outstanding and varied subalpine wetlands and forested areas, as well as a reintroduced population of Greenback cutthroat trout (*Oncorhynchus clarki stomias*). SREP identifies the Rock Creek drainage as a significant area for Greenback cutthroat trout. Two PCAs of very high biodiversity significance are located on Mount Massive and Twining Peak, with one of general biodiversity interest along Halfmoon Creek. TNC's Conservation Portfolio shows an area of very high conservation significance located on the tundra of Mount Massive itself and a small general biodiversity area on the south boundary along Halfmoon Creek.

Collegiate Peaks Wilderness

Collegiate Peaks Wilderness totaling 167,400 acres is one of the ten largest Wildernesses in Colorado. With eight Fourteeners, including Mount Oxford, Harvard, Mount Columbia and Mount Yale, and another half-dozen above 13,800 feet, it has more high peaks than any other Wilderness in the lower 48 states. Approximately half its acreage lies west of the Continental Divide, in the White River National Forest, while 82,000 acres in the San Isabel National Forest in the Sawatch Range Complex. Its wide U-shaped valleys, cirques, alpine lakes and rocky precipitous slopes are a legacy of long-ago glaciations. The lower elevations form a green ring of thick forests and riparian areas.

Like the other high Wildernesses in the Sawatch Range, much of Collegiate Peaks' vegetation is dominated by alpine tundra and wetlands. Engelmann spruce-subalpine fir can be found in the areas around the edges and in the river valleys. There is some lodgepole pine on the east and south, with aspen scattered along the lower boundaries and some scattered stands of bristlecone/limber pine.

Deer and elk can be found in appropriate habitat across the whole wilderness in summer, but winter habitat is located to the east in the Arkansas Valley. An arm of the large elk migration corridor in the Arkansas Valley extends up the Clear Creek drainage nearly to the headwaters. Some of the valley calving areas extend into the Wilderness on the east side. There is summer range across the Wilderness for bighorn sheep, with some winter range on the east slopes of Mount Yale, and there are significant lambing areas in the Mount Oxford and Mount Yale-Turner Peak areas. There is mountain goat summer range with several concentration and production areas. Headwaters areas above La Plata and Sayers Gulches are listed by SREP as a significant watershed for greenback cutthroat trout (*Oncorhynchus clarki stomias*). Mountain lion and black bear are found here. While lynx habitat is scattered along the lower elevations on the north, east, and south, the Forest Service identified a linkage for lynx that goes westward from the Wilderness across Cottonwood Pass and into the White River National Forest, coinciding with SREP's high priority linkage. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the area. In addition, SREP has identified other lower priority linkages eastward across the Pine Creek roadless area to the Buffalo Peaks Wilderness in the Mosquito Range complex and south from the Wilderness into the Kreutzer-Princeton roadless area.

Collegiate Peaks Wilderness has several areas of biodiversity, including locations in Silver Basin, and La Plata Basin that exhibit good landscape integrity and some rare plant species. There are five PCAs – two of very high biodiversity significance at Huron Peak and Missouri Mountain, and one each of high (Mount Harvard), moderate (Denny Creek) and general (Mount Belford) biodiversity significance scattered across the eastern part of the Wilderness. The south and central

portion of the Wilderness is part of TNC's Conservation Portfolio. The Cottonwood Pass area is of moderate conservation value.

Unprotected roadless areas

There are fourteen unprotected large roadless areas in the Sawatch complex, including several that are contiguous with existing Wildernesses. All except Frenchman Creek were inventoried as roadless under the Forest Service's Roadless Area Conservation Rule; however, UASPP field inventories determined that some areas were significantly larger than the Roadless Area Conservation Rule boundaries. In addition to their value as roadless areas, four of these areas also include recommendations for RNAs. These areas are described from north to south below.

Holy Cross East

The Holy Cross East roadless area is directly adjacent to the designated Holy Cross Wilderness. The extent of this roadless area as inventoried by UASPP at 7,600 acres is approximately 1,600 acres larger than that shown on the Roadless Area Conservation Rule Inventory. Old logging and mining roads, now closed, can still be found on the ground here, and several routes are cherrystemmed, including the 4WD access road to the Tenth Mountain Division Hut. The Colorado Trail crosses the northern part of the roadless area between Tennessee Pass and the Holy Cross Wilderness.

Vegetation in the Holy Cross East roadless area is lodgepole pine on the east with Engelmann spruce-subalpine fir on the west, interspersed with some montane meadows, mountain shrubland and wetlands. Several streams drain the areas toward the east including West Tennessee Creek, providing habitat for riparian species.

There is elk summer range across the area, some winter range on the south east, a sizeable elk production area on the northwest edge, and an elk migration corridor runs along its eastern edge toward Tennessee Pass. Mountain lion and black bear are found in the area. Holy Cross East is crossed by a very high priority linkage for lynx, extending from the Holy Cross Wilderness in the White River National Forest eastward into the Mosquito Range complex by way of Tennessee Pass. The linkage was identified by both SREP and the Forest Service, and SREP lists the portion north of the Continental Divide as one of the twelve highest priority linkages in Colorado. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity.

Holy Cross East is listed by the SREP Vision as a low compatible use area

Mount Elbert

The Mount Elbert roadless area is 22,700 acres lying roughly between forest road 110 along Halfmoon Creek on the north and Independence Pass Road on the south, and is next to the existing Mount Massive and Collegiate Peaks Wildernesses, with only these two roads between. The eastern boundary is defined by the Colorado Trail, forest routes and old mining claims, while the western boundary is the Independence Pass Road and the south edge of the Champion Mine private parcel. Much of the area is presently managed by the Forest Service for non-motorized recreation, and Mount Elbert is one of the most heavily visited high mountain peaks in Colorado.

As Colorado's highest Peak at 14,433 feet, it is not surprising that most of the Mount Elbert roadless area is alpine, including alpine grasslands and shrubs, wetlands and barren rock. Engelmann spruce-subalpine fir can be found in the lower areas around the edges and in the river valleys. There are lodgepole pine and aspen on the east and south sides with bristlecone/limber pine on the south boundary. There is a notable natural community of bristlecone pine/Thurber's

fescue (*Pinus aristata/Festuca thurberi*) lower montane woodlands along the south central boundary. Rare plants found here are northern twayblade (*Listera borealis*) and rockcress draba (*Draba globosa*). A number of streams drain the area, including Halfmoon and South Halfmoon Creeks on the north and Lake Creek on the south.

Elk and mule deer have summer range across the area, but winter range and production areas are located east of the roadless area in the Arkansas Valley. A large migration corridor for elk runs between the Mount Elbert and Elk Mountains roadless areas. Bighorn sheep summer range is located across the roadless area, with winter range on the south half, winter concentrations on the far south, and a large production area on the south above Lake Creek. There is summer range for mountain goats on the north side. Mountain lion and black bear are found in forested areas. Lynx habitat is very sparse around the lower edges of the area in the stream drainages and on the eastern side, but radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. SREP has identified a lower priority linkage that runs north-south between the east edge of the Mount Elbert roadless area to the central Elk Mountains roadless area.

A portion of the southern part of Mount Elbert between Echo Creek and Monitor Gulch is rated as a PCA of high significance. The SREP Vision shows the whole roadless area as core wilderness.

La Plata Gulch

The La Plata Gulch Roadless Area comprises 4,000 acres on a ridgeline directly adjacent to the west boundary of the existing Collegiate Peaks Wilderness, and includes the western slope of La Plata Gulch, but the eastern slope and La Plata Peak itself is within the existing Wilderness. The area shows significant signs of past gold and silver mining activity, although many of these are fading into oblivion. Although all of the mines are defunct, the scars remain and inholdings abound in the larger basin. The boundaries of the area were drawn to exclude open routes and the more heavily impacted mining areas to the west in the South Fork of Lake Creek. There are signs along the South Fork of Lake Creek warning against drinking the toxic water. Snowmobiles are currently allowed within the La Plata Gulch portion of the area only on designated snowmobile routes, and much of the area is presently managed for nonmotorized recreation.

Alpine grasslands and shrubs and barren rock dominate most of the La Plata Gulch roadless area with Engelmann spruce-subalpine fir in the lower drainages on the north, northeast and west. Lake Creek, Sayres Gulch and La Plata Gulch have riparian species.

There is summer range for mule deer, elk, bighorn sheep and mountain goats in the La Plata Gulch roadless area. There is a small elk calving area on the far north side in the Lake Creek drainage. Mountain lion and black bear are found in forested areas, and lynx habitat is very sparse around the north and west edges of the area in the Sayres and La Plata Gulches, although radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. Some of the headwaters areas east of Sayres Gulch are part of the larger watershed for greenback cutthroat trout (*Oncorhynchus clarki stomias*) identified by SREP.

The SREP Vision shows the roadless area as core wilderness.

Elk Mountains

The Elk Mountains roadless area is a 24,800-acre area lying between County Road 390 and Twin Lakes, and is directly adjacent on the west to a spur of the existing Collegiate Peaks Wilderness. The eastern boundary is defined by several National Forest or BLM roads and includes a large

cherrystem that excludes the Columbine Mine. The area contains a spectacular and pristine basin with large peaks, lakes, and opportunity for solitude. Elevations within the roadless area range from approximately 9,500 feet near Twin Lakes to 13,933 atop Mount Hope, its chief landmark. Most of the area is presently managed for non-motorized recreation, and the Colorado Trail runs north-south through the middle of the area.

The west-central part of the Elk Mountains roadless area is alpine, including alpine grasslands and shrubs and barren rock. Areas of Engelmann spruce-subalpine fir ring these higher elevations on the north, east and south, with significant stands of lodgepole pine and aspen on the northeast and east. The southern lowest elevations areas are aspen with some bristlecone/limber pine and Douglas-fir. The Elk Mountains area has numerous creeks draining the central elevations that have typical riparian vegetation.

Elk and mule deer summer range is found across the roadless area in appropriate habitats, with some winter range in its eastern portion, and some of the winter concentrations of mule deer extend from the Arkansas Valley into the far southwest side. Two large elk production areas are found across the northeastern side and along the south side in the Clear Creek drainage. Arms of the larger Arkansas Valley elk migration corridor surround the Elk Mountains area on three sides: on the north in Lake Creek between Mount Elbert and Elk Mountains, on the east parallel to the Arkansas River at the edge of the roadless area, and on the south in the Clear Creek drainage between the roadless area and Collegiate Peaks Wilderness. Bighorn sheep summer range is located across all but the east side, with winter range on the southern third, winter concentrations on the far south and a large production area on the south above Clear Creek. There is winter and summer range for mountain goats, with two production areas. Mountain lion and black bear are found in forested areas. Lynx overall, denning, and winter habitat is found along the north, east, and south sides. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the area, and the Forest Service has identified an important linkage from the east side of the Elk Mountains, across the Arkansas Valley to the Buffalo Peaks Wilderness in the Mosquito Range Complex. SREP has identified a lower priority linkage that runs north-south between the central Elk Mountains to the east edge of the Mount Elbert roadless area.

La Plata Basin and Crystal Lake Creek area on the northwest boundary exhibits good landscape integration and a rare plant community of bristlecone pine/Thurber's fescue (*Pinus aristata/Festuca thurberi*), and mountain goats and bighorn sheep frequent the area.

The SREP Vision shows the whole area (excluding the Columbine Mine) as Core Wilderness.

Pine Creek

The Pine Creek roadless area, 6,900 acres, lying between the Collegiate Peaks Wilderness and the Arkansas Valley, is directly adjacent to the Wilderness on the west and includes lower-elevation acreage that was excluded from the Wilderness when it was designated in 1993. The eastern boundary roughly follows the forest boundary and forest road 387, which is cherrystemmed into the area. The Colorado Trail is to the west inside the Wilderness boundary.

The Pine Creek roadless area is primarily lodgepole pine with scattered aspen and Engelmann spruce-subalpine fir, and there are riparian species in the creek corridors.

The whole area is elk summer range with winter range found in its northern and eastern portions. Several elk calving areas are scattered across the roadless area, and the large Arkansas Valley migration corridor runs along its eastern edge. Mule deer find summer range across the whole area, with winter range on the extreme eastern side and out into the Arkansas Valley. American

peregrine falcon (*Falco peregrinus anatum*) have been recorded on the east side. A bighorn sheep production area and winter range are located in the Pine Creek drainage, with summer range across the north part of the part area. Mountain lion and black bear are found here. The whole area is lynx habitat, including winter and denning habitat in the western half, and radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. A linkage for lynx goes from the Collegiate Peak Wilderness across the Pine Creek roadless area to the Buffalo Peaks Wilderness in the Mosquito Range complex.

The SREP Vision shows the area as core wilderness.

Frenchman Creek

The Frenchman Creek roadless area is 2,500 acres that is directly adjacent on the west to the Collegiate Peaks Wilderness between forest road 386 to the north and forest road 368 to the south. The eastern boundary follows the Forest Service boundary. Both of these roads provide access to trailheads leading into the Collegiate Peaks Wilderness and to the Colorado Trail, which is inside the Wilderness here. The Frenchman Creek roadless area was not included in the 2001 Roadless Area Conservation Rule inventory.

The Frenchman Creek roadless area is primarily lodgepole pine with some aspen and significant amounts of ponderosa pine and piñon-juniper on the east central part of the area, as well as riparian species in the creek corridors.

The area is summer and winter range for bighorn sheep, with a lambing area in the south central part that runs into the Wilderness to the northwest. The whole area is elk summer range with winter range found in its eastern half. The eastern half is also an elk calving area, and the large migration corridor in the Arkansas Valley runs along its eastern edge. Mule deer find summer range across the whole area, with winter range on the east side and out into the Arkansas Valley where there are significant winter concentrations. Mountain lion and black bear are found here, and the western portion is lynx overall and denning habitat. It's effectiveness as wildlife habitat is enhanced by the Heckendorf State Wildlife Area which is partially contiguous on the east side.

The SREP Vision shows the area as core wilderness

North Cottonwood Creek

The North Cottonwood Creek roadless area of 5,700 acres is bounded on the north by forest road 365 and trail 1449 which leads into the Collegiate Peaks Wilderness. The Colorado Trail cuts across the northwest corner to lead into the Wilderness. The western boundary is directly adjacent to the Wilderness boundary, and on the south and east, the boundary follows the National Forest boundary or some 4WD roads.

The vegetation in the North Cottonwood Creek roadless area is quite diverse both in location and types. There is some barren rock on the west on the slopes of Mount Yale, but most of the area is a mixture of Engelmann spruce-subalpine fir, lodgepole pine, Douglas-fir, and aspen. Several areas of montane shrubland are found on the east and south; ponderosa pine, piñon juniper and bristlecone/limber pine on the south, and riparian species in the creek corridors. North Cottonwood Creek flows across the north edge of the area, and Cottonwood Creek is on the south side outside the Forest boundary.

The whole North Cottonwood Creek roadless area is elk summer range with winter range found in its northern and eastern portions. The majority of the area is an elk calving area. The south end

of the large Arkansas Valley elk migration corridor coming from the Mount Elbert/Elk Mountains region is two to three miles to the east. Mule deer find summer range across the whole area, with winter range on the extreme east and south sides and out into the Cottonwood Creek and Arkansas River drainages where animals concentrate in the winter. A bighorn sheep production area and winter range are located in the roadless area. Mountain lion and black bear are found here. The northern three-fourths of the area is lynx habitat and includes both denning and winter habitat. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. The rare boreal toad (*Bufo boreas*) is found here.

Nearly all of North Cottonwood Creek is included in TNC's Conservation Portfolio large Cottonwood Pass area of moderate conservation significance. The SREP Vision shows the roadless area as low use.

Kreutzer-Princeton

The 50,200-acre Kreutzer-Princeton roadless area is shaped like a chubby horseshoe, with Gladstone Ridge on the north arm, Mount Princeton and its western ridges on the south arm, and the crest of the range along the Continental Divide, including Mount Kreutzer connecting the two. The eastern boundary is defined by the Colorado Trail. Between these two high alpine ridges, South Cottonwood Creek forms a deep forested basin which transitions to alpine tundra in Mineral Basin on the east slopes of Emma Burr Mountain and Mount Kreutzer. The northern boundary follows County Road 306 to Cottonwood Pass and the southern boundary is defined by Country Road 162 which goes to Tincup Pass. On the west, only the Continental Divide and the Forest Boundary separate Kreutzer-Princeton from the Kreutzer-Princeton West roadless area which is recommended for Wilderness designation in the citizen's Mountains to Mesas conservation plan for the Grand Mesa Uncompahgre Gunnison Forest Plan revision. The eastern boundary follows the Colorado Trail. The Kreutzer-Princeton area is the second-largest non-wilderness roadless area in the complex.

Mount Princeton Ridge, the Continental Divide and western Gladstone Ridge are primarily high-altitude tundra with some montane meadows and shrublands. Engelmann spruce-subalpine fir is predominant on the north side and on the north slopes of Mount Princeton Ridge, as well as on the east and south side. Lodgepole pine is found on the north and east lower elevations, with Douglas-fir and bristlecone/limber pine on the southeast lower elevations. Aspen are found in many places, with large stands in the central valley. This large central valley centered on South Cottonwood Creek and a number of tributaries provides extensive riparian zones that are dense with willows and other species. Rare plant and plant communities include aspen/Rocky Mountain maple (*Populus tremuloides/Acer glabrum*) montane riparian forests, bristlecone pine/alpine clover (*Pinus aristata/Trifolium dasyphyllum*) upper montane woodlands, dwarf or bog birch/mesic forb-mesic graminoid (*Betula glandulosa/mesic forb-mesic graminoid*), subalpine riparian shrubland, two species of rockcress (*Braya humilis* and *B. glabella var glabella*), woods draba (*Draba oligosperma*), the reflected moonwort (*Botrychium echo*), and variegated scouringrush (*Hippochaete variegata*).

Mule deer find summer habitat in the Kreutzer-Princeton roadless area. Elk summer range is found across the area, with some winter range in the river valleys of Middle and South Cottonwood Creeks and Chalk Creek, but most winter range is outside the roadless area to the east in the Arkansas Valley. Two calving areas are located in the west below the Continental Divide. Bighorn sheep find extensive summer range south of Cottonwood Creek, with some winter range on the far south side between the Chalk Cliffs and Poplar Gulch, and there is a large lambing area in the south-central portion. Mountain goats concentrate along the high ridges of Gladstone Ridge, Mount Princeton and the Continental Divide. Mountain lion and black bear are

found in suitable habit across the area. Lynx general, denning and winter habitat is concentrated around the forested lower edges of the area. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the area. SREP has identified a lower priority lynx linkage that connects from the southeast Collegiate Peaks Wilderness across to the southern edge of Kreutzer-Princeton. A high priority linkage identified by the Forest Service at Cottonwood Pass is adjacent to the Kreutzer-Princeton area. American peregrine falcon (*Falco peregrinus anatum*), boreal toad (*Bufo boreas*) and dark northern blue butterfly (*Lycaeides idas sublivens*) are found here. Greenback cutthroat trout (*Oncorhynchus clarki stomias*) are recorded in the western Mineral Basin area.

The southeastern portion of the area contains a proposed RNA that includes Mount Princeton and the Chalk Cliffs, as well as PCAs rated as of high significance on Mount Princeton, moderate significance at Spout Lake and general biodiversity interest at the Chalk Cliffs. Chalk Creek PCA of very high significance is located just outside the southeast boundary of the roadless area. The northwestern portion of Kreutzer-Princeton includes a proposed RNA in Mineral Basin. Two other areas of biodiversity interest are found in Morgan's Gulch in the southwest corner and on Gladstone Ridge. The northern two-thirds of Kreutzer-Princeton is included in TNC's Conservation Portfolio's large Cottonwood Pass areas of moderate conservation significance. SREP shows the roadless area as core wilderness in their Southern Rockies Wildlands Vision.

Romley

The Romley roadless area of 8,600 acres lies along the Continental Divide between the Kreutzer-Princeton and Mount Antero roadless areas, south of historic town of St. Elmo. Visitors to St. Elmo can explore the well-preserved remains of some 24 historic buildings of the gold rush days. As with many similar towns, a railroad served the town and its 2,000 residents until the ore was exhausted, A few hardy residents live here year round. A rough 4WD road continues west to Tincup Pass. The heavily mined area around Pomeroy Gulch, excluded from the Romley area, separates it from Mount Antero roadless area.

The vegetation includes high alpine areas of grasslands and shrublands, with Engelmann spruce and subalpine fir on the north, in the central Wildcat Gulch, and along the southeast and south sides. Rare plants include lance-leaved moonwort (*Botrychium lanceolatum var*), low northern sedge (*Carex concinna*) and northern twayblade (*Listera borealis*).

Mule deer, elk and mountain goats find summer habitat here. Elk migrate across the Continental Divide to and from the Romley roadless area, taking advantage of a relatively low portion of the Divide, below 12,000 feet, at the head of Chalk Creek. Mountain lion and black bear are found in suitable habit across the area. The area includes lynx habitat.

The SREP Vision shows the roadless area as core wilderness

Mount Antero

The Mount Antero roadless area includes three peaks over 14,000 feet, Mount Antero, Mount Tabeguach, and Mount Shavano, as well as a number of other high peaks. At 66,800 acres, Mount Antero is the largest non-Wilderness roadless area in the complex. The northern boundary follows County Road 162 to near St. Elmo. The western boundary is defined by Forest Roads in the Grizzly Gulch and Hancock areas and the Continental Divide south to the Monarch ski area. Colorado Highway 50 from Monarch Pass to Garfield and forest road 228 to the Colorado Trail delineates the south boundary. The Colorado Trail, several roads and the forest boundary are the east boundary. There are several cherrystemmed roads to access the North Fork Reservoir,

various trailheads on the east and the road to the top of Mount Antero, so that rock hounds can access the best gem areas.

Because of its high elevation, the bulk of Mount Antero is alpine tundra, grasslands and shrublands. However, Engelmann spruce-subalpine fir can be found just below the alpine areas and in Baldwin Creek, and the Middle and North Forks of the South Arkansas River. Aspen are located on the north central lower elevations, in the southeast and in the North Fork of the South Arkansas River drainage, with significant bristlecone/limber pine scattered across the east side. The lowest elevations to the east are predominantly lodgepole pine with some Douglas-fir, ponderosa pine and few areas of piñon-juniper. In addition to Baldwin Creek and the forks of the South Arkansas, Browns Creek drains the central part of the area, flowing eastward to join the Arkansas River. Rare plant species include arctic draba (*Draba fladnizensis*), Colorado larkspur (*Delphinium ramosum var alpestre*), Gray's Peak whitlow-grass (*Draba grayana*), lance-leaved moonwort (*Botrychium lanceolatum var lanceolatum*) and mountain bladder fern (*Cystopteris montana*).

Mule deer find summer habitat in the Mount Antero roadless area. Elk summer range is found across the area, with some winter range in the Chalk Creek drainage, but primarily on the eastern lower elevation edges of the roadless area and on to the east in the Arkansas Valley. Three large calving areas are located on the east side and between the North Fork and South Fork of the River Arkansas in the south. Bighorn sheep find summer range across all but the west central part of the area, with some winter range on the northeast and southeast sides, and there are three large lambing areas on the lower eastern slopes of Mount Antero, Mount White and Mount Shavano. Mountain goats frequent the Mount Antero, Mount Shavano, Mount Aetna and the Grizzly Gulch vicinity. The area also has a genetically pure population of the threatened greenback cutthroat trout (*Oncorhynchus clarki stomias*) in the waters north of Monarch ski area. Boreal toads (*Bufo boreas*) are also found here. Mountain lion and black bear are found in suitable habit across the area. SREP's analysis shows a bear linkage across Monarch Pass and south along the Sangre de Cristo range connecting the core bear habitat to the west with the large bear habitat areas south of La Veta Pass. Lynx general, denning and winter habitat is concentrated around the forested lower edges of the area. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. SREP has identified two lower priority lynx linkages, one internal to the area on the west, and another that connects the north side of the area to the Buffalo Peaks Wilderness area in the Mosquito Range Complex. More important, a high priority lynx linkage identified by both the Forest Service and SREP goes from the southwestern end of the Mount Antero roadless area southwest across the Chipeta roadless area ending at the Sangre de Cristo Wilderness Area in the Rio Grande National Forest. SREP's extensive work on "Linking Colorado Landscapes" named this Monarch Pass to Poncha Pass linkage among the twelve most important linkages in Colorado

There is a PCA of very high significance on Mount Shavano, and the Droney Gulch PCA of outstanding significance is located on the eastern boundary of Mount Antero. Chalk Creek PCA of very high significance is located just outside the northeast boundary of the roadless area. SREP shows the roadless area as core wilderness in their Southern Rockies Wildlands Vision.

The Mount Antero area is world-famous for gemstones such as aquamarine, smoky quartz and blue beryl, and is a popular rock hounding destination. The roadless area boundary includes a cherrystem road from Chalk Creek to the top of the mountain, so that rock hounds are able to continue to access the best gem areas. However, local residents and rockhounds complain that the relative ease of access has resulted in the surface area being largely "picked over", suggesting that future rockhounding will involve more intensive digging activities that will need to be more intensively regulated.

Chipeta

The Chipeta roadless area's 33,700 acres lie between Monarch Pass to the north and Marshall Pass to the south, and is dominated by a high mountain ridge which includes Pahlone Peak, Chipeta Mountain, and Mount Ouray the high point in the area at 13,971 feet. The north boundary follows the Colorado Trail in Fooses Creek and then forest road 225 to the Continental Divide just south of Monarch Pass. The Continental Divide is the western boundary, and a large roadless area Chipeta West that is contiguous in the Gunnison National forest, is recommended by the Mountains to Mesas citizen's plan for Wilderness designation. On the south, the boundary follows the Marshall Pass Road (forest road 200) to within a mile of O'Haver Lake where the boundary turns to define the eastern boundary at the ends of a network of logging roads or the Forest Boundary. There are a number of cherrystems on the east side to exclude open 4WD routes. Both the Colorado Trail and Continental Divide Trail cross the roadless area and permit mountain bike use.

Alpine tundra is concentrated on the southwest side of the Chipeta roadless area around Mount Ouray and Chipeta Mountain, with the slopes below the tundra and north along the Continental Divide being Engelmann spruce-subalpine fir. Lodgepole pine is predominant across the eastern half of the area, especially on the north side, with much aspen in the stream drainages, and some small areas of ponderosa pine, montane shrublands and piñon-juniper on the extreme northeast, and bristlecone/limber pine and ponderosa pine in scattered locations on the southeast. Chipeta has several major stream drainages, including Fooses Creek, Greens Creek, Pass Creek, Little Cochetopa Creek and Gray's Creek that harbor extensive willows and other riparian vegetation. It also has a notable natural community of narrowleaf cottonwood/Rocky Mountain juniper (*Populus angustifolia-juniperus scopulorum*) montane riparian forest in the lower reaches of Greens Creek.

Elk and mule deer summer range is spread across the Chipeta roadless area, but winter range is located on the extreme eastern edge and into the lower elevations in the Arkansas Valley. A very large elk production area is located from Fooses Creek south and east to Little Cochetopa Creek. Another calving area is found on the south side in the Marshall Pass and Poncha Creek area. Two bighorn sheep lambing areas are located on the eastern slopes of Chipeta Mountain and Mount Ouray and in the headwaters of Pass Creek. In addition to summer range for bighorns across the area, winter range is located in its northern portion along Green Creek. There is lynx general, denning, and winter habitat across most of the area, with the exception of the high non-forest areas of Mount Ouray and Chipeta Mountain. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. SREP has identified two lower priority lynx linkages that connect the northeast side of the area to the Browns Canyon area in the Arkansas Canyons Complex. More important, both the Forest Service and SREP identify a high priority lynx linkage from Monarch Pass southwest across Chipeta ending at the Sangre de Cristo Wilderness Area in the Rio Grande National Forest. SREP's extensive work on "Linking Colorado Landscapes" names this Monarch Pass to Poncha Pass linkage among the twelve most important linkages in Colorado.

Devils Armchair, a huge cirque on the east flank of Mount Ouray with its unusual geology, topography and rare plants and the McClure Creek area with the rare natural community of narrow-leaf cotton woods and Rocky Mountain juniper (*Populus angustifolia-Juniperus scopulorum*) are of conservation interest. Lower Pass Creek, east of Chipeta is a PCA of very high significance.

The SREP Vision shows the area as core wilderness.

Starvation Creek

The Starvation Creek roadless area of 7,600 acres lies between Marshall Pass and the Antora Peak roadless area to the south. The northern boundary follows forest road 203, a rough 4WD route along Poncha Creek that parallels the Marshall Pass Road, to the Continental Divide which is the western boundary. The south boundary is separated from the Antora Peak roadless area by the Silver Creek mountain bike trail (1407) and then forest road 201 defines the boundary eastward until it joins the Poncha Creek route 203. The east-west trending long ridges of the area separate the Poncha, Starvation and Silver Creek drainages, north to south respectively. The upper portions of the area have experienced some past logging using heavy machinery. A road leading to a fairly recent logging area near the Continental Divide between Silver Creek and Starvation Creek and a road near the Divide north of Starvation Creek have been cherrystemmed out of the roadless area.

Vegetation within the roadless area is primarily Engelmann spruce-subalpine fir on the west with lodgepole pine, and substantial areas of aspen and Douglas-fir in the rest of the area. The roadless area has excellent riparian habitat, with numerous beaver ponds and wetlands along various streams, which is valuable both for wildlife and recreation.

There is summer range for bighorn sheep across the Starvation Creek roadless area. Elk and mule deer summer range is spread across the area, with winter range in the lower eastern side over into the north side of Poncha Pass. A large elk production area covers the south central part of the area along Silver and Starvation Creeks. A small part of the Poncha Creek calving area is on the north side of the area. Mountain lion and black bear are found across the area. There is lynx general habitat across the whole area, with denning and winter habitat more scattered. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the area. Most of the area is included in the Forest Service and SREP's high priority lynx linkage from Monarch Pass across Chipeta ending at the Sangre de Cristo Wilderness. SREP's extensive work on "Linking Colorado Landscapes" names this Monarch Pass to Poncha Pass linkage among the twelve most important linkages in Colorado.

The SREP Vision shows the roadless area as core agency.

Porphyry

The 3,500-acre Porphyry roadless area lies along the boundary of the San Isabel and Rio Grande National Forests, which forms its southeastern boundary. The northwestern boundary follows the motorized Rainbow Trail (1336), and the western boundary is along the 4WD road 869.2 in Toll Road Gulch.

Vegetation in the Porphyry roadless area is primarily lodgepole pine with significant amounts of Douglas-fir, spruce-fir, and bristlecone/limber pine and aspen. Because of its relatively low elevation, there is only a small amount of barren rock and alpine vegetation in the vicinity of Porphyry Peak (11,583). Silver Creek is an extensive riparian zone on the north boundary, and there are examples of bristlecone pine/Thurber's fescue (*Pinus aristata*/*Festuca thurberi*) lower montane woodlands.

There is summer range for bighorn sheep and mule deer across the Porphyry roadless area. Elk summer range is spread across the area, with winter range in the lower eastern side. Mountain lion and black bear are found here. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. Lynx habitat, including winter and denning habitat is found across the area, and the Monarch Pass to Poncha Pass, lynx linkage identified by the Forest

Service and SREP is located along the north side.

The Porphyry Peak proposed RNA covers nearly the entire roadless area. SREP's Vision shows a small part of the roadless area on the west as core wilderness, but most of the area is a wildlife linkage.

Antora Peak

The Antora Peak roadless area, the southernmost roadless area within the Sawatch Complex, stands at 3,800 acres. It is bounded on the south and west by the Rio Grande National Forest, on the north by trail 1407 along Silver Creek and on the east by forest road 869.2 in Toll Road Gulch. A small clear-cut area on the east side near Toll Road Gulch is rapidly regenerating. The historic Kismuth Mine at the northeast corner of the area is excluded from the roadless area. The Silver Creek trail, closed to motorized use, is part of a popular mountain bike route from Monarch and Marshall Passes where riders can either loop back to their starting point or continue east on the Rainbow Trail (motorized) in the Porphyry roadless area, that takes riders over to the Sangre de Cristo Mountains.

Sheep Mountain and Antora Peak, which dominate the southern edge of the Antora Peak roadless area, are alpine tundra, with most of the rest of the area covered in Engelmann-spruce-subalpine fir. There are some scattered aspen and bristlecone/limber pines.

There is summer range for bighorn sheep and mule deer across the Antora Peak roadless area, with a sizeable concentration of animals on Sheep Mountain and into the Rio Grande National Forest, as well as a lambing area just south in the Rio Grande National Forest. Elk summer range is spread across the area, and part of the Silver Creek production area is found on the north side. Mountain lion and black bear are found here. Radio-collared lynx have been recorded by the Colorado Division of Wildlife in the vicinity. General, denning, and winter habitat for lynx is found on most of the area with the exception of the high bare ridges of Sheep Mountain and Antora Peak.

The Antora Peak proposed RNA covers most of the roadless area. The Nature Conservancy's very large Trickle Mountain area of moderate conservation significance, located primarily on the Rio Grande national Forest, comes over into Antora Peak on the west. SREP's Vision shows the whole roadless area as core wilderness.

Historical and Cultural Features of the Sawatch Complex

Some archeological, historical and cultural features of note include:

- The Alpine Tunnel along the Continental Divide south of Romley and west of Antero roadless areas is a National Historic Site.
- The Sawatch Range was more heavily populated during the mining era and portions of the Sawatch Complex have experienced significant mining activity leaving behind long-abandoned, ruined cabins and other minor signs of past human occupancy. Additionally, prospects, tailings piles and major mine structures can still be seen, although many are fading into oblivion. This is particularly noticeable in the La Plata Gulch area. The town of St. Elmo, along Chalk Creek between the Kreuzer-Princeton and Antero roadless areas, is a National Historic District, as are portions of Clear Creek in the vicinity of Collegiate Peaks Wilderness and proposed wilderness additions, including the sites of Winfield and Vicksburg mining camps. Both these designated historic districts include some land in San Isabel National Forest.

Management Recommendations

Overview

The ecological value of protecting large roadless areas led the Wild Connections team to recommend three additions to the designated Wildernesses, six new Wilderness designations and two areas for Core management (Theme 1). There are five proposed RNAs (Theme 2): one RNA is proposed within an existing designated Wilderness, two new RNAs are proposed for incorporation into areas recommended for wilderness designation, and Porphyry and Antora Peak are proposed as a non-wilderness RNAs. In addition there are quiet use and connectivity areas (Theme 3); recreation emphasis areas (Theme 4); and a number of areas recommended for Theme 5 active management for wildlife habitat. Grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas. Table 5.15 lists the major management units by theme. Refer to the Sawatch Range Complex map for specific locations and refer to the roadless area descriptions above for more details on the unit.

Table 5.15: Sawatch Range Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Collegiate Peaks Wilderness	82,000	1.1 Existing Wilderness
Holy Cross Wilderness	9,000	1.1 Existing Wilderness
Mount Massive Wilderness	30,500	1.1 Existing Wilderness
Chipeta	18,300	1.2 Recommended Wilderness
Elk Mountains	11,900	1.2 Recommended Wilderness (add to Collegiate Peaks)
Frenchman Creek	2,500	1.2 Recommended Wilderness (add to Collegiate Peaks)
Kreutzer-Princeton	50,200	1.2 Recommended Wilderness
LaPlata Gulch	4,100	1.2 Recommended Wilderness (add to Collegiate Peaks)
Mount Antero	58,300	1.2 Recommended Wilderness
Mount Elbert	22,500	1.2 Recommended Wilderness
Pine Creek	6,900	1.2 Recommended Wilderness (add to Collegiate Peaks)
Romley	8,600	1.2 Recommended Wilderness
Starvation Creek	7,600	1.2 Recommended Wilderness
Hope Pass	13,400	1.3 Core Reserve
Pahlone Peak	15,000	1.3 Core Reserve
Theme 2 – Special Areas		
Antora Peak Sheep Mountain RNA	3,900	2.1 Research Natural Areas
Mineral Basin Jones Mountain RNA	2,100	2.1 Research Natural Areas
Mount Princeton RNA	5,600	2.1 Research Natural Areas
North Willow Creek RNA	10,200	2.1 Research Natural Areas
Porphyry Peak RNA	4,100	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Holy Cross East	7,700	3.1 Quiet Use Areas
Huron Peak	3,600	3.1 Quiet Use Areas
Mount Antero East	7,600	3.1 Quiet Use Areas
Mount Champion	1,400	3.1 Quiet Use Areas
North Cottonwood Creek	5,700	3.1 Quiet Use Areas
Hagerman Pass	9,100	3.2 Connectivity Areas
South Arkansas River	3,100	3.2 Connectivity Areas

Name	Acres	Recommended Management
Tennessee Pass (also in Mosquito Range)	2,900	3.2 Connectivity Areas
Tumble Creek (also in Mosquito Range)	2,100	3.2 Connectivity Areas
Theme 4 – Recreation Emphasis Areas		
Top of the Rockies Scenic Byway	200	4.2 Scenic Byways
Theme 5 – Active Management		
Antero Shavano Slopes East	9,800	5.1 Active Mgmt - Wildlife Habitat
Bald Mountain.	3,300	5.1 Active Mgmt - Wildlife Habitat
Cache Creek	100	5.1 Active Mgmt - Wildlife Habitat
Clear Creek Sawatch	2,200	5.1 Active Mgmt - Wildlife Habitat
Fooses Creek	9,800	5.1 Active Mgmt - Wildlife Habitat
Grizzly Gulch Hancock Pass	4,700	5.1 Active Mgmt - Wildlife Habitat
Harvard Lakes	3,800	5.1 Active Mgmt - Wildlife Habitat
Independence Pass	2,700	5.1 Active Mgmt - Wildlife Habitat
Marshall/Poncha Passes	18,700	5.1 Active Mgmt - Wildlife Habitat
Mount Elbert E	13,500	5.1 Active Mgmt - Wildlife Habitat
South Fork Lake Creek	3,900	5.1 Active Mgmt - Wildlife Habitat
Theme 8 – Permanently Developed Areas		
Monarch Ski Area	900	8.1 Ski Based Resorts
Theme 9 – Significant Lands (Non-USFS)		
Turquoise Lake	3,700	8.2 Permanently Developed Recreation Areas
Twin Lakes	1,600	8.2 Permanently Developed Recreation Areas

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness and semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Holy Cross, Mount Massive, and Collegiate Peaks Wildernesses are located in this complex. They should be managed over the next decade to bring them up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act. (http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for designation of (north to south) La Plata Gulch, the west part of Elk Mountains, Pine Creek, and Frenchman Creek as additions to Collegiate Peaks Wilderness; and Mount Elbert, Kreutzer-Princeton, Romley, Mount Antero, and the south portion of Chipeta as stand-alone Wildernesses. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless area boundary except for Elk Mountains and Chipeta. In the Elk Mountains roadless area, the area west of the Colorado Trail is recommended Wilderness. In the Chipeta roadless area, the area south

of trail 1412 along Green Creek is recommended Wilderness. This recommendation is based on balancing the following values: permanent protection to enhance wildlife habitat and connectivity, protection of sources of domestic water, provision for native species, and opportunities for quiet, challenging back county recreation against ample opportunities for motorized, high impact recreation in other parts of the complex.

We believe that all of these areas meet the capability, availability and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. They all provide opportunities for solitude, challenge and unconfined recreation once the trailheads are left behind. There are rugged mountains, and deep valleys with primitive trails or no trails at all, long alpine ridges covered in tundra and rock, and forested ridges. The imprints of humans are substantially unnoticeable, as care was taken to eliminate major mining areas including the Kismuth Mine in Silver Creek between Starvation Creek and Antora Peak and recent logging operations. While there are old mines in some areas, especially in the La Plata Gulch area, Clear Creek, and Chalk Creek areas, most are slowly disappearing. These remnants of human habitation and use give clear pictures of the mining history of the area, while providing a lesson in the length of time it takes for nature to heal in an unforgiving climate. Logging was limited or nonexistent within these proposed wildernesses and logged areas and old access roads are recovering, bringing an end to overt signs of human use.

Availability

Likewise all the proposed areas are available for Wilderness with no known or only minor impediments. The proposed Wildernesses contain no active mines, though there is some gold panning, primarily on private land in the Clear Creek, Chalk Creek, Monarch, and Arkansas River areas. The watersheds and streams are already allocated, and no new water projects are planned.

Major highways are not anticipated to affect the areas. The proposed wilderness boundaries have been drawn to exclude portions of the Colorado Trail not already within designated wildernesses, so that mountain bike use will not be affected. The wildlife, ecological and wilderness values of South Cottonwood Creek in Kreutzer- Princeton will be better protected with the recommended closure of the upper portion of forest road 344 to protect the proposed RNA and fragile tundra in Mineral Basin, as well as closure of the extremely rough trail 1436 to improve landscape integrity. Conversion of the upper portion of Pass Creek and Little Cochetopa roads to foot and pack stock use will affect a few users, but will improve Wilderness integrity by reducing the length of cherrystems. Mountain biking on the Silver Creek Trail was accommodated by excluding it from the Starvation Creek Wilderness and Antora Peak RNA.

The Sawatch complex is not expected to be useful for timber harvest. Some past clearcutting, in some cases in the aftermath of large wildfires, has occurred, but the areas have revegetated into mature forest. Recent logging in the north portion of Starvation Creek is excluded from the Wilderness boundary. Because of steep slopes and isolated terrain, remote from developed private land, it is unlikely that mechanized thinning of these areas for purposes of fire prevention would be feasible or necessary. Vegetation within the proposed wilderness areas is largely intact with much of it tending toward mature and old growth characteristics. All or parts of the Browns Creek, Arkansas, Fooses Creek and Little Cochetopa grazing allotments would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. These

do not present a problem for Wilderness designation.

Suitability

The main use that would be forgone in newly designated Wilderness is motorized recreation, primarily on illegal routes, but also on a few miles of road proposed for closure to protect particularly sensitive areas. The wildlife, ecological and wilderness values of South Cottonwood Creek in Kreuzer- Princeton will be better protected with the recommended closure of the upper portion of forest road 344 to protect the proposed RNA and fragile tundra in Mineral Basin. Forest roads 277, 278, and 279 on Mount Antero are recommended for closure to protect the ecological values, but the road to the peak area is cherrystemmed so that rock hounds can continue to access the gemstones. In Chipeta, conversion of the upper portion of Pass Creek and Little Cochetopa roads to foot and pack stock use will affect a few users, but will improve Wilderness integrity by reducing the length of cherrystems. Mountain biking on the Silver Creek Trail was accommodated by excluding it from the Starvation Creek Wilderness and Antora Peak RNA.

In some cases, cross country snowmobile use off currently designated routes would be curtailed. Some opportunity for backcountry downhill skiing accessed through helicopter or snow vehicle in the vicinity of Monarch Pass would be lost.

There are numerous values that undergird the designation of the proposed Wildernesses and contribute to the National Wilderness System.

- There are outstanding opportunities for solitude, quiet backcountry recreation and challenge throughout the area. The rugged mountain terrain and stream drainages provide backcountry recreation on foot or horseback in unparalleled scenic settings ranging from rocky mountain tops to dense forests. The Colorado Trail would be preserved as a non-motorized hiking and mountain biking trail adjacent to a number of the proposed Wildernesses, and there are many foot/horse trails that lead to the interior.
- Although much of the proposed Wilderness areas is alpine tundra, barren rock, and high elevation forests, areas of lower montane ecosystems will be added to the Wilderness system on the eastern edges of Kreuzer-Princeton, Mount Antero, Chipeta and Starvation Creek.
- Habitat will be protected for a number of rare and endangered species, including boreal toad (*Bufo boreas*), greenback cutthroat trout (*Oncorhynchus clarki stomias*), lynx and any number of rare plants and plant associations.
- These Wilderness areas will protect recently-reintroduced lynx, which according to a recent Colorado Division of Wildlife survey have made a large portion of the northern Sawatch Range one of their two prime concentration and breeding areas in Colorado. A number of linkages identified by the Forest Service and Southern Rockies Ecosystem Project are located in the proposed Wilderness areas.
- Designation will also protect other species which require interior forests at montane and subalpine elevations, such as pine marten and (possibly extirpated) wolverine.
- Designation would help protect domestic water supplies from erosion and pollution. The Sawatch complex includes streams feeding into Turquoise Lake, Twin Lakes, and Clear Creek Reservoir, as well as many of the headwaters of the Arkansas River, which feeds into Pueblo Reservoir. Directly or indirectly, every stream in the complex is a source of drinking water, as well as water for agricultural purposes.
- Historical access to the perimeter of the Wilderness areas is maintained on existing roads at Hagerman Pass, Independence Pass, Cottonwood Pass, Monarch Pass, and Marshall Pass, as well as the Halfmoon Creek, Clear Creek, South Cottonwood Creek, Chalk

- Creek, North Fork of the South Arkansas River, and Marshall Pass.
- Designation of additional Wilderness within this complex would help prevent further habitat fragmentation caused by roads, and damage to riparian zones, loss of old-growth forests, and conversion to intensive, invasive motorized recreation would not be exacerbated.
 - Historical sites are found in some of the Wilderness areas, or adjacent to them, that recount the mining heritage of Colorado.
 - The high mountain ridges and valleys exemplify the wildness that now brings recreationists, tourists, and new residents to Colorado. Both the Continental Divide National Scenic Trail and the Colorado Trail run through proposed wildernesses in the Sawatch Complex. In light of increasing requests for additional developed and motorized recreation, maintaining the area's wilderness characteristics is crucial.
 - Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guiding and outfitter trips.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

Pahlone and Hope Pass, though essentially roadless, did not fully meet Wilderness standards and so are recommended instead for Core designation.

- Pahlone, the northern part of the larger Chipeta roadless area, meets many of the requirements for Wilderness designation, but is recommended as a Core Reserve because of the presence of cherrystemmed roads, most significantly the Willow Creek road (forest road 222), the motorized trail 1412 along Green Creek that divides it from the adjacent Chipeta proposed wilderness, and a segment of the Colorado Trail in Fooses Creek, currently open to mountain bikes. It includes an area of significant biodiversity in McClure Creek, a lower-elevation area on the northwest side of the roadless area with a rare natural community of narrow-leaf cotton woods and Rocky Mountain juniper (*Populus angustifolia-Juniperus scopulorum*).
- Hope Pass, the area east of the Colorado Trail in the Elk Mountains roadless area, also meets many Wilderness designation requirements, but is recommended for Core management to because of the large Columbine Mine on the east and to preserve mountain biking on the Colorado Trail that goes through the middle of the roadless area. The Elk Mountains proposed Wilderness is immediately west of the Colorado Trail.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and increase the ecosystem representation, North Willow Creek - in the Mount Massive Wilderness, Mineral Basin/Jones Mountain, Mount Princeton,

Porphyry and Antora Peak/Sheep Mountain are recommended for addition to the RNA system. Each has their unique combination of ecological values which will enhance the system, and detailed descriptions are found in the roadless area descriptions above.

- Mount Massive Wilderness includes the 10,200-acre North Willow Creek proposed RNA, which is "rich in varied and high-quality wetlands (glacial kettles and tarns, willow carrs, fens, riparian shrublands, beaver meadows, seeps) fed by gradual snowmelt and low evapotranspiration rates which can be attributed to the high elevation and generally east-facing aspect". (Janet Coles Colorado Natural Areas Program, March 1998.) Of the 27 plant associations identified within in North Willow Creek, only one is known to occur in an established RNA in the Rocky Mountain region. Greenback cutthroat trout (*Oncorhynchus clarki stomias*) has been reintroduced to lakes and streams within the potential RNA, and SREP identifies the Rock Creek drainage as a significant area for the trout. Although there are no records of federally listed sensitive, threatened, or endangered plant species within the proposed RNA, the Colorado Natural Heritage Program has records of three state-rare plant species occurring just south of the potential RNA boundary - thick-leaf whitlow-grass (*Draba crassa*), tundra draba (*Draba ventosa*) and alpine poppy (*Papaver lapponicum ssp. occidentale*) - and considers it likely that additional populations of these species occur within the potential RNA.
- Mount Princeton proposed RNA of 5,600 acres includes a population of boreal toads (*Bufo boreas*). Its chalk cliffs are a peregrine falcon nesting area, as well as of geological interest. It also contains a rare upper montane association of bristlecone pine/alpine clover (*Pinus aristata/Trifolium dasyphyllum*). The area intersects two Potential Conservation Areas, Mount Princeton, rated as of high significance, and Chalk Cliffs, rated as of general biodiversity interest by CNHP.
- Mineral Basin proposed RNA is 2,100 acres and includes a reintroduced population of greenback cutthroat trout. It has of the largest breeding colonies of boreal toad (*Bufo boreas*) in the area and is a boreal toad migration area. There are records of wolverine tracks reported in the area and plus records of the historic occurrence of the northern blue butterfly (*Lycæides idas sublivens*). There are three rare or endangered plant species within the proposed RNA: dwarf hawskbeard (*Askellia nana*); arctic draba (*Draba fladnizensis*); and alpine braya (*Braya humilis*).
- The 4,100-acre Porphyry Peak proposed RNA covers nearly the entire roadless area of the same name. The historic townsite of Shirley, located east of the Porphyry proposed RNA, was excluded from the area. Porphyry Peak itself lies on the northern edge of the Bonanza Caldera (located in the Rio Grande National Forest) which resulted from activity in the San Juan volcanic field in the Tertiary Period. TNC's Conservation Portfolio Trickle Mountain unit of moderate biodiversity interest overlaps the southwest corner of the area. Porphyry is forested with Engelmann spruce-subalpine fir on the southwest, lodgepole pine mixed with Douglas-fir across most of the rest of the area, with some bristlecone/limber pine, and aspen. There is a sensitive bristlecone pine/Thurber's fescue (*Pinus aristata/Festuca thurberi*) lower montane woodlands plant community in the proposed RNA.
- The Antora Peak/Sheep Mountain proposed RNA of 3,900 acres covers most of the roadless area of the same name. It lies at the juncture of the Gunnison, San Isabel and Rio Grande Forests. The barren slopes and tundra of Sheep Mountain give way to spruce-fir stands, with pockets of lodgepole, limber pine, and aspen, providing diverse wildlife habitat. The Middle Creek PCA of general biodiversity interest is adjacent to the southwest in the Rio Grand National Forest. TNC's Conservation Portfolio Trickle Mountain unit of moderate biodiversity interest covers the western half of the area. As might be expected from the name, bighorn sheep concentrate here and on the southern slopes in the Rio Grande National Forest in the summer, and there is a lambing area to the south.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance.

Five quiet use areas are proposed in the Sawatch Range complex. Holy Cross East has some old logging roads now closed to motorized use, as well as trails, including the Colorado Trail, which are all suitable for quiet backcountry use. Mount Champion, an old mine site, is located between Mount Massive Wilderness and Mount Elbert proposed Wilderness. The area is currently closed to motorized use. Huron Peak, at the end of Forest Road 390, has a number of old routes that are suitable for mountain biking or hiking, or as a jumping off point to the proposed Elk Mountains Wilderness to the north or the Collegiate Peaks Wilderness to the south. North Cottonwood Creek is a roadless area that was judged to not meet the highest standards for Wilderness. It includes a section of the Colorado Trail which goes into the Collegiate Peaks Wilderness immediately to the west, as well as bushwhacking opportunities along the riparian zone of the Creek. Mount Antero East is adjacent to the Mount Antero proposed Wilderness, with the boundary at the Colorado Trail. A number of routes are cherrystemmed into the area to provide continued access to the Colorado Trail and other Mount Antero trailheads.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Four areas in the Sawatch Complex are recommended as connectivity areas with two of the areas crossing into another complex. From north to south:

- Tennessee Pass area connects Holy Cross Wilderness and Holy Cross East quiet use area with Chicago Ridge quiet use area in the Mosquito Range complex to the east. It is one of the important linkages for lynx for movements east- west, as well as north-south into the adjacent White River Forest.
- The larger Hagerman Pass area bridges the land from Holy Cross Wilderness to Mount Massive Wildernesses.
- Tumble Creek is a smaller area that is an important movement corridor east-west across the Arkansas River Valley between Pine Creek proposed Wilderness and Buffalo Peaks Wilderness to the east in the Mosquito Range complex.
- The South Arkansas River connectivity area provides movement from Mount Antero Wilderness, across US Highway 50 to the Pahlone core reserve.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate.

A portion of the Top of the Rockies Scenic Byway is near and on the boundary between the Sawatch Range and Mosquito Range Complexes along US Highway 24 at Tennessee Pass, and a second portion on Colorado Highway 82 (Independence Pass Road) goes from US Highway 24 west to the small community of Twin Lakes. Although the designated byway does not extend up Colorado Highway 82 to Independence Pass, this designation brings and will continue to bring more visitors into the area.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities.

Some of these wildlife areas are at higher elevations: Grizzly Gulch, Hancock Pass, Independence Pass and South Fork Lake Creek. Others such as Fooses Creek and Marshall/Poncha Pass range from moderate or low to higher elevations, and in addition have extensive riparian habitat. Antero/Shavano Slopes East, Bald Mountain, Cache Creek, Clear Creek Sawatch, Mount Elbert East, and Harvard Lakes are on the eastern edges of the Forest and provide summer and winter range for several species.

Wildlife Habitat areas are primarily located between recommended Wildernesses or along the forest boundary, with road densities ranging from low to high. Many of them are located in a riparian valley with a road and will require some oversight to protect riparian vegetation and water quality. Consideration should be given to the sensitive wildlife areas: mule deer fawning, elk calving, and bighorn sheep lambing areas; winter range for ungulates; locations of rare, endangered or sensitive species, such as boreal toad (*Bufo boreas*); and accommodation of larger carnivores such as lynx.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent ecological conditions and landscape appearances are likely outside their natural range. Management emphasis is generally for highly developed recreation sites (ski areas), utility corridors, or mineral development areas.

Theme 8.1 – Ski Based Resorts

Management emphasis provides for downhill skiing on existing sites.

Monarch Pass Ski and Snowboard area is one of only two operational ski areas on the Pike-San Isabel National Forest (Ski Cooper is the other in the Mosquito Range complex). It caters to families and those who enjoy natural snow away from the crowded slopes of the big resorts like Vail or Copper Mountain. In addition to terrain accessed by lifts for downhill skiing, there is excellent backcountry skiing and snowboarding terrain. Management is governed by a special use permit.

Theme 8.2– Permanently Developed Recreation Areas

These areas contain developed recreation sites that provide an array of recreational opportunities and experiences in a forested environment.

The two permanently developed areas in the Sawatch Range Complex are located at Turquoise Lake and at Twin Lakes. Numerous campgrounds and picnic areas, fishing and boating, hiking, mountain biking, or driving on nearby routes provide recreation in a scenic setting with the lakes backed by the towering mountain peaks to the west.

Connectivity

An important aspect of our conservation perspective is connections between protected core areas. In general, the Sawatch Complex has good connectivity between roadless areas, particularly at higher elevations, helping it to function as a relatively continuous landscape. Most of the roadless areas are separated by low or medium-use roads. However, Colorado Highway 82 crossing Independence Pass, County Road 306 crossing Cottonwood Pass, and US Highway 50 crossing Monarch Pass, are high-use roads which pose substantial barriers to wildlife movement.

The Sawatch Range Complex is contiguous with large roadless areas in the White River, Gunnison, and Rio Grande National Forests to the north, west, and south; however, the high altitudes of the Continental Divide serve as a natural barrier to animal movement. The passes and valleys which serve naturally as migration corridors are also road corridors, with locally intensive human occupation hindering wildlife movement. To the east, the Arkansas River Valley is generally in private ownership and in many places heavily developed. Although ranchlands in the valleys may benefit ungulate species, this corridor of intensive human use in general acts as a significant barrier to wildlife, funneling that movement into the few relatively undeveloped corridors. Even in these undeveloped corridors, US Highways 24 and 285 running along the Arkansas River and over Poncha Pass pose a significant barrier to wildlife movement. Increasing human use and occupancy of this relatively low-elevation area and natural wintering-ground for wildlife makes it all the more important to ensure landscape integrity within National Forest lands.

The Sawatch complex is notable for its lynx linkages. These areas of potential and actual movement of dispersing lynx were identified by the Forest Service in the proposed Lynx Amendment, and by the Southern Rockies Ecosystem Project. Some linkages are located across the Arkansas River Valley in lower elevations, and others are at higher elevations at Tennessee Pass, along the Continental Divide and in the Monarch Pass to Poncha Pass area. This later linkage is most important as it provides the most feasible connection between the Sawatch Range and the Sangre de Cristo Range. In addition, SREP's analysis shows secondary wolf habitat across the Wilderness areas between Cottonwood Pass and Monarch Pass, with a potential dispersal route south of Monarch Pass connecting to the Sangre de Cristo Range. Similar modeling by SREP shows a major black bear linkage from the high quality bear cores on the western slope across Monarch and Poncha Passes, south along the Sangres and connecting to the very large bear core area in southern Colorado and northern New Mexico.

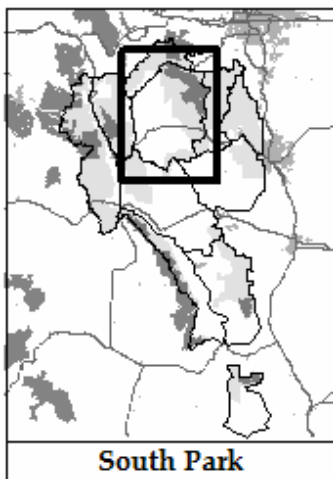
Summary

The Sawatch Range complex harbors some of Colorado's most stunning scenery, with Fourteeners and many other high peaks rising above the densely forested lower slopes. From the highest point on Mount Elbert to the lower areas at the south blending into the Cochetopa Hills, there is an abundance of wildlife habitat, and dispersing lynx from the San Juan Mountains have capitalized on the extensive lynx habitat along the mountain range. These high mountains and lush riparian areas are an integral part of the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

The South Park Complex



Thirtynine Mile roadless area



The South Park Complex includes the intermountain South Park and the Platte River, Kenosha, and Tarryall Mountains.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers

Map 5.9: South Park Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The South Park Complex includes South Park, the high intermountain grassland basin in Central Colorado, and the moderate mountain ridges and rolling hills to the east and southeast. The complex includes lands primarily in Park County with a small amount of land in Jefferson County. From Kenosha Pass the grassland basin lies below ringed by mountain ranges in all directions, with stunning views of the mountains along the Continental Divide to the north or the twin humps of Buffalo Peaks Wilderness far to the west.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

The South Park complex includes the South Park basin and the hills and mountains on its northeastern boundary including the Puma Hills, Tarryall Mountains, Kenosha Mountains and the Platte River Mountains. Bison Peak, 12,431 feet, forms the high point of the Tarryall Mountains in the central eastern portion of the complex. North Cone Peak, 12,319 feet, Mount Blaine, 12,306 feet, and South Twin Cone Peak, 12,323 form the high points of the complex in the north. The South Park basin is around 9,000 to 10,000 feet. The low point of the complex is about 8,000 feet on the South Platte River near Lake George. The South Platte River and Tarryall Creek form the major waterways in the complex. Major tributaries of the South Platte River from northwest to southeast are Beaver Creek which flows into the Middle Fork of the South Platte River, Salt Creek and Fourmile Creek which flow into the South Fork of the South Platte River and Agate Creek and Buffalo Gulch which flow into the South Platte River as do the South and Middle Forks of the South Platte River. Major tributaries of Tarryall Creek from north to south are Park Gulch, Michigan Creek, Jefferson Creek, Rock Creek, Old House Creek, Ruby Gulch, and Marksby Gulch. On the north slopes of the Platte River Mountains and Kenosha Mountains, Kenosha Creek, Craig Creek, and Buffalo Creek flow north into the North Fork of the South Platte River. On the eastern slopes of the Tarryall Mountains, Wigwam Creek and Goose Creek flow from the South Park Complex to the South Platte River in the South Platte Canyons Complex.

The vegetation on the National Forest lands within the South Park complex is primarily ponderosa pine along the edges of South Park with Engelmann spruce and subalpine fir common on the higher areas. Smaller areas of bristlecone/limber pine and Douglas-fir are found in the forested areas, interspersed with mountain grassland and meadows. Much of the lower land within the complex is managed by the BLM and state of Colorado or is in private ownership. Mountain grassland and meadows is the most common vegetation type on those lands. There are extensive wetlands in the Craig Creek drainage between the South Platte River and Kenosha Mountains, as well as across South Park, where there are also notable extreme rich fens, such as the one at High Creek Fen, a Nature Conservancy Preserve. Agriculture occurs along the South Fork of the South Platte River, Fourmile Creek, and Beaver Creek with cattle grazing across most of the private land.

There is habitat for a large range of species including lynx, wolverine, mountain lion, bobcat, black

bear, mule deer, elk, bighorn sheep, pine marten, a variety of raptors and smaller mammals, among others. Ungulates abound in the South Park basin, eastern hills and mountains with pronghorn and mule deer at the lower elevations and elk and bighorn sheep at the higher elevations especially in the summer. A dozen locations of the rare mountain plover (*Charadrius montanus*) are found though the central South Park basin. Current and historical rare and sensitive species in the complex include wolverine, American peregrine falcon (*Falco peregrinus anatum*), American white pelican, bald eagle, mountain plover (*Charadrius montanus*) and ferruginous hawk. There are many rare plants and Porter’s feathergrass, which is found only in South Park, is especially notable. Numerous other rare plants and sensitive natural communities including wetland, fen, foothills and montane communities are also found in the South Park complex.

Ecological values of the complex

In addition to providing all the typical montane grasslands, foothills, and montane forest vegetation types to support a wide range of species, the South Park complex includes many rich and unique biological areas. High Creek Fen Preserve, although small, protects a remarkable variety of rare plants. According to The Nature Conservancy, it is the most ecologically diverse fen in the Southern Rocky Mountains and contains more rare plant species than any other Colorado wetland. Saddle Mountain in the southeastern portion of the complex is one of only three designated Research Natural Areas (RNA) in the Pike-San Isabel National Forest. Other proposed RNAs within the complex are Craig Park, McCurdy Mountain, and Thirtynine Mile Mountain. The Colorado Natural Areas Program has designated both the Saddle Mountain RNA and the High Creek Fen as Natural Areas. In addition, there are thirty-four Potential Conservation Areas (PCAs) in the complex with most having high, very high, or outstanding biodiversity significance.

There are seven State Wildlife Areas (SWA) in the Complex including the large roadless James Mark Jones and Tomahawk State Wildlife Areas. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes much of the complex in units identified as having moderately low or moderate conservation value. The Southern Rockies Wildlands Network Vision (SREP Vision) proposes most of the National Forest lands in the complex to be protected as wilderness, wildlife linkages, or low use areas. In addition, the Southern Rockies Wildlands Network Vision proposes protecting much of the land along the South Fork of the South Platte River as low use compatible and recommends other land for study. Clearly various conservation approaches rate the South Park complex highly for its biological richness.

Wilderness and Roadless Areas

Much of the roadless lands within the South Park complex are in the low elevation foothills and montane life zones that are not well protected as wilderness in Colorado. Table 5.16 lists the roadless areas in the South Park complex.

Wilderness Areas

Lost Creek Wilderness

At 119,800 acres, Lost Creek Wilderness is the largest roadless area in the complex and is protected by Congressional designation. It lies on the mountain ranges above South Park on the eastern end of the complex, and includes a range of

Table 5.16: South Park Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Farnum	19,200	Yes*
James Mark Jones SWA	19,100	n/a **
Lost Creek Wilderness	119,800	n/a
North Tarryall Peak	14,900	Yes*
Puma Hills	9,700	Yes
Thirtynine Mile	14,000	Yes
Weber Park	4,700	No

*Roadless rule area has significantly fewer areas than UASPP inventory.

**Area not managed by the US Forest Service (managed by the State of Colorado).

elevations from 8,000 feet near Tarryall Creek up to Bison Peak, 12,431 feet, that is the high point of the Tarryall Mountains. Lost Creek's countless polished granite domes and half-domes, knobs, spires, and buttresses make it one of the state's unique wilderness areas. Granite rock piles swallow Lost Creek no less than nine times, giving rise to the creek's name. Three mountain ranges run northwest to southeast across the Wilderness, the Tarryall Mountains along the edge of South Park, the Kenosha Mountains to the northeast, and the Platte River Mountains furthest northeast on the edge of the wilderness.

Like many Colorado Wildernesses, the Lost Creek Wilderness contains areas of alpine tundra especially within the Kenosha Mountains. However, large areas of Engelmann spruce-subalpine fir, lodgepole pine, Douglas-fir, aspen, and some ponderosa pine forests, give the wilderness a character of forest-ringed parks and clear streams. Lost Creek Wilderness has a number of rare plants and natural communities: yellow lady's-slipper (*Cypripedium calceolus ssp parviflorum*), livid and slender-flower sedges (*Carex livida* and *C. tenuiflora*), slender cotton grass (*Erioporum gracile*), Rocky Mountain columbine (*Aquilegia saximontana*), Rocky Mountain cinquefoil (*Potentilla rupicola*), green spleenwort (*Asplenium trichomanes-ramosum*), and Weber monkey-flower (*Mimulus gemmiparus*). Of particular importance are locations of Porter feathergrass (*Ptilagrostis porteri*) a highly imperiled plant found nowhere in the world but in Colorado's South Park. Natural communities include montane and subalpine riparian willow carrs: Rocky Mountain willow/mesic forb (*Salix monticola/mesic forb*) and Rocky Mountain willow/bluejoint reedgrass (*Salix monticola/Calamagrostis canadensis*), montane grasslands (*Danthonia parryi*) and Colorado blue spruce/water birch (*Picea pungens/Betula occidentalis*) montane riparian woodland.

One of the state's most productive bighorn sheep herds inhabits the Tarryall Mountains and there are several lambing locations. Mule deer and elk have summer range across the Wilderness, with winter range on the southwest side and elk calving areas on the southwest slopes of the Kenoshas. American peregrine falcons (*Falco peregrinus anatum*) have been observed in the Wilderness. Black bears, mountain lions, and bobcats share the region, and it provides denning and wintering habitat for lynx. There are wildlife linkages between Lost Creek and lands to the north – the Forest service identified a lynx linkage between Lost Creek and Mount Evans/Burning Bear roadless area and the Rockies Ecosystem Project identified a high priority wildlife linkage for lynx and elk between the Lost Creek Wilderness across Kenosha Pass and into the Jefferson roadless area in the Mount Evans High Peaks Complex. SREP also identified a high priority linkage for wide-ranging wolverine from the Lost Creek wilderness north across the Mount Evans Wilderness, the Arapaho-Roosevelt National Forests and towards the Wyoming border.

Two proposed RNAs are found within the wilderness: McCurdy Mountain and Craig Park. In addition to the proposed RNAs, Craig Meadows and Lost Park have many rare species including Porter feathergrass (*Ptilagrostis porteri*). Five PCAs of very high or high biodiversity significance are within the Lost Creek Wilderness. The Nature Conservancy's Conservation Vision identified all of Lost Creek Wilderness as having moderate or moderately low conservation value. SREP's Vision lists it as core wilderness.

Unprotected roadless areas

The Upper Arkansas and South Platte Project mapped six roadless areas in the South Park complex with four areas originally part of the Roadless Area Conservation Rule Inventoried Roadless Areas. Within the National Forest, one additional roadless area was found - Weber Park - that was not part of the Roadless Area Conservation Rule inventory. Outside the National Forest, the James Mark Jones State Wildlife Area is roadless. The roadless areas in the South Park Complex on National Forest Lands are described below from north to south.

North Tarryall Peak

The North Tarryall Peak roadless area of 14,900 acres includes its namesake at 11,902 feet and is in the northwestern end of the Tarryall Mountains. Topaz Mountain is also in the roadless area. On the north, the roadless area is separated from the Lost Creek Wilderness by Lost Park Road (County Road 39) through Long Gulch. The boundary of the roadless area is larger than the Roadless Area Conservation Rule Inventoried Roadless Area towards the west where some routes are cherrystemmed and to the east where many of the logging routes are revegetating. On the south the North Tarryall Peak roadless area is directly adjacent to the Lost Creek Wilderness.

The vegetation in the North Tarryall Peak roadless area is predominately Engelmann spruce and subalpine fir mixed with stands of bristlecone/limber pine and some areas of aspen and ponderosa pine mixed with Douglas-fir in the lower elevation areas to the southwest. Old House Creek and many other tributaries of Tarryall Creek have their headwaters in the North Tarryall Peak roadless area.

Pronghorn come up along the forest edge of the roadless area. Most of the area is potential habitat for lynx. Bighorn sheep are found in the roadless area with a large area of winter range in the north-central portions. The entire roadless area is mule deer summer range and the southwest third is mule deer winter range. Most of the roadless area is summer range for elk. Wolverine, an important top predator, was historically found in the North Tarryall Peak vicinity. Other rare and sensitive species found here include porter feathergrass (*Ptilagrostis porteri*).

Most of the roadless area is within The Nature Conservancy's Kenosha conservation portfolio area of moderately low conservation value, and the northeast corner is included in the Long Gulch area of moderately low conservation value. The northeast portion of the North Tarryall Creek roadless area barely intersects the Long Gulch at Platte River Mountains PCA of high biodiversity significance. The Southern Rockies Wildlands Network Vision proposes that the North Tarryall Creek roadless area be managed as core agency.

Farnum

Farnum Peak at 11,378 feet is in on the northern end of the Puma Hills. The Farnum roadless area is 19,200 acres and includes Schoolmarm Mountain, Martland Mountain, and Rishaberger Mountain to the south. County Road 77 along Tarryall Creek forms the northwestern boundary of the roadless area, and Tarryall Reservoir is just north of the roadless area. On the north the roadless area boundaries are similar to the Roadless Area Conservation Rule Inventoried Roadless Area boundaries. To the south the roadless area is significantly larger than the Forest Service's Inventoried Roadless Area, going west to forest road 237 and County Road 23, south to the National Forest boundary and west to forest roads 235, 231, 229 and 44.

The vegetation in the Farnum roadless area is ponderosa pine, Douglas-fir, bristlecone/limber pine with some aspen and lodgepole pine. Several tributaries of Tarryall Creek have their headwaters in the area.

The south and northwest corners of the Farnum roadless are on the edge of the larger South Park pronghorn winter range. Most of the area is summer and winter range for mule deer, with a winter concentration of deer on the northeast side, and winter range for elk. There is lynx denning and winter habitat across the northern two-thirds of the area, and SREP identified several low priority lynx linkages connecting Farnum to Lost Creek Wilderness, across South Park, and to Puma Hills to the south

The extreme southern corner of the Farnum roadless area is part of the South Park PCA of very high biodiversity significance and The Nature Conservancy's South Park portfolio area of moderate conservation value. The northeastern boundary is adjacent to the Lower Tarryall Creek PCA of very high biodiversity significance. The Tarryall Reservoir State Wildlife Area intersects the northern boundary of this roadless area. The Southern Rockies Wildlands Network Vision proposes that the Farnum roadless area be managed as core wilderness.

Weber Park

Weber Park is a mountain valley south of Tarryall Creek. The Weber Park roadless area of 4,700 acres is just east of the Farnum roadless area, separated from it by Allen Creek and forest road 235 and is bounded on the south by forest road 231. On the east it is bounded by forest roads 214 and 232 and by private inholdings. The Weber Park roadless area was not part of the Roadless Area Conservation Rule inventory.

The vegetation in the Weber Park roadless area is predominately ponderosa pine mixed with limber pine and Douglas-fir, with some aspen and Engelmann spruce-subalpine fir. In the roadless area there are rugged rock formations and steep gulches.

The entire roadless area is summer and winter range for mule deer and winter range for elk.

The northeastern boundary of the Weber Park roadless area is adjacent to the Lower Tarryall Creek PCA of very high biodiversity significance. The Southern Rockies Wildlands Network Vision proposes that the Weber Park roadless area be managed for low use.

Puma Hills

The 9,700 acre Puma Hills roadless area includes Pulver Mountain at 10,538 feet and Stoll Mountain at 10,863 feet and National Forest land from Wilkerson Pass south to County Road 92. The Puma Hills roadless area boundaries are similar to the Roadless Area Conservation Rule Inventoried Roadless Area boundaries, expanded out to private inholdings on the northeast. The western boundary of the roadless area corresponds to the National Forest boundary. Elevenmile and Spinney Mountain Reservoirs, part of Denver Water's system, are west and southwest of the roadless area respectively, providing excellent fishing, boating, and camping near the roadless area.

The vegetation in Puma Hills is predominately Douglas-fir mixed with some areas of Engelmann spruce-subalpine fir, aspen and ponderosa pine in the lower elevation areas and a small area of mountain grasslands and meadows in the west. Boyer Gulch and Caylor Gulch both originate in this area and drain to Elevenmile Canyon Reservoir.

The southwest corner of the Puma Hills roadless area is pronghorn winter range. Most of Puma Hills is an area of high summer activity for black bears with a large portion to the northeast of high fall bear activity. Bighorn sheep are found in most of the roadless area. Most of the area is summer and winter range for mule deer and for elk, with high winter concentrations of deer across the area. Sensitive species found in the area include American peregrine falcon (*Falco peregrinus anatum*).

The western boundary of the Puma Hills roadless area intersects the Colorado Natural Heritage Program's South Park PCA which is of very high biodiversity significance. The Spinney Mountain State Wildlife Area is less than three miles west of this roadless area. The west and southern third of this roadless area is included in The Nature Conservancy's South Park portfolio

area of moderate conservation value. The Southern Rockies Wildlands Network Vision proposes that the Puma Hills roadless area be managed as core wilderness.

Thirtynine Mile

Thirtynine Mile Mountain consists of a series of peaks (one at 11,549 and one at 10,841 feet) about 5 miles wide that is south of Elevenmile Reservoir on the southeastern edge of South Park. The 14,000 acre Thirtynine Mile roadless area encompasses those peaks, straddling the divide between the South Platte and Arkansas Rivers basins. The Thirtynine Mile roadless area boundaries are similar to the Roadless Area Conservation Rule Inventoried Roadless Area boundaries expanded to forest roads 270, 253, and 254 to the north, to Colorado Highway 9 on the west and County Road 59 on the east. The southern boundary of the roadless area is the National Forest Boundary. Elevenmile Canyon Reservoir is north of the roadless area.

The vegetation in the Thirtynine Mile roadless area is predominately Engelmann spruce-subalpine fir mixed with large stands of aspen with areas of ponderosa pine mixed with bristlecone/limber pine in the south and some mountain grasslands and meadows in the west. The rare pale blue-eyed grass (*Sisyrinchium pallidum*) and bristlecone pine/gooseberry-currant (*Pinus aristata/Ribes montigenum*) upper montane woodlands are found here.

The extreme western quarter of the Thirtynine Mile roadless area is overall range for pronghorn. Most of Thirtynine Mile is a fall high activity area for black bears. The entire roadless area is summer range for mule deer and the lower elevation areas are mule deer winter range, with winter concentrations on the north side. Thirtynine Mile is important elk habitat for both summer and winter range, and most of the area is a calving ground for elk.

The proposed Thirtynine Mile RNA is in the southern portion of the Thirtynine Mile roadless area. The Saddle Mountain designated RNA is just east of the roadless area. There is a PCA of moderate biodiversity significance on the south side of the area. An area of moderate biodiversity significance is just east of this roadless area. The Spinney Mountain State Wildlife Area is less than three miles west of this roadless area. The Southern Rockies Wildlands Network Vision proposes that the Thirtynine Mile roadless area be managed as core wilderness.

Historical and Cultural Features of South Park

Today, South Park is likely to bring to mind the comedy animated series created by Matt Stone and Trey Parker. However, more significant is the important role this region has played in the history of Colorado and the west. Some archeological, historical and cultural features of note include:

- South Park was inhabited by Utes before the arrival of white settlers in the middle 19th century.
- Just south of the Puma Hills roadless area, in December 1806, Capt. Zebulon Montgomery made an historic observation in his journal: “Found a river 40 yards wide, frozen over which after some investigation I found run northeast... Must it not be the headwaters of the river Platte? If so, the Missouri must run much more west than is generally represented.” [McTighe, 1989]
- South Park was explored by John C. Fremont with Kit Carson as his guide 1844.
- In the summer of 1859 a group of prospectors camping along Tarryall Creek decided to try their luck. One of the prospectors reported that the hole they dug produced gold “in scales nearly as large as watermelon seeds, smooth, and very bright yellow...” As a consequence, the party “made preparations to tarry-all.” Soon the gold-rush town of Tarryall was founded just east of Webber Park. Tarryall had over one thousand residents at its peak but by 1867 was nearly empty. [McTighe, 1989]

- The town of Fairplay was founded near another gold strike during this time and continued to be a center of gold mining up through the middle 20th century.
- South Park was connected to Denver by railroad with the extension of the Denver, South Park, and Pacific Railroad over Kenosha Pass in 1879.

Management Recommendations

Overview

Because of the value of permanent protection, the Wild Connections team recommends four of the six roadless areas in the South Park Complex for future Wilderness designation or Core management (Theme 1). There are three new RNAs proposed to supplement the one existing Research Natural Area (Theme 2). Several areas are proposed for connectivity areas (Theme 3) or active management for wildlife habitat (Theme 5). Grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads, and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas. Table 5.17 lists the major management units by theme. Refer to the South Park Complex map for specific locations and refer to the roadless area descriptions above for more details on the unit.

Table 5.17: South Park Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Lost Creek Wilderness	119,800	1.1 Existing Wilderness
Farnum	19,200	1.2 Recommended Wilderness
Puma Hills	9,700	1.2 Recommended Wilderness
Thirtynine Mile	14,100	1.2 Recommended Wilderness
North Tarryall Peak	14,900	1.3 Core Reserve
Theme 2 – Special Areas		
Craig Park RNA	10,800	2.1 Research Natural Areas
McCurdy Mountain RNA	13,600	2.1 Research Natural Areas
Saddle Mountain RNA	400	2.1 Research Natural Areas
Thirtynine Mile Mountain RNA	2,600	2.1 Research Natural Areas
South Platte Wild Scenic Recreation (also in South Platte Canyons)	21,100	2.3 Eligible Wild/Scenic/Recreational Rivers
Theme 3 – Natural Landscapes with Limited Management		
Lost Park	10,600	3.2 Connectivity Areas
Theme 5 – Active Management		
Buffalo Creek (also in South Platte Canyons)	37,600	5.1 Active Mgmt - Wildlife Habitat
Hall Valley (also in Mount Evans High Peaks)	18,700	5.1 Active Mgmt - Wildlife Habitat
North Fork South Platte	5,500	5.1 Active Mgmt - Wildlife Habitat
Tarryall	84,500	5.1 Active Mgmt - Wildlife Habitat
Tarryall Creek	45,400	5.1 Active Mgmt - Wildlife Habitat
Thirtynine-Thirtyone	27,900	5.1 Active Mgmt - Wildlife Habitat
Theme 9 – Significant Lands (Non-USFS)		
High Creek Fen	900	9.2 Significant Non-USFS Biological
James Mark Jones SWA	19,100	9.2 Significant Non-USFS Biological

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Lost Creek Wilderness is in this complex. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act. (http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for Wilderness designation of (north to south) Farnum, Puma Hills, and Thirtynine Mile Mountain. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless boundary. The following benefits were considered in making these recommendations: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation. The recommendation to add a number of additional wildernesses is made in light of the heavy concentration of roads across the Pike-San Isabel National Forest in the lower elevations of the South Park Complex.

We believe that all of these areas meet the capability, availability and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation. They all provide opportunities for solitude, challenge and unconfined recreation once the trailheads are left behind. There are rugged canyons, steep ravines, and deep valleys without trails, mountain peaks with long undisturbed views and forested ridges. The imprints of humans are substantially unnoticeable, as care was taken to exclude areas of human impact. Historic mining operations are primarily outside of the proposed wildernesses. Logging was limited within the proposed wilderness and cuts are recovering, as are old access roads, bringing an end to signs of human use.

Availability

Likewise all the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines. The watersheds and streams are already allocated, and no new water projects are planned. Major highways are not anticipated to affect the areas.

The South Park Complex is not appropriate for timber harvest. The vegetation within the area is

largely intact with much of it tending toward mature and old growth characteristics. All or parts of grazing allotments 3 Mile, 39 Mile North, Badger, Craig Park, Eagle Rock, Farnum Peak, Geneva, Kenosha, Lost Park, Packer, Pulver, Puma, Rishaberger, Rocky, Shawnee, Tarryall, and Wigwam would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. Overall, there are no known or anticipated threats to the proposed Wilderness areas that would preclude their designation.

Suitability

The main uses that would be forgone in newly designated Wilderness are motorized recreation on newly created or illegal roads and cross-country snowmobile use off currently designated routes. However, the very nature of these proposed Wilderness areas allows continued motorized access to the perimeter of the roadless areas, and in most cases between the areas. Dispersed camping and motorized recreation would still be permitted in and near the Weber Park roadless areas, the western slopes of the Tarryall Mountains, and the central Puma Hills.

There are numerous ecological values that support the designation of the proposed Wilderness areas in this complex:

- The areas add low elevation ecosystems and riparian zones to the National Wilderness System including lands along the edges of South Park.
- Farnum, Puma Hills, and Thirtynine Mile provide protective habitat on the eastern and southern slopes of South Park.
- Habitat for a host of rare and endangered plants, mammals, amphibians, insects and birds including mountain plover (*Charadrius montanus*), American peregrine falcon, Porter feather-grass and pale blue-eye-grass.
- Rare foothills, montane grassland, and montane riparian natural communities would be protected.
- Domestic and agricultural water supplies are best protected from erosion and pollution when they are located on roadless areas. The South Park complex includes many tributaries to the South Platte River that provides the water supply for metropolitan Denver and for many farming communities in northeastern Colorado and Nebraska. The South Platte River forms one of the two main tributaries for the Platte River, one of the most significant river systems in the watershed of the Missouri River.
- Rugged, steep areas, backcountry adventures, solitude and great vistas are present in these areas.
- Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guiding and outfitter trips.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

- North Tarryall Peak although roadless and meeting many of the requirements for wilderness, is recommended for core management. Logging roads and cuts on the perimeter reduce the chance for a wilderness experience and would make it difficult to define a wilderness boundary. Core areas have the strong protection appropriate for this rugged wild area. It is important to protect this area, which is important for wildlife and connects the Lost Creek Wilderness to South Park, from pressure for additional recreation.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and increase the ecosystem representation we recommend that Craig Park, McCurdy Mountain, and Thirtynine Mile Mountain be added to the RNA system and that Saddle Mountain be retained in the RNA system. Each has their unique combination of ecological values that will enhance the RNA system.

- The 400-acre Saddle Mountain area, just east of the Thirtynine Mile Mountain roadless area, has already been designated as RNA in part because of its large area of high quality montane grassland that has not been grazed by domestic livestock since 1951.
- The Craig Park proposed RNA, some 10,800 acres, lies within the existing Lost Creek Wilderness. The Craig Park proposed RNA includes four rare plant communities: Parry's oatgrass (*Danthonia parryi*); bristlecone pine/gooseberry-currant (*Pinus aristata/Ribes montigenum*); bristlecone pine/alpine clover (*Pinus aristata/Trifolium dasyphyllum*); and aspen/water birch (*Populus tremuloides/Betula occidentalis*), as well as a bristlecone-Engelmann forest unique to South Park. Craig Park includes a 930-acre complex of fens, willow carrs, and beaver dams; extensive, high-quality fen-wetland; and high-elevation mountain meadows, tundra, and old-growth forest. The Center for Native Ecosystems lists the proposed RNA as an area of high conservation significance.
- The McCurdy Mountain proposed RNA, some 13,600 acres, lies within the existing Lost Creek Wilderness. Peregrine falcon are documented in McCurdy Mountain together with a rare Colorado blue spruce/water birch (*Picea pungens/Betula occidentalis*) plant community. McCurdy Mountain has high-quality subalpine carrs and fens, excellent representation of upland, wetland ecosystems, and old-growth Engelmann spruce and bristlecone pine. The Center for Native Ecosystems lists the proposed RNA as an area of high conservation significance.
- The Thirtynine Mile Mountain proposed RNA, approximately 2,600 acres, is within the proposed Thirtynine Mile Mountain Wilderness. It is an intact ecosystem with excellent examples of bristlecone pine associations and one of the largest bristlecone pine stands in Colorado, as well as montane grassland communities in good condition. It also contains a rare bristlecone pine/gooseberry-currant (*Pinus aristata/Ribes montigenum*) plant community.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings.

Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

The National Forest land connecting the Lost Creek Wilderness to North Tarryall Peak is an area requiring special attention to protect wildlife movement. This area, named Lost Park, includes and connects elk summer range and calving grounds and, historically, wolverine were sighted near this area. The designation protects wildlife movement while supporting compatible recreational uses.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities.

The National Forest lands on the western slopes of the Tarryall Mountains (Tarryall Creek), in the central Puma Hills (Tarryall), and along the northern (Buffalo Creek and Hall Valley) and southern (Thirtynine-Thirtyone) boundaries of the complex are included in this theme. These lands connect the Lost Creek Wilderness, North Tarryall Creek, Farnum, and Puma Hills roadless areas to South Park on the west and the South Platte Canyons to the east, or are located along the forest boundary, with road densities ranging from low to high. The Weber Park roadless area falls within the Tarryall unit, and we strongly recommend that all roadless lands be managed under the provisions of the Roadless Area Conservation Rule with additional guidance from the management objectives and guidelines of this theme. The active management for wildlife habitat multiple use designation has provisions that will enhance wildlife considerations. Consideration should be given to the sensitive wildlife areas: deer fawning, elk calving, and bighorn sheep lambing areas; winter range for ungulates; locations of rare, endangered, or sensitive species; and accommodation of larger carnivores such as lynx.

Theme 9 – Significant Lands (Non-USFS)

Theme 9 management is used to highlight and acknowledge other lands critical to both habitat and connectivity such as adjacent BLM lands. It is critical that Forest management considers the greater ecosystem to which it is connected and that forest activities be compatible with management activities on these adjacent public lands.

Theme 9.2 – Significant Non-Forest Service Biological Areas

Wild Connections has explicitly included State Parks and State Wildlife Areas, especially in South Park, the Wet Mountain Valley, and the land between South Park and the Arkansas River due to their important biological values. These are beyond the management authority of the USFS, but as the Wild Connections Conservation Plan is focused on larger ecoregion sustainability, these lands are critical to acknowledge regardless of political ownership.

James Mark Jones SWA is located along Reinecker Ridge and adjacent grasslands, in the center of South Park, southeast of Fairplay and north of Hartsel. Our area includes the adjacent Tomahawk State Wildlife Area at the confluence of Trout Creek and the Middle Fork of the South Platte River on the extreme south. The SWA is essentially roadless as are much of the contiguous BLM lands. Mountain grasslands and meadows with some areas of bristlecone/limber pine, ponderosa pine, and aspen provide a variety of habitats. The entire area is overall range for pronghorn and a significant

amount of pronghorn winter range is located on the south end of Reinecker Ridge. There is summer and winter range for mule deer and elk, and the northwest corner is an area of high fall activity for black bears that extends toward Highway 285. Most of the James Mark Jones SWA roadless area is within the large South Park and Sevenmile PCAs of very high biodiversity significance and The Nature Conservancy's equally large South Park conservation portfolio area of moderate conservation value. The Southern Rockies Wildlands Network Vision proposes most of the James Mark Jones SWA as an area needing study.

High Creek Fen has been mentioned in the introduction to the South Park Complex. This Nature Conservancy Preserve protects a rich assemblage of rare plants that is unique both to Colorado and the Southern Rocky Mountains. "The preserve is the most ecologically diverse, floristically rich fen known to exist in the Southern Rocky Mountains. Indeed, it contains more rare plant species than any other wetland known in Colorado" (The Nature Conservancy 2005).

Connectivity

An important aspect of our conservation perspective is connections between protected core areas. The South Park complex is an example of the core reserve model with protected core areas connected by wildlife linkages. However the protected core areas proposed in the South Park complex may be smaller than is ideal for some species.

Connectivity within the complex is not ideal. The major barriers to animal movement are US Highway 24 and Colorado Highway 9. Numerous forest service and county roads within the complex may be barriers especially to smaller animals. Connectivity between the west side of Lost Creek Wilderness and North Tarryall Peak core reserve is interrupted by the island of logged and roaded land, and Colorado Highway 77 in the Tarryall Creek corridor likewise separates Lost Creek Wilderness from the Farnum proposed Wilderness. Puma Hills and Thirtynine Mile proposed Wilderness areas are disjunct because of intervening private or roaded public lands. However, the proposed management of some roaded areas for animal movement would provide an opportunity to study and address these issues.

There are major barriers to connectivity between the South Park and the Mount Evans High Peaks Complex to the north and the Mosquito Range to the west. US Highway 285 is a major barrier to animal movement, and the Colorado Division of Wildlife has recorded a number of highway segments where there are frequent wildlife-vehicle collisions. The Southern Rockies Ecosystem Project and the Forest Service have identified several linkages for lynx, elk and wolverine across US Highway 285, notably in the general Kenosha Pass area. Connectivity between South Park and the Arkansas Canyons area to the south and to the South Platte Canyons to the east is fairly good. County and other rural roads form barriers between the South Park Complex and the Arkansas Canyons Complex to the south but there is little human habitation. South Park and the South Platte Canyons are connected primarily across Forest Service land. Lost Creek Wilderness adjoins proposed wilderness and wildlife linkages in the South Platte Canyons Complex either directly or separated only by a Forest Service road.

Summary

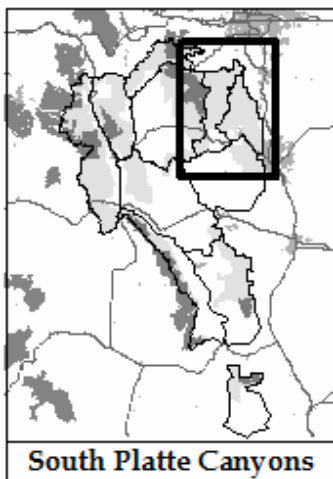
While much of the South Park Complex is in private, state, or BLM hands, the forested areas around the edges are extremely valuable in their own right as wildlife habitat and to maintain connectivity across broader landscapes and for a variety of recreation pursuits. These National Forest lands are an important part of the network of core reserves and habitat linkages that will help preserve the biodiversity of the Pike-San Isabel National Forest far into the future.

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The South Platte Canyons Complex



Sheeprock and Northrup Gulch roadless areas



The South Platte Canyons Complex lands are found along the South Platte River from Elevenmile to the foothills near Denver in the northeastern part of the National Forest

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.10: South Platte Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The South Platte Canyons Complex encompasses the lands along the South Platte River from Elevenmile Canyon on the east side of South Park to the foothills near Denver in the northeastern part of the Pike National Forest. Steep and inaccessible canyons alternate with more open river stretches and the Cheesman and Strontia Springs reservoirs. The South Platte River flows into Strontia Springs Reservoir about two miles below the confluence of the mainstem and the North Fork of the South Platte River, and continues until it exits the foothills at Waterton.

The complex is located in Park, Teller, Douglas, and Jefferson Counties, and in the South Platte and South Park Ranger Districts. The river and reservoirs deliver approximately 60% of Denver's domestic water supply. Sometimes characterized as a giant plumbing system, it also has some of the best low elevation wildlands in Colorado and hosts an array of important plant communities and wildlife.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end

The landscape and wildlife

The North Fork and mainstem of the South Platte River are the dominant features of the landscape. Flowing out of Elevenmile Reservoir through Elevenmile Canyon, the South Platte River has an adjacent road until after it crosses US Highway 24 and enters the remote and rugged Wildcat Canyon. Tarryall Creek joins the river in this canyon. The canyon was accessible by four-wheel drive vehicle in the Corral Creek area before the Hayman Fire. Below Corral Creek the South Platte again enters a rugged part of the canyon until it reaches Cheesman Reservoir. After tumbling through the step canyon downstream of the reservoir, the river is readily accessible by roadway between Deckers and the confluence with the North Fork of the South Platte. The North Fork of the South Platte River, originating high in Hall Valley in the Mount Evans High Peaks Complex, enters the South Platte Canyons Complex near the Park and Jefferson County Line, flowing through private and Forest Service land until it joins the mainstem at the South Platte historic townsite. From here to Strontia Springs Reservoir, the canyon is again inaccessible by motorized travel, but downstream from the Strontia Springs Dam, hikers, anglers, and mountain bikers enjoy the riparian corridor along the Denver Water Board's service road.

Elevations range from 10,421 feet on Green Mountain to 5,600 feet at Waterton, and the uplands are varied in topography. On the south, the end of the Puma Hills and lower ridges across Florissant Fossil Beds National Monument to Mueller State Park are moderate. US Highway 24 angles through the rolling hills between Divide and Lake George. North of US Highway 24, the topography becomes much more rugged as the river enters Wildcat Canyon and flows into Cheesman Reservoir more than 20 miles downstream. The slopes of Hackett Mountain, Cedar Mountain, Thunder Butte, and the Rampart Range on the east and the higher forested mountains of Lost Creek Wilderness, Long Scraggy, and Green Mountain to the west dominate the viewshed. This area is typically Pikes Peak granite with huge rock formations emerging from the land and erosive soils existing where the land is

exposed to the elements. On the north end, the complex is less rugged, with the boundary following the North Fork of the South Platte River and the National Forest boundary onward through Strontia Springs and to the foothills just north of Roxborough State Park.

South Platte Canyons forest cover is mostly ponderosa pine or Douglas-fir, with some smaller stands of aspen, lodgepole pine, and Gambel oak. Riparian species thrive along the river corridors and tributaries. The effects of the Hayman Fire, which burned across the mid section of this complex, are discussed below in “Ecological Values.”

There is habitat for a large range of species including elk, mule deer, black bear, mountain lion, and many others. On the south end of the complex, there is high black bear activity in both summer and fall and elk have winter concentrations. A band of bighorn sheep occupies the ridges along the South Platte in the Strontia Springs area. Wild brown and rainbow trout populations flourish in Wildcat Canyon and Cheesman Canyon rates as gold medal trout waters - both are popular with anglers. Current and historical rare and sensitive species include American peregrine falcon (*Falco peregrinus anatum*), Pawnee montane skipper (*Hesperia leonardus montana*), ovenbird (*Seiurus aurocapillus*), Preble’s meadow jumping mouse (*Zapus hudsonius preblei*), Mexican spotted owl (*Strix occidentalis lucida*), and bald eagles (*Haliaeetus leucocephalus*) that winter at Cheesman Reservoir and along the South Platte River.

Recreation is one of the primary uses throughout the complex, partly because of the lower elevations and proximity to Front Range cities. The entire river from Elevenmile to its exit from the foothills is popular for fishing, and some intrepid anglers fish the river even in winter. Rafters and kayakers navigate the river downstream from Deckers and on the North Fork of the South Platte River, and some kayakers will run the Strontia Springs section even though they have to carry their kayaks back out on an old access road. There are many developed campgrounds: six in Elevenmile Canyon; one off the Tarryall road near Lake George, two along the Matukat Road (currently closed due to Hayman damage); two between Deckers and the confluence plus two picnic areas, four on the perimeter of the Green Mountain Roadless Area, and finally the campground at Indian Creek that also has equestrian facilities and a designated horse trail. This complex provides access to the west side of Lost Creek Wilderness, and the Colorado Trail crosses the northern end of the complex. Dispersed camping can be found throughout the complex.

Ecological values of the complex

In addition to extended mid and low elevation forests, which provide valuable winter range and year round range for many species, the South Platte Canyons Complex includes a number of rich and unique biological areas. There are five potential Research Natural Areas (RNA), as well as two Potential conservation Areas (PCA) of high biodiversity significance in Bear Creek and around Cheesman Reservoir. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes most of the complex as a moderately high priority. The Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP Vision) includes five roadless areas as core wilderness and several more as agency core areas. These designations illustrate the biological richness of the South Platte Canyons Complex.

The mid part of this complex was burned in the Hayman fire of June, 2002. Although the fire was ignited by human action on the afternoon of June 8, the real culprit was a period of very low humidity, very high temperatures, and strong winds from the southwest. By June 9 the fire had already burned about 40,000 acres. It continued to expand for several days with a major shift back to the southwest on June 16 and 17, and was only finally contained on June 27 after temperatures decreased and it ran into two previously burned areas. It burned all but about 25,000 acres inside a

140,000-acre area, destroyed 133 homes and 466 outbuildings, and left parts of four counties vulnerable to flash floods and mudslides.

While parts of the fire were very intensive, especially in the first few days, the severity map shows large areas that burned at moderate or low intensities and significant areas that were unburned, particularly on the perimeters and southeast side. Much of the forest and ground cover were consumed leading to massive erosion into all the tributaries, the South Platte River, and Cheesman Reservoir. However, with time the effects of the fire will be overcome by restoration projects and natural regeneration. Aspen are coming back in many areas, trees are being planted in some areas, and riparian areas, which were not burned as severely, are recovering. After the fire, several actions were taken: the BAER team designed a recovery and restoration plan, salvage timber sales were designed and initiated, erosion structures and mitigation measures were implemented, many areas were reseeded or replanted, volunteer work days were held with the help of Coalition for the Upper South Platte, and a travel management plan was approved. In addition to the work on National Forest lands, Denver Water Board implemented extensive restoration and mitigation on its land around Cheesman Reservoir. Implications for future management, particularly of the salvage logging and travel management plan, are discussed in descriptions of the affected roadless areas.

Wilderness and Roadless Areas

The roadless land in the South Platte Canyons contributes to ecological characteristics that are best found where the presence of people is minimized (See Table 5.18).

Wilderness Areas

There are no designated Wildernesses in the South Platte Canyons. However, Lost Creek Wilderness lies immediately to the west in the South Park complex.

Unprotected roadless areas

There are eleven unprotected large roadless areas in the South Platte Canyons Complex. Five were inventoried as roadless under the Forest Service’s Roadless Area Conservation Rule, and one other area (Northrup-Longwater Gulches) has a small portion of a Forest Service Inventoried Roadless Area within its boundary. Long Scraggy, Jenny Gulch, Sheeprock, and Thunder Butte were determined by UASPP inventories to be larger than the Roadless Area Conservation Rule boundaries. In addition to their value as roadless areas, four roadless areas also include lands recommended for RNAs, and the Roxborough State Park Colorado Natural Area is immediately adjacent to the Forest boundary. The roadless areas on National Forest lands are described in more detail below, in order from north to south.

Mill Gulch

The Mill Gulch roadless area of 1,500 acres is located at the extreme northeast corner of the Forest. It is bounded by the Forest boundary on the north and east, the South Platte River on the

Table 5.18: South Platte Canyons Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Green Mountain	14,700	Yes
Indian Creek	13,300	No
Jenny Gulch	6,000	Yes*
Long Scraggy	20,500	Yes*
Mill Gulch	1,500	No
Noddle Heads	4,100	No
Northrup-Longwater Gulches	14,300	Yes*
Roxborough State Park	3,400	n/a**
Sheeprock	6,100	Yes
Thunder Butte	8,700	Yes

*Roadless rule area has significantly fewer areas than UASPP inventory.

**Area not managed by the US Forest Service (managed by the State of Colorado).

west, and an arbitrary boundary corresponding to the evaluation for potential RNA on the south. The area lies on a high ridge overlooking the South Platte Canyon and the spectacular red rock formations of Roxborough State Park to the east. It was not included in the Roadless Area Conservation Rule inventory.

Mule deer, bighorn sheep, and elk find summer range in the Mill Gulch roadless area, with a summer black bear high activity area and mule deer winter range. Mountain lions are found here. Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and the Pawnee montane skipper butterfly (*Hesperia Leonardus montana*) have been recorded here. Rare plant associations include mountain mahogany/needle-and-thread grass (*Cercocarpus montanus/Stipa comata*) mixed foothill shrublands, Douglas-fir/Geyer's willow (*Pseudotsuga menziesii/Carex geyeri*) lower montane forests, Gambel oak/Geyer's willow (*Quercus gambelii/Carex geyeri*), mesic oak thickets, and needle-and-thread grass/blue grama (*Stipa comata/Bouteloua gracilis*) montane grasslands. SREP's Vision shows the roadless area as core agency.

In spite of its proximity to the recreational and Denver Water activities along the river and to housing developments to the east, this roadless area contributes to the overall biodiversity of the South Platte Canyons complex and provides relatively secure wildlife habitat because of its steep topography and lack of road access.

Indian Creek

The Indian Creek roadless area of 13,300 acres is located near the extreme northeast of the Pike National Forest. It is bounded by the National Forest boundary on the east, the Mill Gulch roadless area boundary on the north, the South Platte River Road (County Road 96) on the west, and Colorado Highway/County Road 67 and Pine Creek Road (County Road 40) on the south. While this area was not included in the Roadless Area Conservation Rule Inventory, due no doubt to several old routes that are now closed, it is prime low elevation habitat.

The Indian Creek roadless area is predominantly ponderosa pine and Douglas-fir, with some small pockets of aspen and mountain shrubland. The South Platte bighorn sheep band is primarily located north of the South Platte River and the Strontia Springs Reservoir where there is also a production area, but the sheep can be found on both sides of the South Platte River below the dam and may occasionally go into the northern portion of Indian Creek. Mule deer have summer and winter range here, with summer concentrations of bears across the area. Mountain lions roam here. Riparian areas throughout Indian Creek could support Preble's meadow jumping mouse (*Zapus hudsonius preblei*), and there is occupied habitat on the south central side near Colorado Highway 67. Other rare species identified in Indian Creek include Pawnee montane skipper (*Hesperia leonardus montana*), oven birds, and two rare plants – prairie violet (*Viola pedafida*) and a rare fern (*Onoclea sensibilis*). The area is also noted for its lower montane riparian shrublands and thinleaf alder/mesic forb (*Alnus incana/mesic forb*) riparian shrublands.

A portion of the southwest part of the Indian Creek roadless area is included in the fuels treatments of the Upper South Platte Restoration Project, currently underway.

Willow Creek, located on the southeast corner of the roadless area, includes ovenbirds and Preble's meadow jumping mice and (*Zapus hudsonius preblei*) is recommended by conservationists for further research and evaluation. Colorado Natural Heritage Program lists a Proposed Conservation Area of very high significance along the Bear Creek drainage. Approximately half of Indian Creek is listed by the TNC Blueprint as of moderate conservation value. The SREP Vision shows the roadless area as low use.

Noddle Heads

The Noddle Heads roadless area, at 4,100 acres, is located immediately south of the Indian Creek roadless area and west of the Rampart Range Recreation Area in a rectangle formed by Pine Creek Road (County Road 40) on the north, motorized trail 677, County Road 67 along Sugar Creek on the south, and County Road 97 along the South Platte River on the west. As its name implies, the large granite outcrops known as Noddle Heads are landmarks for the area. The Noddle Heads roadless area was not included in the Roadless Area Conservation Rule inventory. As the land drops down from the eastern ridge toward the river, the topography is quite steep and rough. Trail 677 that forms the eastern boundary is part of the extensive motorized system in the adjacent Rampart Recreation Area.

The Noddle Heads roadless area is a mixture of ponderosa pine and Douglas-fir forest. Most of the area is within the habitat range of Preble's meadow jumping mouse (*Zapus hudsonius preblei*), with four occupied drainages on the west side along the South Platte River. Black bear and mountain lion are found in the area, and mule deer and elk have both summer and winter range. Pawnee montane skipper butterfly (*Hesperia leonardus montana*), peregrine falcon, Mexican spotted owl (*Strix occidentalis lucida*), and bald eagles have been observed in the area. The bald eagles winter along the river and at Cheesman Reservoir.

A portion of the Noddle Heads roadless area is included in the fuels treatments of the Upper South Platte Restoration Project, currently underway

All of the Noddle Heads area is listed by the TNC Blueprint as of moderate conservation value. SREP's Vision shows the roadless area as low use.

Jenny Gulch

The Jenny Gulch roadless area of some 6,000 acres is located immediately south of the Noddle Heads roadless area on the south side of County Road 67 along Sugar Creek. Motorized trails 678, 677 and 672 form the eastern boundary, separating it from the Rampart Recreation Area and the Rampart West roadless area. The south and west boundary is County Road 67 along Horse Creek to Deckers and downstream along the South Platte River. A portion of the Jenny Gulch roadless area was part of the Rampart West Inventoried Roadless Area but we judged it to be a separate area.

As with the other areas in this part of the complex, the Jenny Gulch roadless area is a mixture of Douglas-fir and ponderosa pine. There is potential habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) in most of the riparian areas, with four occupied drainages on the west side along the South Platte River. Black bear and mountain lion are found in the area, and mule deer and elk have both summer and winter range here. Bald eagles, Mexican spotted owl (*Strix occidentalis lucida*), and Pawnee montane skipper butterfly (*Hesperia leonardus montana*) have been recorded here. The area also has thinleaf alder/mesic forb riparian shrubland.

The east side of the Jenny Gulch roadless area is included in the fuels treatments of the Upper South Platte Restoration Project, currently underway. Some of the completed work can be seen from County Road 67.

All of Jenny Gulch is listed by the TNC Blueprint as of moderate conservation value. SREP's Vision shows the roadless area as low use.

Recreation impacts are likely very low in this area as there are no internal trails and access is

blocked by private property on the west along most of the river and Horse Creek. The current non-motorized use in Indian Creek, Noddle Heads, and Jenny Gulch together form a relatively secure wildlife habitat that balances the intensive motorized use in the Rampart Range Recreation Area to the east. This also helps protect water quality in the tributaries and mainstem of the South Platte River.

Long Scraggy

The Long Scraggy and Green Mountain roadless areas, in terms of size and ecological values, are probably the most important roadless areas in the northern part of the South Platte Canyons Complex. The Long Scraggy roadless area encompasses 20,500 acres between the South Platte River on the east and south, County Road 126 on the west, and the Colorado Trail on the north. The huge rocky outcrop of Long Scraggy itself rises dramatically from the South Platte River and tops out at 8,800 feet, dominating the viewshed for miles around. Numerous small drainages – Brush Creek, Saloon Gulch, Gunbarrel Creek, Kelsy Creek, and Spring Creek – carve the land west to east. At the north end Raleigh Peak, more than 8,100 feet high, rises above the rolling hills. The area as inventoried by UASPP is larger than the Roadless Area Conservation Rule Inventoried Roadless Area.

The Long Scraggy roadless area is ponderosa pine with Douglas-fir and a few areas of piñon-juniper in areas not affected by the Buffalo Creek and Hayman fires. Some trees are very large, especially along Gunbarrel Creek where the extra moisture likely contributed to their size. There are water birch/western dogwood (*Betula occidentalis-Cornus sericea*) lower montane riparian shrublands here as well.

Habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) is found in riparian zones across the Long Scraggy roadless area, and there are two occupied drainages on the east side along the South Platte River and one on the south end. Black bear and mountain lion are found in the area, and mule deer and elk have both summer and winter range here. Mule deer also have good winter range over the whole area, with elk winter range located in the northern half. Records of rare species include peregrine falcon, bald eagles wintering along the river, Mexican spotted owl (*Strix occidentalis lucida*), and at least three colonies of Pawnee montane skipper (*Hesperia leonardus montana*) butterflies.

The proposed Long Scraggy RNA includes six plant associations not found in other proposed RNAs according to Center for Native Ecosystems. Long Scraggy Peak is of geological and scenic interest and the Raleigh Peak area has nesting prairie falcons. All of the Long Scraggy roadless area is listed in the TNC Blueprint as of moderate conservation value. SREP's Vision shows the roadless area as core wilderness.

Historically, mining and logging had consequences for the landscape. Quarries, now closed, west of Raleigh Creek attest to minerals found here, and at various places in the roadless areas there are old diggings of white quartz. Long ago, part of the area was logged with horses, but most of the remaining stumps are now disintegrated to the point of being invisible.

Today, there are two major alterations affecting the roadless area. In 1996, the Buffalo Creek fire burned into the northeastern part of the area. Several restoration efforts and natural recovery are slowly revegetating the land, but the arid and erosive soils are not conducive to fast regeneration. Likewise, in 2002, the Hayman fire reached its northernmost limit in the Kelsey Creek area. The central portion burned at high severity. The rest of the area was low severity with significant areas unburned, especially on the east side and along the perimeter of the fire. Some of the burned area can be seen from the overlook on County Road 126 or coming south on County Road 67

before reaching Deckers, but from the east side it is not visible. However, the erosion that followed the fire can be observed along County Road 67 north of Deckers, particularly at the egress of Saloon Gulch. This part of the roadless area will take many years to recover, likely, but there are vast seed banks in the unburned forest just to the north.

The second current impact is the Upper South Platte Restoration Project that encompasses the area on the perimeter of the USFS Inventoried Roadless Area. This multi-year project is designed to thin the rather dense forest in an ecologically sensitive manner to reduce risk of catastrophic fire without damaging the areas wilderness qualities. Major treatment areas are across the south portion along the administratively closed forest road 534 in Saloon Gulch, forest road 536 near Kelsey Creek, on the northwest side along forest road 530, with some smaller areas on the east side. The area along forest road 534 was impacted by the Hayman Fire and there is a small salvage logging site there at this time.

Green Mountain

The Green Mountain roadless area of 14,700 acres lies directly west of the south half of the Long Scraggy roadless area and is part of the continuous sweep of land from the South Platte River up to the higher elevations of Green Mountain and the Lost Creek Wilderness. Like the Long Scraggy roadless area, the north boundary is defined by the Colorado Trail as far as the Meadows Campground and then by forest road 543 to Wellington Lake. Forest roads 560 and 544 form the west boundary, with 560 and 211 on the south. The east side is along Deckers Road (County Road 126). Lost Creek Wilderness is not far to the west of this area, and at Stony Pass the Wilderness is just across the road. Rock outcroppings known as Little Scraggy Peak are near Kelsey Campground on the east side, Green Mountain at 10,421 feet in the central area, and Sugarloaf Peak at 8,501 feet are notable landmarks. Green Mountain Creek, Cabin Creek, Pine Creek, and Wigwam Creek drain the west and south sides of the area.

The Green Mountain roadless area is predominantly ponderosa pine and Douglas-fir, but being higher than other areas in the complex, it also has scattered stands of lodgepole pine, aspen and some Engelmann spruce-subalpine fir in the highest areas. Black bears and mountain lions roam the area with a small area of high summer bear activity on the northeast. Mule deer have summer range and elk have both summer and winter range here. There is habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) on the southern end of the area with two occupied drainages, and Pawnee montane skippers (*Hesperia leonardus montana*) have been observed here. Other notable species include peregrine falcons, as well as water birch/mesic forb (*Betula occidentalis*/mesic forb) foothills riparian shrubland, Rocky Mountain willow/mesic forb (*Salix monticola*/mesic forb) montane riparian willow carr and Colorado blue spruce/water birch (*Picea pungens*/*Betula occidentalis*) riparian woodland plant communities.

The Hayman fire burned into the southern third of the Green Mountain roadless area, mostly at high severity, with low and unburned areas on the north perimeter. Some of the burned area can be seen from Deckers Road (County Road 126).

The central portion of Green Mountain is considered important by the Center for Native Ecosystems. It includes areas favored by elk, and the Little Scraggy and Green Mountain rock outcrops are of interest. This central portion hosts a rare plant white adder's-mouth orchid (*Malaxis monophyllos ssp. Brachypoda*) and wild turkeys, among other species. Approximately half of Green Mountain is listed by the TNC Blueprint as of moderate conservation value. SREP's Vision lists the roadless area as core wilderness.

Thunder Butte

Located between State Highway 67 and Cheesman Reservoir, the Thunder Butte roadless area of 8,700 acres is dominated by its namesake – 9,836 foot Thunder Butte. Colorado Highway 67 along with West Creek and Horse Creek defines the eastern boundary, a power transmission line marks the northwest boundary, forest road 523 is on the west side, and an arbitrary line drawn to exclude various roads define the south side. Going north on Colorado Highway 67 toward Deckers, Thunder Butte is prominent above the West Creek Canyon. The area as inventoried by UASPP is larger than the Forest Service’s Roadless Area Conservation Rule Inventoried Roadless Area.

The Thunder Butte roadless area is primarily Douglas-fir and ponderosa pine, with a few areas of aspen, as well as unforested rocky slopes. Somewhat less than half of the area on the northwest side was in the Hayman fire severe burn area, with pockets of moderate burn severity. The rest is a mixture of various burn severities including moderate, low, and unburned areas. Significant parts on the north and east slopes of Thunder Butte were not burned. Some of the planned fuels treatments of the Upper South Platte Restoration Project on the north side of the roadless area were in the high severity burned area, which has likely affected that project. A very small area in Shrewsbury Gulch is part of the Hayman Salvage Logging Project.

The Thunder Butte roadless area includes habitat for Mexican spotted owl (*Strix occidentalis lucida*) and Pawnee montane skipper (*Hesperia leonardus montana*), and has occurrences of thinleaf alder/mesic forb riparian community (*Alnus incana*/mesic forb). Bear and mountain lion are found here. Elk have both summer and winter range and mule deer have summer range across the area. There is Preble’s meadow jumping mouse (*Zapus hudsonius preblei*) habitat in the West Creek/Horse Creek area.

A sizeable Colorado Natural Heritage PCA of moderate significance is located in the south central part of the Thunder Butte roadless area, and the Thunder Butte proposed RNA covers nearly half the area. Thunder Butte is indicated to be of moderate conservation value in the TNC Blueprint. The SREP Vision lists the roadless area as core wilderness.

Northrup-Longwater Gulches

The Northrup-Longwater Gulches roadless area is some 14,300 acres located between the South Platte River on the west, Denver Water Board land on the north, and on the east and south the boundary is defined by forest roads 360/525 near Turkey Creek and forest road 897. The land here is well above the South Platte River on the east side of the area and then drops sharply into the canyon on the west side. Prior to the Hayman Fire, there were several motorized routes in the area used by four-wheelers, ATVs, and motorcycles. These are all currently closed because of safety concerns and resource damage, including massive erosion into the South Platte River. Most of the area was burned in the Hayman Fire with low severity in the northwest central section and intermixed high, moderate and unburned severity on the other sides. There are units of the Hayman Salvage project along the east side. The recently completed Hayman Travel Management Plan will reopen forest road 221, among others, which gives access to the river ford near Corral Creek, when conditions permit. Several areas along the east side are part of the Hayman Salvage Logging Project.

Prior to the fire, the Northrup-Longwater Gulches roadless area was about equally ponderosa pine and Douglas-fir, with a few aspen groves and mountain shrublands. The fire burned with low severity north of Metberry Gulch and along Northrup Gulch, so possibly the habitat here was less affected. The area harbors mountain lion, mule deer, elk, and black bear, with a small area of

high summer bear activity along the river. Elk and mule deer also have winter range in the south half and on the east along the river, respectively. Pawnee montane skippers (*Hesperia leonardus montana*) have been observed here, and the area has good examples of Douglas-fir/water birch (*Pseudotsuga menziesii/Betula occidentalis*) montane riparian forest.

All of the Northrup-Longwater Gulches roadless area is listed by the TNC Blueprint as of moderate conservation value. Colorado Natural Heritage's Cheesman PCA of very high significance spills into the extreme north end where the roadless area abuts Denver Water Board land. The SREP Vision shows the roadless area as core agency.

Sheeprock

The primary landmark of the 6,100-acre Sheeprock roadless area – the Sheeprock outcropping of granite on the north – is visible from many vantage points near the area. Equally impressive are the huge granite monoliths on the south along the South Platte River near Corral Creek. The area is bounded by Goose Creek on the north, private land and the Matukat Road (forest road 211) on the west, Corral Creek Road (forest road 540) on the south and the South Platte River and Denver Water Board property on the east. The land is rolling forest or open areas dropping from west to east. Along the South Platte River, there are many large rock formations and a precipitous drop into the river canyon. From the edge of the canyon there is a glimpse of Cheesman Reservoir to the northeast.

The majority of the Sheeprock roadless area was included in the Roadless Conservation Rule inventory. On the south end, UASPP has extended the roadless boundary, as the old logging roads have been closed, ripped, and seeded near Matukat Road. One is hard pressed to even locate the roads on the ground, although further east where they were not rehabilitated, they are still visible. Some of them are used for horseback rides from the dude ranch to the north, and an occasional hiker.

All of the Sheeprock roadless area is within the Hayman burn perimeter, and most of the burn was of high severity. Some areas of low to moderate severity are found on southeast side or east of the private dude ranch on the north side. Subsequently there was substantial erosion affecting water quality in both the South Platte River and Cheesman Reservoir. A small part of the Hayman Salvage logging project is located on the far southwest side. Pre-fire, the area was primarily ponderosa pine and Douglas-fir, with some open meadows, including grassy meadows on the south end recovering from the Wildcat Fire of 1963. In the lower reaches of Wildcat Creek the substantial grove of aspen was in the low severity fire area. The main riparian zone is along Goose Creek on the north boundary was in a high to moderate severity burn area. Goose Creek eventually flows into Cheesman Reservoir east of the roadless area. The area is excellent habitat for elk and mule deer in summer and winter. Mountain lion and black bear use the area, with a summer bear high activity area on the south end. Bighorn sheep occasionally come into the west side of the area from their more usual haunts in Lost Creek Wilderness. There is Preble's meadow jumping mouse (*Zapus hudsonius preblei*) habitat along the South Platte River, none of it known to be occupied now, and the area hosts Pawnee montane skipper butterflies (*Hesperia leonardus montana*).

Sheeprock has a proposed RNA of 3,400 acres across the whole north half of the roadless area. Sheeprock is included in the TNC Blueprint's Cheesman area of moderate conservation value, and a small portion on the east is included in Colorado Natural Heritage Program's PCA of very high significance. SREP's Vision shows the roadless area as a core wilderness.

Wildcat Canyon

The Wildcat Canyon roadless area of 7,100 acres lies between the South Platte River on the east, Matukat Road (forest road 211) on the west with logging roads in the vicinity of forest road 210 excluded, Corral Creek Road (forest road 540) on the north, and Tarryall Road (forest road 77) on the south. On the south end of the area, after passing the Happy Meadows campground, the river enters a wild and rugged canyon which is accessible only by a rough and seldom used foot trail along the river or via the rough foot trail near Tarryall Creek, a major tributary of the South Platte River. Flowing north past the confluence with the Tarryall River, the South Platte River enters a more open canyon with occasional grassy meadows interspersed with forest until it reaches the Corral Creek Roads (forest roads 540 and 211). Forest road 540, a moderate route on the west part of the roadless area, becomes highly eroded and requires a high clearance vehicle as it drops into the river corridor. At this location massive rock monoliths guard the river at the south boundaries of the Sheeprock and Northrup-Longwater Gulches roadless areas. The South Platte River harbors a population of wild brown and rainbow trout and is popular with anglers.

The inaccessible character of the South Platte River canyon is Wildcat Canyon's most distinguished feature, but the uplands are also quite inaccessible except for a few areas on the south end where there is road access around Tappan Mountain and Platte Springs above Tarryall Creek. In spite of the remote and roadless nature of Wildcat Canyon, it was not included in the Roadless Area Conservation Rule inventory. Before the Hayman Fire, the river stretch between Corral Creek and Tarryall Creek was popular with jeepers and ATV users. Dispersed camping on the river banks, several legal fords of the river connecting to the network of trails east of the river, and continual off-road trespass were serious problems both for habitat, water quality, and enforcement. This whole area is now closed to motorized use because of the fire, although, when conditions permit, the recent travel plan will open forest road 540 along Corral Creek again.

The Wildcat Canyon roadless area pre-fire was ponderosa pine and Douglas-fir, with a few aspen, and there are significant riparian species along the South Platte and Tarryall Creek. Mountain lion are found here and the whole area is a summer concentration location for black bear. Elk find summer and winter range across the north end and there is an elk calving area located just to the west of the roadless area. Mule deer have both summer and winter range over the whole area. Bighorn sheep may come into the area from the adjacent Lost Creek Wilderness. There is habitat for Preble's meadow jumping mouse (*Zapus hudsonius preblei*) on the north end along the South Platte River, although none of it is known to be occupied. Pale blue-eyed grass (*Sisyrinchium pallidum*) is a rare plant that is found here.

Approximately half of Wildcat Canyon is listed by the TNC Blueprint as of moderate conservation value. The SREP Vision lists the roadless area as core wilderness.

All but the southern end of Wildcat Canyon was burned in the Hayman Fire, with an intermix of high, moderate, low severities, and unburned areas. Riparian areas fared better, with some unburned areas along the river. In addition to the loss of forest cover, the highly erosive soils on steep slopes have continued to deposit massive amounts of sediment into the South Platte River.

Historical and Cultural Features of South Platte Canyons

Some archeological, historical and cultural features of note include:

- Much of the South Platte Canyons lies over the Pikes Peak batholith that resulted from the final intrusive phase of the Proterozoic time of 1.08 billion years ago. The coarse grained pink granite outcrops found through the complex are typical of this period. Particularly notable are the giant rocks along the North Fork of the South Platte, Noddle Heads, and

outcrops at Corral Creek along the South Platte. Elevenmile, Wildcat, and Cheesman Canyons are of geological and scenic interest as well.

- Ute Pass crosses the complex following US Highway 24 along the Ute Pass fault. The highway began as a bison trail that connected the eastern prairie with the intermountain park that we now call South Park. The Ute Indians followed the herds up and down the Pass. Later it became a wagon road and railway route for the Colorado Midland Railway that served mining operations in the mountains to the west. The Denver, South Park, and Pacific Railroad was built to transport the bountiful supply of timber in the Platte Canyon to Bailey.

Management Recommendations

Overview

The ecological value of protecting large roadless areas led the Wild Connections team to recommend new Wilderness designations or Core management (Theme 1) for seven areas in the South Platte Canyons Complex. In addition there are several proposed RNAs (Theme 2); quiet use and connectivity areas (Theme 3); and a number of areas recommended for Theme 5, active management. There are no existing designated Wildernesses or areas recommended for intensive recreation emphasis (Theme 4). In addition, grazing, sustainable logging/fuels reduction projects, mining or energy development, recreation on designated trails and roads, and dispersed camping is allowed throughout the complex, except for the statutory restrictions on activities in designated or proposed Wilderness areas, or where these activities would be inconsistent with providing wildlife habitat or connectivity. Table 5.19 below lists the major management units by theme. Refer to the South Platte Canyons Complex map for specific locations and roadless area descriptions for more details on the unit.

Table 5.19: South Platte Canyons Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Green Mountain	14,700	1.2 Recommended Wilderness
Long Scraggy	20,500	1.2 Recommended Wilderness
Sheeprock	6,100	1.2 Recommended Wilderness
Thunder Butte	8,700	1.2 Recommended Wilderness
Northrup Gulch	6,600	1.3 Core Reserve
Raleigh Peak	5,100	1.3 Core Reserve
Wildcat Canyon	7,100	1.3 Core Reserve
Theme 2 – Special Areas		
Long Scraggy RNA	4,200	2.1 Research Natural Areas
Mill Gulch RNA	1,500	2.1 Research Natural Areas
Sheep Rock RNA	3,400	2.1 Research Natural Areas
South Platte Cheesman RNA	2,200	2.1 Research Natural Areas
Thunder Butte RNA	3,900	2.1 Research Natural Areas
South Platte Wild Scenic Recreation (also in South Park)	21,100	2.3 Eligible Wild/Scenic/Recreational Rivers
Theme 3 – Natural Landscapes with Limited Management		
Indian Creek Waterton	15,400	3.1 Quiet Use Areas
Jenny Gulch	6,000	3.1 Quiet Use Areas
Noddle Heads	4,100	3.1 Quiet Use Areas
Goose Creek	8,400	3.2 Connectivity Areas
Longwater Gulch	7,500	3.2 Connectivity Areas
Monument Gulch	5,700	3.2 Connectivity Areas

Name	Acres	Recommended Management
Theme 4 – Recreation Emphasis Areas		
Rampart Range (also in Rampart Range)	31,600	4.1 Motorized Recreation Areas
Gold Belt Tour Scenic and Historic Byway	100	4.2 Scenic Byways
Theme 5 – Active Management		
Buffalo Creek (also in South Park)	37,600	5.1 Active Mgmt - Wildlife Habitat
Dome Rock	1,000	5.1 Active Mgmt - Wildlife Habitat
Eleven Mile Canyon	29,600	5.1 Active Mgmt - Wildlife Habitat
Pine Creek	700	5.1 Active Mgmt - Wildlife Habitat
Rampart Range South (also in Rampart Range)	132,400	5.1 Active Mgmt - Wildlife Habitat
Theme 9 – Significant Lands (Non-USFS)		
Cheesman Reservoir	8,200	9.2 Significant Non-USFS Biological
Florissant Fossil Beds	5,900	9.2 Significant Non-USFS Biological
Roxborough State Park	3,400	9.2 Significant Non-USFS Biological

Theme 1 – Natural Processes Dominate

Lands in Theme 1 are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness and semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for designation of Long Scraggy, Green Mountain, Thunder Butte, and Sheeprock roadless areas as Wilderness. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless boundary. The availability of the following benefits were considered in making these recommendations: permanent protection to enhance wildlife habitat and connectivity, protect sources of domestic water, provide for native wildlife and plant species, and balance motorized, high impact recreation complexes with opportunities for quiet, challenging back country recreation.

We believe that all of these areas meet the capability, availability and suitability evaluation criteria of the Wilderness Act and Forest Service Wilderness Handbook. These are discussed for the complex as whole below, with notations as to particular values or potential conflicts.

Capability

All of the proposed Wildernesses meet the capability requirements of the Wilderness Act of 1964 for designation. They all provide opportunities for solitude, challenging, and unconfined recreation once the trailheads are left behind. There are rugged river canyons, open meadows, valleys and drainages without trails, and areas forested with ponderosa pine, Douglas-fir and aspen. The imprints of humans are substantially unnoticeable, although impacts in response to the Hayman Fire may be evident in portions of Long Scraggy, Green Mountain, and Sheeprock. Various mitigation and restoration measures following the fire will fade into the background as the vegetation recovers and impacts from the fire itself do not preclude wilderness designation. The Upper South Platte Restoration Project may be noticeable now during the active restoration phase, but in a few years the thinning operations will result in forest which more closely emulates the natural range of variability for ponderosa pine and Douglas-fir forests. (See further discussion in Availability section.)

Availability

Likewise all the proposed areas are available for Wilderness with no known impediments. The proposed Wildernesses contain no active mines or oil and gas leases. The South Platte Wild and Scenic corridor has been withdrawn from mineral entry. The watersheds and streams are already allocated, and no new water projects are planned. There is a 20 year moratorium on dam building in the South Platte River Protection Plan, discussed above.

The South Platte Canyons complex is not appropriate for general timber harvest. However, the South Platte Restoration Project and the Hayman Salvage Logging Project do affect some recommended Wilderness Areas. Much of the unburned portions of the complex have heavy fuels loading as a result of years of fire suppression. The understory is dense with small diameter trees and Douglas-fir is filling in among the ponderosa pine. The Upper South Platte Restoration Project was specifically designed to implement a fuels treatment regime that would restore much of the middle part of the complex to conditions that are considered closer to the range of natural variability and thereby reduce the chances for uncharacteristically hot and damaging fires. An extensive analysis of the area led to a draft plan, which after some modifications to protect future Wilderness values, was initiated in 2001. Some areas have been completed: one of the most noticeable is along the South Platte River downstream from Deckers where over several years the trees were thinned and slash was burned, resulting in a more open forest.

The South Platte Restoration Project impinges most heavily on the north end of Thunder Butte and the central and north portions of Long Scraggy. The proposed treatment area for Thunder Butte is north of the Butte and in a high severity burned area, and therefore cancelled or limited to light salvage logging. Long Scraggy's treatment areas are more extensive, with part of them in the Hayman burn area, and comprise perhaps one-third of the recommended Wilderness. However, the South Platte Restoration Project was designed in such a way as to not impair future wilderness values, and when the project is completed the effects should become unnoticeable over time.

Hayman Salvage Logging units are primarily located in areas not recommended for Wilderness. The exceptions are: 1) a small area south of Saloon Gulch in Long Scraggy; 2) small areas north and south of Wildcat Creek near the Matukat Road in Sheeprock; and 3) small areas along Fourmile Creek and Shrewsberry gulch in Thunder Butte. However, as the area recovers from the fire, the impacts from the salvage logging will also fade into the background.

Parts of Wigwam and Lost Creek grazing allotments would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. These do not present a problem for Wilderness designation. Overall, there are no known or anticipated threats to the area that would preclude its designation as wilderness.

Suitability

The main uses that would be forgone in newly designated Wilderness are potential motorized recreation on currently closed routes in the Hayman fire area and administrative closures in Long Scraggy. Designation as Wilderness would preclude future mechanical maintenance of South Platte Restoration Project treatment areas, especially in Long Scraggy.

There are numerous values that support designation of the proposed Wildernesses and contribute to the National Wilderness System:

- Substantial portions of lower elevation wild lands would be added to the Wilderness System, which would ensure ecological representation and provide important areas for

- wildlife winter range.
- There are outstanding opportunities for solitude, quiet backcountry recreation and challenge throughout the area.
 - The rugged canyons exemplify the wildness that now brings recreationists, tourists, and new residents to Colorado. With increasing requests for additional developed and motorized recreation, maintaining the area's wild characteristics is crucial.
 - Riparian zones adjacent to the South Platte River will gain added protection.
 - This complex will protect a number of rare and imperiled species including Pawnee montane skipper (*Hesperia leonardus montana*), Mexican spotted owl (*Strix occidentalis lucida*), and Preble's meadow jumping mouse (*Zapus hudsonius preblei*).
 - Denver's water quality would not be degraded by additional roads where the South Platte River abuts the Wildernesses.
 - Historical access to the Wilderness Areas would be maintained on existing roads adjacent to the areas.
 - The Colorado Trail would be preserved as a non-motorized hiking and mountain biking trail
 - Designation of this complex would help ensure that fragmentation by roads, damage to riparian zones, loss of old-growth forests, and conversion to intensive recreation would not be exacerbated.
 - Local economies will be enhanced by their proximity to Wilderness areas, as these are prime destinations for self-guiding and outfitter trips.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

Northrup Gulch, Raleigh Peak, and Wildcat Canyon, though essentially roadless, did not fully meet wilderness standards and so are recommended instead for Core designation.

- The Northrup-Longwater Gulches Roadless Area was split along forest road 221, with the northern section of Northrup Gulch being recommended for core reserve. Forest routes 221 and 205 are closed at this time because of the Hayman fire, but under the current travel management plan will be reopened when conditions permit. UASPP continues to recommend that route 205 be converted to a horse and foot trail. It will be essential that routes be reopened only after they are rehabilitated and rerouted as necessary to address the erosion problem that was present even before the Hayman fire. Enforcement of off-trail restrictions will be important so that these routes do not pose an unsustainable impact on the Core area.
- Raleigh Peak is similar in topography and vegetation to the Long Scraggy proposed Wilderness, which is immediately to the south, but has some remnants of old roads and includes the Colorado Trail. It was recommended for core reserve to continue the current uses on the Colorado Trail.
- Wildcat Canyon is the most wild of these three cores, except immediately along the west bank of the river where a road gives access for camping between the Corral Creek Road and the confluence with Tarryall Creek. It could well have been wilderness except for a power transmission line across the middle of the area. As a core area, it will be important to maintain or even reduce the current impacts from motorized recreation in the Corral Creek to Tarryall section and especially to enforce restrictions keeping use on designated trails for OHVs and in designated camping spots away from the river bank to protect water quality and riparian vegetation.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention:

To supplement the range of research opportunities and increase the ecosystem representation five areas should be added to the RNA system. Each has its unique combination of ecological values which will enhance the system. Three are adjacent to or within proposed Wilderness.

- Mill Gulch proposed RNA is about 1,500 acres. The Mill Gulch RNA evaluation notes that it would provide excellent representation of Douglas-fir forest, oak thicket, and mixed mountain shrubland cover types. Mule deer, bighorn sheep, and elk find summer range here, with high summer black bear activities and mule deer winter range. Mountain lions are found in this area. Preble's meadow jumping mouse (*Zapus hudsonius prebli*) and the Pawnee montane skipper butterfly (*Hesperia leonardus montana*) have been recorded here. The Center for Native Ecosystems notes these plant associations not found in other RNAs: mountain mahogany/needle-and-thread grass (*Cercocarpus montanus/Stipa comata*) mixed foothill shrubland, Douglas-fir/Geyer's willow (*Pseudotsuga menziesii/Carex geyeri*) lower montane forests, Gambel oak/Geyer's willow (*Quercus gambelii/Carex geyeri*) mesic oak thickets, and needle-and-thread grass/blue grama (*Stipa comata/Bouteloua gracilis*) montane grasslands.
- Long Scraggy proposed RNA of some 4,300 acres is centered on Long Scraggy Peak within the Long Scraggy proposed Wilderness. It includes six plant associations not found in other proposed RNAs: Great Plains side-oats grama/little bluestem (*Bouteloua curtipendula-Schizachyrium scoparium*) mixed grass prairies, Rocky Mountain juniper/mountain mahogany (*Juniperus scopulorum/Cercocarpus montanus*) foothills woodlands, ponderosa pine/kinnikinnick (*Pinus ponderosa/Arctostaphylos adenotricha*) lower montane forests, ponderosa pine/side-oats grama (*Pinus ponderosa/Bouteloua curtipendula*) lower montane forests, and ponderosa/little bluestem (*Pinus ponderosa/Schizachyrium scoparium*) foothills pine savannas, according to Center for Native Ecosystems. It is included in The Nature Conservancy's large Cheesman area of moderate significance.
- South Platte Cheesman proposed RNA is approximately 2,200 acres located east of the Denver Water Board Cheesman private property and the South Platte River. Pawnee montane skipper (*Hesperia leonardus montana*) have been observed here, along with Mexican spotted owl (*Strix lucida occidentalis*), and bald eagles use the area in winter. It is included in The Nature Conservancy's large Cheesman area of moderate significance.
- Sheeprock proposed RNA of 3,400 acres lies across the whole north half of the Sheeprock proposed Wilderness. The RNA may have old-growth ponderosa pine, as it is immediately adjacent to the Denver Water Board land around Cheesman Reservoir where Merrill Kauffman conducted his definitive study of old growth and fire regimes. It is included in The Nature Conservancy's large Cheesman area of moderate significance.
- Thunder Butte proposed RNA of some 3,900 acres is in the center of the Thunder Butte proposed Wilderness. The proposed RNA has Pawnee montane skipper (*Hesperia leonardus montana*), Mexican spotted owl (*Strix lucida occidentalis*), and a natural community of note -

thinleaf alder/mesic forb (*Alnus incana*/mesic forb). Mexican spotted owl nested in the area in the mid-1990s and a Protected Activity Center is located here. It is included in The Nature Conservancy's large Cheesman area of moderate significance, and a PCA of moderate significance overlaps the proposed RNA.

Theme 2.3 – Eligible Wild, Scenic and Recreational Rivers

This theme is applied to river segments proposed for designation as wild, scenic, or recreational under the Wild and Scenic Rivers Act

The mainstem of the South Platte River between Elevenmile Canyon and Strontia Springs Reservoir and the North Fork of the South Platte River between Insmont and the confluence with the mainstem have been ruled eligible for Wild and Scenic River status. However, in lieu of designation, the South Platte Protection Plan (SPPP) was developed by a core stakeholder group that included representatives from front-range water providers, county governments, state agencies, environmental groups, and recreation interests. The SPPP promotes a cooperative approach to protection of river-related resource values such as fisheries, geology, wildlife, scenery, recreation, and historic/cultural features, while recognizing that many Colorado communities depend on the South Platte River and its North Fork for municipal water supply and other uses that are critical to our economy and quality of life. The SPPP is to be implemented and monitored by the South Platte Enhancement Board (SPEB), which intends to work with numerous private, public, governmental, and quasi-governmental entities to achieve its goals for protection of resource values and water quality.

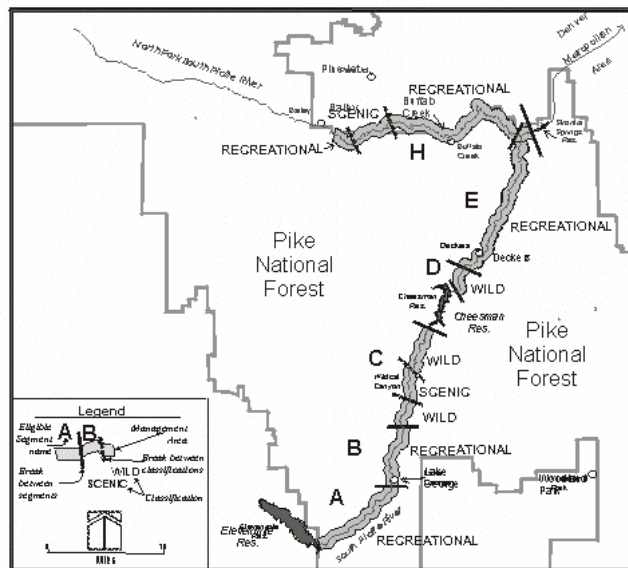
Guidelines for management of the various river segments on Forest Service lands are detailed in a Forest Plan Amendment created by the initial SPPP stakeholder group. The plan includes: a 20 year moratorium on dam building in the designated area; a one million dollar endowment for enhancement of river-related values; a stream flow management plan to enhance fisheries; recommendations for cooperative recreation and wildlife planning; and a commitment to protect the river and its resource values at a level equal to or greater than would be available through Wild and Scenic Designation. Should the SPPP ever become nonfunctional/noncomplying, it would trigger a re-opening of the Wild and Scenic suitability determination process.

It is important to keep the South Platte River Protection Plan and forest plan amendment intact in future management of this complex.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Eligible Segments with Classification



Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance.

Three quiet use areas are proposed. Indian Creek Waterton, Noddle Heads, and Jenny Gulch are recommended for Quiet Use to preserve or restore the roadless and non motorized character and improve water quality of the area between the Rampart Recreation Area and the South Platte River. This designation would require converting a few motorized trails to foot, mountain bike and horse use. Indian Creek is particularly valuable as a quiet use area because of the equestrian trail and the Colorado Trail heavily used by hikers and mountain bikers who often make loop trips off the Colorado Trail. A new single track trail is planned in the Indian Creek area south of Russell Gulch under the Rampart TMP, which may require adjustments of the quiet use area boundary.

Theme 3.2 – Connectivity Areas

Management emphasis is to facilitate daily, seasonal, and natal dispersal movements of native wildlife between larger blocks of suitable habitat.

Two connectivity areas are proposed in the South Platte Canyons Complex. The Goose Creek-Monument Gulch area will serve as good connecting habitat between the Green Mountain and Sheeprock Roadless Areas and the Lost Creek Wilderness in the South Park complex to the west. Management emphasis will facilitate daily, seasonal and natal dispersal movements of native wildlife between larger blocks of suitable habitat. The Nature Conservancy shows this area to be of moderate conservation value and SREP shows it as a wildlife linkage. A second connectivity area is located in Longwater Gulch south of forest road 221. Longwater Gulch is currently closed to motorized use because of severe erosion of routes following the Hayman fire. The current travel management plan will reopen some routes when conditions permit, and rehabilitation and potential rerouting in order to reduce erosion and enhance connectivity should be undertaken. A broader discussion of connectivity is found below.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities

Rampart South, covering much of the National Forest between Cheesman Reservoir and Thunder Butte, east of Northrup-Longwater Gulches, and south of Wildcat Canyon to US Highway 24, is in this theme. Buffalo Creek in the northwest, Elevenmile Canyon in the southwest, and the small Dome Rock and Pike Creek areas in the northeast are also recommended for this theme. These areas generally encompass areas of medium to high road densities. Management activities should consider best ways to protect sensitive wildlife areas: mule deer fawning areas; the elk calving area east of the South Platte River and south of Highway 24; winter range for ungulates; locations of rare, endangered or sensitive species, such as Preble's meadow jumping mouse (*Zapus hudsonius preblei*) and Pawnee

montane skipper butterfly (*Hesperia leonardus montana*), and accommodation of larger carnivores such as mountain lions and black bears.

Theme 9 – Significant Lands (Non-USFS)

Theme 9 management is used to highlight and acknowledge other lands critical to both habitat and connectivity, such as adjacent BLM lands. It is critical that Forest management consider the greater ecosystem to which it is connected and that forest activities be compatible with management activities on these adjacent public lands.

Theme 9.2 – Significant Non-Forest Service Biological Areas

Wild Connections has explicitly included State Parks, National Park administered areas, and natural areas managed for municipal water supply due to their important biological values. These are beyond the management authority of the USFS, but as the Wild Connections Conservation Plan is focused on larger ecoregion sustainability, these lands are critical to acknowledge regardless of political ownership.

Roxborough State Park, which is a designated Colorado Natural Area, is located at the northeast corner of this complex. It provides secure habitat for black bear, mountain lion, deer and elk, and nesting golden eagles, adjacent to the National Forest. The Park is managed for non-motorized recreation and visitor education, with use restricted to a limited number of trails. It has excellent examples of uplifted sedimentary rocks which rival Garden of the Gods or Red Rock Parks. Roxborough is very diverse as a result of its location in a transition zone between the plains and the mountains. The area's topography and geology has fostered microclimates with seven distinct plant communities in a unique mixture of prairie and mountain species.

Florissant Fossil Beds National Monument is located on the south end of this complex. Some thirty-five million years ago, volcanic eruptions in the Guffy Volcanic Region buried the valley and petrified the redwood trees that grew there. A lake formed in the valley and the fine-grained sediments at its bottom became the final resting-place for thousands of insects and plants. These sediments compacted into layers of shale and preserved the delicate details of these organisms as fossils. "When the mountains are overthrown and the seas uplifted, the universe at Florissant flings itself against a gnat and preserves it."-- Dr. Arthur C. Peale, Hayden Expedition Geologist, 1873. In addition to its paleontological values, the Fossil Beds provides a safe haven for part of the Pikes Peak elk herd that can be heard bugling in the fall and observed with their new born calves in the spring. The Monument is a stepping stone for connectivity between the Pike National Forest and Mueller State Park on the east and Elevenmile Canyon and South Platte River to the west.

Cheesman Reservoir, in the center of the South Platte Canyons Complex, is managed by Denver Water, including over 8,000 acres of land that surrounds the reservoir. It was the first reservoir of Denver's mountain facilities. It is named for water pioneer Walter Scott Cheesman. A century of fire suppression transformed the area surrounding the reservoir from a sparse open landscape when it was built in 1905 to a thick, combustible forest in 2000. Denver Water, in cooperation with forest agencies, undertook measures to reduce the risk of fire in the area. These measures reduced the impact of the Hayman fire on the reservoir and it is important for these cooperative efforts to continue in the future. Cheesman Reservoir is included in the TNC Blueprint's Cheesman area of moderate conservation value and the Colorado Natural Heritage Program's PCA of very high biodiversity significance.

Connectivity

An important aspect of our conservation perspective is connections between protected core areas. The South Platte Canyons complex has a relatively high degree of natural connectivity because of the proximity of roadless areas. However, for the most part, the roads that separate adjacent roadless areas, especially in the north end, tend to be high use travelways. This presents significant barriers to the free movement of animals between roadless areas. In the south end, the separating roads are of lower use, but the road density is in itself a barrier to wildlife movements. Also, Colorado Highway 24 is a major east-west travel route.

In some ways, the South Platte River which runs through the center of the complex is a barrier to many animals. From another perspective it is an aquatic corridor for fish, with several impassable barriers at Cheesman and Strontia Springs dams. The South Platte canyons may make east-west movements more difficult for some animals.

Connections between the complex and other nearby complexes vary. Connections to the Rampart Range complex to the east are dissected by many roads and motorized trails. The north is bounded primarily by private land which presents its own challenges to connectivity. The south and southeast links to Pikes Peak Massif and South Park are also heavily roaded, or have considerable private land. The best connection is on the west to South Park complex where Lost Creek Wilderness is immediately adjacent and separated only by a few low-use roads.

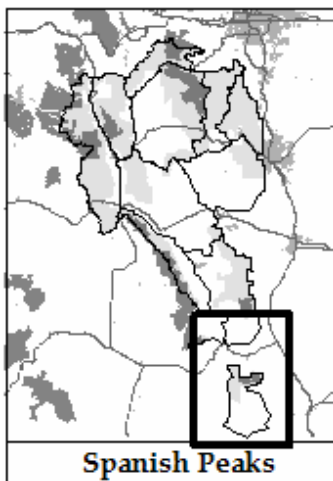
Summary

The South Platte Canyons complex has unusual scenic beauty and rugged wild country along parts of the South Platte River combined with high recreation use in other areas such as Elevenmile Canyon, Cheesman Canyon and downstream from Deckers. The lower elevations of the complex provide wildlife habitat for a range of important species including Pawnee montane skipper (*Hesperia leonardus montana*) and Mexican spotted owl (*Strix occidentalis lucida*). From an ecological and water quality standpoint, this complex is a key component of the wildlands network that will protect the resources of the Pike-San Isabel National Forest for many years to come.

The Spanish Peaks Complex



Purgatoire roadless area



The Spanish Peaks Complex is located between the Culebra Range and the twin cones of Spanish Peaks from the Cucharas River basin to Bosque del Oso State Wildlife Area.

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.11: Spanish Peaks Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Spanish Peaks complex is located at the extreme southern end of the San Isabel National Forest. It lies along the Culebra Range on the west, with the twin cones of East and West Spanish Peaks on the east. The San Isabel National Forest boundary in the north, near Copper King Canyon, and Bosque del Oso State Wildlife Area mark the northern and southern reaches of the complex. The Spanish Peaks are the dominant landmark, clearly visible from all directions. Most of the complex is in Huerfano and Las Animas Counties, with a very small portion on Trinchera Peak in Costilla County.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by management recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

East and West Spanish Peaks rise dramatically 7,000 feet from the Great Plains along the eastern front of the southern Rocky Mountains southwest of Walsenburg, reaching a height of 12,683 feet and 13,626 feet respectively. Volcanic dikes radiate out from the cone-shaped peaks, exposed remnants of magma forced into fissures as the igneous domes rose up through the surrounding sedimentary rocks in Tertiary time. To the west, the Culebra Range of the Sangre de Cristos continues its march from La Veta Pass to New Mexico. Along the Culebra crest, Trinchera Peak (13,517 feet) and Cuatro Peak (13,487 feet) are prominent along the Forest and complex boundary. Most of the rest of the Culebra Range is private lands, with some BLM land to the north toward La Veta Pass. The west side of the Culebras, outside this complex, is the private Sangre de Cristo Land Grant in Costilla County. Culebra Peak (14,047 feet), the highest peak in the range, is west of the divide and is the only Colorado Fourteener entirely in private hands. Bosque del Oso State Wildlife Area, the largest in the state, provides important public access and wildlife habitat at the south end of the complex. The privately owned Bar NI Ranch between the National Forest land and Bosque del Oso SWA has conservation oriented management. A number of streams drain these slopes: the largest, north to south, are the Cucharas River, Santa Clara Creek, Apishapa River, and the headwater tributaries of the Purgatoire River: Wet Canyon, San Pablo Canyon, North Fork of the Purgatoire River, Duling Creek, Howlott Creek, and South Fork of the Purgatoire River. The lowest parts of the complex are along the Purgatoire at about 6,800 feet on the east side of Bosque del Oso SWA.

The Spanish Peaks complex vegetation is very diverse, ranging from piñon -juniper woodlands and ponderosa pine on the south to large areas of Douglas-fir, aspen, and Engelmann spruce-subalpine fir in the higher northern parts, with scattered stands of bristlecone/limber pine, lodgepole pine, and Gambel oak. Alpine tundra is found along the Culebra ridge and on the higher reaches of the Spanish Peaks. Mountain grasslands and wet lands are complimented by riparian species in the creek corridors. Rare plants include big rough fescue (*Festuca campestris*), mountain whitlow-grass (*Draba rectifracta*), pale moonwort (*Botrychium pallidum*), western moonwort (*Botrychium hesperium*), and Colorado larkspur (*Delphinium ramosum var alpestre*).

The complex has important black bear habitat, especially in the south around the Bosque del Oso SWA. Bighorn sheep have extensive summer and winter range in the moderate and higher elevations along the west side of the complex and on Spanish Peaks. Elk and mule deer are pervasive especially in the south part of the complex, with summer and winter range and concentrations and large elk production areas. Higher forested areas include winter and denning habitat for lynx, and the Forest Service Lynx Amendment has identified a large linkage connecting the Spanish Peaks Wilderness across to the Culebra Range.

Ecological values of the complex

Several Potential Conservation Areas (PCA) of high and moderate significance, and five proposed Research Natural Areas (RNA) illustrate the biodiversity of the complex. The Nature Conservancy’s Southern Rocky Mountains Conservation blueprint (TNC blueprint) includes all but the Spanish Peaks Wilderness in its units of moderately low, moderate, and moderately high categories of biodiversity. The Southern Rockies Ecosystem Project’s Wildlands Network Vision (SREP Vision) shows two core wildernesses, several low compatible use areas, and a private core area on the Bar NI Ranch south of Purgatoire roadless area.

In addition to these special areas of biological importance, the Spanish Peaks complex is both an island of important wildlife habitat and a stepping stone to other areas, including linkages for ungulates, bear, lynx, and gray wolf into adjacent complexes and to the Vermejo area in northern New Mexico.

Wilderness and Roadless Areas

Although the surrounding private lands on both sides of the Culebra divide are heavily roaded, the San Isabel National Forest lands are primarily roadless. They have retained many of their relatively pristine wild characteristics. The areas are listed in Table 5.20.

Table 5.20: Spanish Peaks Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Bosque del Oso SWA	31,900	n/a*
Cuchara	13,300	Yes
Cuchara West	5,300	Yes
Purgatoire	17,700	Yes
Spanish Peaks Wilderness	17,900	n/a

**Area not managed by the US Forest Service (managed by the State of Colorado).*

Wilderness Areas

Spanish Peaks Wilderness

The Spanish Peaks Wilderness anchors the eastern side of the complex, and its twin cones can be seen from as far as 100 miles away, making it a landmark for travelers. Elevations range from about 10,500 feet in Wahatoya Creek to 13,626 feet on West Spanish Peak. The high peaks are alpine tundra and bare rocky slopes, surrounded by Engelmann spruce-subalpine fir and bristlecone/limber pine below tree line. There are large areas of Douglas-fir, with some aspen and ponderosa pine intermixed, as well as some very small areas of Gambel oak shrubland along the north boundary of the Wilderness.

Areas of high summer bear activity are found along the north side of the Spanish Peaks Wilderness. Bighorn sheep concentrate on the high peaks in summer, but move to the west for winter habitat. Although elk and mule deer are found in appropriate habitat across the Wilderness in summer, winter range for both and elk calving areas are outside the Wilderness to the north, east, and south. Lynx winter and denning habitat is found in the forest areas of the Wilderness, and the lynx linkage toward the west and the Culebra range is an important connection identified by both the Forest Service (Lynx amendment, 2004) and SREP (Linking Colorado’s Landscapes, 2005). SREP’s modeling for lynx also shows some lower priority potential linkages radiating

north and east from the Wilderness, although most of the documented radio collar signals of lynx are located more to the south (CDOW, 2005).

The proposed East Spanish Peak RNA is located on the northeast side of the Wilderness. It is valuable for the excellent condition of its mixed conifer, Engelmann spruce forests, and riparian natural communities. The rare plant, big rough fescue (*Festuca campestris*) is found in the Wilderness.

Hiking and backpacking into the Wilderness is accomplished via several trails, with a relative easy access to West Spanish Peak from Cordova Pass and a longer hike to the slopes of East Spanish Peak on the Wahatoya Trail. Spanish Peaks was proposed for Wilderness designation in what was to be the 1983 Colorado Wilderness bill, but disputes over an access road left it as a Study Area until it was designated in 2000.

Unprotected roadless areas

There are three other roadless areas on National Forest land in the Spanish Peaks Complex: Cuchara, Cuchara West, and Purgatoire. They were included in the Roadless Area Conservation Rule, although the Inventoried Roadless Area boundaries of two are somewhat smaller than those identified by UASPP field inventories. They include recommendations for four RNAs, and are rich in wildlife, scenery, and recreation values. The areas are described from north to south below.

Cuchara

The Cuchara roadless area, some 13,300 acres, is bounded on the north by the National Forest boundary and forest road 421, on the west by motorized trail 1300, on the south by forest road 422, which is the main access route into this part of the forest, and on the east by the National Forest boundary with private land adjacent to State Highway 12 and the town of Cuchara. The UASPP boundaries are larger than the Forest Service's Roadless Area Conservation Rule inventory on the east side north of the Cuchara Valley Ski Area and on the south, where the UASPP boundary extends to forest road 422. The Cuchara Inventoried Roadless Area extends west to the crest of the mountain range, but UASPP split off Cuchara West at motorized trail 1300 to accommodate some anticipated management recommendations.

Vegetation is primarily Douglas-fir, with some stands of lodgepole pine on the west and north, aspen on the south, and Engelmann spruce-subalpine fir on the southwest and west. There is some ponderosa pine, bristlecone/limber pine, and Gambel oak in lower elevations. Rare plant species include mountain whitlow-grass (*Draba rectifruca*), and both the pale and western moonworts (*Botrychium pallidum* and *B. hesperium*).

High black bear summer activity is found across the Cuchara roadless area, with a section of high fall activity along the east and northeast sides. Mountain lion may be sighted here, and mule deer and elk use the roadless area in the summer, with some winter range for deer in the north central portion. Lynx winter and denning habitat is well distributed across the area, though denser in the north central part of the area, and the lynx linkages identified by the Forest Service and SREP are located across the southern half. There have been some radio-collar lynx signals in Cuchara, although most are farther south.

The northern portion of Cuchara is included in the TNC Blueprint's La Veta Link area of moderately low conservation value and the center is in the Culebra Range area of moderately high conservation value. SREP's Vision shows most of the roadless area as low use.

Cuchara West

Lying between Raspberry Mountain on the north, the Culebra Range divide on the west, forest road 436 on the south, and trail 1300 on the east, the Cuchara West roadless area is a small but diverse area of 5,300 acres. As mentioned above, it was split off from the larger Cuchara Inventoried Roadless Area in anticipation of different management recommendations. The short spur forest route 413 is cherrystemmed into the area on the southeast.

Being higher than the Cuchara roadless area, Cuchara West is predominantly Engelmann spruce-subalpine fir, with some bristlecone/limber pine, and a small amount of aspen and lodgepole pine. The alpine area has a mixture of tundra forbs, alpine grasslands, wetlands, and some barren ground. There are two important natural communities in the area: lower montane woodlands of bristlecone pine and Thurber's fescue grass (*Pinus aristata/Festuca thurberi*) and montane woodlands of bristlecone pine and whortleberry (*Pinus aristata/Vaccinium myrtillus*). Pale and western moonworts (*Botrychium pallidum* and *B. hesperium*) and Colorado larkspur (*Delphinium ramosum var alpestre*) are also located here.

The TNC blueprint includes Cuchara West in its area of moderately high biodiversity significance. Teddys Peak PCA of high significance is located across the central part of the area and Teddys Peak is also recommended as RNA. SREP's vision shows the roadless area as low use.

Purgatoire

The Purgatoire roadless area, 17,700 acres, is the most wild of these roadless areas along the Culebra Range. It is bounded on the north by forest road 422, which goes to Blue Lake and Bear Lake and their campgrounds, and forest road 436, an unimproved dirt route that goes high onto Trinchera Peak. The eastern boundary follows the National Forest boundary near State Highway 12 over Cucharas Pass. The southern extent lies along the Beaubien and Miranda Maxwell Land Grant and the west boundary is along the crest of the divide. The North Lake State Wildlife Area (SWA) is at the southeast corner of the roadless area. Forest road 34 gives access through the SWA to the Purgatoire campground and to forest road 437, which has been cherrystemmed to allow continued access to the scenic views. The interior of the roadless area, with the exception of forest road 437, has only one trail – the North Fork foot and horse trail (trail 1309) – which goes northwest from the Purgatoire Campground along the stream to the Trinchera Road. Other trails shown on various maps are blocked at the east by private property and have disappeared, leaving only the faintest traces. In addition to the peaceful backcountry found along the North Fork Trail, a hike up route 436 to Trinchera Peak provides excellent views into the rugged cliffs above the North Fork of the Purgatoire River headwaters, as well as across the area in general.

The Purgatoire roadless area is primarily a mixture of Engelmann spruce-subalpine fir and aspen stands, with alpine tundra, grasslands, and barren areas on the west along the rugged ridge south of Trinchera Peak, some montane meadows in the center of the area, and Douglas-fir and bristlecone/limber pine along the eastern side. Of particular interest is the persistent aspen forests natural community of aspen and common juniper (*Populus tremuloides/Juniperus communis*). Pale and western moonworts (*Botrychium pallidum* and *B. hesperium*) and Colorado larkspur (*Delphinium ramosum var alpestre*) are also found here.

High summer activity of bears is found on the east side of the Purgatoire roadless area, part of a large area of summer and fall activity running south and southwest into the headwaters of the Purgatoire River and across Bosque del Oso SWA. Purgatoire roadless area is also part of a very large bear core area, identified by the Southern Rockies Ecosystem Project that continues well

into New Mexico. Bighorn sheep frequent the high ridges above the North Fork of the Purgatoire River and on down the drainage in winter and for lambing. This is the only large lambing area in this part of the San Isabel National Forest. Elk have extensive summer and winter habitat with a large calving area across the southwestern portion. Mule deer use the area in summer, but their wintering habitat is found east in the lower elevations of the Purgatoire basin. Lynx have extensive denning and wintering habitat, except in the higher elevations and in the central part of the roadless area. SREP's modeling found a high priority lynx linkages from the southern Purgatoire roadless area, across the Bar NI Ranch and west into the Rio Grande National Forest. In addition, there is a cluster of lynx radio-collar signals in the south and adjacent to the Purgatoire roadless area. Further, should gray wolves recolonize or be reintroduced, Purgatoire is a critical stepping stone between wolf core areas in New Mexico, along the Sangre de Cristo Range and on to the western Colorado core areas identified by SREP.

The TNC blueprint includes Purgatoire in its area of moderately high biodiversity significance. Perhaps a third of the area is included in the Purgatoire, Trinchera Peak, and Hells Canyon proposed RNAs. The Potato Patch PCA of moderate significance overlaps the Hells Canyon RNA. The Bar NI PCA of high significance lies right at the southern boundary of the roadless area, extending across the large Bar NI Ranch which is adjacent to the southern boundary of the roadless area. SREP's vision shows the roadless area as core wilderness. Together, these remarkable ecological values provide habitat in their own right for important species, as well as important connections from the southern reaches of the San Isabel National Forest to non-federal lands to the south.

Historical and Cultural Features of Spanish Peaks Complex

Some archeological, historical and cultural features of note include:

- The Spanish Peaks have been a landmark in southern Colorado for as long as humans have been here to view them. Los Cumbres Espanolos to the Spanish; Wahatoya, Huajatolla or Guajatoyah, roughly interpreted as "breasts of the earth" to Native Americans; and Twin Peaks, Dos Hermanos (Two Brothers), or Mexican Mountains to later travelers, they rise 7,000 feet above the surrounding land and can be seen from 100 miles away on a clear day.
- The Spanish Peaks have great traditional and religious significance to many peoples. The Tarahumare Indians believed they were the place where all of life emerged on the earth, and their prophet Grandote came to find water during a great drought. The Comanche, Apache, and Ute tribes held them in awe. Thunderstorms that form on the peaks in the summer were thought to be the work of gods.
- Various versions of the arrival of the earliest Spanish explorers carry this thread: the Spanish found gold and enslaved some Native Americans to dig it out. They then killed the Indians and left via Cucharas Pass south to the river. Somewhere near what is now Stonewall, they were attacked by a band of Native Americans and all were killed, leaving their gold buried somewhere in the vicinity. The river was named the "Rio de las Animas Perdido en Purgatorio", later to be changed by French trappers to "Purgatoire" and even later to "Picketwire" by English speaking settlers.
- The history of European and Spanish settlement focuses most heavily on the plains to the east where the Santa Fe Trail became a major trade route. In the early 1800's the Spanish Peaks were an important landmark for the Mountain and Taos branches of the Santa Fe Trail.
- Early travelers across the mountains used the Sangre de Cristo Pass, a relatively easy trip up the Huerfano River and into the headwaters of South Oak Creek, to the pass at 9,658 feet. Today US Highway 160 crosses North La Veta Pass a few miles to the south at 9,413 feet.
- The town of La Veta had its origins in 1862 when Col. John M. Francisco, and Judge Henry Daigle built Fort Francisco on land purchased from the Vigil-St. Vrain Land Grant. As

settlers moved into the Cucharas River valley, the town grew. By 1876 a narrow gauge railroad came through La Veta and on west across the newly surveyed La Veta Pass (now knows as Old La Veta or Veta Pass) to the Wagon Creek headwaters on the San Luis Valley side. The San Luis & Rio Grande Railroad plans to operate a daily excursion on this historic railroad between La Veta and Alamosa beginning in the summer of 2006. The railroad passes through the extreme northwest corner of the San Isabel National Forest north of forest road 421.

- Between 1876 and 1878 over 50 gold mines were staked out in the Spanish Peaks area with more around Silver Mountain to the north. The mines played out quickly, but then coal was discovered and became a growing industry, especially in the Purgatoire valley. A number of small communities there now serve tourists, local ranchers, and the gas production activities in Bosque del Oso SWA.
- Cuchara town is located on State Highway 12 surrounded by national forest on all sides, with Spanish Peaks Wilderness to the east and the roadless areas along the Culebra Range to the west. It is a center of tourism for the surrounding mountains.

Management Recommendations

Overview

The Wild Connections Conservation Plan recommends protection as Wilderness for the large Purgatoire roadless area, with Cuchara West as a Core Reserve (Theme 1). Five RNAs are recommended (Theme 2). Quiet Use (Theme 3) and Active Management for Wildlife Habitat (Theme 5) units are proposed for the remaining National Forest lands. Although outside the jurisdiction of the Forest Service, the Bosque del Oso State Wildlife Area is a Theme 9 Significant Non-Forest Service Biological Area. The table below lists the major management units by theme. Refer to the Spanish Peak Complex map for specific locations and refer to the roadless area descriptions for more details on the unit.

Table 5.21: Spanish Peaks Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Spanish Peaks Wilderness	19,300	1.1 Existing Wilderness
Purgatoire	17,700	1.2 Recommended Wilderness
Cuchara West	4,200	1.3 Core Reserve
Theme 2 – Special Areas		
East Spanish Peak RNA	2,700	2.1 Research Natural Areas
Hells Canyon RNA	1,700	2.1 Research Natural Areas
Purgatoire RNA	3,400	2.1 Research Natural Areas
Teddys Peak RNA	1,000	2.1 Research Natural Areas
Trinchera Peak RNA	2,100	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Cuchara North	8,600	3.1 Quiet Use Areas
Spanish Peaks Adj East	500	3.1 Quiet Use Areas
Spanish Peaks Adj West	3,500	3.1 Quiet Use Areas
Theme 4 – Recreation Emphasis Areas		
Highway of Legends	100	4.2 Scenic Byways
Theme 5 – Active Management		
Cuchara River/Creek	700	5.1 Active Mgmt - Wildlife Habitat
Cuchara South	3,100	5.1 Active Mgmt - Wildlife Habitat

Name	Acres	Recommended Management
Cuchara Valley Ski Area FS	1,600	5.1 Active Mgmt - Wildlife Habitat
Indian Creek	4,200	5.1 Active Mgmt - Wildlife Habitat
Spanish Peaks adjacent	5,500	5.1 Active Mgmt - Wildlife Habitat
Theme 9 – Significant Lands (Non-USFS)		
Bosque del Oso SWA	32,900	9.2 Significant Non-USFS Biological

Theme 1 – Natural Processes Dominate

Lands are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness as well as semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Spanish Peaks Wilderness is in this complex. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of the Wilderness Act. (http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for designation of the Purgatoire roadless areas as Wilderness. It is described in detail in the roadless area descriptions above. The proposed Wilderness boundary is the same as the UASPP roadless boundary. The following benefits were considered in making this recommendation: permanent protection to enhance wildlife habitat and connectivity, protecting sources of domestic water, providing for native species, and balancing motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation.

We believe that the Purgatoire area meets the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These criteria are discussed below, with notations as to particular values or potential conflicts.

Capability

The proposed Wilderness meets the capability requirements of the Wilderness Act of 1964 for designation. It provides unparalleled opportunities for solitude, challenge, and unconfined recreation once the trailheads are left behind. The rugged mountains along the Culebra crest, cliffs of the North Fork of the Purgatoire River headwaters, deep valleys without trails, long alpine ridges covered in tundra and rock, and groves of aspen and spruce contribute to its wild character. The imprints of humans are substantially unnoticeable, and the few old prospects are subsiding into the landscape. The mine on Trinchera Peak and prospects at the end of forest road 437 have been excluded from the boundary. Logging was limited or nonexistent within this proposed wilderness.

Availability

The private inholding in the south central part of Purgatoire may be perceived as an impediment, as it is not good policy to include private lands within a Wilderness boundary, although it has been done many times before. The inholding is accessible only by foot or horse. The proposed Wilderness contains no active mines. The watersheds and streams are already allocated, and no new water projects are planned. The proposed Wilderness boundary was drawn to exclude the Purgatoire campground and forest road 437 going toward Maxwell Mountain so that recreational access is maintained.

A part of the West Peak C&H grazing allotments, which barely overlaps into the extreme northeastern corner of Purgatoire, would be grandfathered in with Wilderness designation, although over time it should be retired if feasible. Overall, there are no known or anticipated threats to the area that would preclude its designation as Wilderness.

Suitability

Uses forgone in the proposed Wildernesses might be some future expansion of the motorized recreation trails which are now located north of Purgatoire. Today there is adequate access by vehicle on the north and south sides on existing roads, and the east and west sides are blocked by private lands.

There are numerous values that undergird the designation of the proposed Wildernesses and contribute to the National Wilderness System:

- The complex will add substantial riparian areas, wetlands, and old persistent aspen stands to the National Wilderness System.
- Habitat and areas for potential recolonization or reintroduction of large native carnivores, including lynx, would be protected.
- Domestic water supply sources are best protected from sediment and pollution when they are located on roadless areas. The Purgatoire proposed Wilderness includes the headwaters of the North Fork of the Purgatoire River which contributes to municipal water supplies downstream.
- There are outstanding opportunities for solitude, quiet backcountry recreation, and challenge throughout the area.
- Historical access to the forest in general is maintained on existing roads.
- Designation of additional Wilderness in this complex would help ensure that the impacts of fragmentation by roads, damage to riparian zones, loss of old-growth forests, and conversion to intensive recreation will not be exacerbated.
- The high mountain ridges and forest-covered lower slopes exemplify the wildness that now brings recreationists, tourists, and new residents to Colorado.
- Local economies will be enhanced by their proximity to this Wilderness area as prime destinations for self-guided and outfitter trips.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

- Cuchara West, although roadless and meeting many of the requirements for Wilderness, is recommended as a Core Reserve. Its long, narrow shape, bordered by roads and a motorized trail (trail 1300), makes it more suitable for core reserve than Wilderness. Cuchara West has

many values, including the large Teddys Peak proposed RNA, which will be best served by this designation.

Theme 2 – Special Areas

Theme 2 areas are managed to protect or enhance areas with unusual characteristics, including Research Natural Areas, special biological or geological areas, cultural/historical areas or other special designations.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNAs) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and increase the ecosystem representation, East Spanish Peak, Teddys Peak, Trinchera Peak (RNA), Hells Canyon, and Purgatoire (RNA) are recommended for addition to the RNA system. Each has its unique combination of ecological values which will enhance the system:

- The East Spanish Peak proposed RNA of approximately 2,700 acres, will preserve examples of mixed-conifer, riparian, and spruce-fir forest communities in excellent condition on the northeast side of the Spanish Peaks Wilderness. Eight plant associations contribute to the biodiversity of the proposed RNA, and one, the Douglas-fir/common juniper natural community (*Pseudotsuga menziesii/Juniperus communis*) would add significant acreage to the representation found in the RNA system. Upper Wahatoya Creek is located in the area, and the riparian zone is considered to be of high quality. Wood lily (*Lilium philadelphicum*), a state-rare plant, has been found here.
- Teddys Peak proposed RNA would preserve a nearly pristine area of 1,000 acres of spruce-fir and bristlecone pine forest and alpine tundra communities. The bristlecone pine cover large areas, and much of the spruce-fir has old growth characteristics, with the average age of cored trees being 470 years (CNAP, 1998) In addition, the bristlecone pine/curly sedge (*Pinus aristata/Carex rupestris*), bristlecone pine/whortleberry (*Pinus aristata/Vaccinium myrtillus*), curly sedge/minuartia (*Carex rupestris/Lidia biflora*), and Bellardi bog sedge (*Kobresia myosuroides*) alpine turf associations found here are not represented in any established RNA (CNAP, 1998).
- Trinchera Peak proposed RNA, 2,100 acres in extent, is located on the east slopes of the mountain in the Purgatoire proposed Wilderness. It is primarily Engelmann spruce-subalpine fir or tundra and bare slopes. It includes the rare Colorado larkspur (*Delphinium ramosum var. alpestre*) and good examples of aspen/common juniper natural communities (*Populus tremuloides/Juniperus communis*). It also intersects the Potato Patch PCA of moderate conservation significance and the Culebra Range TNC blueprint area of high uniqueness and moderate landscape integrity. The headwaters of the North Fork of the Purgatoire are partially located in the RNA.
- Hells Canyon RNA of 1,700 acres is on the east slopes of Cuatro Peak in the Purgatoire proposed Wilderness. Persistent aspen groves are one of the valuable characteristics of this area. The headwaters of the West Fork of the Purgatoire River are partially located in the RNA. It also intersects the Potato Patch PCA of moderate conservation significance and the Culebra Range TNC blueprint area of high uniqueness and moderate landscape integrity.
- Purgatoire proposed RNA of 3,400 acres is found in the southeast corner of the Purgatoire proposed Wilderness. Values for this RNA are described in the ecological evaluation (CNAP, 1998):

Aspect and elevation interact with periodic fires to produce a mosaic of cover types at Purgatoire. The high ridges support subalpine grassland, dominated by Thurber fescue (*Festuca thurberi*). These areas grade into open bristlecone pine stands, intermixed with aspen and other conifers. This RNA would protect these good condition examples of mixed-conifer, aspen and spruce-fir communities.

Most of the potential RNA is covered by spruce-fir, seral aspen, and mixed-conifer forest. Older stands of spruce-fir are characterized by a canopy of mature Engelmann spruce with younger trees occupying canopy gaps. These stands typically have a sparse understory of whortleberry (*Vaccinium myrtillus*) and a variety of forbs. Younger stands, still recovering from fire, support a more mixed canopy of corkbark fir and Engelmann spruce, with a dense subcanopy of aspen and young spruce. Shrub and forb cover in these areas is typically denser than in older stands.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance.

The Cuchara North proposed quiet use area is bounded on the south by the Dodgton Trail (trail 1302), a motorized trail that connects upslope to motorized trail 1300. Drawing the boundary of the quiet use area in this way will continue all current motorized use on the system of designated trails (trails 1300, 1301, and 1302) in the area between Blue Lake and Bear Lake Campgrounds, Indian Creek on the north and from Cuchara town. At the same time it will protect important wildlife habitat from expansion of that system and provide opportunities for quiet back country use.

Spanish Peaks Adjacent East and West areas, located at the respective ends of Spanish Peaks Wilderness, are roadless, and are recommended for quiet use designation. There is no inherent need to extend any adjacent roads closer to the Wilderness boundary.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate.

A small part of the Highway of Legends Scenic Byway, which follows State Highways 164 and 12 from Walsenburg through La Veta and on to Trinidad, is included where the route crosses forest land on Cucharas Pass. The Byway gives visitors a taste of historic coal mining operations, beautiful scenic views, and interesting geology at Stonewall and on the flanks of Spanish Peaks.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities.

The remaining lands around the Spanish Peaks Wilderness (Spanish Peaks adjacent and Cuchara River/Creek areas) not included in other management themes are recommended for active wildlife management. While they are rather fragmented in terms of land ownership and include various 4WD roads, they provide additional habitat and serve to connect the lower elevations out into the plains with the higher elevations of the Wilderness. This will be helpful for mule deer and elk that have extensive winter range, concentration areas, and elk calving grounds in the lower elevations outside the forest.

The Cuchara South area and the National Forest portion of the Cuchara Valley Ski Area are recommended to provide wildlife habitat between the Cuchara North quiet use area, the Cuchara West core reserve, and the Purgatoire proposed Wilderness. The ski area has been out of operation for a number of years, and the major activity on the east side is in the small subdivision that cuts into the forest in this location. The Cuchara roadless area includes the Cuchara South and Cuchara Valley Ski Area units, and we strongly recommend that all roadless lands be managed under the provisions of the Roadless Area Conservation Rule with additional guidance from the management objectives and guidelines of this theme.

The Indian Creek area recommended for active wildlife management to promote connectivity is north of Indian Creek to the forest boundary. There are a number of roads and some current logging, but the area still provides good wildlife areas for black bear, elk, and mule deer between the Cuchara North quiet use area and the adjoining private lands along the Culebra Range and toward La Veta Pass. The historical narrow gauge railroad that connected La Veta town to the San Luis Valley passes through the extreme northwest corner of the San Isabel National Forest north of forest road 421.

Theme 9 – Significant Lands (Non-USFS)

Theme 9 management is used to highlight and acknowledge other lands critical to both habitat and connectivity, such as adjacent BLM lands. It is critical that National Forest management consider the greater ecosystem to which it is connected and that forest activities be compatible with management activities on these adjacent public lands.

Theme 9.2 – Significant Non-Forest Service Biological Areas

The Wild Connections Conservation Plan has explicitly included State Wildlife Areas due to their important biological values. These are beyond the management authority of the USFS, but as the Wild Connections Conservation Plan is focused on larger ecoregion sustainability, these lands are critical to acknowledge regardless of political ownership.

The Bosque del Oso State Wildlife Area is located on a high ridge between the Purgatoire River and the South Fork of the Purgatoire River, with an extension across the South Fork of the Purgatoire

River drainage to Alamosa Canyon on the southeast. At more than 30,000 acres, it is the largest SWA in Colorado. Bosque del Oso is Spanish for “forest of the bear” and, along with black bear, this area and harbors one of the state’s large elk herds, as well as mountain lion, wild turkey, and a cold water fishery. The Colorado Division of Wildlife acquired the surface rights from the previous owner, a subsidiary of Montana Power Corporation, which retained the mineral rights. Virtually every canyon has a road far into the area for access to the many coal bed methane wells. The well pads, noise of compressors and large trucks detract from both the wildlife habitat and recreation, but in spite of this intrusion there are many areas where there is quiet and wildlife can go about their normal habits. Recreation is primarily hunting and fishing and many of the roads are open only to the gas company.

Connectivity

An important aspect of our conservation perspective is the potential for wildlife linkages between protected areas. Internal connectivity in the Spanish Peaks Complex is facilitated because the areas are adjacent to each other, with the main barrier being Colorado Highway 12 and the communities along it which separate Spanish Peaks Wilderness from the proposed Purgatoire Wilderness and roadless areas to the west. Although the Bosque del Oso SWA is also disjunct from the forest areas, the Bar NI Ranch provides conservation oriented management between the SWA and the Purgatoire proposed Wilderness.

Connectivity to other complexes is quite limited, as this part of the forest is surrounded on all sides by private lands. While the private parcels are primarily agricultural, there are many roads and spots of concentrated human activity. The important lynx linkage across the area and west into the San Luis Valley illustrates the tenuous nature of wildlife linkages. Across the divide, the land along the range that was part of the Spanish Land Grant is highly roaded in some areas, and has been the scene of long disputes between successive land owners and the people of the San Luis Valley who have historically been allowed to hunt, graze, and cut fuelwood on what were considered “common lands.”

The Spanish Peaks complex might be best thought of as a stepping stone along the path between the southern Wet Mountains and the Sangre de Cristos to the north and other lands adjacent on the east, west, and south.

Summary

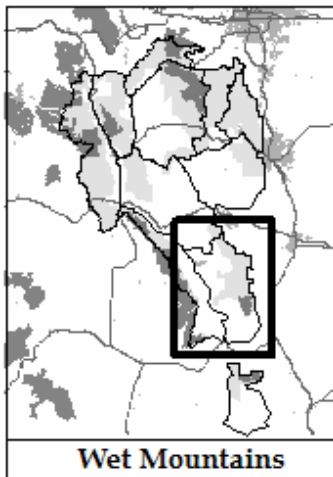
The Spanish Peaks complex is rich in historical, scenic, and ecological values. Its elevation gradients from the Culebra Range, along the heights of the Spanish Peaks Wilderness and down to the lower foothills and river corridors to the east and south contribute to a diversity of wildlife habitat. Anyone who has traveled along I-25 knows of this area, and it is an important link in the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

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The Wet Mountains Complex



Highline roadless area



The Wet Mountain Complex is located between the Arkansas River on the north, the Huerfano drainage on the south, the central Wet Mountain Valley on the west and the I-25 corridor, Pueblo and the exurban subdivision at Colorado City on the east

Eleven complexes centered on geographical features encompass sections of the Pike-San Isabel National Forest, adjacent BLM, state, and private lands. Fitting together like a mosaic, they cover the headwaters of the South Platte and Arkansas Rivers.

Map 5.12: Wet Mountains Complex Proposed Management

Note: This map is located in the pocket at back of the document for usability.

Description

Overview

The Wet Mountain complex is located between the Arkansas River on the north, the Huerfano drainage on the south, the central Wet Mountain Valley on the west, and the I-25 corridor, Pueblo and the exurban subdivision at Colorado City on the east. The San Isabel National Forest covers the mountainous portions, with some BLM land on the north, south, and west. Approximately half of the complex, primarily on the west side in the Wet Mountain Valley and in the Huerfano valley, is private land. The complex is located mostly in Custer and Huerfano counties with the northern and eastern sides in Fremont and Pueblo counties respectively. Looking east from the Wet Mountain Valley the rolling intermountain grasslands rise to the ridge of mountains, and from Interstate 25 the mountain ridge of the complex is immediately to the west.

A description of the landscape, vegetation, wildlife, and ecological values, including detailed descriptions of roadless areas, is followed by the recommendations for the complex organized according to the management themes. A discussion of connectivity within the complex and to adjacent complexes is found at the end.

The landscape and wildlife

The Wet Mountain range trends from northwest to southeast, gradually ascending in elevation to Greenhorn Mountain Wilderness at the south end. The granite core of the range was formed during the Laramide orogeny that began uplifting these mountains through surrounding sedimentary rock some 65 million years ago. In addition to Greenhorn Mountain, other notable peaks are Bears Head, Scraggy Peaks, St. Charles Peak and North Peak. Elevations range from 6,400 feet on the northeast to 12,347 feet on Greenhorn Mountain and down to 7,300 feet in the far south, where the complex extends beyond the Forest boundary across private lands into the Huerfano drainage. A number of creeks flow generally eastward, including Oak Creek, North and South Hardscrabble Creeks and the St. Charles River. Williams Creek drains the southwestern part of the complex, eventually joining the Huerfano River that flows east toward the Arkansas River.

The lower elevations found here are generally forest covered mountains, with the exception of tundra on the highest parts of North Peak and Greenhorn Mountain. The vegetation on the north end of the complex is primarily Douglas-fir and some significant areas of ponderosa pine on the northeast around Bears Head, while Engelmann spruce-subalpine fir appear in the higher mountain areas such as St. Charles Peak, North Peak, and Greenhorn Mountain, with more Douglas-fir and mixed forest on the south. In addition there are smaller acreages of aspen, particularly on the west side of the mountains. The Wet Mountain Valley and the Huerfano drainage include mountain grasslands, ponderosa pine, piñon-juniper woodlands, shortgrass prairie, and Gambel oak shrublands.

Habitat for black bear, mountain lion, bighorn sheep, deer, elk and lynx are found across appropriate parts of complex. This includes bighorn sheep winter range on the south end, large elk calving areas east and west of the St Charles and Greenhorn Mountain areas and pronghorn winter range in the central Wet Mountain Valley and to the south of Greenhorn Mountain, both outside the Forest boundaries. Rare species include Mexican spotted owl (*Strix lucida occidentalis*), three genetically pure strains of greenback cutthroat trout (*Oncorhynchus clarki stomias*), American peregrine falcon

(*Falco peregrinus anatum*), historical records of wolverine (*Gulo gulo*), and many rare plants and plant communities.

Ecological values of the Wet Mountains complex

Two proposed RNAs - Apache Creek and Big Red Butte; several Colorado Natural Heritage Program PCAs (one each of very high and high significance, three of moderate significance and one of general biodiversity interest), and two State Wildlife Areas attest to the ecological importance of the Wet Mountains and surrounding grasslands. In addition, the majority of the complex is rated by The Nature Conservancy’s Conservation Blueprint (TNC Blueprint) be of moderate biological value and Southern Rockies Ecosystem Project’s Vision (SREP Vision) shows the mountain roadless areas as core wilderness.

Roadless and Wilderness Areas

There are 16 Wilderness and Roadless Areas in this complex including Greenhorn Mountain Wilderness. Most of these areas are stepping stones along the mountain crest, separated only by one road, often in a creek corridor. All but four were included in the Roadless Area Conservation Rule, although several that were inventoried by UASPP have significantly larger acres. Table 5.22 lists the areas.

Wilderness Areas

Greenhorn Mountain Wilderness

Greenhorn Mountain Wilderness, at more than 22,000 acres with two high peaks – North Peak and Greenhorn Mountain – anchors the south end of the mountain range. It rises dramatically from the surrounding lower areas on the east, south and west, and from the

Wilderness tundra there are unparalleled views of both the Colorado plains and the surrounding mountains – Spanish Peaks to the south, the Sangre de Cristo Range to the west and northwards along the Wet Mountains. The Wilderness boundaries are set back from the Forest boundary on the east, south and west, and the north boundary follows part of trails 1316, 1315 and topographical features. The Roadless Areas around the perimeter are recommended for addition to this Wilderness, as they remain unroaded and wild.

About two-thirds of the Wilderness is forested, mostly with Douglas-fir, aspen and Engelmann spruce-subalpine fir, with areas of mixed conifers and some ponderosa pine and piñon-juniper especially on the southwest side, and Gambel oak. Alpine tundra is found near the summits of North Peak and Greenhorn Mountain.

Black bear are found across the central portion of the Wilderness; bighorn sheep, deer and elk are found year round, with bighorn winter range across most of the Wilderness. Deer and elk have winter range in the lower elevations on the east, south and west sides, and a significant portion of the large elk calving area to the west overlaps the Wilderness. Lynx habitat is found across the

Table 5.22: Wet Mountains Roadless Areas

Name	Acres (UASPP)	Roadless Under Roadless Rule
Antelope Mountain	8,000	No
Apache Creek	3,800	Yes
Badito Cone	1,500	Yes
Bears Head	12,400	No
Cisneros Creek	3,500	Yes*
Greenhorn Creek	9,100	Yes
Greenhorn Mountain Wilderness	22,000	n/a
Greenhorn Mountain South	900	Yes
Hardscrabble	8,400	Yes
Highline	19,700	Yes*
Lewis Creek	6,800	Yes*
Pole Creek	8,800	No
Santana Butte	1,100	Yes
Scraggy Peaks	15,200	Yes
St. Charles Peak	16,900	Yes
Williams Creek East	5,700	No

*Roadless rule area has significantly fewer areas than UASPP inventory.

Wilderness. Species of note found in the Wilderness are greenback cutthroat trout (*Oncorhynchus clarki stomias*), peregrine falcon (*Falco peregrinus anatum*), Mexican spotted owl (*Strix occidentalis lucida*), a historical record of wolverine (*Gulo gulo*), and the rare reflected moonwort (*Botrychium echo*).

The Apache Creek proposed RNA, of some 10,100 acres, spans the central Wilderness from east to west. PCAs overlapping the Wilderness include Greenhorn Creek (very high significance), South Apache Creek (moderate significance), and Mexican Springs (general biodiversity interest). The TNC Blueprint's Conservation Blueprint shows the Wilderness as moderate conservation value.

The only trails in the Wilderness are in the northern half – only eleven miles- while the southern half, which is very rugged and virtually without water, probably has few visitors.

Unprotected roadless areas

Other Roadless Areas in the complex exhibit a great diversity of vegetation and wildlife, and all are of relatively low elevation compared to many of the roadless areas in the Pike-San Isabel. From north to south, they are:

Highline

The Highline roadless area of 19,700 acres, located on the north end of the complex, is bounded on the north and east by the Forest Boundary, on the south by Highway 96 along North Hardscrabble Creek, and on the west by the Oak Grade Road, trail 1329, forest road 274, and private property. The Lewis Creek motorized trail cuts across the roadless area on the south. Several creeks, including Newlin Creek and Lewis Creek, drain east. Locke Park is within the boundary on the west side. Adobe Peak and Stull Mountain, both at more than 10,000 feet are notable, and elevations are as low as 6,700 feet on the northeast side. The area inventoried by UASPP is significantly larger on both the north and south than that of the Roadless Area Conservation Rule inventory.

The Highline roadless area is primarily Douglas-fir, with some smaller areas of ponderosa pine and aspen, and a significant area of piñon-juniper and mountain shrubland on the north. Rare species include sightings as late as 2000 of Mexican spotted owls (*Strix occidentalis lucida*). The rare Degener beardtongue (*Penstemon degeneri*) grows here.

Black bear and mountain lion roam across the area, with areas of high bear activity in the summer and fall around the periphery of the area. Bighorn sheep have both summer and winter range on the south end and nearby foothills on the east. Mule deer have summer range across the whole areas with winter range on the east and south side. There is both summer and winter range across the area for elk, with an elk calving area on the northwest side. Lynx habitat, including good denning habitat, exists across the south half. Newlin Creek and its headwaters have one of the few remaining genetically pure populations of greenback cutthroat trout (*Oncorhynchus clarki stomias*), an important value considering the radical decrease in this species over the past 100 years. The lower elevations of Highline and riparian areas enhance the biodiversity of this area.

An area of biological richness in the Highline roadless area is found in the Newlin Creek-Adobe Peak areas with the aforementioned greenback cutthroat trout (*Oncorhynchus clarki stomias*), Mexican spotted owl (*Strix occidentalis lucida*) and peregrine falcon, aspen stands and old-growth spruce-fir. There are three PCAs in the area: Locke Park of high significance, South Fourmile Creek of moderate significance, and Smith Creek of general biodiversity interest. The

roadless area is rated as moderate conservation value by the TNC Blueprint. SREP's vision lists the roadless area as core wilderness.

Hardscrabble

The Hardscrabble Roadless Area is 8,400 acres that is defined by the three forks of Hardscrabble Creek: it is bounded on the north by North Hardscrabble Creek as it follows State Highway 96 and on the south by forest road 386 as it follows South Hardscrabble Creek. Middle Hardscrabble Creek rises on Rudolph Mountain (10,334 feet) on the west central boundary, falling steeply to about 7,600 feet on the eastern boundary. The eastern and western boundaries follow the National Forest boundary. The Roadless Area Conservation Rule inventoried area is slightly smaller than the area inventoried by UASPP.

The north side of Hardscrabble has Douglas-fir with a few incursions of ponderosa pine and mountain shrublands, while the south side is mixed blocks of Douglas-fir, aspen, mountain shrublands, and a bit of Engelmann spruce-subalpine fir. CNHP lists a rare natural community of white fir-Colorado blue spruce-narrowleaf cottonwood/Rocky Mountain maple (*Abies concolor-Picea pungens-Populus angustifolia/Acer glabrum*) montane riparian forests and prairie violet (*Viola pedatifida*) in this area.

Mexican spotted owls (*Strix occidentalis lucida*) are recorded here. Mountain lion are found here, and there are summer and fall areas of high black bear activity. Elk have both summer and winter range, and deer use the whole area in the summer and the lower elevations on the east side in winter. There is lynx habitat, including good denning habitat, across the whole area, and the north side is potential peregrine falcon habitat. The ruggedness of the area provides security for wildlife, as human encounters are likely rare in the interior.

Hardscrabble is part of the larger TNC Blueprint area of moderate conservation value. SREP's Vision show the roadless area as core wilderness.

Bears Head

The 12,400-acre Bears Head roadless area is an outtrigger of forest southeast of Wetmore. It is surrounded on all sides by private property and includes the large private holding in Babcock Hole. The roadless area boundary is the same as the Forest boundary. The nearest perimeter roads are County Road 201 on the east, Colorado Highway 96 on the north, forest road 387 on the west and forest road 212 – the North Creek road – on the south. Bears Head (7,755 feet), Little Red Butte (7,864 feet) and Big Red Butte (7,864 feet) are prominent landmarks. Red Creek drains out of Babcock Hole to the northeast, South Hardscrabble Creek flows through the lush private pastures on the west, and North Creek is adjacent to the south boundary. Although sizable, Bears Head was never included in the Roadless Conservation Rule inventories.

The Bears Head roadless area has stands of ponderosa pine on the east side and ponderosa pine and Douglas-fir on the west side. Some piñon-juniper and mountain shrublands are found around the edges in the lower elevations and gulches. The Mason Gulch fire of 2005 burned across nearly all of the roadless areas, so vegetation patterns are likely considerably altered. A full assessment of the post-fire habitat will be revealing. The not-so-common hog-nosed skunk (*Conepatus leuconotus*), Degener beardtongue (*Penstemon degeneri*) and prairie violet (*Viola pedatifida*) are listed by CNHP as rare species in the area.

The low elevation of the area provides excellent habitat for wild turkey, black bear, mountain lion, deer, and elk year around. Pronghorn can be seen on the northeastern edges. Although

Babcock Hole is excluded from the roadless area, its lower elevations (6,200 - 6,400 feet), limited ranching activities, and a narrow canyon entrance provide relatively secure wildlife habitat that complements the surrounding forest land.

The Big Red Butte proposed RNA of more than 4,000 acres is located across the southern third of the Bears Head area. The Colorado Natural Areas survey noted that RNA designation would preserve and provide representation of ponderosa pine forest/Gambel oak and Gambel oak/mountain mahogany shrublands communities (*Pinus ponderosa/Quercus gambelii* and *Quercus gambelii/Cercocarpus montanus*) in good condition. Most of Bears Head is included in the larger TNC Blueprint area of moderate conservation value. SREP's Vision shows the roadless area as core wilderness. The effects of the Mason fire on these conservation values are unknown at this time.

Scraggy Peaks

The Scraggy Peaks roadless area's 15,200 acres are bounded on the east by the National Forest boundary and Pueblo Mountain Park; the south boundary follows the National Forest boundary and natural features west until it intersects trail 1321. The western boundary follows trails 3121, 1384, 1322, 1388, 1323, forest road 383, and the National Forest boundary from near Bigelow Divide north to forest road 386 and South Hardscrabble Creek. The northern boundary is along forest road 386 and South Hardscrabble Creek. The area is cut by a number of creeks creating very rugged topography with canyons and ridges. Round Top Mountain (10,180 feet), Scraggy Peaks (9,198 feet), and Potato Mountain (8,872 feet) are notable peaks in the area.

The Scraggy Peaks roadless area's forests are primarily Douglas-fir with some mountain shrublands, aspen and ponderosa pine. Prairie violet (*Viola pedatifida*) white fir-Colorado blue spruce-narrowleaf cottonwood/Rocky Mountain maple (*Abies concolor-Picea pungens-Populus angustifolia/Acer glabrum*) montane riparian forests, and Mexican spotted owls (*Strix occidentalis lucida*) are recorded here.

Bear, mountain lion, elk and mule deer find year round habitat here, especially in the lower areas. A large elk calving area is located just south of the roadless area. There is patchy lynx habitat, including both winter and denning habitat, across the whole area.

Scraggy Peaks is part of the larger TNC Blueprint area of moderate conservation value. SREP's Vision shows the roadless area as core wilderness.

Antelope Mountain Roadless Area

The Antelope Mountain roadless area of 8,000 acres juts out into the Wet Mountain Valley northwest of St. Charles Peak. Its eastern boundary is along forest roads 396, 395, and 314, and the south, west, and north boundaries are contiguous with the Forest boundary. Antelope Mountain (10,750 feet), Antelope Park, and Lilly Park are on the west side of the area. Antelope and Breece Creek drain west to the Wet Mountain Valley. This area was not included in the Roadless Conservation Rule inventory.

The Antelope Mountain roadless area has extensive areas of mountain grasslands and aspen stands, with some Engelmann spruce-subalpine fir, bristlecone/limber pine, limber pine, and Douglas-fir.

Mountain lion and bear are found here with an area of high summer activities for bears across the western three-fourths of the area. Deer use the area in the summer but are concentrated on the

west side, with winter range on the south portion. Elk have both summer and winter range across the area. A large elk calving area extends from Antelope Mountain, where it overlaps the eastern side of the roadless area, running southeast well into the Greenhorn Mountain Wilderness. There is very scattered lynx habitat across the area. The mountain meadows and aspen groves provide good contrast to the forested conifer slopes of most of the rest of the complex.

The Breece Creek area on the south side contains many stands of old aspen. Like the rest of the Wet Mountains, Antelope Mountain is included in The TNC Blueprint's designation of moderate conservation value. SREP's Vision lists the roadless area as core wilderness.

St. Charles Peak

The St. Charles Peak roadless area of 16,900 acres is located west of Colorado Highway 165 from Bishops Castle to just south of Lake San Isabel. The highway and National Forest boundary forms the eastern boundary; trail 1318 is the southern boundary; forest road 369 is on the west; and forest road 360 and Ophir Creek form the northwest boundary. St. Charles Peak at 11,784 feet dominates the northern end of the area, where tributaries flow off the peak to form the St. Charles River that flows into Lake San Isabel. To the east, outside the roadless area, the St. Charles River cuts a major canyon that is one of the few remaining Mexican spotted owl locations in central Colorado. Lake San Isabel, a popular recreation area, is excluded from the roadless area. UASPP's boundary is larger than the Roadless Area Conservation Rule Inventoried Roadless Area on the west and south sides.

The vegetation in the St. Charles Peak roadless area is predominantly Engelmann spruce-subalpine fir. St. Charles Peak also has Douglas-fir interspersed with aspen on the east side, especially in the St. Charles River drainage across the south central part of the roadless areas. There are extensive wetlands on the west central side of the area. Rare species include reflected moonwort (*Botrychium echo*) and historical records of wolverine (*Gulo gulo*).

Mountain lion and black bear are found across the area, and there are areas of high bear summer and winter activities on the east side, with the summer activity concentrations extending westward in the St. Charles drainage. Bighorn sheep are found on the south side in the summer, part of a larger summer range extending south into Greenhorn Mountain Wilderness. Deer and elk have summer range across the area with deer winter range on the east and elk winter range on the north side. There are several elk calving areas in St. Charles Peak. The large calving area that extends from Antelope Mountain southeast into the Greenhorn Mountain Wilderness overlaps into the west side of the St. Charles Peak area. Another calving area is located in the Amethyst Creek area and a third large calving area extends from the eastern edge of the roadless area along the St. Charles Creek drainage for some 8-10 miles to the east. Lynx general habitat with both winter and denning habitat, spreads across the area, although it is somewhat scattered on the south side of the roadless area.

A large, relatively undisturbed, steep-sloped area of spruce-fir and Douglas-fir is located in the east central portion of the area. St. Charles Peak is included in the TNC Blueprint large Wet Mountain area of moderate conservation value. SREP's Vision lists the roadless area as low use.

Williams Creek East

The Williams Creek East roadless area, some 5,700 acres, lies southwest of St. Charles Peak on the edge of the San Isabel National Forest. The area is bounded on the east and south sides by forest roads 369 and 402, on the west by the National Forest boundary and on the north by forest roads 634 and 369. The East Fork of Williams Creek originates in the north central area and

flows along the west side.

The Williams Creek East roadless area's vegetation is predominantly mountain grasslands and aspen, with wetlands and some Engelmann spruce-subalpine fir on the east side at higher elevations.

Mountain lion are found across the area, and black bear have areas of high summer activities in the west and high fall activities in the southwest. Elk have both summer and winter range, and most of the area is part of the large elk calving grounds extending from Antelope Mountain southeast into Greenhorn Mountain Wilderness. Mule deer have summer range across the area, with winter range in the west. There is lynx habitat, including denning habitat, across the area, although like much of the Wet Mountains, the habitat is quite scattered. Rare species in the area include reflected moonwort (*Botrychium echo*) and historical records of wolverine (*Gulo gulo*).

Most of Williams Creek East is included in TNC's large Wet Mountain area of moderate conservation value. SREP's Vision lists the roadless area as low use. The mountain meadows, aspen stands, and wetlands in the Williams Creek East area contribute much diversity to the conifer forests which predominate in this complex.

Pole Creek

The Pole Creek roadless area of 8,800 acres is south-southwest of St. Charles Peak, bounded on the east and south by forest roads 369 and 637 respectively, on the west by trail 1397 and the National Forest boundary, and on the north by forest road 402. Most of the headwaters of the North and South Forks of Bear Creek and Pole Creek are inside the area. This area was not included in the Roadless Conservation Rule inventory.

The vegetation in the Pole Creek roadless area is Engelmann spruce-subalpine fir on the eastern higher portion, a large band of aspen through the central portion, and a mix of Douglas-fir, mountain shrublands and piñon-juniper is on the southwest. Reflected moonwort (*Botrychium echo*) is a rare plant of the area.

Mountain lion and black bear can be found across the area, with bears concentrated on the west and southwest. Bighorn sheep are found on the west side in the summer. Elk have both summer and winter range here, and the large elk calving grounds extending from Antelope Mountain southeast into Greenhorn Mountain Wilderness runs across the center of the roadless area. Mule deer have summer range across the area, with winter range on the west. There is very scattered lynx habitat in the area, including denning habitat, except on the far southwest side. The Forest Service has identified a lynx linkage between Pole Creek and the Muddy Creek headwaters of the Sangre de Cristo Mountains.

All of Pole Creek is included in TNC's large Wet Mountain area, which is of moderate conservation value. SREP's Vision lists the roadless area as core wilderness.

Cisneros Creek

The Cisneros Creek roadless area, at 3,500 acres, is located north of North Peak and Greenhorn Mountain. The boundary on the east follows forest road 369, the access road to Greenhorn Mountain Wilderness. On the south the area is directly adjacent to the Greenhorn Wilderness. On the west the boundary of the area follows forest road 409 to its junction with forest road 369. Cisneros Creek flows across the area. Approximately two-thirds of the area is included in the Roadless Area Conservation Rule inventory, with the UASPP area larger on the northwest.

The Cisneros Creek roadless area is mostly Engelmann spruce-subalpine fir, with some aspen and wetlands. Reflected moonwort (*Botrychium echo*) is a rare plant of the area. There is an historical wolverine (*Gulo gulo*) record in the general vicinity, although the precise location is not available.

Mountain lion can be found across the area. Bighorn sheep are found across the whole area in the summer. Elk have summer range across the area and winter range in the lower elevations on the west side, and the large elk calving grounds extending from Antelope Mountain southeast into Greenhorn Mountain Wilderness covers the whole roadless area. Mule deer also are found across the area in the summer. There is lynx habitat in the area as well.

Cisneros Creek is included in TNC's moderate conservation value category. SREP's Vision shows the roadless area as core Wilderness.

Greenhorn Creek

The Greenhorn Creek roadless area's 9,100 acres lies northeast of Greenhorn Mountain and directly east of the Cisneros Creek roadless area. It is bounded on the west by forest road 369, the access road to Greenhorn Mountain Wilderness. On the south the area is directly adjacent to the Greenhorn Wilderness. The eastern boundary is the forest boundary adjacent to Colorado Highway 165, and the northern boundary follows trail 1318 to Colorado Highway 165. Several creeks drain to the east including North Muddy Creek and Greenhorn Creek. The majority of the area was included in the Roadless Conservation Rule inventory.

The Greenhorn Creek roadless area is forested with a wide band of Engelmann spruce-subalpine fir through the middle, montane meadows and wetlands on the higher west side, and Douglas-fir, bristlecone/limber pine and aspen along the lower eastern side. There are two rare montane riparian communities: narrowleaf cottonwood/thinleaf alder (*Populus angustifolia/Alnus incana*) and white fir-Colorado blue spruce-narrowleaf cottonwood/Rocky Mountain maple (*Abies concolor-Picea pungens-Populus angustifolia/Acer glabrum*) as well as the reflected moonwort (*Botrychium echo*) in the area.

There is an historical wolverine (*Gulo gulo*) record in the general vicinity, although the precise location is not available, and Mexican spotted owls (*Strix occidentalis lucida*) are recorded here. One of the complex's three locations of genetically pure greenback cutthroat trout (*Oncorhynchus clarki stomias*) is found in the Greenhorn Creek and its headwaters. Mountain lion can be found across the area. Black bear have summer high activity areas on the east. Bighorn sheep, mule deer, and elk summer across the area, with deer winter range on the east and elk winter range on the edges. There is a small elk calving area on the east side. Lynx habitat, including denning habitat, is found in all but the lowest elevations.

The Greenhorn Creek PCA of very high significance is located across the southern half of Greenhorn Creek and over into the Greenhorn Mountain Wilderness. As with the other Wet Mountain areas, Greenhorn Creek is part of TNC's area of moderate conversation value. SREP's Vision shows the roadless area as core wilderness.

Apache Creek and Greenhorn Mountain South

The 3,800-acre Apache Creek roadless area and the 800-acre Greenhorn Mountain South roadless area lie east of Greenhorn Mountain Wilderness, with the eastern boundary along the forest boundary. These roadless areas are directly adjacent to the Greenhorn Mountain Wilderness to

the west. Apache Creek and Greenhorn Mountain South share the same natural features and are separate areas only because of the configuration of the Wilderness boundary. The steep slopes have deeply incised canyons in the drainages such as Graneros Creek, Little Graneros Creek, and the two forks of Apache Creek. Both areas were included in the Roadless Area Conservation Rule inventory.

The Apache Creek roadless area is a mix of Douglas-fir and bristlecone/limber pine with some small areas of mountain shrublands and piñon-juniper. Greenhorn Mountain South is about equally covered with Douglas-fir and mountain shrublands

American peregrine falcon (*Falco peregrinus anatum*), Mexican spotted owl (*Strix occidentalis lucida*) and one of the three genetically pure populations of greenback cutthroat trout (*Oncorhynchus clarki stomias*) are rare species found here. Mountain lion and black bear summer and fall high activity locations are found across the area. Bighorn sheep have winter range here, although they likely go to the higher elevations in the Wilderness in the summer. Mule deer and elk have summer and winter range across most of the area, and there is a large elk calving area to the east of Apache Creek outside the forest boundary. There is lynx habitat across the areas although the habitat is quite scattered.

The Apache Creek proposed RNA stretches east-west across the Wilderness and adjacent roadless areas, with its eastern end in Apache Creek. This proposed RNA is described in the discussion of the Greenhorn Mountain Wilderness above. The South Apache Creek PCA of moderate significance is contiguous with the proposed RNA in this area. Apache Creek and Greenhorn Creek South are both part of TNC's area of moderate conversation value. SREP's Vision shows both roadless areas as core wilderness.

Badito Cone

Badito Cone (8,942) is located at the south end of the Wet Mountain Range, with its distinctive volcanic cone visible from the surrounding area. The 1,500-acre Badito Cone roadless area is directly adjacent to the Greenhorn Mountain Wilderness on the north. The other three sides of the area are defined by the Forest Boundary.

The Badito Cone area is noted for being almost entirely piñon–juniper.

American peregrine falcon (*Falco peregrinus anatum*), Mexican spotted owl (*Strix occidentalis lucida*) and greenback cutthroat trout (*Oncorhynchus clarki stomias*) are rare species listed here. Mountain lion and black bear are found in the area. Bighorn sheep have winter range, while elk and deer have both summer and winter range in the Badito Cone roadless area.

Badito Cone is part of TNC's area of moderate conversation value. SREP's Vision lists the roadless area as core wilderness.

Santana Butte

The Santana Butte roadless area of 1,100 acres is directly adjacent to the Greenhorn Mountain Wilderness on the north and east. The National Forest boundary defines the rest of the boundary of the area. Santana Butte itself is 8,433 feet in elevation and the western side of this small area is generally lower elevations. Maes Creek flows across the central area.

Like the Badito Cone roadless area, the Santana Butte roadless area is all piñon–juniper, thus providing lower elevations adjacent to the higher designated Wilderness.

Mountain lion and black bear are found here, with summer and fall areas of high bear activities. Bighorn sheep have winter range across the whole area. There is elk summer range, and the roadless area lies in the southern extent of the large elk calving grounds extending from Antelope Mountain southeast into Greenhorn Mountain Wilderness. Mule deer have summer and winter range across the area.

Santana Butte is part of TNC's area of moderate conservation value. SREP's Vision lists the roadless area as core wilderness.

Historical and Cultural Features of the Wet Mountains

Some archeological, historical and cultural features of note include:

- The Greenhorn River and Greenhorn Mountain take their name from the 18th century Comanche Chief Cuerno Verde. He and his band were defeated in a battle with Juan Bautista de Anza near the foot of Greenhorn Mountain in 1779.
- Coal and oil discovered north of the complex near Florence and Cañon City brought early energy development and the railroad. A. M. Cassidy drilled the first oil well west of the Mississippi in 1862 north of Cañon City.
- The Hardscrabble mining district southwest of Wetmore attracted prospectors as early as 1863, but it did not produce much wealth until the 1870s when the Pocahontas-Humboldt and the Bassick veins produced several million dollars worth of silver and gold.
- Silver Cliff in the Wet Mountain Valley had the first permanent settlers in the valley in 1869. The following year a colony of more than 100 German families from Chicago took up homesteads. In 1878 rock composed of 75% silver was discovered. A few years later, the terminus of the Denver and Rio Grande railroad was placed a mile to the west at Westcliffe. Eventually the mining boom ended, the mines and mills closed, and the railway was abandoned. Silver Cliff and Westcliffe now serve as business and cultural centers for the surrounding ranches of the Wet Mountain valley.

Management Recommendations

Overview

The northern part of the Wet Mountain Complex is recommended primarily for Theme 1 in a series of adjacent designated and proposed Wilderness areas (Theme 1.1 and 1.2) or Core Reserves (Theme 1.3), separated from each other in most cases by just one road. On the south, roadless areas that ring Greenhorn Mountain Wilderness are recommended for additions to the Wilderness (Theme 1.2) and a Core Reserve in Pole Creek (Theme 1.3). The south-central portion around St. Charles Peak, although roadless and of general wilderness quality, is recommended for Theme 5.1 Active Management for Wildlife or Theme 3.1 Quiet Use Areas. There are two proposed Research Natural Areas (Theme 2.1). The table below lists the major management units by theme. Refer to the Wet Mountain Complex map for specific locations and refer to the roadless area descriptions above for more details on the unit.

Table 5.23: Wet Mountains Management Recommendations

Name	Acres	Recommended Management
Theme 1 – Natural Processes Dominate		
Greenhorn Wilderness	23,200	1.1 Existing Wilderness
Apache Creek	3,800	1.2 Recommended Wilderness (add to Greenhorn)
Badito Cone	1,500	1.2 Recommended Wilderness (add to Greenhorn)
Bears Head	12,100	1.2 Recommended Wilderness

Name	Acres	Recommended Management
Cisneros Creek	3,500	1.2 Recommended Wilderness (add to Greenhorn)
Greenhorn addn Santana	1,100	1.2 Recommended Wilderness (add to Greenhorn)
Greenhorn Creek	9,100	1.2 Recommended Wilderness (add to Greenhorn)
Greenhorn Mountain South	900	1.2 Recommended Wilderness (add to Greenhorn)
Hardscrabble	8,400	1.2 Recommended Wilderness
Highline	19,700	1.2 Recommended Wilderness
Scraggy Peaks	15,200	1.2 Recommended Wilderness
Lewis Creek	6,800	1.3 Core Reserve
Pole Creek North	4,500	1.3 Core Reserve
Pole Creek South	4,200	1.3 Core Reserve
Theme 2 – Special Areas		
Apache Creek RNA	10,100	2.1 Research Natural Areas
Big Red Butte RNA	4,500	2.1 Research Natural Areas
Theme 3 – Natural Landscapes with Limited Management		
Antelope Mountain	8,000	3.1 Quiet Use Areas
Theme 4 – Recreation Emphasis Areas		
Frontier Pathways Scenic Byway	500	4.2 Scenic Byways
Theme 5 – Active Management		
Badito South	200	5.1 Active Mgmt - Wildlife Habitat
Oak Creek	4,000	5.1 Active Mgmt - Wildlife Habitat
Red Creek	900	5.1 Active Mgmt - Wildlife Habitat
S. Hardscrabble Valley	500	5.1 Active Mgmt - Wildlife Habitat
St Charles North	24,300	5.1 Active Mgmt - Wildlife Habitat
St Charles Williams Creek East	23,300	5.1 Active Mgmt - Wildlife Habitat
Williams Creek	22,600	5.1 Active Mgmt - Wildlife Habitat
Theme 8 – Permanently Developed Areas		
Lake San Isabel	200	8.2 Permanently Developed Areas

Theme 1 – Natural Processes Dominate

Lands in Theme 1 are managed to maintain highly natural conditions and management activities are virtually unnoticeable. They may include Wilderness and semi-primitive lands that provide user opportunities that are inconsistent with Wilderness such as mountain biking.

Theme 1.1 – Existing Wilderness

Wilderness Areas are designated by Congress and managed to protect and perpetuate their natural state, while offering opportunities for solitude and individual self-reliance.

- Greenhorn Mountain Wilderness is in this complex. It should be managed over the next decade to bring it up to the national standards reflected in the Wilderness Stewardship Challenge issued by the Forest Service in celebration of the 40th anniversary of The Wilderness Act. (http://natlforests.org/wilderness_stewardship_10year.html)

Theme 1.2 – Recommended Wilderness

Recommended Wilderness areas are those that stakeholders advocate for inclusion in the National Wilderness Preservation System. All of the proposed wilderness areas meet the capability requirements of the Wilderness Act of 1964 for designation.

The Wild Connections Conservation Plan calls for designation of (north to south) Bears Head, Hardscrabble, Highline, and Scraggy Peaks roadless areas as Wilderness, with Cisneros Creek, Greenhorn Creek, Apache Creek, Greenhorn Mountain South, Badito Cone, and Santana Butte roadless areas as additions to Greenhorn Mountain Wilderness. They are each described in detail in the roadless area descriptions above. In general, the proposed Wilderness boundary is the same as the UASPP roadless boundary. The following benefits were considered in recommending these areas for Wilderness designation: permanent protection to enhance wildlife habitat and connectivity, protect sources of domestic water, provide for native plant and animal species, and balance motorized, high impact recreation in other parts of the complex with opportunities for quiet, challenging back country recreation. These Wilderness recommendations will also increase the effective protected area of Greenhorn Mountain and add significant areas of low elevations to the Wilderness system.

We believe that these areas meets the capability, availability, and suitability criteria of the Wilderness Act and Forest Service Wilderness Handbook. These criteria are discussed below, with notations as to particular values or potential conflicts.

Capability

All of these areas meet the general requirements for Wilderness. They are either larger than 5,000 acres or are contiguous with Greenhorn Mountain Wilderness, have no system roads and the imprints of human activities are substantially unnoticeable. There are excellent opportunities for solitude and challenging back country recreation, and the lower elevations of the northern areas offer four-season recreation.

Availability

To the best of our knowledge, there are no major impediments to designation of the recommended Wilderness areas. There are no immediate projects planned in this complex which would preclude Wilderness designation. Private inholdings are mostly located along the boundaries of the Wilderness areas and are excluded from the areas. There are remnant logging roads in Highline and other areas that should be closed and rehabilitated. Several motorized trails in Scraggy Peaks would need to be converted from motorized use to foot and horse use, and Cisneros Trail (trail 1314) would no longer be available for snowmobile use.

All or parts of Newlin Creek, Red Creek, Rye, Greenhorn, Williams Creek, and Maes Red Canyon grazing allotments would be grandfathered in with Wilderness designation, although over time they should be retired where feasible. There are no known or anticipated impediments to Wilderness designation.

Suitability

Uses forgone in these proposed Wildernesses include some motorized summer and winter use that will be eliminated on the Cisneros Trail and on trails 1325, 1323, 1322, 1387 and 1321 in Scraggy Peaks. However, the major portion of the existing motorized trail system will not be affected. Recommendations for Wilderness will limit or preclude the type of fuels treatments available.

Recreation includes a number of motorized trails within the roadless area: some are recommended for closure and the motorized portion of trail 1384 coming from the west has been cherrystemmed to the picnic area near the National Forest boundary. Pueblo Mountain Park is contiguous with the roadless area on the southeast side, and Mountain Park Environmental Center uses the roadless area for its extensive conservation education programs.

There are numerous values that support the designation of the proposed Wildernesses and contribute to the National Wilderness System:

- Add significant low elevation ecosystems to the Pike-San Isabel and Region 2 Wilderness System.
- Protect important wildlife habitat for all the species common to these ecosystems, such as Mexican spotted owl (*Strix occidentalis lucida*), greenback cutthroat trout (*Oncorhynchus clarki stomias*), and lynx.
- Enhance the opportunities for challenging and unconfined non-motorized exploration and enjoyment including some four-season backcountry recreation.
- Provide scenic and natural settings in a range of ecosystem types.
- Reduce the fragmentation of landscapes within the Wilderness boundaries by confining motorized recreation to a system of designated trails outside of important wildlife habitat.

Theme 1.3 – Core Reserve

Core Reserves are areas of unroaded land which have been shaped primarily by natural forces but that are not desirable for designation as wilderness. They emphasize the maintenance and sustainability of current biological diversity.

Lewis Creek, Pole Creek North, and Pole Creek South, though essentially roadless, did not fully meet Wilderness standards and so are recommended instead for Core designation.

- Lewis Creek area, located between Lewis Creek and North Hardscrabble Creek was split off from the larger Highline roadless area along the Lewis Creek trail in order to leave the trail available for mountain bikes. It has excellent wildlife qualities and provides north-south connectivity between Highline and Hardscrabble, so it is recommended for core designation.
- Pole Creek North and Pole Creek South are two halves of the larger Pole Creek roadless area that was split along the Pole Creek Trail to accommodate the existing motorized recreation. Like Lewis Creek, the wildlife and general habitat integrity justified their recommendation as cores.

Theme 2 – Special Areas

These special areas will protect or enhance a number of important or unusual biological characteristics. Intensity of management will vary based on the area objectives.

Theme 2.1 – Research Natural Areas: Existing and Proposed

Research Natural Areas (RNA) form a long-term network of ecological reserves designated for research, education, and the maintenance of biodiversity. Emphasis is on research, study, observations, monitoring, and educational activities that allow ecological processes to prevail with minimal human intervention.

To supplement the range of research opportunities and increase the ecosystem representation, two areas in the Wet Mountain Complex should be added to the RNA system. Each has its unique combination of ecological values which will enhance the system. Both are adjacent to or within designated and proposed Wilderness.

- Apache Creek proposed RNA, about 10,100 acres, spans the central Greenhorn Mountain Wilderness and Apache Creek proposed Wilderness addition. Much of the area is in the designated Wilderness, and use of the area is primarily low use recreational, including hiking, horseback riding, backpacking, and hunting. Rugged terrain has limited human use in the area and allowed it to retain its native character. The area's large size and broad elevation range result in an exceptionally diverse assemblage of plant communities, uninterrupted migration

routes for species using different habitats, and natural functioning of landscape level processes. Piñon-juniper woodlands, subalpine grasslands, alpine tundra, and deciduous riparian, mixed-conifer, ponderosa pine, and spruce-fir forests in the area are in excellent condition. All forest and woodland types have numerous large and potentially very old trees. Engelmann spruce and Douglas-fir from sampled plots were over 200 years old; piñon pine was over 300 years old. There are records of greenback cutthroat trout (*Oncorhynchus clarki stomias*) and Mexican spotted owl (*Hesperia leonardus montana*), federally-listed Threatened species. The state-rare plant, pictureleaf wintergreen (*Pyrola picta*) is found here.

- Big Red Butte proposed RNA of 4,500 acres is located across the southern third of Bears Head proposed Wilderness. Big and Little Red Buttes are prominent landmarks. The CNAP report notes that vegetation at Big Red Buttes is primarily ponderosa pine forest, mixed-conifer forest, and oak shrubland. “The shrublands dominated by Gambel oak and mountain mahogany occur on dry, moderate-to-steep slopes, especially at the eastern and western edges of the potential RNA. Ponderosa pine forests, with a Gambel oak/mountain mahogany-dominated understory, cover ridge tops and shallower slopes in the center of the area. Mixed-conifer forests dominated by Douglas-fir can be found on most north aspects throughout the potential RNA... RNA designation would preserve and provide representation of ponderosa pine forest and Gambel oak shrublands communities (*Pinus ponderosa/Quercus gambelii* and *Quercus gambelii/Cercocarpus montanus*) in good condition.” (Nick Bezzerides and Keldyn West Colorado Natural Areas Program March, 1997). The effects of the Mason Gulch Fire on this area are not known at this time.

Theme 3 – Natural Landscapes with Limited Management

Theme 3 management maintains or restores the natural character of these areas while providing limited opportunities for recreation, including backcountry motorized and non-motorized settings. Fuels treatment and prescribed fire are conducted primarily to maintain or restore natural ecological conditions. Livestock grazing is common.

Theme 3.1 – Quiet Use Areas

Management emphasizes non-motorized recreation opportunities in a natural or natural-appearing landscape with little or no evidence of recent human-caused disturbance

Antelope Mountain on the Wet Mountain Valley side of the complex is recommended for quiet use recreation. Antelope Mountain, Antelope Park, Breece Creek, and Little Antelope Creek provide a variety of recreation experiences. Quiet use in Antelope Mountain will provide balance to the motorized recreation in other parts of the complex.

Theme 4 – Recreation Emphasis Areas

Lands in Theme 4 are managed to emphasize recreation opportunities and scenery values. These areas are typically centered on recreational destinations, transportation corridors, winter snow play areas, and near bodies of water. Motorized uses are common and include trails and roads.

Theme 4.2 – Scenic Byways

These areas consist of designated scenic byways, scenic areas, vistas, and travel corridors, or other high-quality scenic areas in which outstanding features draw attention and to which people gravitate.

Frontier Pathways Scenic and Historic Byway links Pueblo, Westcliffe, and Colorado City via Colorado Highways 96 and 165. Used by Native Americans, trappers, explorers, traders, miners, and farmers, it is of historical interest and takes the visitor across some of the most scenic areas of the Wet Mountains. Bishop’s Castle is a well known landmark on the byway.

Theme 5 – Active Management

These areas are managed to meet a variety of ecological and human needs with active management for a full spectrum of multiple use activities such as: wildlife habitat, energy development, timber harvest, livestock grazing, dispersed motorized recreation, prescribed fire, and vegetation treatments. This zone is where intensive timber management can occur for commercial production and fuels reduction objectives.

Theme 5.1 – Active Management for Wildlife Habitat

Management objective is to provide high quality, all-season habitat, forage, cover, escape terrain, solitude breeding habitat, and protection for a variety of wildlife species and associated plant communities

The St. Charles North, St. Charles Williams Creek East, and Williams Creek areas are located between the Scraggy Peaks and the Greenhorn Creek and Cisneros Creek proposed Wildernesses. Oak Creek is west of the Highline proposed Wilderness. Red Creek is north and South Hardscrabble Valley is south of the Bears Head proposed Wilderness. Badito South is adjacent to the Badito South proposed Wilderness addition.

The St. Charles Peak and Williams Creek East roadless areas falls within the St. Charles Williams Creek East unit, and we strongly recommend that all roadless lands be managed under the provisions of the Roadless Area Conservation Rule with additional guidance from the management objectives and guidelines of this theme. The large St. Charles roadless area has many excellent wilderness qualities, but since it is at higher elevations and contains some motorized trails it was not recommended for Wilderness. For similar reasons, the Williams Creek East area was not recommended for wilderness. See the roadless area description for more details. This management recommendation will protect wildlife values while allowing for continued motorized recreation opportunities in the St. Charles Peak and Williams Creek East vicinity. The active management for wildlife habitat multiple use designation has provisions that will enhance wildlife considerations. Consideration should be given to the sensitive wildlife areas: deer fawning, elk calving, and bighorn sheep lambing areas; winter range for ungulates; locations of rare, endangered, or sensitive species; and accommodation of larger carnivores such as lynx.

Theme 8 – Permanently Developed Areas

These areas are permanently altered by human activities to the extent ecological conditions and landscape appearances are likely outside their natural range of variability. Management emphasis is generally for highly developed recreation sites (ski areas and campgrounds), utility corridors, or mineral development areas.

Theme 8.2 – Permanently Developed Recreation Areas

These areas contain developed recreation sites that provide an array of recreational opportunities and experiences, usually in a forested environment.

Lake San Isabel is a densely developed area for picnicking, access to the St. Charles Trail Head, camping, fishing and domestic water supply. Management will include sustainable camping practices and protection of water quality.

Connectivity

Connectivity within the complex is maintained primarily by the stepping stones of adjacent protected Wilderness areas from north to south, with a gap in strict protection in the St. Charles area. In spite of

heavier recreational use, St. Charles roadless area has many wildlife values and habitat conducive to connectivity. The larger mammals such as deer and elk are found both in the forest and on adjacent private lands, especially to the west in the Wet Mountain Valley. Protecting the public lands will provide more security for these animals for elevational/seasonal movements and dispersal of young animals.

Connectivity to adjacent complexes differs greatly. The Arkansas Canyons complex is immediately adjacent to the northwest, separated only by the Oak Grade Road. The Tanner Peak roadless area, part of the proposed Grape Creek Wilderness, is immediately adjacent across the Oak Grade Road. Linkages to the west across the Wet Mountain Valley to the Sangre de Cristo complex depend on willing landowners, as most of the area is private ranches. Currently, pronghorn, mule deer, and elk use the valley; the San Isabel Foundation is promoting conservation easements; and the Huerfano Habitat Project provides wildlife friendly management to the west.

The 20-25 miles across the intervening private lands between Greenhorn Mountain Wilderness and the next Forest land to the south in the Spanish Peaks complex has the advantage of being generally lower elevation, but also is bisected by the La Veta Pass Highway (US Highway 160). This road is a substantial barrier to wildlife linkages in this north south corridor. It includes a large area of pronghorn habitat and black bear core habitat on non-Forest Service land identified by the Southern Rockies Ecosystem Project.

Connectivity to the eastern foothills and plains is more impacted by development in small towns, the large exurban development at Colorado City and the major barrier of I-25. However, compared to some areas of the Pike-San Isabel National Forest, exurban housing development is not as severe a problem for connectivity, except on the east.

Summary

The Wet Mountains complex provides a rich diversity of low elevation habitat supplemented by higher areas for wildlife, rare plant and animal species, recreation and tourism. Framed by the Wet Mountain Valley and the eastern foothills and plains, they are an integral part of the network of wildlands that will sustain the integrity of the Pike-San Isabel National Forest, both now and in the foreseeable future.

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Chapter 6 – Landscape Connectivity: Other Lands in the Pike-San Isabel Region

Introduction

The Pike-San Isabel is contiguous with four other National Forests on the north and west sides: the Arapaho, White River, Gunnison, and Rio Grande. In addition, there are other lands critical to both habitat and connectivity, such as Florissant Fossil Beds National Monument, a number of state parks and state wildlife areas, and roadless BLM lands, especially those along the Arkansas River canyon. To ensure that Forest management considers the greater ecosystem, Forest activities must be compatible with other agency activities on these adjacent public lands. A brief overview of these non Forest Service lands follows, with additional details on their characteristics listed in the respective complex area narratives.

Rationale for Connectivity Recommendations

Connectivity between core areas and complexes across the larger landscape of BLM, state and private lands, and into adjacent forests, is an important aspect of the Wild Connections Conservation Plan. Selection of appropriate connecting habitat was a two-step process. First, UASPP used data from the Colorado Division of Wildlife for ungulate species: elk, mule deer, pronghorn and bighorn sheep. This was a practical approach, as there was data available on seasonal and migration movements of these species. In addition, one could likely assume that the larger predators would follow their prey to some degree. Second, we used the information from the Southern Rockies Ecosystem Project that incorporates a least-cost path analysis for black bear, gray wolf, pronghorn and greenback cutthroat trout (*Oncorhynchus clarki stomias*); data on linkages identified by biologists that participated in a series of expert workshops; and additional enhanced least-cost path modeling for pronghorn, gray wolf and black bear. Finally, we used the lynx linkages identified by the Region 2 Forest Service lynx amendment. Compilation of these data allowed identification of Pike-San Isabel parcels for connectivity areas, as well as highlighting the importance of adjacent public and private lands for animal movements.

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BLM Lands within the Pike-San Isabel Region

Wild Connections has explicitly included seven large BLM roadless areas as they are integral to our overall vision of a wildlands network. In some cases they are combined with adjacent USFS land into a larger wilderness area. All except Table Mountain have been part of the *Colorado Citizens' Wilderness Proposal for BLM Lands* for ten years, and they have wide-spread state and local support for protection. Legislation has been introduced in the US Congress regarding several of these areas. Rep. Diana DeGette introduced a bill to protect, among other areas, Browns Canyon, McIntyre Hills, Grape Creek, and Beaver Creek. Browns Canyon wilderness legislation was introduced in November 2005 by Rep. Joel Hefley and Sen. Wayne Allard. These proposed Wilderness areas are denoted on the map as Theme 9.1 – Non-Forest Service Recommended Wilderness. For more details on their biological values, see the respective complex narrative.

Table 6.1: BLM Recommended Wilderness Areas

Area	Total Acres	BLM	USFS	WCCP Complex
Browns Canyon	20,000	Browns Canyon WSA (7,900 acres)	Aspen Ridge (12,100 acres)	Arkansas Canyons
Badger Creek	25,200	Badger Creek (8,600 acres)	Badger Creek (16,600 acres)	Arkansas Canyons
McIntyre Hills	17,300	McIntyre Hills WSA (17,300 acres)	n/a	Arkansas Canyons
Table Mountain	25,500	Table Mountain (25,500 acres)	n/a	Arkansas Canyons
Grape Creek	44,300	Grape Creek WSA (27,200 acres)	Tanner Peak (17,100 acres)	Arkansas Canyons
Beaver Creek	38,200	Beaver Creek WSA (33,900 acres)	Beaver Creek (4,300 acres)	Pikes Peak Massif
Slide Mountain	3,100	Slide Mountain (800 acres)	Slide Mountain (2,300 acres)	Sangre de Cristo

Notes: Acres are rounded to the nearest 100. Totals may vary due to rounding.

For more details on their biological values, see the respective complex narrative. Other BLM lands are also included under Theme 9.3 – Non-Forest Service Connectivity Areas.

Department of Defense Lands

Although it is beyond the scope of this document to address military installations, it is important to note that Ft. Carson, partly due to its size - more than 340,000 acres, has many outstanding areas of critical wildlife habitat, including winter habitat for Mexican spotted owls and short-grass prairie ecosystems. Fort Carson is currently working cooperatively with The Nature Conservancy, state and federal agencies, private landowners and others in developing a comprehensive conservation plan to address land use and declining native species such as the Mexican spotted owl, mountain plover, swift fox, peregrine falcon and the Arkansas darter.

Other Public Lands within the Pike-San Isabel Region

Many other lands, especially in South Park, the Wet Mountain Valley and the land between South Park and the Arkansas River are noted for their important biological values. They are noted on the map as Theme 9.2 – Significant Non-Forest Service Biological Areas and described in their respective complexes.

Table 6.2: Significant Non-Forest Service Biological Areas

Area	Acres	Management Agency	WCCP Complex
Aiken Canyon	1,600	The Nature Conservancy	South Park
Bear Mountain West	17,500	Bureau of Land Management	Arkansas Canyons
Bosque del Oso State Wildlife Area	32,900	Colorado Division of Wildlife	Spanish Peaks
Catamount Ranch	1,300	Teller County	Pikes Peak Massif
Cheesman Reservoir	8,200	City of Denver	South Platte Canyons
Colorado Springs Water South	7,300	City of Colorado Springs	Pikes Peak Massif
Florissant Fossil Beds	5,900	National Parks Service	South Platte Canyons
High Creek Fen	900	The Nature Conservancy	South Park
James Mark Jones State Wildlife Area	19,100	Colorado Division of Wildlife	South Park
Mueller State Park	12,500	Colorado State Parks	Pikes Peak Massif
Roxborough State Park	3,400	Colorado State Parks	South Platte Canyons

Florissant Fossil Beds National Monument, nearly 6,000 acres of what was once a working ranch, is a world renowned paleontological site for insects and sequoias laid down in a 30 million year old lake bed.

Mueller and Roxborough State Parks are both managed primarily for their wildlife and low impact recreation values. Mueller (12,500 acres) is managed by State Parks and the Colorado Division of Wildlife and is located between Florissant Fossil Beds National Monument and the Pikes Peak West proposed Wilderness area. Roxborough (3,400 acres), in southwest metropolitan Denver and contiguous with the Pike National Forest, is an excellent wildlife area. Its lower elevations attract everything from bears to rattlesnakes, and the Lyons and Morrison rock formations are spectacular.

There are a number of State Wildlife Areas in the Pike-San Isabel region, but two are outstanding for their size and diversity. Bosque del Oso, the largest State Wildlife Area in Colorado at nearly 33,000 acres, is located west of Trinidad in the Purgatoire River drainage. It is an important part of the larger configuration of Spanish Peaks Wilderness, Purgatoire proposed Wilderness, and the Bar NI Ranch conservation easement. James Mark Jones State Wildlife Area, located southeast of Fairplay, is 19,000 acres of forest and montane grasslands along Reinecker Ridge that provides important wildlife habitat in the midst of ranchland and exurban development of South Park.

Cheesman Reservoir and adjacent land owned by the City of Denver is notable both for the wildlife values of the large water body and as an unlogged area which has been the subject of important studies of fire regimes in ponderosa pine forests.

Further, many counties have significant open space designations that provide important habitat for wildlife and recreation opportunities. For example, Reynolds Park and Pine Valley within Jefferson County, Park County’s open space plan and the Custer County resource analysis are a few of the important county efforts.

Other public lands are also included under Theme 9.3 – Non-Forest Service Connectivity Areas.

Private Lands within the Pike-San Isabel Region

Although addressing wildlife management on private lands is beyond the scope of this document, it is important to note wildlife occurrences and linkages irrespective of ownership. It is not the intention of the WCCP to imply or recommend restrictive actions on these private lands, due to the legal and land ownership constraints between public and private lands. These large and vital connective routes across private lands are denoted on the map as Theme 9.3 – Non-Forest Service Connectivity Areas.

There are two Nature Conservancy Preserves in the Pike-San Isabel region which are denoted on the map as Theme 9.2 – Significant Non-Forest Service Biological Areas. Aiken Canyon is very strategically placed southwest of Colorado Springs in the piñon-juniper woodlands near the Beaver Creek WSA/proposed Wilderness, and High Creek Fen is in South Park near proposed additions to Buffalo Creek Wilderness. These are described in their respective complexes.

Additionally, there are many other land trusts, conservation organizations and government entities fostering protection which benefits both wildlife and land owners throughout our area. For example, The Nature Conservancy is partnering with the Bar NI Ranch to preserve a large area south of the Purgatoire proposed Wilderness and The San Isabel Foundation works with Wet Mountain Valley land owners to create conservation easements that protect important wildlife habitat and keep ranches intact. In South Park, designated a Colorado Heritage Area in 1997, partners are working to preserve 19 working ranches along 30 miles of stream corridor and 17,000 acres of wetlands, agricultural lands, historic and cultural sites. These are just a few of hundreds of examples of creative conservation measures.

Adjacent National Forests

Wildlife and natural ecosystem processes occur irrespective of political boundaries, and thus the WCCP planning team is working with other similar citizens groups in adjacent Forests to assure cohesiveness across forest plans. Several roadless areas, which are detailed in the complex descriptions, cross agency boundaries into the Arapaho, White River, Gunnison and Rio Grande National Forests. In general, conservation groups have recommended consistent management across these larger areas.

Connections between the Pike and the Arapaho National Forest include:

- Mount Evans Wilderness at 73,400 acres is located on both the Pike and the Arapaho, with about half in either forest.
- Square Top North Roadless Area in the Arapaho is divided from Square Top in the Pike merely by the artificial boundary between the two forests. Both areas together of some 18,000 acres provide a seamless connection across Guanella Pass and include a lynx linkage identified by the Forest Service proposed lynx amendment (USFS 2004).

Connections between the Pike- San Isabel and the White River National Forest include

- Roadless areas on the White River that are adjacent to Pike roadless areas are Decatur Mountain (west of Square Top), Geneva Peak (west of Burning Bear), Whale Peak (west of Jefferson), and Mount Guyot and Bald Mountain (west of Boreas).
- The Hoosier Ridge roadless area north of the Continental Divide on the White River Forest is larger than the contiguous roadless area on the Pike, and the Hoosier Ridge RNA lies on both forests.
- The Forest Service Inventoried Roadless Area Ten Mile Range near Breckinridge is surrounded by additional roadless land inventoried by the conservation community. This

expanded area is separated from the Hoosier Ridge areas on both forests by Highway 9 over Hoosier Pass. It is contiguous with the Pike near Wheeler Mountain.

- The Chicago Ridge proposed Wilderness on the White River is contiguous with a smaller roadless area on the San Isabel, which the WCCP recommends for backcountry nonmotorized recreation.
- Mormon Creek, near the eastern boundary of the White River, is proposed as an addition to the Holy Cross Wilderness.

Connections between the San Isabel and the Gunnison National Forest include:

- Romley (Pike San Isabel) and Romley West (Gunnison) join to form an area that is over 20,000 acres. Kreutzer-Princeton is contiguous with Kreutzer-Princeton West on the Gunnison, totaling approximately 60,000 acres. Together the four Romley and Kreutzer-Princeton areas equal 70,000 acres, and recent CDOW data suggest they are part of an important new lynx concentration area in the northeastern Gunnison Basin. All are recommended for Wilderness.
- Chipeta (proposed Wilderness and Core), Starvation Creek (proposed Wilderness) and Antora Peak (proposed Research Natural Area) along the Continental Divide south of Monarch Pass are contiguous with Gunnison roadless areas. Chipeta West on the Gunnison is proposed for Wilderness. It provides connections from the Arkansas Valley across the Continental Divide to the large Cochetopa Hills proposed Wilderness on the Gunnison. Together these areas are important wildlife habitat comprising a major portion of the Monarch Pass to Poncha Pass wildlife linkage identified by the Southern Rockies Ecosystem Project.

Connections between the San Isabel and the Rio Grande National Forest include:

- A roadless area lies on the Rio Grande between the Methodist Mountain proposed Research Natural Area and the north end of the Sangre de Cristo Wilderness.
- The Lake Creek proposed addition to the Sangre de Cristo Wilderness is contiguous with the Wilderness on the Rio Grande Forest.
- Similarly, the May Creek and Carbonate proposed Wilderness additions are contiguous with the southern part of the Sangre de Cristo Wilderness on the Rio Grande.

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Appendix A – Acronyms

Acronym	Definition
ACEC	Area of Critical Environmental Concern
ATV	All-Terrain Vehicle (<i>non-licensed, non-street legal</i>)
BLM	Bureau of Land Management
CCWC	Central Colorado Wilderness Coalition
CDOW	Colorado Division of Wildlife
CFR	Code of Federal Regulations
CNAP	Colorado Natural Areas Program
CNE	Center for Native Ecosystems
CNHP	Colorado Natural Heritage Program
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy Management Act
FONSI	Finding of No Significant Impact
FSH	Forest Service Handbook
FSM	Forest Service Manual
GAP	Gap Analysis Project
GIS	Geographic Information System
GMUG	Grand Mesa, Uncompahgre and Gunnison National Forests
GPS	Geographic Position System (<i>hand-held unit</i>)
IRA	Inventoried Roadless Area (<i>as identified in the Roadless Area Conservation Rule - USFS</i>)
LRMP	Land and Resource Management Plan
NDIS	Natural Diversity Information Source
NEPA	National Environmental Protection Act
NF	National Forest
NFMA	National Forest Management Act
OHV	Off-Highway Vehicle (<i>licensed, street legal</i>)
ORV	Off-Road Vehicle (<i>licensed, street legal</i>)
PCA	Potential Conservation Area
PSI	Pike and San Isabel National Forests
PSICC	Pike and San Isabel National Forests, Cimarron and Comanche National Grasslands
RA	Roadless Area (<i>as inventoried by UASPP</i>)
RARE I/II	Roadless Area Review and Evaluation (<i>USFS lands</i>)
RGFO	Royal Gorge Field Office (BLM)
RIS	Resource Information System
RNA	Resource Natural Area
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
SIA	Special Interest Area
SOC	Species of Concern
SOI	Species of Interest
SPPP	South Platte Protection Plan

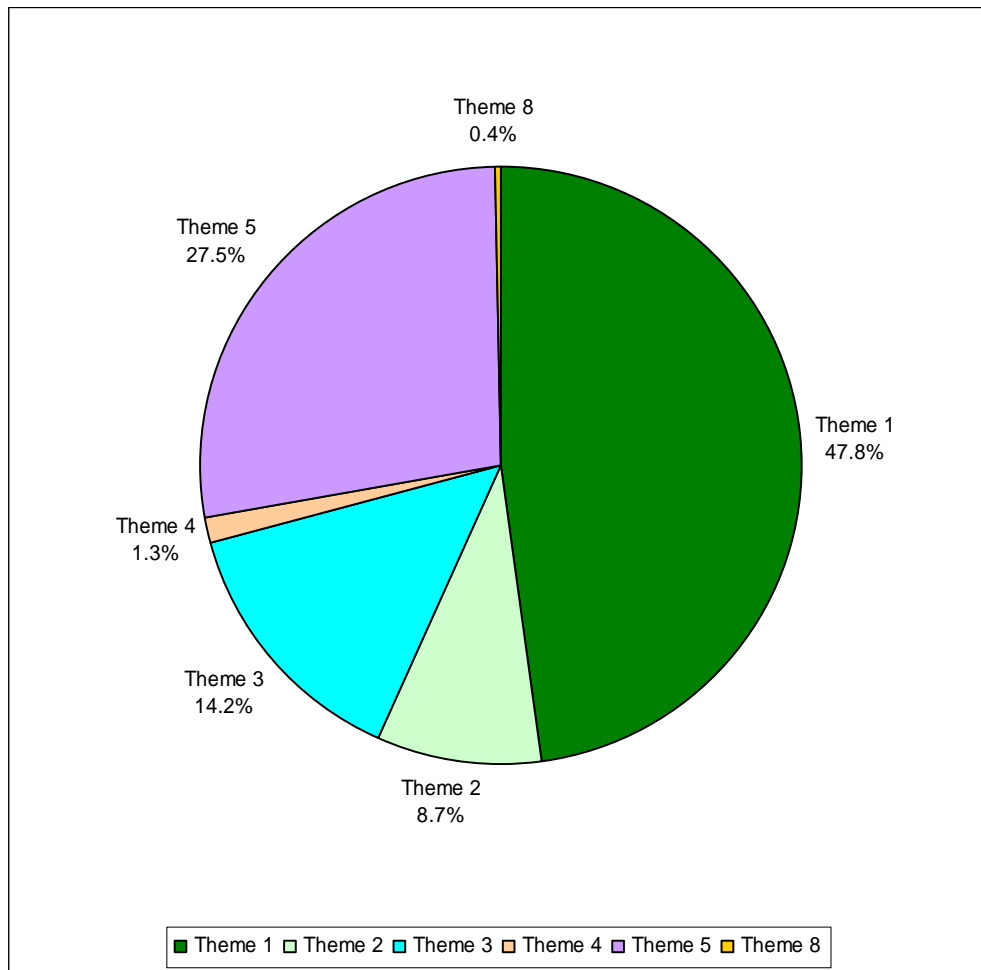
Acronym	Definition
SRCA	Southern Rockies Conservation Alliance
SREP	Southern Rockies Ecosystem Project
SRFN	Southern Rockies Forest Network (<i>SRCA predecessor</i>)
SWA	State Wildlife Area
TES or T&E	Threatened and endangered species
TMP	Travel Management Plan
TNC	The Nature Conservancy
TWS	The Wilderness Society
UASPP	Upper Arkansas & South Platte Project
USFS	US Forest Service
USFWS	US Fish & Wildlife Service
USGS	US Geological Survey
USPS	US Park Service
W&SR	Wild & Scenic River
WCCP	Wild Connections Conservation Plan (<i>PSICC National Forests</i>)
WRNF	White River National Forest
WSA	Wilderness Study Area (<i>BLM</i>)
WUI	Wildland-Urban Interface

Appendix B – Allocation of Areas by Wild Connections Themes

Table B.1: Allocation of Areas by Wild Connections Themes

Theme	Name	Acres	Percent of USFS Lands	Count
1	Natural Processes Dominate	1,189,500	47.8%	76
2	Special Areas	216,900	8.7%	45
3	Natural Landscapes with Limited Management	354,000	14.2%	40
4	Recreation Emphasis Areas	33,000	1.3%	6
5	Active Management	684,100	27.5%	59
8	Permanently Developed Areas	9,000	0.4%	7
	Total	2,486,500	100.0%	233

Figure B.1: Allocation of Areas by Wild Connections Themes

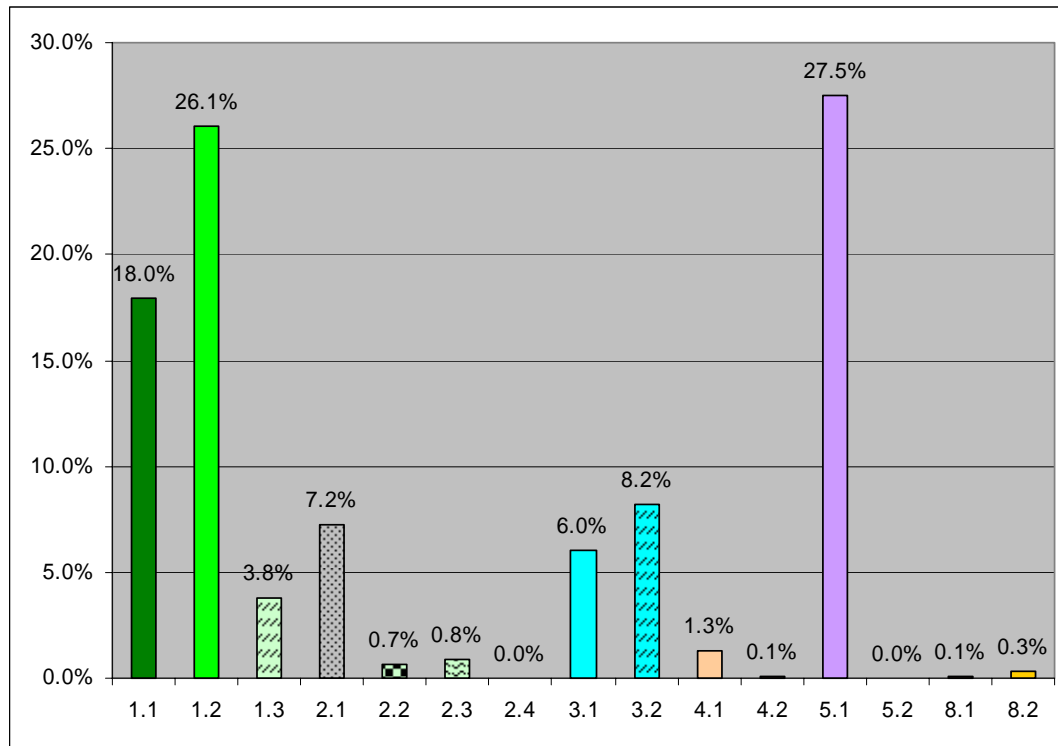


Notes: Acres are rounded to the nearest 100. Count is the number of WCCP management units in the Theme. Themes 6 and 7 are not specifically mapped, but are managed in accordance with principles outlined within the Wild Connections Plan. Theme 9 is not included in this table due to management jurisdiction outside of the Forest Service. Acres include private inholdings, official PSI total acreage is 2,229,033. Some areas have more than one theme, specifically Theme 2 may overlap Theme 1 or other Themes. These are typically small areas. Does not include significant routes, lands along roads between Theme 1 areas.

Table B.2: Allocation of Areas by Wild Connections Sub-Themes

Theme	Name	Acres	Percent of USFS Lands	Count
1.1	Existing Wilderness	446,700	18.0%	9
1.2	Recommended Wilderness	648,300	26.1%	53
1.3	Core Reserve	94,500	3.8%	14
2.1	Research Natural Area	179,500	7.2%	43
2.2	Experimental Forests	16,300	0.7%	1
2.3	Eligible Wild, Scenic and Recreational Rivers	21,100	0.8%	1
2.4	Minimal and Interpretive Use	0	0.0%	0
3.1	Quiet Use Areas	150,400	6.0%	22
3.2	Connectivity Areas	203,500	8.2%	18
4.1	Motorized Recreation Areas	31,600	1.3%	1
4.2	Scenic Byways	1,400	0.1%	5
5.1	Active Management - Wildlife	684,100	27.5%	59
5.2	Active Management - Human	0	0.0%	0
8.1	Ski Based Resorts	1,700	0.1%	2
8.2	Permanently Developed Areas	7,300	0.3%	5
	Total	2,486,400	100%	233

Figure B.2: Allocation of Areas by Wild Connections Sub-Themes



Notes: Acres are rounded to the nearest 100. Count is the number of WCCP management units in the Theme. Themes 6 and 7 are not specifically mapped, but are managed in accordance with principles outlined within the Wild Connections Plan. Theme 9 is not included in this table due to management jurisdiction outside of the Forest Service. Acres include private inholdings, official PSI total acreage is 2,229,033. * Some areas have more than one theme, specifically Theme 2.1 may overlap Theme 1.1 or 1.2 and Theme 2.3 may overlap any theme. These are typically small areas. Does not include significant routes, lands along roads between Theme 1 areas.

Table B.3: Summary of Wild Connections Theme by Area and Complex

Area Name	Theme	WCCP Complex
Aiken Canyon	9.2 Significant Non-USFS Biological	Pikes Peak Massif
Antelope Mountain	3.1 Quiet Use Areas	Wet Mountains
Antero Shavano Slopes East	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Antora Peak Sheep Mountain RNA	2.1 Research Natural Areas	Sawatch Range
Apache Creek	1.2 Recommended Wilderness	Wet Mountains
Apache Creek RNA	2.1 Research Natural Areas	Wet Mountains
Badger Creek	1.2 Recommended Wilderness	Arkansas Canyons
Badger Creek BLM	9.1 Non-USFS Recommended Wilderness	Arkansas Canyons
Badger Creek RNA	2.1 Research Natural Areas	Arkansas Canyons
Badito Cone	1.2 Recommended Wilderness	Wet Mountains
Badito South	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
Bald Mountain	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Bear Mountain West	9.2 Significant Non-USFS Biological	Arkansas Canyons
Bears Head	1.2 Recommended Wilderness	Wet Mountains
Beaver Creek BLM	9.1 Non-USFS Recommended Wilderness	Pikes Peak Massif
Beaver Creek FS	1.2 Recommended Wilderness	Pikes Peak Massif
Beaver Ridge	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Beaver Trout	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Big Red Butte RNA	2.1 Research Natural Areas	Wet Mountains
Big Union	1.2 Recommended Wilderness	Mosquito Range
Bison Creek	1.3 Core Reserve	Pikes Peak Massif
Black Mountain RNA	2.1 Research Natural Areas	Arkansas Canyons
Black Mountain	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Blodgett Peak	3.1 Quiet Use Areas	Rampart Range
Blodgett Peak RNA	2.1 Research Natural Areas	Rampart Range
Boreas	1.2 Recommended Wilderness	Mount Evans High Peaks
Boreas Mountain RNA	2.1 Research Natural Areas	Mount Evans High Peaks
Boreas Pass	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Bosque del Oso SWA	9.2 Significant Non-USFS Biological	Spanish Peaks
Bridge or Polhemus Gulch RNA	2.1 Research Natural Areas	Rampart Range
Browns Canyon Aspen Ridge	1.2 Recommended Wilderness	Arkansas Canyons
Browns Canyon WSA	9.1 Non-USFS Recommended Wilderness	Arkansas Canyons
Bruff Creek RNA	2.1 Research Natural Areas	Sangre de Cristo
Buffalo Creek	5.1 Active Mgmt - Wildlife Habitat	South Park / South Platte Canyons
Buffalo Peaks Wilderness	1.1 Existing Wilderness	Mosquito Range
Burning Bear	1.2 Recommended Wilderness	Mount Evans High Peaks
Cache Creek	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range

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Area Name	Theme	WCCP Complex
Carbonate Mountain	1.2 Recommended Wilderness	Sangre de Cristo
Catamount Ranch	9.2 Significant Non-USFS Biological	Pikes Peak Massif
Cheesman Reservoir	9.2 Significant Non-USFS Biological	South Platte Canyons
Chicago Ridge	3.1 Quiet Use Areas	Mosquito Range
Chipeta	1.2 Recommended Wilderness	Sawatch Range
Cisneros Creek	1.2 Recommended Wilderness	Wet Mountains
Clear Creek Sawatch	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Collegiate Peaks Wilderness	1.1 Existing Wilderness	Sawatch Range
Colorado Springs Water South	9.2 Significant Non-USFS Biological	Pikes Peak Massif
Cottonwood Spring RNA	2.1 Research Natural Areas	Arkansas Canyons
Craig Park RNA	2.1 Research Natural Areas	South Park
Crystal Creek RNA	2.1 Research Natural Areas	Pikes Peak Massif
Crystal Falls	1.2 Recommended Wilderness	Sangre de Cristo
Cuchara North	3.1 Quiet Use Areas	Spanish Peaks
Cuchara River/Creek	5.1 Active Mgmt - Wildlife Habitat	Spanish Peaks
Cuchara South	5.1 Active Mgmt - Wildlife Habitat	Spanish Peaks
Cuchara Valley Ski Area FS	5.1 Active Mgmt - Wildlife Habitat	Spanish Peaks
Cuchara West	1.3 Core Reserve	Spanish Peaks
Deer Creek	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Dome Rock	5.1 Active Mgmt - Wildlife Habitat	South Platte Canyons
Duck Creek	3.2 Connectivity Areas	Mount Evans High Peaks
East Spanish Peak RNA	2.1 Research Natural Areas	Spanish Peaks
Eagle Peak Front	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Elephant Rock	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Eleven Mile Canyon	5.1 Active Mgmt - Wildlife Habitat	South Platte Canyons
Elk Creek	1.2 Recommended Wilderness	Mount Evans High Peaks
Elk Mountains	1.2 Recommended Wilderness	Sawatch Range
Empire Gulch	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Farnum	1.2 Recommended Wilderness	South Park
Florissant Fossil Beds NM	9.2 Significant Non-USFS Biological	South Platte Canyons
Fooses Creek	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Frenchman Creek	1.2 Recommended Wilderness	Sawatch Range
Front Range	1.2 Recommended Wilderness	Rampart Range
Frontier Pathways Scenic Byway	4.2 Scenic Byways	Wet Mountains
Geneva Creek	3.2 Connectivity Areas	Mount Evans High Peaks
Georgia Pass	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Gold Belt Tour Scenic and Historic Byway	4.2 Scenic Byways	South Platte Canyons
Goose Creek	3.2 Connectivity Areas	South Platte Canyons
Grape Creek WSA	9.1 Non-USFS Recommended Wilderness	Arkansas Canyons

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Area Name	Theme	WCCP Complex
Gray Back Peak RNA	2.1 Research Natural Areas	Pikes Peak Massif
Green Mountain	1.2 Recommended Wilderness	South Platte Canyons
Greenhorn additions Santana	1.2 Recommended Wilderness	Wet Mountains
Greenhorn Creek	1.2 Recommended Wilderness	Wet Mountains
Greenhorn Mountain South	1.2 Recommended Wilderness	Wet Mountains
Greenhorn Wilderness	1.1 Existing Wilderness	Wet Mountains
Greenleaf Creek	1.2 Recommended Wilderness	Sangre de Cristo
Grizzly Gulch Hancock Pass	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Guanella Pass RNA	2.1 Research Natural Areas	Mount Evans High Peaks
Guanella Pass Scenic Byway	4.2 Scenic Byways	Mount Evans High Peaks
Guernsey and Deadman Gulch RNA	2.1 Research Natural Areas	Mount Evans High Peaks
Hagerman Pass	3.2 Connectivity Areas	Sawatch Range
Hall Valley	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks / South Park
Hardscrabble	1.2 Recommended Wilderness	Wet Mountains
Harvard Lakes	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Hayden Pass	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Hells Canyon RNA	2.1 Research Natural Areas	Spanish Peaks
Hermit Horn Front	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Hermit Pass	3.2 Connectivity Areas	Sangre de Cristo
High Creek Fen	9.2 Significant Non-USFS Biological	South Park
Highline	1.2 Recommended Wilderness	Wet Mountains
Highway of Legends	4.2 Scenic Byways	Spanish Peaks
Holmes Gulch	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Holy Cross East	3.1 Quiet Use Areas	Sawatch Range
Holy Cross Wilderness	1.1 Existing Wilderness	Sawatch Range
Hoosier Ridge	1.3 Core Reserve	Mount Evans High Peaks
Hoosier Ridge RNA	2.1 Research Natural Areas	Mount Evans High Peaks
Hope Pass	1.3 Core Reserve	Sawatch Range
Horn Creek	1.2 Recommended Wilderness	Sangre de Cristo
Huerfano South Fork	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Huron Peak	3.1 Quiet Use Areas	Sawatch Range
Hurricane Canyon RNA	2.1 Research Natural Areas	Pikes Peak Massif
Independence Pass	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Indian Creek	5.1 Active Mgmt - Wildlife Habitat	Spanish Peaks
Indian Creek Waterton	3.1 Quiet Use Areas	South Platte Canyons
Jack Rabbit Hill	3.2 Connectivity Areas	Arkansas Canyons
Jackson Creek	3.1 Quiet Use Areas	Rampart Range
James Mark Jones SWA	9.2 Significant Non-USFS Biological	South Park
Jefferson	1.2 Recommended Wilderness	Mount Evans High Peaks

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Area Name	Theme	WCCP Complex
Jefferson Creek	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Jefferson Lake	8.2 Permanently Developed Areas	Mount Evans High Peaks
Jefferson West	3.1 Quiet Use Areas	Mount Evans High Peaks
Jenny Gulch	3.1 Quiet Use Areas	South Platte Canyons
Jones Hill	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Kreutzer-Princeton	1.2 Recommended Wilderness	Sawatch Range
Lake Creek	1.2 Recommended Wilderness	Sangre de Cristo
Lake San Isabel	8.2 Permanently Developed Areas	Wet Mountains
La Plata Gulch	1.2 Recommended Wilderness	Sawatch Range
Lewis Creek	1.3 Core Reserve	Wet Mountains
Limbaugh Canyon	3.1 Quiet Use Areas	Rampart Range
Long Hollow	3.1 Quiet Use Areas	Rampart Range
Long Scraggy	1.2 Recommended Wilderness	South Platte Canyons
Long Scraggy RNA	2.1 Research Natural Areas	South Platte Canyons
Longwater Gulch	3.2 Connectivity Areas	South Platte Canyons
Lost Creek Wilderness	1.1 Existing Wilderness	South Park
Lost Park	3.2 Connectivity Areas	South Park
Lower Mount Zion	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Manitou Experimental Forest	2.2 Experimental Forests	Rampart Range
Manzanares Creek	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Marmot Peak	1.2 Recommended Wilderness	Mosquito Range
Marshall/Poncha Passes	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
May Creek	1.2 Recommended Wilderness	Sangre de Cristo
McCurdy Mountain RNA	2.1 Research Natural Areas	South Park
McIntyre Hills	9.1 Non-USFS Recommended Wilderness	Arkansas Canyons
Medano Pass	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Methodist Howard	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
Methodist Mountain RNA	2.1 Research Natural Areas	Sangre de Cristo
Mill Gulch RNA	2.1 Research Natural Areas	South Platte Canyons
Mineral Basin Jones Mountain RNA	2.1 Research Natural Areas	Sawatch Range
Monarch Ski Area	8.1 Ski Based Resorts	Sawatch Range
Montgomery Gulch	5.1 Active Mgmt - Wildlife Habitat	Mount Evans High Peaks
Monument Gulch	3.2 Connectivity Areas	South Platte Canyon
Mount Rosa	3.2 Connectivity Areas	Pikes Peak Massif
Mount Antero	1.2 Recommended Wilderness	Sawatch Range
Mount Bross	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Mount Elbert	1.2 Recommended Wilderness	Sawatch Range
Mount Elbert East	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
Mount Antero East	3.1 Quiet Use Areas	Sawatch Range

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Area Name	Theme	WCCP Complex
Mount Arkansas	3.1 Quiet Use Areas	Mosquito Range
Mount Arkansas West	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Mount Champion	3.1 Quiet Use Areas	Sawatch Range
Mount Evans Wilderness	1.1 Existing Wilderness	Mount Evans High Peaks
Mount Herman	5.1 Active Mgmt - Wildlife Habitat	Rampart Range
Mount Massive Wilderness	1.1 Existing Wilderness	Sawatch Range
Mount Princeton RNA	2.1 Research Natural Areas	Sawatch Range
Mount Zion	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Mueller State Park	9.2 Significant Non-USFS Biological	Pikes Peak Massif
Music Pass	5.1 Active Mgmt - Wildlife Habitat	Sangre de Cristo
North Cottonwood Creek	3.1 Quiet Use Areas	Sawatch Range
North Fork South Platte	5.1 Active Mgmt - Wildlife Habitat	South Park
Noddle Heads	3.1 Quiet Use Areas	South Platte Canyons
North Elk Creek RNA	2.1 Research Natural Areas	Mount Evans High Peaks
North Tarryall Peak	1.3 Core Reserve	South Park
North Willow Creek RNA	2.1 Research Natural Areas	Sawatch Range
Northrup Gulch	1.3 Core Reserve	South Platte Canyons
Oak Creek	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
Oil Creek RNA	2.1 Research Natural Areas	Pikes Peak Massif
Pahlone Peak	1.3 Core Reserve	Sawatch Range
Pikes Peak	3.1 Quiet Use Areas	Pikes Peak Massif
Pikes Peak West	1.2 Recommended Wilderness	Pikes Peak Massif
Pine Creek	1.2 Recommended Wilderness	Sawatch Range
Pine Creek	5.1 Active Mgmt - Wildlife Habitat	South Platte Canyons
Pole Creek North	1.3 Core Reserve	Wet Mountains
Pole Creek South	1.3 Core Reserve	Wet Mountains
Porphyry Peak RNA	2.1 Research Natural Areas	Sawatch Range
Puma Hills	1.2 Recommended Wilderness	South Park
Purgatoire	1.2 Recommended Wilderness	Spanish Peaks
Purgatoire RNA	2.1 Research Natural Areas	Spanish Peaks
Putney Gulch	1.3 Core Reserve	Pikes Peak Massif
Raleigh Peak	1.3 Core Reserve	South Platte Canyons
Rampart Range	4.1 Motorized Recreation Areas	Rampart Range / South Platte Canyons
Rampart Range South	5.1 Active Mgmt - Wildlife Habitat	Rampart Range / South Platte Canyons
Rampart Reservoir	8.2 Permanently Developed Areas	Rampart Range
Raspberry Mountain	1.3 Core Reserve	Pikes Peak Massif
Red Creek	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
Romley	1.2 Recommended Wilderness	Sawatch Range
Roxborough State Park	9.2 Significant Non-USFS Biological	South Platte Canyons

Wild Connections Conservation Plan for the Pike & San Isabel National Forests

Area Name	Theme	WCCP Complex
Saddle Mountain RNA	2.1 Research Natural Areas	South Park
Saint Charles North	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
Saint Charles Williams Creek East	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
Salt Creek	1.2 Recommended Wilderness	Mosquito Range
Salt Creek Forks	3.2 Connectivity Areas	Mosquito Range
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sangre de Cristo Wilderness	1.1 Existing Wilderness	Sangre de Cristo
Sawmill Gulch	5.1 Active Mgmt - Wildlife Habitat	Mosquito Range
Scraggy Peaks	1.2 Recommended Wilderness	Wet Mountains
Sangre de Cristo addition Blanca Peak	1.2 Recommended Wilderness	Sangre de Cristo
Sheep Mountain RNA	2.1 Research Natural Areas	Pikes Peak Massif
Sheep Rock RNA	2.1 Research Natural Areas	South Platte Canyons
Sheeprock	1.2 Recommended Wilderness	South Platte Canyons
Silverheels	1.2 Recommended Wilderness	Mount Evans High Peaks
Ski Cooper	8.1 Ski Based Resorts	Mosquito Range
Slide Mountain	1.2 Recommended Wilderness	Sangre de Cristo
Slide Mountain BLM	9.1 Non-USFS Recommended Wilderness	Sangre de Cristo
South Arkansas River	3.2 Connectivity Areas	Sawatch Range
South Catamount Creek RNA	2.1 Research Natural Areas	Pikes Peak Massif
South Fork Lake Creek	5.1 Active Mgmt - Wildlife Habitat	Sawatch Range
South Hardscrabble Valley	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains
South Platte Cheesman RNA	2.1 Research Natural Areas	South Platte Canyons
South Platte Wild Scenic Recreation	2.3 Eligible Wild/Scenic/Recreational Rivers	South Park / South Platte Canyons
Spanish Peaks adjacent East	3.1 Quiet Use Areas	Spanish Peaks
Spanish Peaks adjacent West	3.1 Quiet Use Areas	Spanish Peaks
Spanish Peaks adjacent	5.1 Active Mgmt - Wildlife Habitat	Spanish Peaks
Spanish Peaks Wilderness	1.1 Existing Wilderness	Spanish Peaks
Square Top	1.2 Recommended Wilderness	Mount Evans High Peaks
Stanley Canyon	3.1 Quiet Use Areas	Rampart Range
Starvation Creek	1.2 Recommended Wilderness	Sawatch Range
Strawberry Creek RNA	2.1 Research Natural Areas	Sangre de Cristo
Table Mountain	9.1 Non-USFS Recommended Wilderness	Arkansas Canyons

Area Name	Theme	WCCP Complex
Tanner Peak	1.2 Recommended Wilderness	Arkansas Canyons
Tanner Peak RNA	2.1 Research Natural Areas	Arkansas Canyons
Tarryall	5.1 Active Mgmt - Wildlife Habitat	South Park
Tarryall Creek	5.1 Active Mgmt - Wildlife Habitat	South Park
Teddys Peak RNA	2.1 Research Natural Areas	Spanish Peaks
Tennessee Pass	3.2 Connectivity Areas	Mosquito Range / Sawatch Range
Thirtynine Mile	1.2 Recommended Wilderness	South Park
Thirtynine Mile Mountain RNA	2.1 Research Natural Areas	South Park
Thirtynine-Thirtyone	5.1 Active Mgmt - Wildlife Habitat	Arkansas Canyons / South Park
Thunder Butte	1.2 Recommended Wilderness	South Platte Canyons
Thunder Butte RNA	2.1 Research Natural Areas	South Platte Canyons
Top of the Rockies Scenic Byway	4.2 Scenic Byways	Mosquito Range/Sawatch Range
Tracy Hill	3.2 Connectivity Areas	Pikes Peak Massif
Trinchera Peak RNA	2.1 Research Natural Areas	Spanish Peaks
Trout Creek	3.1 Quiet Use Areas	Rampart Range
Trout Creek Pass	3.2 Connectivity Areas	Arkansas Canyons / Mosquito Range
Tumble Creek	3.2 Connectivity Areas	Mosquito Range / Sawatch Range
Turquoise Lake	8.2 Permanently Developed Areas	Sawatch Range
Twin Lakes	8.2 Permanently Developed Areas	Sawatch Range
Upper Grape Creek	1.2 Recommended Wilderness	Sangre de Cristo
West Fork West Beaver	3.2 Connectivity Areas	Pikes Peak Massif
Weston Pass	3.2 Connectivity Areas	Mosquito Range
Weston Peak	1.2 Recommended Wilderness	Mosquito Range
Weston Peak North RNA	2.1 Research Natural Areas	Mosquito Range
Weston Peak RNA	2.1 Research Natural Areas	Mosquito Range
Wildcat Canyon	1.3 Core Reserve	South Platte Canyons
Williams Creek	5.1 Active Mgmt - Wildlife Habitat	Wet Mountains

Table B.4: List of Scenic Byways

Scenic Byway	Location	WCCP Acres
Frontier Pathways Scenic Byway	CO 96 from Pueblo to Westcliffe & CO 165 (Greenhorn Highway) through the Wet Mountains to Colorado City	500
Highway of Legends	US 160 from Walsenburg to La Veta & CO 12 through the Spanish Peaks to Trinidad	100
Top of the Rockies Scenic Byway	CO 91 from Copper Mountain and US 24 from Minturn both to Leadville then US 24 to CO 82 and CO 82 to Twin Lakes	200
Gold Belt Tour Scenic and Historic Byway	CO 115 Florence to Canon City, US 50 to Parkdale, CO 9 to High Park Road also Cripple Creek-Florissant Road, Shelf Road and Phantom Canyon Road.	100
Guanella Pass Scenic Byway	CO 62 & FS 381 Guanella Pass Road Georgetown to Grant	500

Notes: Acres are rounded to the closest 100.

Appendix C – USFS IRAs & WCCP Roadless Areas

Map C.1: USFS IRAs and Wild Connections Roadless Areas

Map is in the pocket at the back of the book.

Table C.1: Summary of USFS IRAs and Wild Connections Roadless Areas

WCCP Area Name	USFS Area Name	UASPP Area Total Acres	UASPP Area Forest Service Land Acres	USFS Area Acres	WCCP Complex
Antelope Mountain	Not inventoried by USFS	8,000	8,000	0	Wet Mountains
Antora Peak	Starvation Creek	3,800	3,800	3,000	Sawatch Range
Apache Creek	Greenhorn Mountain	3,800	3,800	3,800	Wet Mountains
Arnold Gulch	Arnold Gulch	8,600	8,600	9,500	Arkansas Canyons
Badger Creek	Badger Creek	25,200	16,600	14,400	Arkansas Canyons
Badito Cone	Greenhorn Mountain	1,500	1,500	1,500	Wet Mountains
Bear Mountain	Not on USFS lands	17,500	0	0	Arkansas Canyons
Bears Head	Not inventoried by USFS	12,400	12,400	0	Wet Mountains
Beaver Creek/Gray Back Peak	Not inventoried by USFS	38,200	4,300	0	Pikes Peak Massif
Big Union	Buffalo Peaks	18,300	18,300	13,800	Mosquito Range
Blanca Peak	Sangre de Cristo	1,500	1,500	1,000	Sangre de Cristo
Blodgett Peak	Not inventoried by USFS	8,000	8,000	0	Rampart Range
Boreas	Boreas	11,400	11,400	5,300	Mount Evans High Peaks
Bosque del Oso SWA	Not on USFS lands	31,900	0	0	Spanish Peaks
Browns Canyon/Aspen Ridge	Aspen Ridge	24,400	15,200	11,100	Arkansas Canyons
Bruff Creek	Sangre de Cristo	2,700	2,700	2,300	Sangre de Cristo
Burning Bear	Burning Bear	20,700	20,700	17,700	Mt Evans High Peaks
Carbonate Mountain	Sangre de Cristo	3,600	3,600	3,100	Sangre de Cristo
Catamount Ranch	Not on USFS lands	1,300	0	0	Pikes Peak Massif
Chicago Ridge	Mad Creek DB&DB-1	11,600	11,600	1,100	Mosquito Range
Chipeta	Chipeta	33,700	33,700	25,300	Sawatch Range
Cisneros Creek	Greenhorn Mountain	3,500	3,500	1,900	Wet Mountains
Colorado Springs Water South	Not on USFS lands	7,300	0	0	Pikes Peak Massif
Crystal Falls	Sangre de Cristo	2,500	2,500	2,100	Sangre de Cristo
Cuchara	Cuchara	13,300	13,300	13,500	Spanish Peaks
Cuchara West	Cuchara	5,300	5,300	4,700	Spanish Peaks
Elk Creek	3a and 5 Rare 2/Mt. Evans	22,300	22,300	12,200	Mt Evans High Peaks
Elk Mountains	Elk Mountains-Collegiate	24,800	24,800	20,400	Sawatch Range
Farnum	Farnum	19,200	19,200	7,400	South Park
Frenchman Creek	Not inventoried by USFS	2,500	2,500	0	Sawatch Range
Front Range	Front Range	30,400	30,400	26,200	Rampart Range

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WCCP Area Name	USFS Area Name	UASPP Area Total Acres	UASPP Area Forest Service Land Acres	USFS Area Acres	WCCP Complex
Grape Creek/Tanner Peak	Tanner Peak	44,200	17,100	16,800	Arkansas Canyons
Green Mountain	Green Mountain	14,700	14,700	10,200	South Platte Canyons
Greenhorn Creek	Greenhorn Mountain	9,100	9,100	7,100	Wet Mountains
Greenhorn Mountain South	Greenhorn Mountain	900	900	900	Wet Mountains
Greenleaf Creek	Sangre de Cristo	1,600	1,600	1,300	Sangre de Cristo
Hardscrabble	Hardscrabble	8,400	8,400	7,500	Wet Mountains
Highline	Highline	19,700	19,700	10,900	Wet Mountains
Holy Cross East	Holy Cross	7,600	7,600	6,000	Sawatch Range
Hoosier Ridge	Not inventoried by USFS	5,000	5,000	0	Mt Evans High Peaks
Horn Creek	Sangre de Cristo	3,800	3,800	3,200	Sangre de Cristo
Indian Creek	Not inventoried by USFS	13,300	13,300	0	South Platte Canyons
Jackson Creek	Not inventoried by USFS	4,900	4,900	0	Rampart Range
James Mark Jones SWA	Not on USFS lands	19,100	0	0	South Park
Jenny Gulch	Rampart West	6,000	6,000	2,300	South Platte Canyons
Jefferson	Jefferson	19,900	19,900	12,000	Mt Evans High Peaks
Kauffman Ridge	Not inventoried by USFS	12,200	12,200	0	Arkansas Canyons
Kreutzer-Princeton	Kreutzer-Princeton	50,200	50,200	38,600	Sawatch Range
La Plata Gulch	Elk Mountains-Collegiate	4,000	4,000	3,100	Sawatch Range
Lake Creek	Sangre de Cristo	6,800	6,800	5,200	Sangre de Cristo
Lewis Creek	Highline	6,800	6,800	1,400	Wet Mountains
Limbaugh Canyon	Not inventoried by USFS	4,300	4,300	0	Rampart Range
Long Hollow	Rampart West	4,500	4,500	200	Rampart Range
Long Scraggy	Gunbarrel	20,500	20,500	8,700	South Platte Canyons
Marmot Peak	Buffalo Creek	9,300	9,300	6,600	Mosquito Range
May Creek	Sangre de Cristo	1,800	1,800	1,700	Sangre de Cristo
McIntyre Hills	Not on USFS lands	17,300	0	0	Arkansas Canyons
Methodist Mountain	Sangre de Cristo	3,600	3,600	3,300	Sangre de Cristo
Mill Gulch	Not inventoried by USFS	1,500	1,500	0	South Platte Canyons
Mount Antero	Mount Antero	66,800	66,800	39,500	Sawatch Range
Mount Arkansas	3a	4,700	4,700	3,700	Mosquito Range
Mount Elbert	Mount Elbert	22,700	22,700	20,800	Sawatch Range
Mueller State Park	Not on USFS lands	11,900	0	0	Pikes Peak Massif
Noddle Heads	Not inventoried by USFS	4,100	4,100	0	South Platte Canyons
North Cottonwood Creek	Elk Mountains-Collegiate	5,700	5,700	4,600	Sawatch Range
North Tarryall Peak	Lost Creek	14,900	14,900	9,000	South Park
Northrup-Longwater Gulches	3a and Sheeprock	14,300	14,300	1,100	South Platte Canyons

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WCCP Area Name	USFS Area Name	UASPP Area Total Acres	UASPP Area Forest Service Land Acres	USFS Area Acres	WCCP Complex
Pikes Peak East	East Pikes Peak	15,800	15,800	12,700	Pikes Peak Massif
Pikes Peak West	West Pikes Peak	25,600	25,600	11,900	Pikes Peak Massif
Pine Creek	Elk Mountains-Collegiate	6,900	6,900	4,300	Sawatch Range
Pole Creek	Not inventoried by USFS	8,800	8,800	0	Wet Mountains
Porphyry	Porphyry Peak	3,500	3,500	3,400	Sawatch Range
Puma Hills	Puma	9,700	9,700	8,500	South Park
Purgatoire	Purgatoire	17,700	17,700	13,200	Spanish Peaks
Rampart West	Rampart West	16,000	16,000	16,600	Rampart Range
Romley	Romley	8,600	8,600	6,900	Sawatch Range
Roxborough State Park	Not on USFS lands	3,400	0	0	South Platte Canyons
Saint Charles Peak	Saint Charles Peak	16,900	16,900	11,600	Wet Mountains
Salt Creek	Not inventoried by USFS	6,900	6,900	0	Mosquito Range
Santana Butte	Greenhorn Mountain	1,100	1,100	1,000	Wet Mountains
Scraggy Peaks	Scraggy Peaks	15,200	15,200	10,200	Wet Mountains
Sheeprock	Sheeprock	6,100	6,100	4,900	South Platte Canyons
Silverheels	Silverheels	14,000	14,000	7,100	Mt Evans High Peaks
Slide Mountain	Mount Blanca	3,100	2,300	2,500	Sangre de Cristo
Square Top	Square Top Mountain	8,700	8,700	5,900	Mt Evans High Peaks
Stanley Canyon	Not inventoried by USFS	10,700	10,700	0	Rampart Range
Starvation Creek	Starvation Creek	7,600	7,600	5,100	Sawatch Range
Table Mountain	Not on USFS lands	25,500	0	0	Arkansas Canyons
Thirtynine Mile	Thirtynine Mile	14,000	14,000	10,800	South Park
Thunder Butte	Thunder Butte	8,700	8,700	7,500	South Platte Canyons
Trout Creek	Rampart West	5,100	5,100	4,600	Rampart Range
Upper Grape Creek	Sangre de Cristo	3,100	3,100	2,000	Sangre de Cristo
Weber Park	Not inventoried by USFS	4,700	4,700	0	South Park
Weston Peak	Weston Peak	20,900	20,900	16,600	Mosquito Range
Wildcat Canyon	Not inventoried by USFS	7,100	7,100	0	South Platte Canyons
Williams Creek East	Not inventoried by USFS	5,700	5,700	0	Wet Mountains
Total Acres		1,186,400	971,600	594,300	

Descriptions of Table Columns:

* WCCP Areas are citizen defined roadless areas that, when on US Forest Service Land, UASPP believes are eligible for IRA status.

* USFS Areas are the areas that are part of the inventory used when defining the 2001 Roadless Rule.

* UASPP Area Total Acres are the total number of acres in a WCCP area. WCCP Areas include acreage on public lands managed by the US Forest Service, Bureau of Land Management (BLM), State of Colorado, Teller County, and City of Colorado Springs.

* UASPP Area Forest Service Land Acres are the number of acres of a WCCP area that are managed by the Forest Service.

* USFS Area Acres are the number of acres on the US Forest Service Inventoried Roadless Area that intersects or is contained in the WCCP Area.

* WCCP Complex is the geographic complex defined in the Wild Connections Conservation Plan where the WCCP Area is located.

* All acreages are rounded to the nearest 100.

** The WCCP Areas Badger Creek, Beaver Creek/Gray Back Peak, Browns Canyon/Aspen Ridge, Grape Creek/Tanner Peak, and Slide Mountain include lands managed by the US Forest Service and lands managed by the Bureau of Land Management (BLM).
* Area sizes and boundaries differ between the WCCP and USFS inventory due to methodology differences. Additional details are provided below.*

UASPP's Submission to the Colorado Roadless Areas Review Task Force

The Colorado Roadless Areas Review Task Force held a public meeting to gather expert and public testimony on roadless areas within the Pike-San Isabel National Forest on January 6th, 2006 in Pueblo, Colorado. UASPP was invited to give expert testimony as part of a panel of interested parties. Our formal report contains additional details, pictures and maps comparing the official USFS IRAs with our recommended boundary and area adjustments, as well as a summary of inventory protocols which led to some acreage variability.

UASPP's full Task Force booklet submission, including our GIS data layers, are available on our website at **<http://www.wildconnections.org>**.

Roadless Field Inventory Protocols and Procedures

UASPP utilized the field inventory and mapping protocols accepted by the Southern Rockies Forest Network (precursor to the Southern Rockies Conservation Alliance). The full manual is available on our website at **<http://www.wildconnections.org>**.

Appendix D – Recommended for Wilderness

Given the increasing threat of motorized recreation throughout National Forests, coupled with the fluctuating rules governing roadless area protection, vast amounts of roadless acreage may be lost during the next few decades. Thus it is critical under this forest plan revision to protect remaining lands having substantial wilderness quality on the Pike-San Isabel. The Pike-San Isabel is fortunate to have many hundreds of thousands of acres that are still roadless, mostly wild, lands.

Large, protected areas that include the full range of habitats are more capable of sustaining natural disturbance regimes and of perpetuating diverse and successional ecosystems (Aplet and Keeton, 1999). Studies show that more mammal species are lost from small national parks than large ones (Newmark, 1987, 1995). Designating wilderness areas, in accordance with 1964 Wilderness Act, has proven to be the most effective means of preserving large areas in the United States (Foreman, 1995).

Historically, existing Wilderness areas were not selected and designated primarily because of special values to wildlife and plant life, nor because of diversity of species, nor because they were areas of particular importance in preserving the overall continuity of the ecosystem. It is critical for ecological values to be addressed and evaluated as a specific reason to justify additional wilderness designation, beyond just scenery or tourism benefits.

Therefore, we urge the Forest Service to use this planning period to systematically identify and recommend capable lands for Wilderness designation. Through our rigorous citizen-based surveys, we recommend the following areas for Wilderness protection based on their outstanding ecological, geologic, aesthetic and scenic qualities. While some proposed areas show signs of past management activities, this does not disqualify the areas for recommendation. All proposed areas are legally roadless, and possess wild and remote characteristics necessary for recommendation under the Wilderness Act. All proposed areas are at least 1,000 acres in size for additions to existing Wilderness, or 5,000 acres for stand-alone areas.

Rationale for Recommending Areas for Wilderness

Several factors helped determine which large roadless areas should be future Wilderness. First, UASPP determined which areas met the basic criteria of the Wilderness Act of 1964 such as size, generally natural in appearance with the imprints of humans substantially unnoticeable and opportunities for solitude and challenge. We also applied the Forest Service's evaluation criteria of capability, availability and suitability. These Wilderness qualities were identified by volunteer mappers or through research and are documented in a Wilderness Qualities database. Second, we applied other criteria such as representation of low elevation ecosystems, contribution to connectivity across the larger landscape and into adjacent National Forests, general distribution of proposed areas across the Forest, potential conflicts with mechanized recreation, presence of biodiversity hotspots or imperiled species, locations of important wildlife habitat such as birthing areas or winter range, and social and economic factors of nearby communities.

The following table summarizes the areas proposed for Wilderness by the Wild Connections Plan. Detailed area justifications, suitability and characteristics can be found in the respective complex narrative.

Table D.1: Summary of Recommended Wilderness Areas

Area	USFS Acres	Total Acres	WCCP Complex
Apache Creek	3,800	3,800	Wet Mountains
Badger Creek*	16,600	25,200	Arkansas Canyons
Badito Cone	1,500	1,500	Wet Mountains
Bears Head	12,100	12,100	Wet Mountains
Beaver Creek*	4,300	38,200	Pikes Peak Massif
Big Union	18,300	18,300	Mosquito Range
Blanca Peak	1,600	1,600	Sangre de Cristo
Boreas	11,400	11,400	Mt Evans High Peaks
Browns Canyon*	12,100	20,000	Arkansas Canyons
Burning Bear	20,600	20,600	Mt Evans High Peaks
Carbonate Mountain	3,600	3,600	Sangre de Cristo
Chipeta	18,300	18,300	Sawatch Range
Cisneros Creek	3,500	3,500	Wet Mountains
Crystal Falls	2,600	2,600	Sangre de Cristo
Elk Creek	22,300	22,300	Mt Evans High Peaks
Elk Mountains	11,900	11,900	Sawatch Range
Farnum	19,200	19,200	South Park
Frenchman Creek	2,500	2,500	Sawatch Range
Front Range	30,400	30,400	Rampart Range
Grape Creek*	17,100	44,400	Arkansas Canyons
Green Mountain	14,700	14,700	South Platte Canyons
Greenhorn Creek	9,100	9,100	Wet Mountains
Greenhorn Mountain South	900	900	Wet Mountains
Greenleaf Creek	1,600	1,600	Sangre de Cristo
Hardscrabble	8,400	8,400	Wet Mountains
Highline	19,700	19,700	Wet Mountains
Horn Creek	3,800	3,800	Sangre de Cristo
Jefferson	14,400	14,400	Mt Evans High Peaks
Kreutzer-Princeton	50,200	50,200	Sawatch Range
Lake Creek	6,800	6,800	Sangre de Cristo
La Plata Gulch	4,100	4,100	Sawatch Range
Long Scraggy	20,500	20,500	South Platte Canyons
Marmot Peak	9,300	9,300	Mosquito Range
May Creek	1,800	1,800	Sangre de Cristo
McIntyre Hills**	0	17,300	Arkansas Canyons
Mount Antero	58,300	58,300	Sawatch Range
Mount Elbert	22,500	22,500	Sawatch Range
Pikes Peak West	17,700	17,700	Pikes Peak Massif

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Area	USFS Acres	Total Acres	WCCP Complex
Pine Creek	6,900	6,900	Sawatch Range/South Platte Canyons
Puma Hills	9,700	9,700	South Park
Purgatoire	17,700	17,700	Spanish Peaks
Romley	8,600	8,600	Sawatch Range
Santana	1,100	1,100	Wet Mountains
Salt Creek	6,900	6,900	Mosquito Range
Scraggy Peaks	15,200	15,200	Wet Mountains
Sheeprock	6,100	6,100	South Platte Canyons
Silverheels	14,000	14,000	Mt Evans High Peaks
Slide Mountain*	2,300	3,100	Sangre de Cristo
Square Top	8,000	8,000	Mt Evans High Peaks
Starvation Creek	7,600	7,600	Sawatch Range
Table Mountain**	0	25,500	Arkansas Canyons
Thirtynine Mile	14,100	14,100	South Park
Thunder Butte	8,700	8,700	South Platte Canyons
Upper Grape Creek	3,100	3,100	Sangre de Cristo
Weston Peak	20,900	20,900	Mosquito Range
Total Acres	648,400	769,700	

* Recommended Wilderness on US Forest Service and Bureau of Land Management lands.

**Recommended Wilderness on Bureau of Land Management lands only.

Notes:

* Acres are rounded to the nearest 100. Totals may vary due to rounding.

* Recommended Wilderness Areas may include small inholdings when no access is present.

Appendix E – Proposed Research Natural Areas

Successful development of ecosystem management depends on availability and use of ecological baseline information on natural composition, structure, and functioning in order to effectively monitor and evaluate ecosystem changes throughout time. Thus, Research Natural Areas (RNAs) have three main objectives. They provide:

1. reference areas for evaluating the impacts of management in similar environments;
2. areas for basic research;
3. areas for preserving important elements of biological diversity.

Although Research Natural Areas are in some cases small, they nevertheless protect special biological values. Therefore, we urge the Forest Service to use this planning period to systematically identify and recommend additional RNAs with the goal to represent within the RNA designations the broad scope of diverse ecosystems that occur on the Pike-San Isabel.

There are currently only three designated RNAs in the Pike-San Isabel, totaling just over 1,600 acres. The Wild Connections Plan recommends designation of 40 additional Research Natural Areas that represent the broad sweep of Pike-San Isabel ecosystems, from ponderosa pine stands to alpine tundra.

Rationale for Recommending Areas for Research Natural Areas

RNAs present a unique opportunity to protect special places, so UASPP assessed the PSI’s eighty-seven “short list” and “long list” potential RNAs. We reviewed the short-list Ecological Evaluation reports and various reports on imperiled species and biodiversity values from Center for Native Ecosystems, Colorado Natural Heritage Program, and the Colorado Natural Areas Program, as well as looked at ecosystem representation and location in roadless areas or Wilderness recommendations. These factors were each assigned weighted ranking numbers and a total ranking was calculated for each proposed RNA. Finally, the Wild Connections team reviewed the ranking and other values to select the final recommendations.

The following table summarizes the areas proposed for Research Natural Areas by the Wild Connections Plan. Detailed area justifications, suitability and characteristics can be found in the respective complex narrative.

Table E.1: Summary of Proposed Research Natural Areas

Area	Acres	WCCP Complex
Antora Peak Sheep Mountain RNA	3,900	Sawatch Range
Apache Creek RNA	10,100	Wet Mountains
Badger Creek RNA	8,500	Arkansas Canyons
Big Red Butte RNA	4,500	Wet Mountains
Black Mountain RNA	1,200	Arkansas Canyons
Blodgett Peak RNA	3,100	Rampart Range
Boreas Mountain RNA	4,700	Mt Evans High Peaks
Bridge or Polhemus Gulch RNA	3,500	Rampart Range
Bruff Creek RNA	2,600	Sangre de Cristo
Cottonwood Spring RNA	7,900	Arkansas Canyons
Craig Park RNA	10,800	South Park

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Area	Acres	WCCP Complex
Crystal Creek RNA	2,500	Pikes Peak Massif
East Spanish Peak RNA	2,700	Spanish Peaks
Gray Back Peak RNA	6,000	Pikes Peak Massif
Guanella Pass RNA	3,400	Mt Evans High Peaks
Guernsey and Deadman Gulch RNA	2,800	Mt Evans High Peaks
Hells Canyon RNA	1,700	Spanish Peaks
Hoosier Ridge RNA*	700	Mt Evans High Peaks
Hurricane Canyon RNA*	500	Pikes Peak Massif
Long Scraggy RNA	4,200	South Platte Canyons
McCurdy Mountain RNA	13,600	South Park
Methodist Mountain RNA	7,700	Sangre de Cristo
Mill Gulch RNA	1,500	South Platte Canyons
Mineral Basin Jones Mountain RNA	2,100	Sawatch Range
Mount Princeton RNA	5,600	Sawatch Range
North Elk Creek RNA	5,100	Mt Evans High Peaks
North Willow Creek RNA	10,200	Sawatch Range
Oil Creek RNA	1,100	Pikes Peak Massif
Porphyry Peak RNA	4,100	Sawatch Range
Purgatoire RNA	3,400	Spanish Peaks
South Catamount Creek RNA	2,000	Pikes Peak Massif
Saddle Mountain RNA*	400	South Park
Sheep Mountain RNA	1,700	Pikes Peak Massif
Sheep Rock RNA	3,400	South Platte Canyons
South Platte Cheesman RNA	2,200	South Platte Canyons
Strawberry Creek RNA	4,900	Sangre de Cristo
Tanner Peak RNA	3,600	Arkansas Canyons
Teddys Peak RNA	1,000	Spanish Peaks
Thirtynine Mile Mountain RNA	2,600	South Park
Thunder Butte RNA	3,900	South Platte Canyons
Trinchera Peak RNA	2,100	Spanish Peaks
Weston Peak North RNA	3,000	Mosquito Range
Weston Peak RNA	9,100	Mosquito Range
Total Acres	179,600	

* Currently Designated as an RNA

Notes: Acres are rounded to the nearest 100. Totals may vary due to rounding.

Hoosier Ridge RNA and Guanella Pass Proposed RNA include land in an adjacent National Forest.

Appendix F – Proposed Core Areas

Core Areas are a vital component of the reserve design and ecological viability, as large blocks of relatively intact ecosystems provide habitat for wide-ranging animals, and promote natural processes, including nutrient cycling, predation, and the reestablishment of natural fire regimes.

Core reserves must be to the greatest extent allowed to function in their natural state in order to be ecologically effective. Conservation biology points to the need for core reserves that are large in size and diverse in habitat (Soulé and Simberloff 1986, Wilcox and Murphy 1985, Noss, 1992). Therefore, we urge the Forest Service to use this planning period to identify additional Core Areas for protection.

Rationale for Recommending Areas for Core Reserves

Some large roadless areas exhibit many wild qualities but do not meet the highest standards for Wilderness, and were not included in the recommendations for Wilderness designation. Their value as Core Reserves was determined by looking at representation of low elevation ecosystems, contribution to connectivity between nearby Wilderness areas and across the larger landscape and into adjacent National Forests, general distribution of proposed areas across the Forest, presence of biodiversity hotspots or imperiled species, and locations of important wildlife habitat such as birthing areas or winter range.

The following table summarizes the areas proposed for Core by the Wild Connections Plan. Detailed area justifications, suitability and characteristics can be found in the respective complex narrative.

Table F.1: Summary of Proposed Core Areas

Area	Acres	WCCP Complex
Bison Creek	3,600	Pikes Peak Massif
Cuchara West	4,200	Spanish Peaks
Hoosier Ridge	5,100	Mt Evans High Peaks
Hope Pass	13,400	Sawatch Range
Lewis Creek	6,800	Wet Mountains
North Tarryall Peak	14,900	South Park
Northrup Gulch	6,600	South Platte Canyons
Pahlone Peak	15,000	Sawatch Range
Pole Creek North	4,500	Wet Mountains
Pole Creek South	4,200	Wet Mountains
Putney Gulch	2,900	Pikes Peak Massif
Raleigh Peak	5,100	South Platte Canyons
Raspberry Mountain	1,300	Pikes Peak Massif
Wildcat Canyon	7,100	South Platte Canyons
Total Acres	94,700	

Notes:

* Acres are rounded to the nearest 100. Totals may vary due to rounding.

* Areas may include small private inholdings if there is no access to the area.

Appendix G – Ecosystem Types and Distribution

The great diversity in topography, elevation, soils, and precipitation leads to a large variety of ecosystems types, each with a preferred niche and a cohort of species which live in them and, if the habitats are healthy and connected, where they can thrive for generations. Descriptions of major ecosystem types are included at the end of this appendix, as well as **Map G.1** and **G.2** which show the vegetation types and elevation range of the Pike and San Isabel.

Table G.1 shows the vegetation types on the Pike and San Isabel compared to the broader Southern Rockies Ecoregion. Because large landscapes are important when considering ecological processes and connectivity for wildlife, it is helpful to compare the Pike-San Isabel National Forest cover types with those of the Southern Rockies Ecoregion. Some, such as semi-desert and sage shrublands or lowland grasslands, are barely represented in the Pike-San Isabel, which is not surprising, of course. But of the typical mountain cover types, we note:

- 18.7 % of the Pike-San Isabel is ponderosa pine, compared to only 11.1 % of the Southern Rockies.
- 14.3 % of the Pike-San Isabel is Douglas-fir, compared to only 2.3 % of the Southern Rockies.
- 18.7% of the Pike-San Isabel is Engelmann spruce-subalpine fir, compared to only 12 % of the Southern Rockies
- 14.3 % of the Pike-San Isabel is alpine tundra, compared to only 4.6% of the Southern Rockies

This illustrates the large proportion of high elevation cover types, which in turn has implications for native species.

Table G.1: Major Ecosystem/Cover Types

Ecosystem or Cover Type	Southern Rockies Area (acres)	%	WCCP Area (acres)	%	Pike-San Isabel National Forest Area (acres)	%
Lowland Grasslands	2,004,200	4.9%	75,300	1.5%	100	0.0%
Semi-desert & Sage Shrublands	6,208,700	15.2%	199,100	3.9%	64,200	2.9%
Piñon-Juniper Woodlands	5,177,000	12.7%	739,400	14.6%	91,500	4.1%
Montane Shrublands	2,306,900	5.7%	75,900	1.5%	13,300	0.6%
Ponderosa Pine Forests	4,523,000	11.1%	895,700	17.7%	417,700	18.7%
Douglas-Fir Forests	956,900	2.3%	441,600	8.7%	318,600	14.3%
Lodgepole Pine Forests	2,736,600	6.7%	272,500	5.4%	226,600	10.1%
Mixed Conifer & General Conifer Forest	2,217,422	5.4%	299,100	5.9%	162,300	7.3%
Aspen Forests	3,211,400	7.9%	169,300	3.3%	119,400	5.3%
Montane Grasslands & Meadows	1,851,800	4.5%	834,100	16.5%	54,300	2.4%
Limber Pine & Bristlecone Pine Forests	177,600	0.4%	47,600	0.9%	15,200	0.7%

Wild Connections Conservation Plan for the Pike & San Isabel National Forests

Ecosystem or Cover Type	Southern Rockies Area (acres)	%	WCCP Area (acres)	%	Pike-San Isabel National Forest Area (acres)	%
Engelmann Spruce-Subalpine Fir Forests	4,881,700	12.0%	468,300	9.3%	416,800	18.7%
Alpine Tundra	1,892,600	4.6%	359,600	7.1%	320,000	14.3%
Aquatic, Riparian & Wetland	136,700	0.3%	9,900	0.2%	3,400	0.2%
Agriculture (croplands)	1,991,300	4.9%	139,500	2.8%	1,800	0.1%
Human Settlement Dominated	66,600	0.2%	9,800	0.2%	900	0.0%
Other Types*	380,800	0.9%	19,300	0.4%	7,400	0.3%
TOTAL	40,721,222	100.0%	5,056,000	100.0%	2,233,500	100.0%

Source: SREP 2004, Colorado Gap Analysis Project 1999

* Other types primarily include barren lands, exposed rock and open water.

Notes:

* Acres are rounded to the nearest 100.

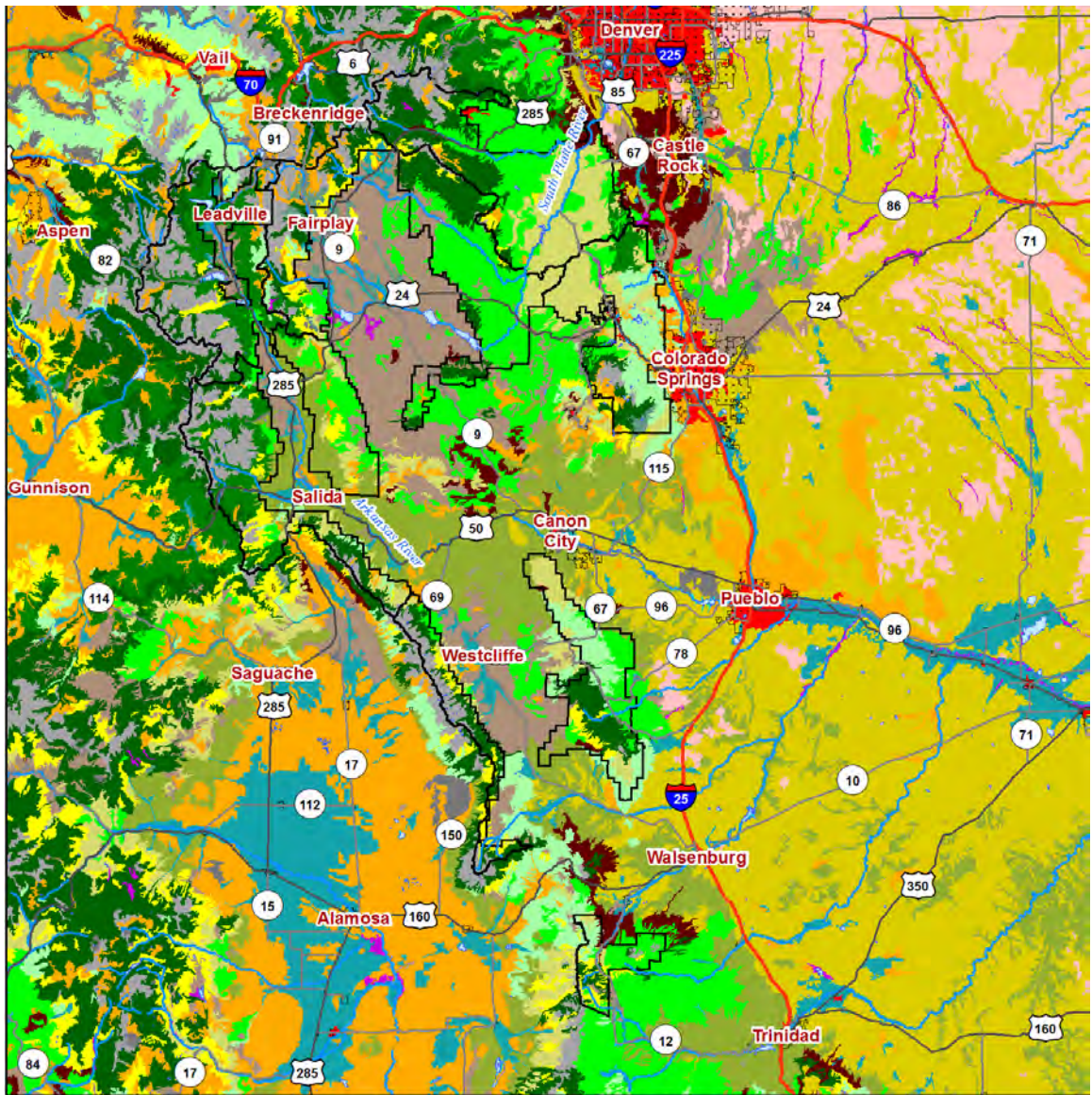
* The WCCP Region Area consists of the eleven WCCP Complexes.

* Pike San-Isabel National Forest Area was determined using boundaries from US Forest Service data from 1998 and excludes the majority of private inholdings.

* Small areas of human settlement and agricultural lands shown within the Pike San-Isabel National Forest are either due to the generalized nature of the Colorado Gap Analysis project data or may be on private inholdings not excluded from the national forest boundary used for the analysis.

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Map G.1: Vegetation Coverage of the Pike-San Isabel Region



Vegetation Coverage in the Pike and San Isabel National Forests Region

- | | | |
|-------------------------------------|--|---|
| — Interstate Highway | ■ Mountain Shrubland | ■ Engelmann Spruce-Subalpine Fir Forest |
| — US Highway | ■ Ponderosa Pine Forest | ■ Alpine Tundra |
| — State Highway | ■ Douglas-Fir Forest | ■ Wetland & Riparian |
| ⋯ City | ■ Lodgepole Pine Forest | ■ Dryland Agriculture |
| □ Pike & San Isabel National Forest | ■ Aspen Forest | ■ Irrigated/Other Agriculture |
| ■ Lowland Grassland | ■ Mixed Conifer & General Conifer Forest | ■ Human Settlement Dominated |
| ■ Semi-desert & Sage Shrublands | ■ Mountain Grassland & Meadow | ■ Barren Land, Exposed Rock, Unknown |
| ■ Pinyon-Juniper Woodland | ■ Limber Pine & Bristlecone Pine Forests | ■ Open Water |

0 25 50 Miles

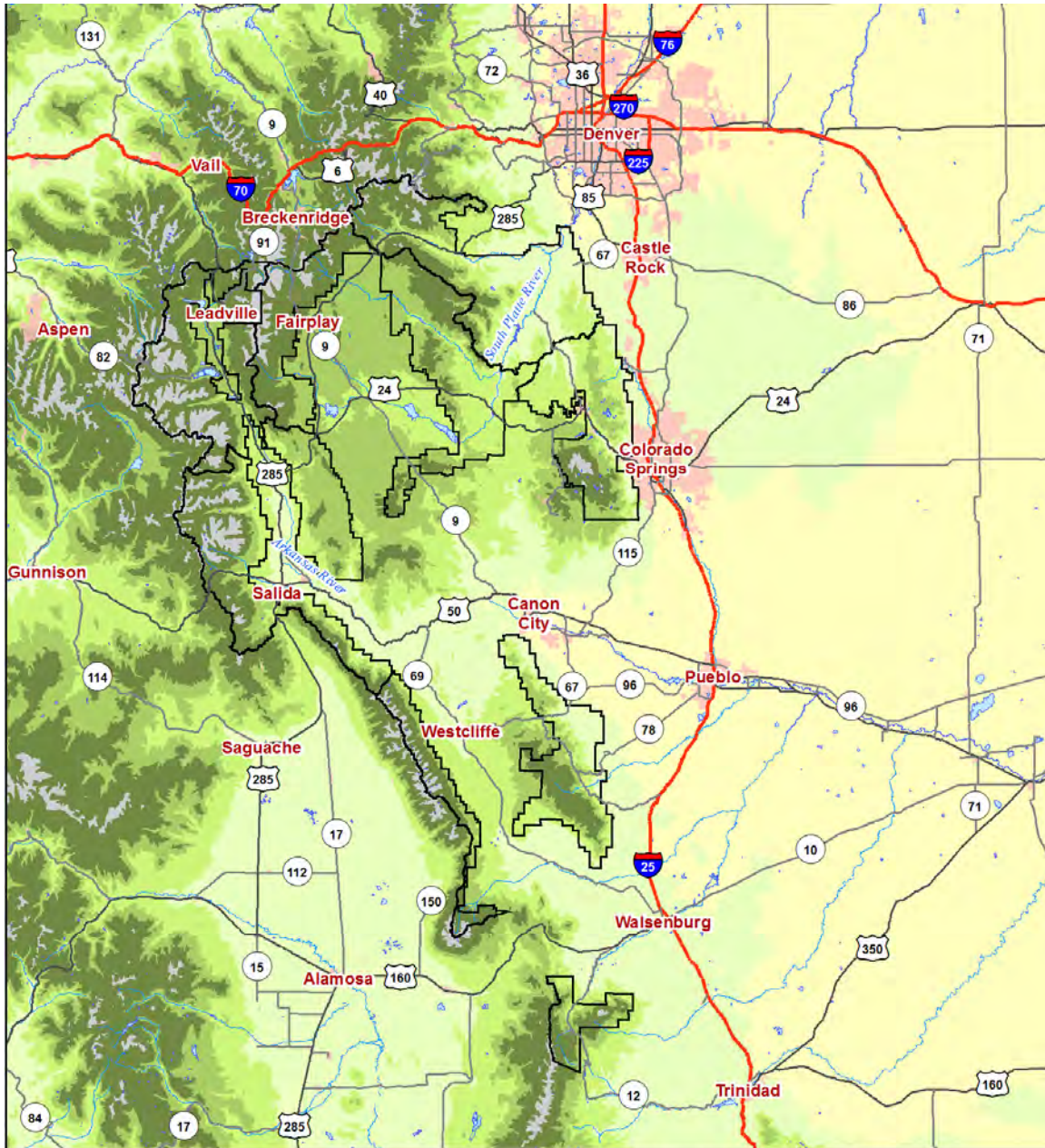
Vegetation data from the Colorado Gap Analysis Project via the Colorado Division of Wildlife 1998.
Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004).

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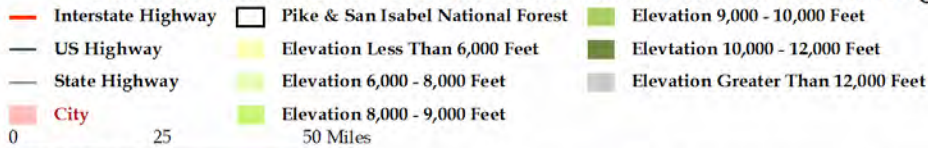


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Map G.2: Elevation and Topography of the Pike-San Isabel Region



Land Elevation in the Pike and San Isabel National Forests Region



Elevation data from the US Geological Survey National Elevation Dataset via the Southern Rockies Ecosystem Project 2000. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004).

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Lowland Grasslands

These grassland ecosystems, although peripheral to the Southern Rockies, have many close ecological ties to the Southern Rockies due to animal migration, water and nutrient flows, and other natural processes. They generally occur below 1,800 meters in elevation, with short-grass prairie and occasional mixed-grass and tall-grass prairie communities along the eastern and northern edges of the Southern Rockies, while Great Basin semi-desert grasslands occur at lower elevations along the southwestern fringes. Elk from the mountains historically wintered in these lower elevations, and wolves and grizzly bears regulated ungulate and other prey species populations. Black-tailed prairie dog burrows improved nutrient cycling and increased habitat diversity. Large prairie dog towns and heavy grazing by bison provided habitat for numerous other species, such as western rattlesnake, burrowing owl, black-footed ferret, badger, ferruginous hawk, and mountain plover. Fire also regulated these ecosystems.

Semi-Desert & Sagebrush Shrublands

Semi-desert shrublands are generally found below 7,500 feet in elevation, occurring where summers are hot, winters are cold and precipitation is sparse, often less than 10 inches per year. Their characteristic flora includes greasewood and four-winged saltbush. Sagebrush shrublands, dominated by sagebrush, range from 7,000 to 10,000 feet in elevation, occurring where summers are moderately hot, winters are cold and precipitation is sparse.

Fires have historically played an important role in shrubland ecology, which support a diverse array of plant and animal communities due to their broad ranges in environmental conditions.

Montane Shrublands

Montane shrublands are typically found below montane forests and above grasslands, semi-desert shrublands, or piñon-juniper woodlands, in the semi-arid sites between 5,500 and 8,500 feet, although they may occur higher on south-facing slopes. In the Pike and San Isabel, concentrations of montane shrublands consisting mainly of Gambel oak and mountain mahogany plant communities are not prevalent, except on the northern end of the Wet Mountains and along the Arkansas Canyon. Due to their mid-elevation position, these shrublands contain a mix of species from different elevation ecosystems and provide winter forage and habitat for species such as deer and elk. Fire encourages the establishment and spread of montane shrublands as an early seral stage.

Piñon-Juniper Woodlands

Piñon-juniper woodlands occur primarily on warm, dry sites in the foothills and on mesa tops, between 5,500 to 8,000 feet, but sometimes higher on south-facing slopes. At hotter and drier lower elevation sites, these woodlands often occur in relatively sparse, savanna conditions, but as elevation increases, they grow in dense stands, interspersed with ponderosa pine and Gambel oak. They are dominated by piñon pine and juniper species, have biological soil crusts, and provide habitat for 181 vertebrate species. Piñon nuts are an important food source for both wildlife and native peoples.

Ponderosa Pine Forests

Generally found in the foothills and montane zones between 5,000 and 9,000 feet, ponderosa pine forests are typically dry and warm, and snowfall does not accumulate for long periods during the winter. Depending on elevation, these forests may comprise open or dense woodlands and become interspersed with other trees. They are distributed across the lower and moderate elevations of the Pike and San Isabel except for the high elevations of the Sawatch and Sangre de Cristo Ranges. Ponderosa pine forests support a rich diversity of animals, such as the Abert's squirrel and flammulated owl. Historically, these forests have mainly supported frequent, low-intensity fires, but in some places also experienced stand-replacing fires.

Douglas-Fir Forests

Found between 5,500 and 9,000 feet, Douglas-fir prefers the cooler and moister conditions of higher elevations and north-facing slopes, where it grows in pure stands or interspersed with aspen, white fir, and Engelmann spruce. On exposed or drier south-facing slopes, it occurs in park-like stands with ponderosa pine. It is well distributed across the Pike and San Isabel at suitable elevations. Douglas-fir ecosystems may include numerous shrub species, herbaceous understories, and humidity- or moisture-dependent species such as lichens and mosses. They provide habitat for approximately 80 vertebrate species, including the Northern goshawk. Low-intensity fires historically maintained large, old trees, while occasional stand-replacing fires occurred in denser stands. Western Spruce budworm, Douglas-fir bark beetles, and Tussock moths also kill or defoliate Douglas-fir trees.

Lodgepole Pine Forests

Lodgepole pine forests occur primarily in the Pike and northern portions of the San Isabel, usually on cool, dry sites between 8,500 and 10,000 feet. These forests are tolerant of heavy snowfall and warm summers with periods of drought. Often a pioneer species that is later replaced by other forest types, lodgepole pine can dominate other conifer species after a stand-replacing fire, resulting in an even-aged, dense forest. Because they create a closed-canopy habitat, lodgepole pine forests harbor less understory, but they serve 83 vertebrate species, including elk, black bear, and American marten.

Aspen Forests

Commonly occurring between 8,000-10,000 feet, aspen can be found in various sites, but large trees usually exist in cool, moist sites. These forests are usually small groves, generally well distributed across the Pike and San Isabel. While they usually precede conifers as a successional stage, some aspen forests can become stable, mature climax forests. They support a rich diversity of vertebrates and insects, and are especially important to beaver for providing food and dam-building material, as well as to nesting songbirds, hawks, and owls, which use cavities in old aspen forests for nesting.

Limber Pine and Bristlecone Pine Forests

These unique forests are found between 7,500 feet and treeline in rugged, exposed, and dry terrain with short growing seasons, conditions that contribute to their sparse, open-canopy stands. Limber pine and bristlecone pine forests grow as individual pure stands and codominants with other conifers, and are found scattered across much of the Pike and San Isabel. The northern Sawatch and Mosquito Ranges are apparently less hospitable to these species. Bristlecone pine can live over 2,000 years, and there are notable stands at Mount Goliath, Mount Bross, and Black Mountain. Limber pine seeds are a major food source for Clark's nutcracker and gray jays. Both forests support approximately 60 vertebrates. Mammals, such as black bears, feed on the nuts of these pine trees.

Engelmann Spruce-Subalpine Fir Forests

Occurring between 9,000 and 12,000 feet on cool, moist sites where most precipitation falls as snow, these forests will grow in pure stands of either species, but generally are co-dominant with each other or interspersed with aspen Douglas-fir, and/or other conifers. Spruce-fir is found across the two forests, although the Rampart Range, southern Mosquito Range and the northern Wet Mountains have few occurrences because of lower elevations. Old-growth forest stands have complex structures, which include large-diameter trees up to 500 years old. Natural disturbance agents are rare stand-replacing crown fires, spruce bark beetle, western spruce budworm, wood-rotting fungi, and windthrow. Spruce-fir forests support approximately 90 vertebrates, such as boreal owl, Northern goshawk, elk, black bear, American marten, snowshoe hare, and, historically, lynx and wolverine.

Alpine Tundra

A cold, wind-swept terrain found above 11,000-12,000 feet, alpine tundra includes a mosaic of ecosystems, such as alpine wetlands, talus and scree slopes, snowfields, and krummholz forests. The high elevations of the Sawatch and Sangre de Cristo Ranges, as well as the peaks along the Continental Divide north of South Park are good examples. Alpine tundra maintains generally stable natural conditions, but recovery from disturbances can take hundreds of years because of the brief growing season, erratic precipitation, harsh winds, and shallow soils. Low-growing shrubs, perennial herbs, lichens and mosses dominate alpine tundra, which supports approximately 50 vertebrates, including white-tailed ptarmigan, white-crowned sparrow, horned lark, bighorn sheep, elk, and yellow-bellied marmot.

Aquatic, Riparian and Wetland Ecosystems

Aquatic ecosystems comprise a small percentage of the Pike San Isabel, but they are among the most valuable to native species. They are rich in species diversity, supporting a host of amphibians (tiger salamander, boreal toad), resident and migrating birds (Wilson's warbler, American dipper), native fish (greenback cutthroat trout), mammals (river otter, beaver), insects (butterflies and dragonflies), and vegetation (willow and cottonwood species).

There are numerous natural lakes, ponds and other areas of holding water, often at higher elevations, as well as many impounded behind dams. Both the South Platte and the Arkansas have major storage reservoirs, mostly located outside of national forest lands. Wherever the natural hydrology is altered by impoundments, there are down stream effects on the forest streams and rivers.

Riparian ecosystems consist of the areas immediately adjacent to streams, rivers and lakes. In the Pike-San Isabel, these ecosystems occur throughout the region, wherever high-mountain streams, low-elevation rivers, natural lakes, and ponds meet terrestrial ecosystems, and range from narrow linear communities in deep canyons to sizable areas in broad floodplains.

Wetlands are areas that are covered by water annually, with plants and animals adapted to living in water and moist soils (Cowardin et al., 1979). These include forested wetlands, willow carrs, fens, marshes, alpine snow glades, wet meadows, salt meadows, bottomland shrublands, shallow ponds, and playa lakes.

Montane Grasslands & Meadows

Montane grasslands are generally small to medium sized patches of meadow among forest ecosystems. Fires and other disturbances may have created some meadows, but most are likely the result of dry, cold growing conditions with nutrient-poor soils that won't support trees. Intermontane grasslands typically occur in large mountain valleys and mountain "parks". These grasslands can cover hundreds of square kilometers, such as South Park, North Park, the Wet Mountain Valley, and along the fringes of the San Luis Valley in Colorado. South Park's large grassland patches support breeding populations of the federally threatened mountain plover. These grassland ecosystems include 98 vertebrate species, and they often provide important forage for mammal species such as elk, mule deer, and pronghorn. Predator species include coyotes, badgers, and historically a heavy presence of wolves. Fire and drought were major disturbances in these ecosystems, and many grasslands evolved with herbivory by bison, elk, deer, and pronghorn.

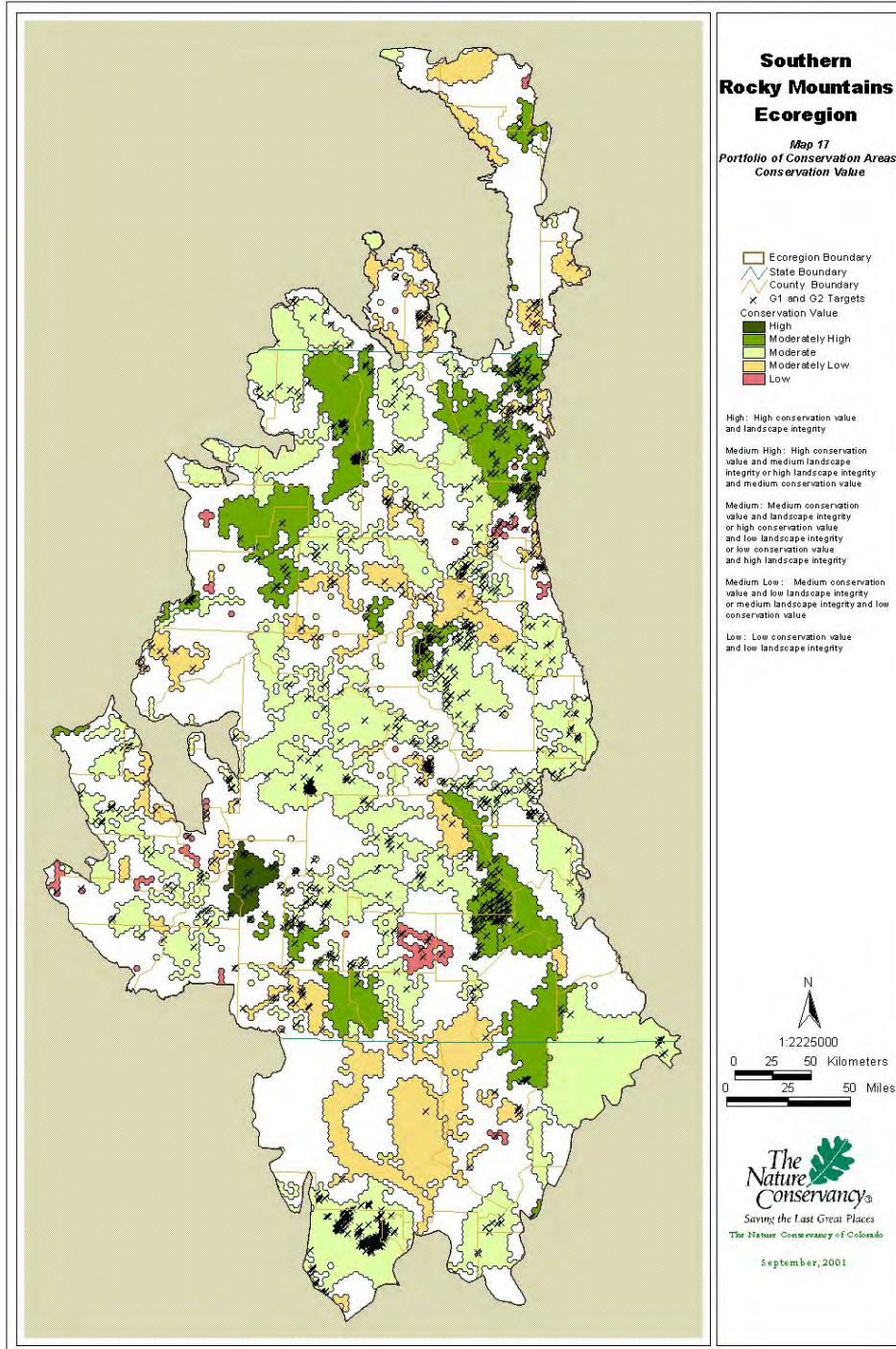
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Appendix H – Special Elements Maps

Map H.1: Wild Connections Special Elements

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Map H.2: The Nature Conservancy's Southern Rocky Mountain Conservation Areas

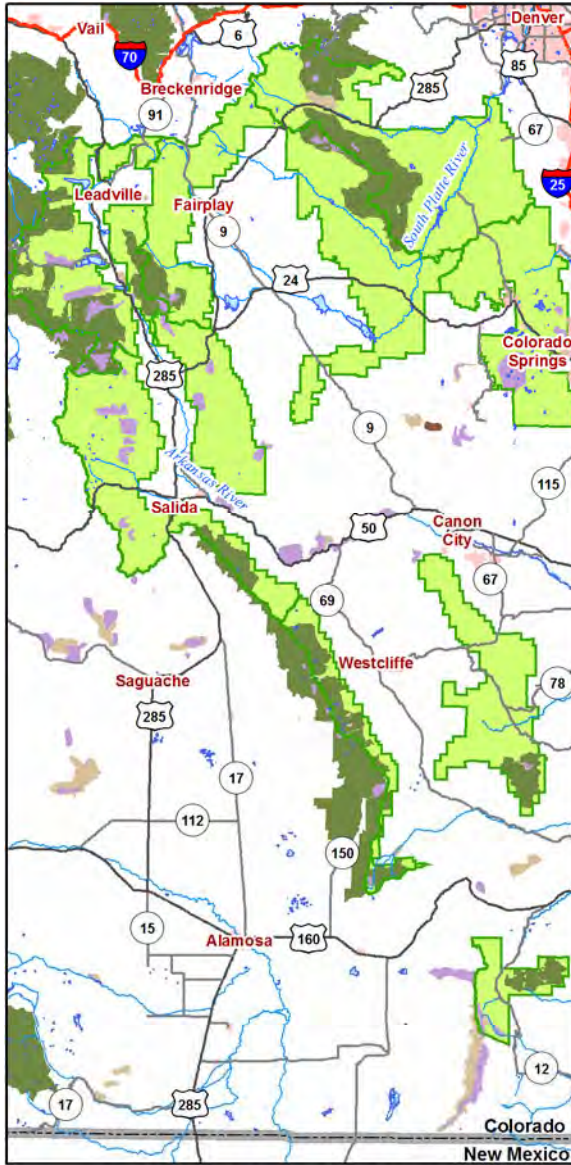


Map courtesy of The Nature Conservancy. Their ecoregion assessment was supported by the U. S. Forest Service. The views and conclusions contained in this [TNC] document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.

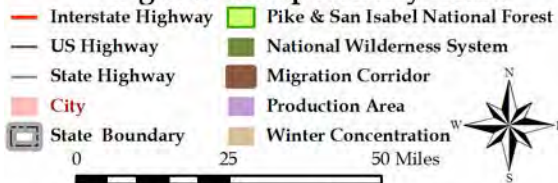
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Appendix I – Focal Species Maps

Map I.1: Bighorn Sheep



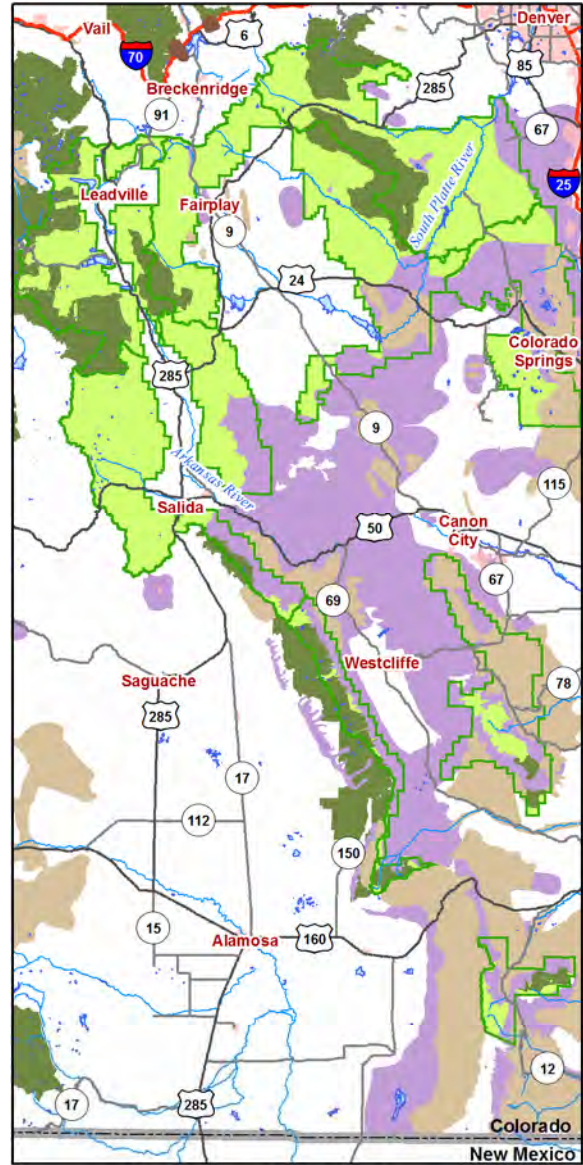
Bighorn Sheep Activity Areas



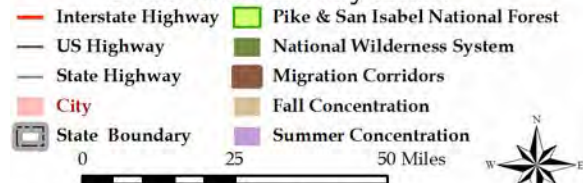
Bighorn sheep activity areas from the Colorado Division of Wildlife via the National Diversity Information Source, 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).

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Map I.2: Black Bear



Black Bear Activity Areas

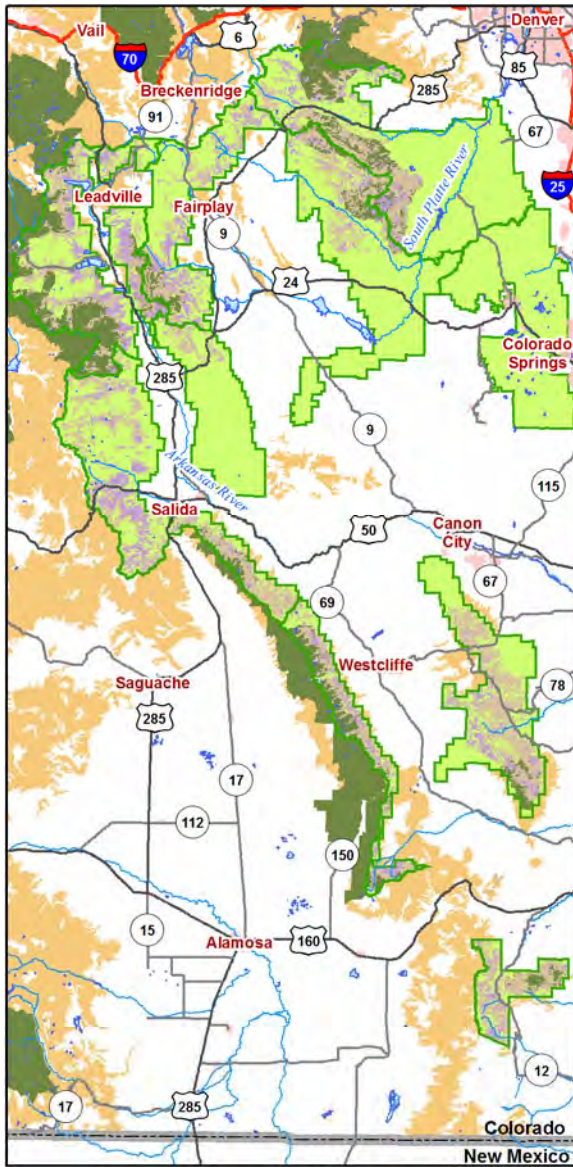


Black bear activity areas from the Colorado Division of Wildlife via the National Diversity Information Source 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).

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Map I.3: Canada Lynx

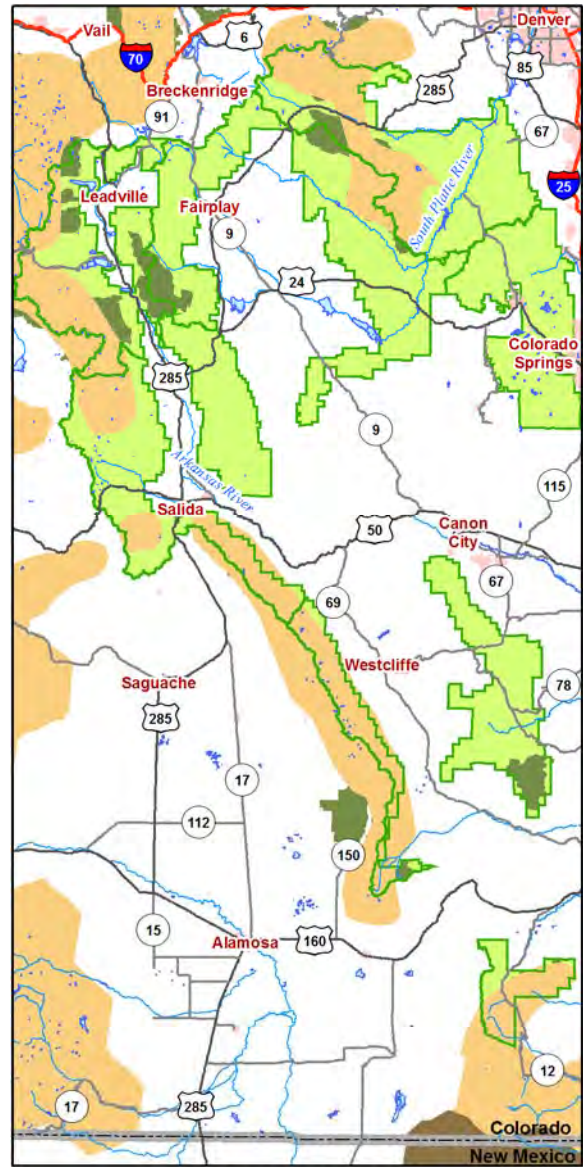


Canada Lynx Suitable Areas

- Interstate Highway
- US Highway
- State Highway
- City
- ▭ State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Winter Habitat
- Denning Habitat
- Potential Habitat Outside PSI

Canada lynx data from the US Forest Service (winter and denning habitat) 2004 and the Colorado Division of Wildlife (potential habitat) 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Map I.4: Gray Wolf



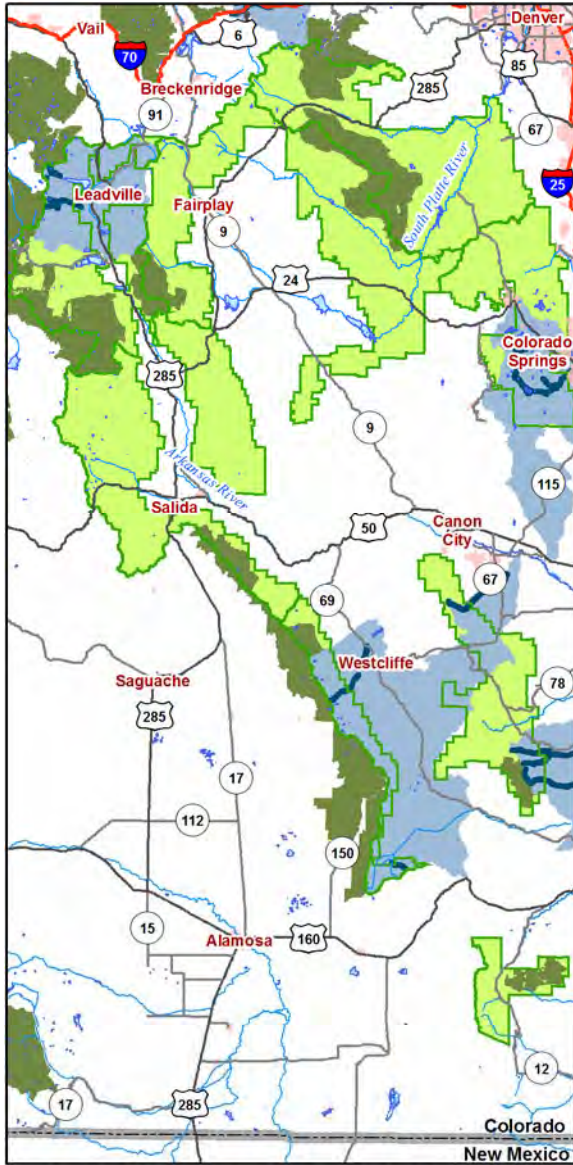
Gray Wolf Suitable Areas

- Interstate Highway
- US Highway
- State Highway
- City
- ▭ State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Wolf Core Habitat
- Wolf Secondary Habitat

Suitable gray wolf habitat area from the Southern Rockies Ecosystem Project's Southern Rockies Wildlands Network Design, 2003. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Map I.5: Greenback Cutthroat Trout

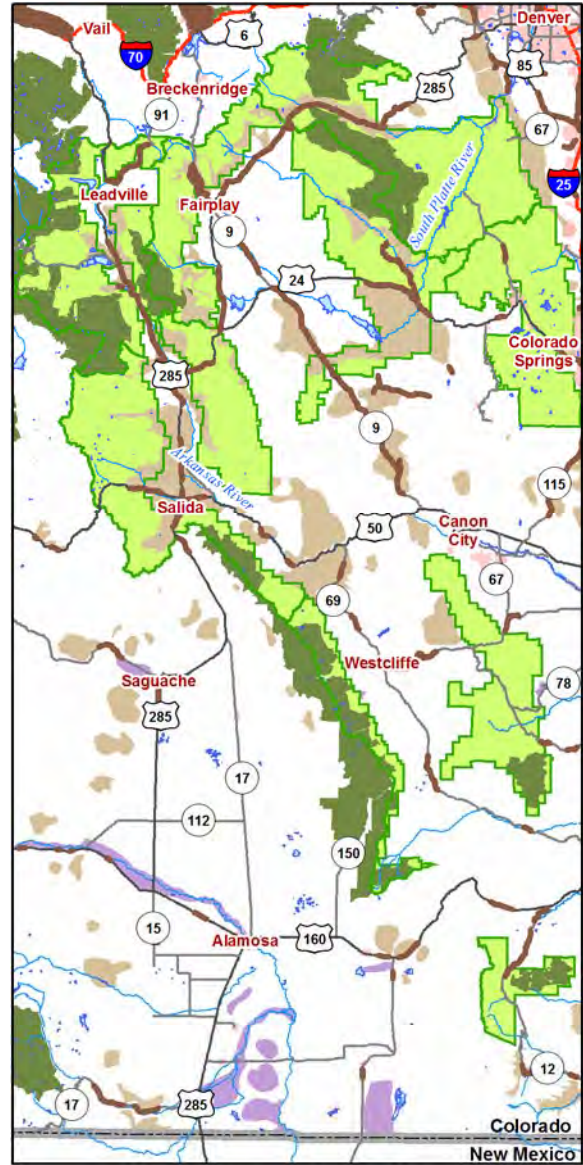


Greenback Cutthroat Trout Activity Areas

- Interstate Highway
- US Highway
- State Highway
- City
- State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Waterways with Greenback
- Watersheds with Greenback

Greenback cutthroat trout data from the Colorado Division of Wildlife 2004 and Southern Rockies Ecosystem Project 2006. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Map I.6: Mule Deer



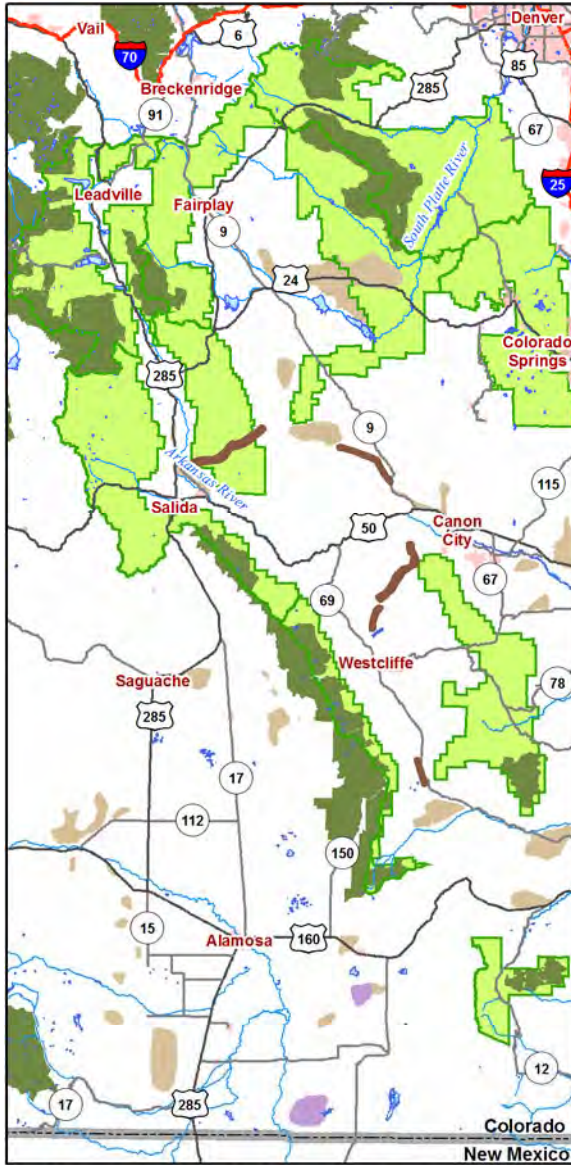
Mule Deer Activity Areas

- Interstate Highway
- US Highway
- State Highway
- City
- State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Migration Corridor
- Resident Population
- Winter Concentration

Mule deer activity areas from the Colorado Division of Wildlife via the National Diversity Information Source, 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Map I.7: Pronghorn Antelope

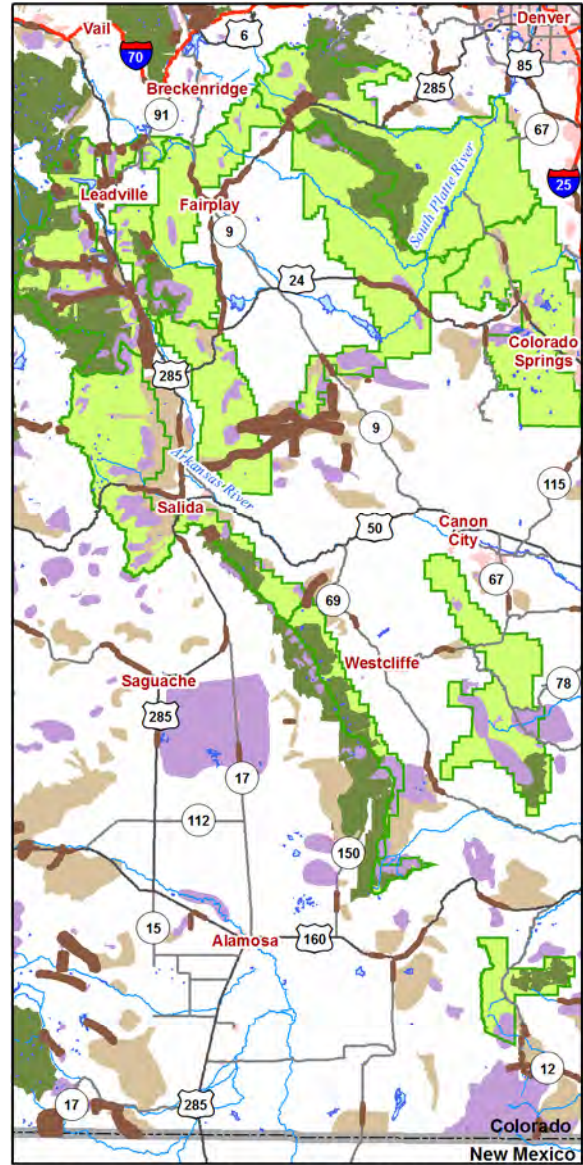


Pronghorn Antelope Activity Areas

- Interstate Highway
- US Highway
- State Highway
- City
- ▭ State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Migration Corridor
- Resident Population
- Winter Concentration

Pronghorn antelope activity areas from the Colorado Division of Wildlife via the National Diversity Information Source, 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Map I.8: Rocky Mountain Elk



Rocky Mountain Elk Activity Areas

- Interstate Highway
- US Highway
- State Highway
- City
- ▭ State Boundary
- Pike & San Isabel National Forest
- National Wilderness System
- Migration Corridor
- Production Area
- Winter Concentration

Rocky Mountain elk activity areas from the Colorado Division of Wildlife via the National Diversity Information Source, 2004. Reference data from the Colorado Department of Transportation (roads, lakes, streams 2004), EPA (1996), and Federal Highway Administration (2006).
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Appendix J – Conservation Planning and Evaluation

Recommended Species of Concern and Species of Interest

The Wild Connections team recommends the following species be designated as Species of Concern and Species of Interest in the plan revision. This list is designed to ensure that species with special niches or who play vitally important ecological roles are tracked and protected. Our methodology, criteria and definitions for selecting these species were described in Chapter 3 under Biological Sustainability Management.

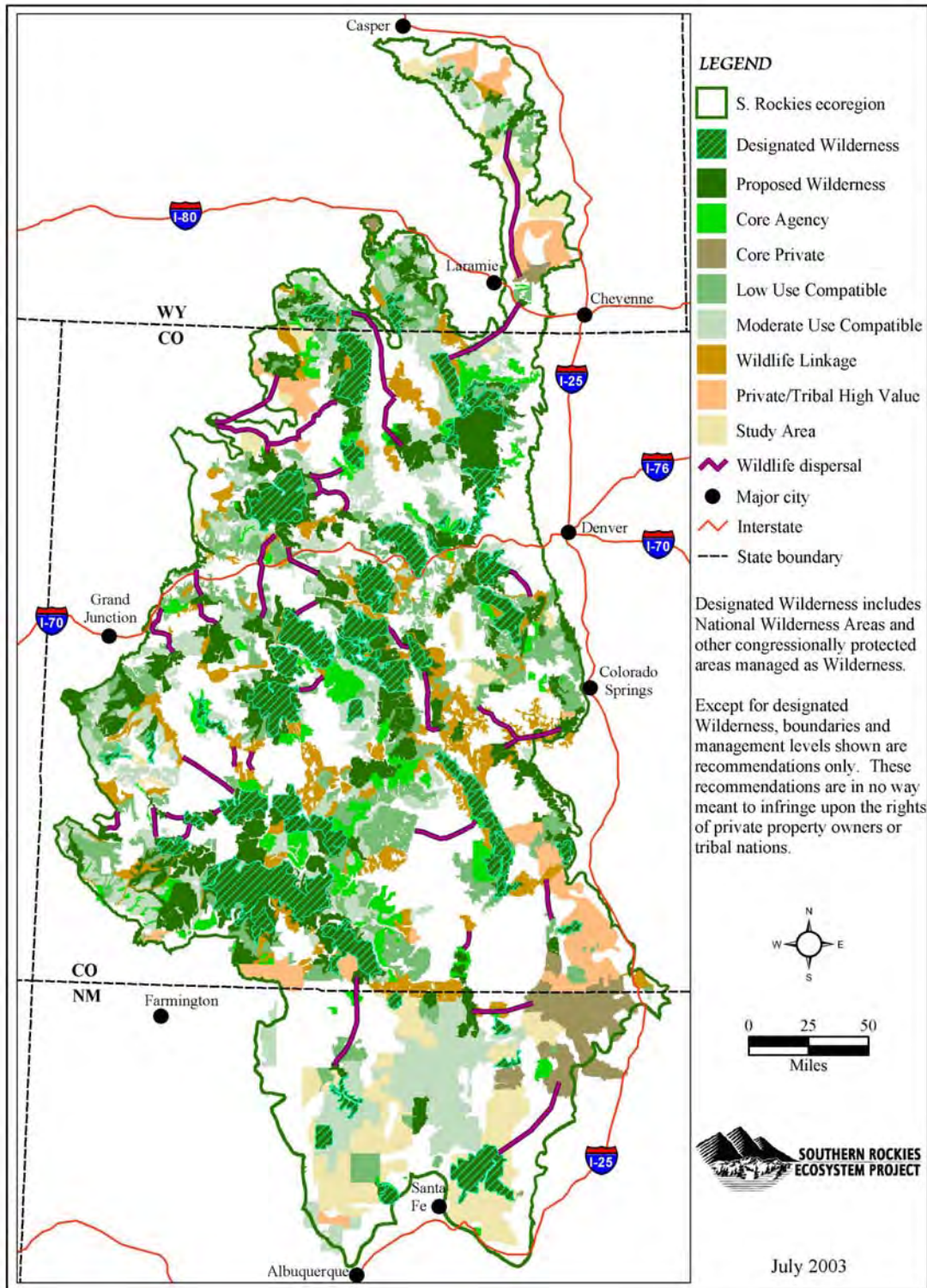
Please note that these lists may not be all inclusive. New species may need to be added to these lists as their roles and habitats are further identified and studied. Many of the species already on the lists have received very little official inventory effort and might be found in additional locations when more surveys have been conducted. Therefore, do not restrict concerns for these species only to known locations if suitable habitat is present.

Table J.1: Recommended Species of Concern/Interest

Note: This list is currently under development at the time of first publication of this document.

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Map J.1 – Southern Rockies Wildlands Network Vision Map



Map courtesy of the Southern Rockies Ecosystem Project, The Denver Zoological Foundation, and The Wildlands Project.

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Appendix K – USFS Evaluation and the EMS

Plans revised under the 2005 Planning Regulations “must describe the monitoring program for the plan area” 36 CFR 219.6(b). This program must be developed with public participation and include, among other items, “[k]ey social, economic, and ecological performance measures relevant to the plan area[,] and [t]he best available science”. 36 CFR 219.6(b)(1)(i) and (ii).

Monitoring is a critical component of the land management planning process, which “is an adaptive management process” (36 CFR 219.3(a)). Adaptive management is defined as:

An approach to natural resource management where actions are designed and executed and effects are monitored for the purpose of learning and adjusting future management actions, which improves the efficiency and responsiveness of management.

36 CFR 219.16. Indeed, timely and accurate scientific information is necessary to change plans as appropriate in accordance with the principles of adaptive management. Monitoring should “[s]upport and reinforce adaptive management of the unit.” (FSM 1921.5) and be designed to “form the basis for continual improvement” (FSH 1909.12, section 12.)

Monitoring questions must be established and “must link to one or more desired condition, objective, or guideline.” FSH 1909.12, section 12. They must assess progress or lack thereof in meeting desired conditions and address key desired conditions. *Id.* at 12.1.

The Wild Connections team believes that the Pike-San Isabel Plan should contain key desired conditions relating to maintaining habitat for and populations of all Species of Concern and Species of Interest. It is especially important to attain and maintain ecologically effective populations for Species of Concern, as failure to do so could lead to a necessity to list them under the Endangered Species. Thus some monitoring questions should be developed to assess progress in maintaining habitat for, and populations of, at least Species of Concern, and preferably also selected Species of Interest.

In keeping with the emphasis of the WCCP, it is also important to address connectivity of wildlife habitat in the monitoring program. Field studies should be commenced immediately to determine what species are using the areas identified as connectivity areas, Theme 3.2. One or more monitoring questions should be designed to assess whether such areas are indeed providing connections for wildlife between core areas and other sizable areas containing high quality habitat.

Other subjects that need to be covered by monitoring questions include, but are not limited to: stream and watershed health, effects of recreation use on various resources, effectiveness of road closures and other needed restrictions on motorized recreation, presence and coverage of invasive species, regeneration of even-aged management logging areas, rangeland condition, and implementation of fuel reduction projects in areas adjacent to occupied land.

The Environmental Management System (EMS)

Each forest must establish an EMS in accordance with ISO 14001. As the Forest Service has not previously used this concept, and the ramifications and process for developing an EMS for the Pike-San Isabel Plan revision is not clear at the time of publication of this document, UASPP will submit comments at the appropriate time regarding the EMS.

Appendix L – Economic Benefits of Public Lands

The USFS is inherently limited by how many natural and recreational resources it can provide in the long-term within the Pike-San Isabel region. Therefore, management of the Pike-San Isabel should take the local economic base and quality of life into account, while preserving the ecological integrity of the forests that sustain these values.

The long-term economic health of communities adjacent to the Pike-San Isabel depends on a diverse economy. In regions that are rural but connected to larger population centers, protected public lands, especially mountain lands and lands near ski areas have provided the greatest economic growth in the West for the last 30 years, according to the Sonoran Institute. Having a clean environment, spectacular scenery, and fully protected public lands is the key to the long-term future of nearby human populations (Powers 1996). People choose a location to live based on quality of life considerations such as natural scenery, outdoor recreation opportunities, clean air and water, and the presence of wildlife and wilderness. As people move to these high-quality environments, they foster a diverse economic mix, promoting tourism, hunting, fishing, and dispersed recreation. Many rely on non-labor sources of income such as retirement and investment income, which fuel other businesses opportunities.

Further, it is important to recognize the “ecological services” that healthy ecosystems provide, e.g. “air we breathe is filtered and oxygenated by plants; water we drink is purified by wetlands; food we eat is grown in soils fertilized and renewed by ecosystem processes; ...floods, droughts, and fires are mitigated by intact ecosystems; ...carbon is stored in healthy forests, which is increasingly important as rising atmospheric carbon dioxide levels, due largely to fossil fuel burning and deforestation, cause global overheating” (SREP 2003). In the past, human populations have discounted these benefits as free and inevitable, but today they have gained enormous economic value. The National Science Foundation lists 17 categories of these services with an estimated value worldwide of between \$16 and \$54 trillion per year (Constanza, et al. 1997). As their dollar value becomes further documented, these ecological services will have an even larger role in economic decisions.

Appendix M – Land Ownership

A complex pattern of public and private land ownership has emerged in Colorado. This pattern owes its existence to a history of both US government land in, or reserved from, the public domain, and the transfer of public lands to private interests through mining claims, farmland acquisition under the Homestead Act of 1862, and other means.

The conservation concern here is that ecosystem distribution does not fall evenly across this complex pattern of land ownership. Much of the area in the lower elevation ecosystems, such as grasslands and shrublands, fall on private, BLM, or state lands, while most high elevation ecosystems, such as subalpine forests and alpine tundra, occur on USFS lands. Moreover, fully functioning ecosystems, defined at almost any scale, tend to fall on multiple land ownership types. Because different landowners often have vastly different management emphases, comprehensive management of ecosystems can be difficult. In addition, this public-private ownership pattern has concentrated growth in lower elevations and valleys that are predominately in private hands, often fragmenting remaining undeveloped, natural habitat on adjacent federal, state or county lands. Refer to **Appendix G** and **Table 2.1** for comparative analysis as well as **Map v**.

Table L.1: Land Ownership in the Wild Connections Conservation Plan Area

Owner	Acres	Percent
US Forest Service	2,195,100	43.4%
Bureau of Land Management	588,100	11.6%
National Park Service	6,000	0.1%
Department of Defense	3,500	0.1%
US Fish & Wildlife Service	3,000	0.1%
State of Colorado	278,600	5.5%
Private (Mostly Inholdings)	299,900	5.9%
Other (Mostly Private)	1,981,800	39.2%
Total	5,056,100	100.0%

Notes:

* The Wild Connections Conservation Plan Area consists of the eleven WCCP Complexes.

* Acres are rounded to the nearest 100.

* Land ownership data from the Colorado Division of Wildlife 1998 and updated by UASPP based on public records of public land exchanges.

Appendix N – Population Growth in the Pike-San Isabel Region

Population in the State of Colorado grew from 539,700 in 1900, to almost 4.4 million by the year 2000. The population is expected to reach nearly 5.8 million by 2030. Similarly, the population in the eleven counties of the Pike-San Isabel region grew from 162,583 in 1900 to over 1.4 million by 2000 (US Census Bureau). The incremental and systematic growth by county is depicted below:

Table M.1: Population Growth by County

County	Population 1900	Population 1980	Population 2000	% Growth 1900 to 2000	% Growth 1980 to 2000
Chaffee	7,085	13,227	16,242	129%	23%
Custer	2,937	1,528	3,503	19%	129%
Douglas	3,120	25,153	175,766	5534%	599%
El Paso	31,602	309,424	516,929	1536%	67%
Fremont	15,636	28,676	46,145	195%	61%
Huerfano	8,395	6,440	7,862	-6%	22%
Jefferson	9,306	371,753	527,056	5564%	42%
Lake	18,054	8,830	7,812	-57%	-12%
Park	2,998	5,333	14,523	384%	172%
Pueblo	34,448	125,972	141,472	311%	12%
Teller	29,002	8,034	20,555	-29%	156%
TOTAL:	162,583	904,370	1,477,865	809%	63%

(Source – US Census Bureau)

*Note: 1980 to 2000 population is included as an important baseline based on the USFS current 1984 plan versus the plan revision.

As population continues to grow throughout the Colorado Front Range and the counties within the Pike-San Isabel region, it results in a direct increase in the human demand for primary and second homes, ski areas, golf courses, and transportation infrastructure. In some areas, especially near major urban centers, wildlife habitat has become an island in a sea of humanity. This extreme fragmentation and loss of habitat drives species to other areas and ecosystem types, often to their demise. Additionally, an increasing number of patented mining lands are being developed as residences, creating inholdings and public access problems for management agencies.