CITIZENS PLAN

for the

WILD SAN JUANS

submitted for the

SAN JUAN NATIONAL FOREST PLAN REVISION

November 1, 1999

Updated and resubmitted December 1, 2005

Endorsed by:
San Juan Citizens Alliance
Southern Rockies Ecosystem Project
The Wilderness Society
Sierra Club, Rocky Mountain Chapter
Rocky Mountain Recreation Initiative
Center for Native Ecosystems
Sinapu
Biodiversity Conservation Alliance
Colorado Environmental Coalition
Colorado Wild
Western Resource Advocates
Upper Arkansas South Platte Project

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EXECUTIVE SUMMARY **1**

PURPOSE AND RESERVE DESIGN **9**
A. ECOLOGICAL WOUNDS OF THE SAN JUAN MOUNTAINS 9
B. HEALING THE WOUNDS: THE CITIZENS' PLAN FOR THE WILD SAN JUANS 9
C. GOALS AND OBJECTIVES OF THE WILD SAN JUANS RESERVE DESIGN 10
D. COMPONENTS OF THE RESERVE SYSTEM 10
E. GUIDELINES FOR SELECTING CORE RESERVES AND LANDSCAPE CONNECTIONS 12
F. DATA USED IN DESIGNING THE WILD SAN JUANS ALTERNATIVE 12
G. EVALUATING PERFORMANCE OF THE WILD SAN JUANS RESERVE DESIGN 15
1) Estimated Area Requirements of Focal Species: 15
2) Comparison of Reserve Design to Focal Species Area Requirements: 19

LAND MANAGEMENT DESIGNATIONS – CORE RESERVE CATEGORIES **23**
A. NEW WILDERNESS RECOMMENDATIONS 23
1) Additions to Existing Wilderness Areas 23
2) Designation of New Large Wilderness Areas (> 50,000 acres) 24
3) Designation of New Small Wilderness Areas to Serve as Landscape Linkages (corridors) and to Protect Underrepresented Ecosystem Types (< 50,000 acres) 25
4) Wilderness Management 27
B. RESEARCH NATURAL AREA DESIGNATIONS 28
C. CULTURAL RESOURCES SPECIAL INTEREST AREAS 34
1) Anasazi (15,977 acres) 34
2) Chimney Rock (2,800 acres) 34
3) Falls Creek (1,500 acres) 34
4) Lost Canyon (820 acres) 35
5) Spring Creek (12,500 acres) 35
D. PONDEROSA-PINE OLD-GROWTH RECRUITMENT SPECIAL INTEREST AREAS 35
1) Spruce Water Canyon Old-Growth Ponderosa Pine Recruitment Zone 36
2) House Creek Old-Growth Ponderosa Pine Recruitment Zone 36
E. COLUMBIAN SHARP-TAILED GROUSE RECOVERY AREA 37
F. WILD AND SCENIC RIVERS 38
1) Dolores River 38
2) Piedra River 40
3) Los Pinos 41
4) Animas River 41
5) San Juan River – East Fork 42
6) San Juan River – West Fork 42
7) Mancos River – East Fork 43
8) Hermosa Creek 43
9) Lime Creek 44
G. LAND TENURE ADJUSTMENT 50

LANDSCAPE CORRIDORS and CONNECTIVITY **51**

ELEMENTS OF BIOLOGICAL DIVERSITY **53**
A. BIOLOGICAL DIVERSITY and MULTIPLE USE – THE REGULATORY FRAMEWORK 53
B. RESTORING NATURAL DISTURBANCE REGIMES 54

1) Fire Zoning 54
2) Fire In The Ponderosa Pine Type 55
3) Fire In Mixed Conifer Stands 57
4) Fire In The Native Bunchgrass-Shrub Ecosystem 58
5) Fire In The Subalpine Zone 58
6) Logging Is Not A Substitute For Fire 59
7) Insects And Disease 59
8) Monitoring 60
C. RIPARIAN AREAS 61
1). Management Guidelines 61
2). Ephemeral Streams and Washes 62
D. WETLANDS 62
1). Management Guidelines 62
E. AQUATIC ECOSYSTEMS 62
F. REINTRODUCTION OF EXTIRPATED SPECIES AND RECOVERY OF SELECTED THREATENED, ENDANGERED, AND SENSITIVE SPECIES 63
1). Colorado River Cutthroat Trout 63
2). Columbian Sharp-Tailed Grouse 63
3). Grizzly Bear 64
4). Lynx 65
6). Wolf 66
7). Wolverine 67

ECONOMIC ACTIVITIES 68
A. SUITABLE, SUSTAINABLE, AND STABLE RESOURCE ECONOMIES 68
B. SPECIFIC SOCIO-ECONOMIC RECOMMENDATIONS BY FOREST USE 71
1). Timber Program 71
2). Grazing 72
3). Guiding and Outfitting 73
4). Minerals: Oil and Gas, Coal, and Hard-Rock Mining 73
5). Developed Winter Recreation 73
C. TIMBER CUTTING and SILVICULTURE 73
1) Determining An Appropriate Timber Program 73
2) Determination Of Lands Suitable For Timber Production 75
3) Sale Size, Allowable Sale Quantity And Product Availability 76
4) Rotation Age 77
5) Cutting Methods 77
D. LIVESTOCK GRAZING. 81
1) Rangeland Suitability. 81
2) Maintaining Good Ecological Range Condition. 82
3) Grazing Systems. 83
4) Range Analysis And Monitoring. 84
5) Permits And Allotment Management Plans. 84
6) Noxious Weeds. 85
7) Livestock Management In Special Designation Areas. 85
8) Animal Damage Control. 86
E. OIL and GAS LEASING 86
1) Forest Plans And The Leasing Process 86
2) Oil and Gas Road Systems 88
3) Site-Specific Recommendations 88
F. RECREATION and TRAVEL MANAGEMENT 90
1) General Guidelines for Recreation 91
2) Mechanized, Non-Motorized Recreation 92
3) Motorized Recreation 92
4) Roadless Areas 93
5) Group Size 94

6) Outfitters 94
7) Campgrounds 94
8) Ski Areas 94
9) Special Use Events 95
10) Game retrieval policy 95
11) New Forms of Recreation 95
H. AREA, TRAIL, AND ROAD-SPECIFIC MANAGEMENT PRESCRIPTIONS 95
1). Non-motorized Backcountry Recreation Prescription Areas 96
2). Dispersed Motorized Recreation Prescription Areas 97
3). Roads to be closed 97

REFERENCES **101**

APPENDIX A: Forest Service Management Prescriptions **108**

APPENDIX B: Wilderness Analysis of Roadless Areas **111**
1) Fish Creek 111
2) HD Mountains 113
3) Hermosa 115
4) Lizard Head Addition 118
5) Ophir Needles 120
6) Piedra Additions 122
7) San Miguel 125
8) Snaggletooth 128
9) South San Juan Additions 130
10) Stoner Mesa 133
11) Storm Peak 135
12) Treasure Mountain 137
13) Weminuche Wilderness Additions 139

EXECUTIVE SUMMARY

Colorado's San Juan Mountains harbor the largest, and wildest, region of the Southern Rockies. Despite a century of human-induced ecological wounds–extirpated native species, mining-polluted streams, fire-excluded forests, landscapes fragmented by roads and clearcuts, and intrusive recreation–the San Juans offer the best chance for rewilding the Southern Rockies.

Our future for the San Juans envisions a landscape of large pristine wild areas, connected to accommodate wide-ranging native species, and inhabited by human communities and economies appropriate to the place. This vision includes the following highlights:

Expand and Protect Large, Wild Core Habitats:

- Expand the largest and wildest existing wilderness areas in the entire Southern Rockies–Weminuche (500,000 acres) and South San Juans (150,000 acres);
- Preserve the largest remaining, unprotected, roadless areas in the Southern Rockies--Hermosa (150,000 acres) and San Miguel (68,000 acres);
- Protect lower elevation roadless areas containing under-represented habitats–HD Mountains (ponderosa pine), Stoner Mesa (aspen), Fish Creek (aspen/Douglas fir/riparian), and Snaggletooth (ponderosa/pinyon-juniper woodlands);

Return the Natives:

- Continue the successful recolonization by river otters of San Juan streams;
- Support recovery of native cutthroat trout populations;
- Support ongoing reintroduction of lynx;
- Build public support for future recovery and/or reintroduction of wolverine, grizzly bears and wolves;
- Work toward reintroducing Columbian sharp-tailed grouse;

Secure Critical Landscape Connections:

- East Fork of the San Juan River corridor connecting the Weminuche and South San Juan Wilderness Areas;
- Upper Mosca Creek migration corridor between the Weminuche and Piedra wild core areas;
- Lizard Head Pass connection between the San Miguel roadless area and Lizard Head Wilderness to the western San Juan Mountains;
- Western migratory corridors across the aspen forests of Groundhog and Stoner Mesas;
- HD Mountains Corridor between the critical habitat of the HDs and higher elevation habitat to the north such as the Weminuche and the Piedra Area.

Live, work, and play in harmony with native species and wild habitats:

- Reduce resource extraction impacts of timber and grazing by offering timber sales and grazing allotments attractive to small locally-owned businesses;
- Restrict intensive resort developments to existing locations;

- Encourage ecologically sensitive tourist-dependent businesses, and focus motorized recreation elements on appropriate routes;
- Highlight pride of place (our wilderness and native wildlife) in business marketing activities;
- Support livable wages and affordable housing for all regional residents.

The Wild San Juans Alternative to the San Juan National Forest Plan

As a first step, the Wild San Juans Alternative proposes management for the San Juan National Forest that perpetuates and restores native biological diversity while accommodating small-scale, locally based forest industries.

The Wild San Juans Alternative allocates areas to management prescriptions in the spirit of reserve design espoused by Reed Noss and Allen Cooperrider (1994). The Noss template envisions a system of undeveloped "core reserves" surrounded by buffer zones and areas of sustainable resource extraction. Core reserves accommodate viable populations of all species, with habitat connections linking these reserves and with buffer zones to ameliorate any impacts from resource extraction occurring in nearby sustainable use areas. In the Wild San Juans Alternative, the term "core reserve" is a generic descriptor for any large undeveloped area with its natural processes largely intact. Core reserves are in practice established wilderness areas and national parks, and large de facto roadless areas currently lacking official protection.

The Wild San Juans Alternative applies a standard menu of Forest Service management prescriptions to achieve the goals of a Noss-style core reserve system.

The Core Reserve Concept in Practice

The Wild San Juans Alternative is designed to provide suitable habitat to sustain viable populations of wide-ranging mammals such as grizzly bear and lynx. For example, a viable population of lynx might require 500,000 to 1.2 million acres of undeveloped and well-connected habitat. No single wilderness or roadless area in the San Juans can provide this habitat. However, conservation biologists believe that several undeveloped tracts managed in coordination can provide sufficient habitat to support a meta-population, or a population spread across several areas, but linked with appropriate landscape habitat connections.

The Wild San Juans reserve system is designed towards conserving biological diversity by meeting the habitat needs of selected "focal species." Focal species are those species that play important roles in the environment ("keystone species"), species that require habitat covering the needs of numerous other species ("umbrella species"), or may be indicators of ecosystem health ("indicator species"). If the Wild San Juans reserve system adequately protects habitat for focal species, it will likely benefit numerous other species without having to specifically address each and every species' individual habitat needs.

The Wild San Juans Alternative uses as focal species the following species: Lewis' woodpecker, flammulated owl, Abert's squirrel, lynx, grizzly bear, elk, American marten, northern goshawk, river otter, Colorado River cutthroat trout, and beaver.

Of these species, lynx and grizzly bear would be considered umbrella species, while most of the others are indicators species for selected habitats – flammulated owl, Lewis' woodpecker and Abert's squirrel as indicators of ponderosa pine; marten and

northern goshawk as indicators of mixed-conifer and aspen; river otter, Colorado River cutthroat trout, and beaver as indicators of aquatic systems. Elk serve the function identifying corridors and are a charismatic, flagship species in their own right. Beaver also perform a role as one of nature's most important keystone species.

Put into practice, the Wild San Juans Alternative uses as a foundation the Weminuche and South San Juan Wilderness Areas plus the adjacent Piedra Area. While these three legislatively protected areas, and their associated contiguous roadless areas, total approximately 875,000 acres and might be of sufficient size and suitable habitat to sustain a viable population of lynx, they do not generally incorporate lower elevation ecosystems, nor do they protect habitat connections required by lynx for migration and dispersal. The Wild San Juans Alternative therefore recommends all roadless lands contiguous to existing wilderness be added to the relevant wilderness areas to ensure long-term preservation of species such as lynx and grizzly bear.

These three enhanced existing areas could not accommodate the needs of all identified species. Wilderness designation is also proposed for two large unprotected roadless areas, Hermosa (109,000 acres) and San Miguel (68,000 acres). These two areas expand the geographic distribution for the focal species, and San Miguel in particular also provides a protected landscape bridge between the Weminuche Wilderness and the 40,000-acre Lizard Head Wilderness on the Forest's west end, further improving the viability prospects for the focal species. The proposed Storm Peak wilderness is another higher elevation spruce-fir forested roadless area on the San Juan's west end that further expands suitable habitat for the focal species.

Reconnecting the Landscape

Habitat connectivity between wild, core areas is essential. The most significant landscape corridor in the San Juans connects its two largest wilderness areas, the Weminuche and the South San Juan. Two distinct routes connect these areas: a high-elevation corridor along the Continental Divide crossing Treasure Mountain, and a lower-elevation corridor across the San Juan River between Turkey Creek and Johnny Creek. In the Wild San Juans Alternative, the high-elevation corridor abutting Highway 160 is protected through Treasure Mountain's designation as a freestanding wilderness unit. The lower-elevation corridor is protected by addition of contiguous roadless lands to the two existing wilderness areas.

The Wild San Juans Alternative identifies other key dispersal and migration corridors outside existing and prospective wilderness using elk migration data as a surrogate for predator data, as it is anticipated that predators such as wolves or wolverines would move along these same routes in pursuit of big game prey. Key wildlife linkages identified by the Southern Rockies Ecosystems Project, in partnership with the Colorado Department of Transportation, the Federal Highway Administration, The Nature Conservancy, and Colorado State University, are also recognized herein. The Wild San Juans Alternative anticipates corridors will have road densities of 0.5 mile/square mile or less.

Expanding Protection to Lower Elevations

Most of the current protected area on the San Juan NF occurs at higher elevations, covering mixed conifer, spruce-fir, and alpine vegetation types. A key

concept of the Noss model is expanding the reserve system to include unrepresented ecosystem types and adding to poorly represented ecosystems.

The two most prevalent ecosystem types poorly represented on the SJNF are ponderosa pine and aspen. Thus, the Wild San Juans Alternative proposes for wilderness protection the remaining lower-elevation roadless areas with substantial stands of ponderosa pine and aspen.

The Hermosa Roadless Area contains the San Juans' premier remaining stands of old-growth ponderosa pine along its lower drainages, as well as expansive stands of aspen and mixed-conifer at higher elevations. Hermosa's designation as wilderness therefore serves a dual purpose: protecting a large roadless area, thereby expanding the suitable habitat for wide-ranging focal species, plus expanding ecological diversity of the reserve system. The two other proposed wilderness areas which significantly expand ecological representation are the HD Mountains (39,000 acres), consisting primarily of ponderosa pine and some pinyon-juniper; and Stoner Mesa (20,500 acres), a gentle sloping plateau 90% populated with pure aspen stands.

Restoring Fragmented Landscapes

The Wild San Juans Alternative supplements the system of wilderness core reserve areas with backcountry non-motorized recreation areas. These are areas too small for wilderness designation, areas left out of wilderness to accommodate non-wilderness types of recreation such as mountain bicycling, and areas undergoing ecological restoration where significant road closures and rehabilitation of past spruce clearcuts are proposed. The Mosca corridor between the Piedra Area and Weminuche Wilderness is the best example: here, 20 miles of the Forest Development Road 631 are closed to recreate a non-motorized connection between the alpine summer range of the Weminuche and the dense forests of the Piedra along a major elk migration corridor. Other significant ecological restoration areas proposed under the backcountry recreation prescription include the headwaters of the Rito Blanco on the South San Juan Wilderness boundary and Middle Mountain adjacent to the Weminuche Wilderness.

In addition, ecological restoration areas are proposed for other areas with significant past high-elevation clearcuts where existing roads will be left open and available for recreation. No additional logging will be permitted in these spruce-fir zones, however.

The west end of the SJNF is a ponderosa pine dominated tableland that has been extensively roaded and logged. Numerous incised, narrow canyons cut across this tableland. These canyons provide obvious corridors across an otherwise altered landscape and are all proposed for backcountry non-motorized recreation management.

Buffer Zones

Much of the remaining forest matrix is allocated to general wildlife prescription. Both the corridor and wildlife prescriptions prohibit lands from being included within the suitable timber base. These lands, along with the ecological restoration areas mentioned above, equate to the buffer zones described in the Noss model.

Stewardship, or Sustainable Use, Zones

Finally, specific areas with existing roads and past timber harvest are allocated to a general timber and range management prescription. These areas equate to the sustained use areas of the Noss model. Lands suitable for commercial timber harvest will be found in areas under this prescription, once the appropriate suitability screens are applied. It is anticipated timber harvest will occur in these areas following the lead of the Ponderosa Pine Zone Project, which attempts to design timber sales to restore ponderosa pine stands to a more natural condition prior to reintroduction of natural fire regimes, and which are designed as small sales appropriate for purchase by locally-based operators.

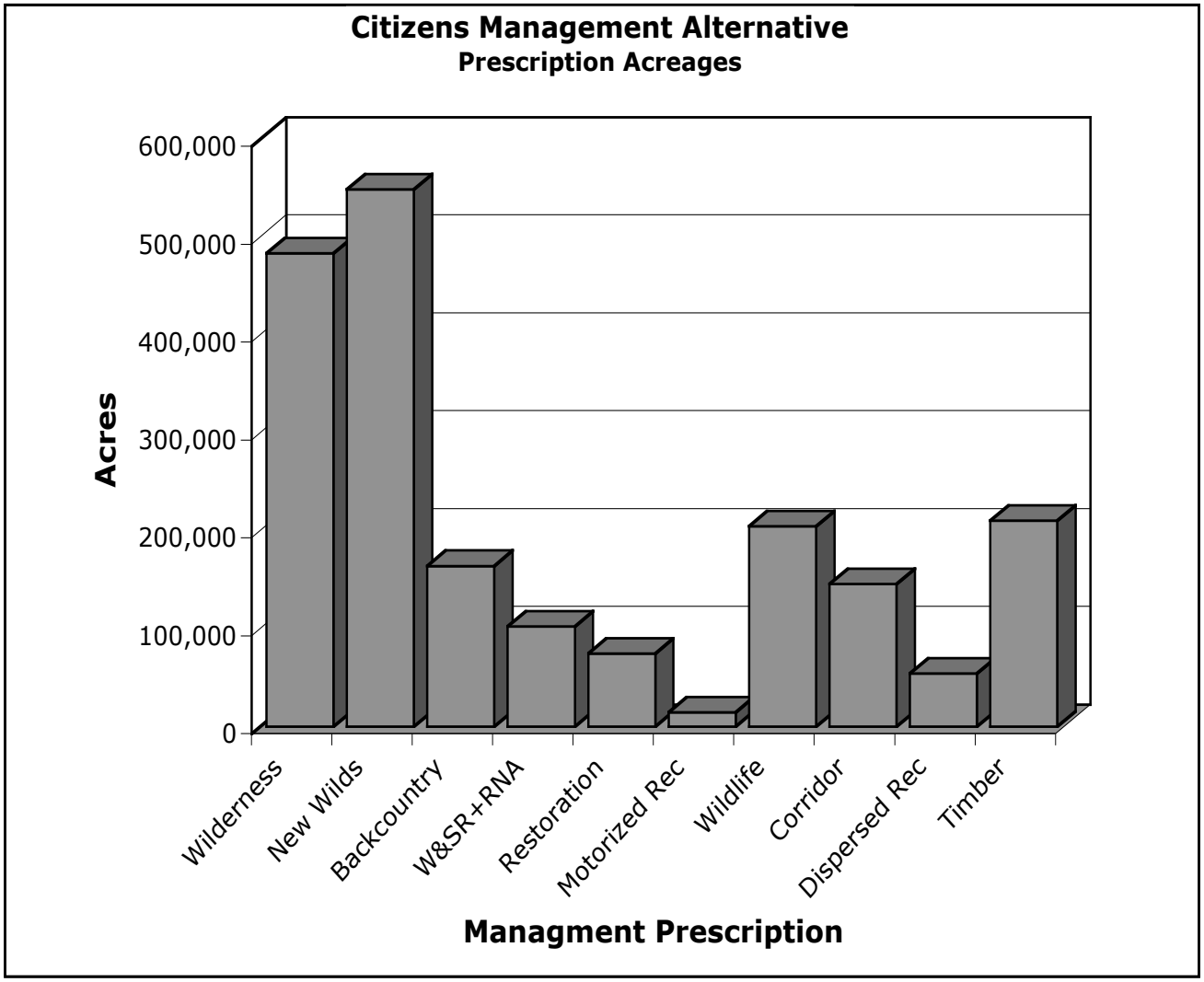
Table 1. Allocation of Areas by Forest Service Management Prescription

Area Prescription	Acres	
Existing Wilderness (1.1)	483,944	
Proposed Wilderness (1.2)	548,982	
Backcountry Non-motorized Recreation (1.31)	164,382	
Wild and Scenic Rivers (1.5, 3.4, 4.4)	58,898	
Special Interest Area (2.1)	34,577	
Research Natural Area (2.2)*	9,006	
Ecological Restoration (3.21)	57,992	
Motorized Recreation (3.31)	14,655	
Wildlife (3.5)	204,764	
Sharp-tail Grouse Recovery (3.5x)	11,876	
Corridor (3.55)	145,876	
Scenic Byway (4.21)	24,127	
Dispersed Recreation (4.3)	54,569	
High-Use Dispersed Recreation (4.32)	17,166	
Range and Forest (5.11)	210,694	
Ski Area (8.22)	1,732	
	2,043,240	TOTAL

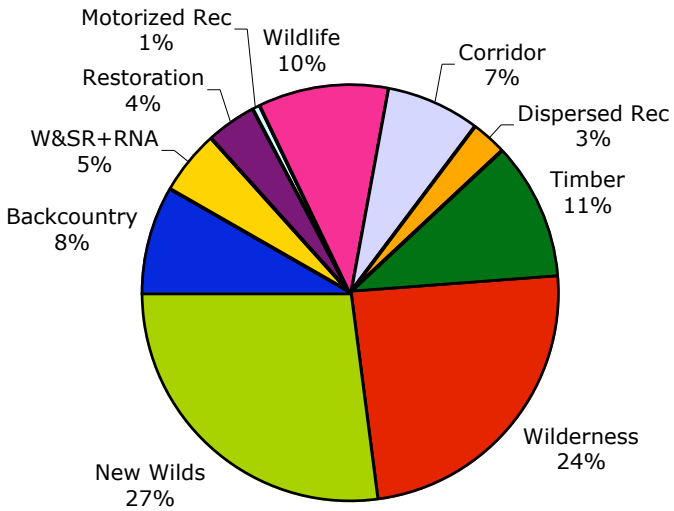
*Does not include acreage for Research Natural Areas contained within more restrictive legislative categories such as wilderness and proposed wilderness.
See Appendix A for description of Management Area Prescriptions.

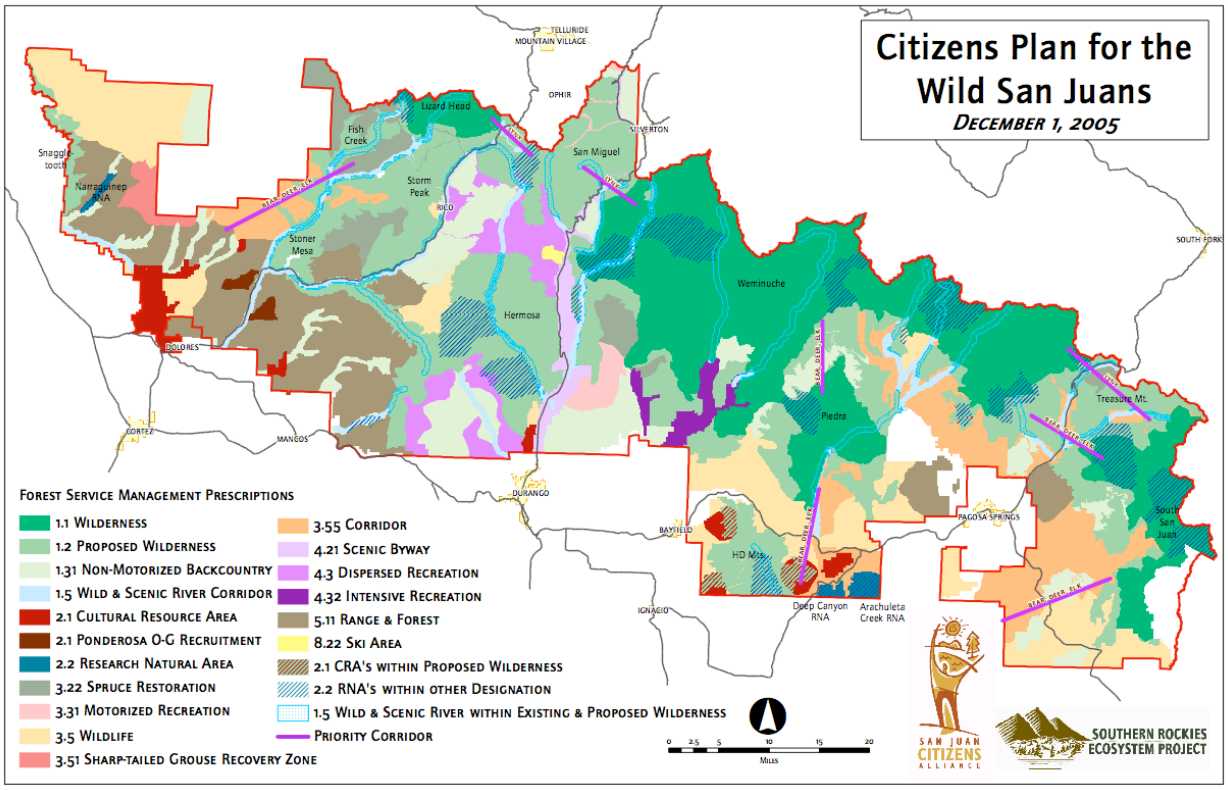
Table 2. Allocation of Areas by Core Reserve Model Management Categories

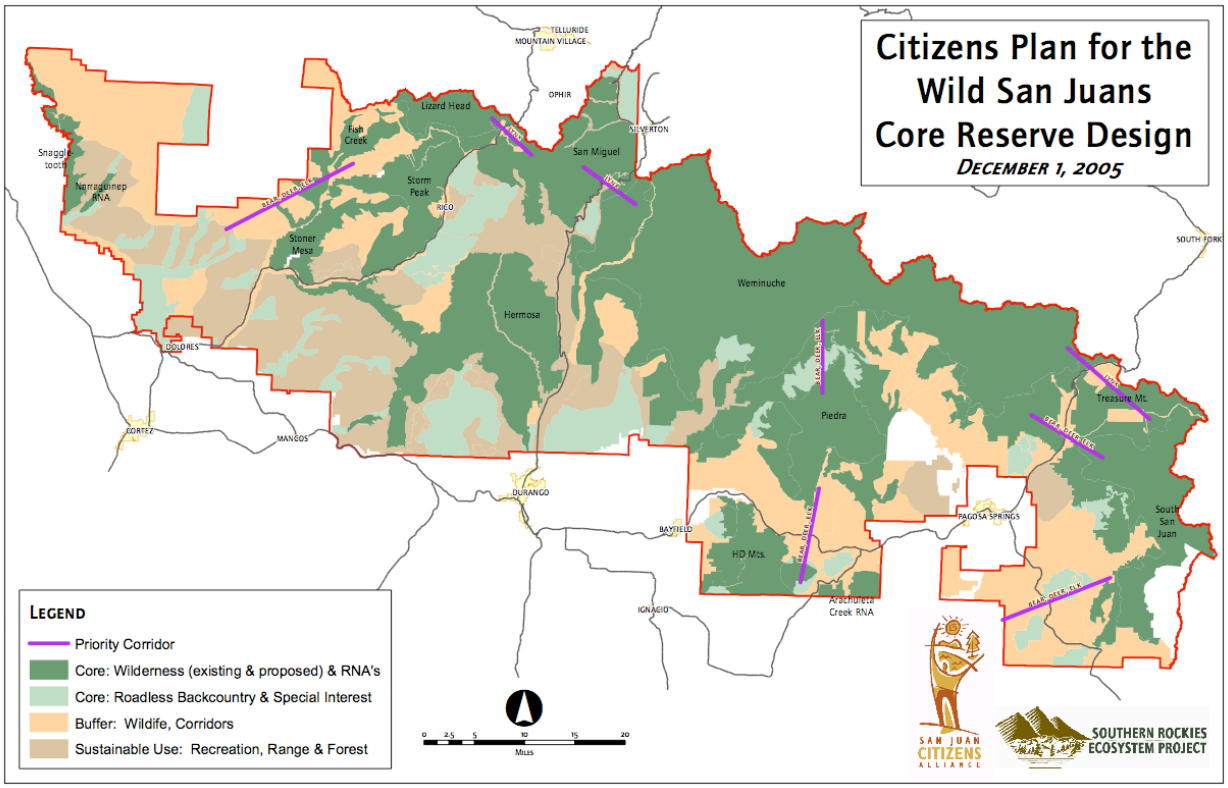
Area Category	Acres
Core Areas	1,299,789
Buffer Zones	420,508
Sustainable Use Areas	322,943
	2,043,240 TOTAL



Citizens Management Alternative
Prescription Acreage by Percentage




Citizens Plan for the Wild San Juans
DECEMBER 1, 2005
TELLURIDE
MOUNTAIN VILLAGE
OPHIR
SILVERTON
Lizard Head
Fish Creek
San Miguel
Snaggletooth
Narraguinep RNA
Storm Peak
RICO
Stoner Mesa
Hermosa
Weminuche
SOUTH FORK
Piedra
Treasure Mt.
DOLORES
CORTEZ
MANCOS
DURANGO
BAYFIELD
IGNACIO
PAGOSA SPRINGS
HD Mtns.
Deep Canyon RNA
Arachuleta Creek RNA
FOREST SERVICE MANAGEMENT PRESCRIPTIONS
1.1 WILDERNESS
1.2 PROPOSED WILDERNESS
1.31 NON-MOTORIZED BACKCOUNTRY
1.5 WILD & SCENIC RIVER CORRIDOR
2.1 CULTURAL RESOURCE AREA
2.1 PONDEROSA O-G RECRUITMENT
2.2 RESEARCH NATURAL AREA
3.22 SPRUCE RESTORATION
3.31 MOTORIZED RECREATION
3.5 WILDLIFE
3.51 SHARP-TAILED GROUSE RECOVERY ZONE
3.55 CORRIDOR
4.21 SCENIC BYWAY
4.3 DISPERSED RECREATION
4.32 INTENSIVE RECREATION
5.11 RANGE & FOREST
8.22 SKI AREA
2.1 CRA'S WITHIN PROPOSED WILDERNESS
2.2 RNA'S WITHIN OTHER DESIGNATION
1.5 WILD & SCENIC RIVER WITHIN EXISTING & PROPOSED WILDERNESS
PRIORITY CORRIDOR
0 2.5 5 10 15 20
Miles
SAN JUAN CITIZENS ALLIANCE
SOUTHERN ROCKIES ECOSYSTEM PROJECT


Citizens Plan for the Wild San Juans Core Reserve Design
DECEMBER 1, 2005
TELLURIDE
MOUNTAIN VILLAGE
OPHIR
SILVERTON
Lizard Head
Fish Creek
San Miguel
Snaggletooth
Narraguinep RNA
Storm Peak
RICO
Stoner Mesa
Hermosa
Weminuche
SOUTH FORK
Piedra
Treasure Mt.
DOLORES
CORTEZ
MANCOS
DURANGO
BAYFIELD
IGNACIO
PAGOSA SPRINGS
HD Mtns.
Arachuleta Creek RNA
LEGEND
Priority Corridor
Core: Wilderness (existing & proposed) & RNA's
Core: Roadless Backcountry & Special Interest
Buffer: Wildife, Corridors
Sustainable Use: Recreation, Range & Forest
0 2.5 5 10 15 20
Miles
SAN JUAN CITIZENS ALLIANCE
SOUTHERN ROCKIES ECOSYSTEM PROJECT

PURPOSE AND RESERVE DESIGN

A. ECOLOGICAL WOUNDS OF THE SAN JUAN MOUNTAINS

A century of unfettered human activity inflicted many ecological wounds to the San Juan Mountains ecosystem, the most destructive of which include the following.

- humans entirely eliminated several species of native animals–especially large predators–from the San Juans;
- thoughtless hardrock mining left a legacy of rivers and streams polluted by heavy metals and acid draining from tunnels and tailings dumps;
- aggressive fire suppression removed a natural disturbance regime vital to ponderosa pine forest ecosystems;
- roads, dams, and clearcuts fragmented the landscape, isolating wide-ranging species into habitats too small for long-term survival;
- intensively developed recreation invaded the San Juans in the form of expansive resorts and motorized equipment.

B. HEALING THE WOUNDS: THE CITIZENS' PLAN FOR THE WILD SAN JUANS

The San Juans still retain a large measure of wildness and intact native ecosystems because of dedicated citizen action, and progressive Forest Service protection of large roadless areas such as Hermosa, in recent decades. This wildness can be expanded and enhanced through specific actions, or healing steps. The Wild San Juans Alternative for the San Juan National Forest outlines a framework for implementing specific steps aimed at restoring, and rewilding, the San Juans:

- Protecting large remaining regions of primitive and wild habitat;
- Expanding protected wild areas to include lower elevation ecosystems, such as aspen, ponderosa-pine, and pinyon-juniper woodlands;
- Securing habitat that connects large wild areas and accommodates the needs of species to disperse and migrate;
- Returning the native species once abundant to the San Juans;
- Building a model of sustainable human habitation and economies appropriate for the San Juans.

C. GOALS AND OBJECTIVES OF THE WILD SAN JUANS RESERVE DESIGN

The primary goal of the Wild San Juans Alternative is to maintain the native biological diversity of the San Juans. A secondary goal is to promote gentle and sustainable interactions between the human society and the natural environment. Five fundamental objectives lead toward these goals (Noss and Cooperrider 1994):

- Represent, in a system of protected areas, all native ecosystem types and seral stages across the natural range of variation;
- Maintain viable populations of all native species in natural patterns of abundance and distribution;
- Maintain ecological and evolutionary processes, such as disturbance regimes, hydrological processes, nutrient cycles, and biotic interactions;
- Manage landscapes and communities to be responsive to short-term and long-term environmental change and to maintain the evolutionary potential of the biota;
- Encourage human uses that are consistent with conservation of native biodiversity, and eliminate those that are not.

The Citizens Wild San Juans Alternative also incorporates the key tenets of *rewilding* (Soule and Noss, 1998):

- large, strictly protected core reserves
- connectivity
- keystone species (e.g., large carnivores)

Rewilding's basic tenet is that big, interconnected wilderness areas supporting large native predators is critical to preserving and restoring self-regulating natural communities. Top level carnivores are particularly important to use as focal species for conservation because their far-ranging and diverse habitat needs often encompass those of numerous other species, and they are often excellent indicators of certain habitat conditions.

D. COMPONENTS OF THE RESERVE SYSTEM

Noss describes a reserve system comprised of **protected core reserves** surrounded by **buffer zones** and **interconnected** by **habitat** for dispersal and migration. Sustainable extractive uses occur in the matrix of public and private lands intermingled with the basic components of the reserve system in **sustainable use areas**.

The Wild San Juans Alternative proposes to adapt the Noss' ideas to the existing menu of management area prescriptions. The Wild San Juans Alternative draws from the USFS Region 2 list of dozens of available prescriptions. Each prescription describes the management area, optimal desired conditions, and associated standards and guidelines. Table 3 equates Noss' core reserve terminology with standard Forest Service management prescriptions used in the Wild San Juans Alternative (the number in parentheses corresponds to the Region 2 prescription). Appendix A describes the Forest Service management prescriptions.

Table 3. Comparison of Core Reserve Model to Forest Service Management Prescriptions

Core Reserve Model	Wild San Juans Alternative
Core Reserve	Wilderness (1.1) Recommended Wilderness (1.2) Backcountry Non-motorized Recreation (1.3) Wild and Scenic River (1.5) Special Interest Area (2.1) Research Natural Area (2.2)
Buffer Zones	Ecological Restoration (3.21) Wildlife (3.5) Corridor (3.55) Sharp-tail Grouse Recovery (3.5x)
Sustainable Use Areas	Motorized Recreation (3.31) Scenic Byway (4.21) Dispersed Recreation (4.3 and 4.32) Range and Forest (5.11) Ski Area (8.22)

Core reserves (wilderness, backcountry areas, RNAs) should be large in size and diverse in habitat to allow natural processes to function without human micro-management. Human use is generally limited to non-motorized recreation and, in a departure from Noss's pure model, livestock grazing. Grazing allotments will be phased out as they are vacated.

Buffer zones (wildlife and ecological restoration areas) abut core reserves in order to limit edge-effects and excessive impacts on the core reserves. Humans uses that are compatible with effectively functioning habitat and low road density are accommodated. Motorized recreation limited to designated roads and trails may be permitted.

The lost connectivity of the landscape is restored by linking core reserves together by protecting appropriate wildlife habitat. Habitat connections allow for wildlife dispersal, life cycle migration, genetic exchange, and migration of plant and animal species in response to climate change. In areas of critical habitat connectivity, road densities should be less than 0.5 mile/sq. mile and motorized travel restricted to designated roads and trails. Habitat connections must represent the needs of focal species. If these species must move longer distances between protected core reserves, the landscape

must provide habitat of sufficient width in order to minimize detrimental edge effects on them.

Sustainable use areas accommodate higher impact recreation, grazing, timber harvest, mineral extraction, and other similar uses.

E. GUIDELINES FOR SELECTING CORE RESERVES AND LANDSCAPE CONNECTIONS

In designing the key biological components of the Wild San Juans Alternative, the following guidelines compiled from many scientific sources were applied wherever possible (per Noss and Cooperrider 1994):

- 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 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;
- Dispersing individuals travel more easily through habitat most closely resembling that of their preferred home ranges;
- Blocks of habitat that are roadless or otherwise less accessible to humans are better than roaded and accessible habitat blocks.

Because roads severely fragment habitat, biologists have suggested guidelines for road and trail densities. Core reserves should contain no motorized trails or roads, and the impact of foot and stock trails should be considered when proposing or allowing recreation or grazing use. The generally accepted standard for buffer zones is one mile of road per square mile, although Noss and Cooperrider (1994) prefer only 0.5 mile per square mile. Corridors should have an open road density of no more than 0.5 mile/square mile.

F. DATA USED IN DESIGNING THE WILD SAN JUANS ALTERNATIVE

Existing wilderness areas, roadless areas, and proposed RNAs form the basic building blocks of the Wild San Juans Alternative. These are evaluated against the above objectives and guidelines. For example, contiguous roadless areas are proposed for addition to existing wilderness areas to protect habitat blocks as large as possible. Roadless areas between existing wilderness areas are recommended for wilderness designation to place protected habitat in blocks closer together. Lower elevation roadless areas are proposed for wilderness designation to protect additional native ecosystem types and to be responsive to possible climate change.

Roadless areas are the linchpin for the Wild San Juans Alternative's design for the following reasons:

- Roadless areas often contain the best examples of native vegetation types;

- Roadless areas are needed by interior species which are sensitive to roads and edge effects;
- Roadless areas are needed by species with large home ranges;
- Roadless areas are those places where natural processes such as fire will be easiest to restore and maintain;
- Roadless areas are generally more free of weeds and exotic species than other areas;
- Roadless areas protect uncommon vegetation, since there is a reduced chance of human destruction of rare plants;
- Roadless areas have significant "option value" in terms of not foreclosing future management opens.

Existing and potential native vegetation is used to assess the utility of the Wild San Juans Alternative for various focal species. Most species lack sufficient population and distribution data to rigorously evaluate the Wild San Juans Alternative, but habitat requirements for most species are fairly well established. The major assumption is that if appropriate habitat of sufficient area and within a connected landscape is included in the Alternative, then focal species will remain viable in perpetuity. Focal species are chosen to represent various selected habitat types, with an additional assumption that if habitat needs for wide-ranging species are accommodated, this will serve as an umbrella to protect numerous smaller or more localized species.

The focal species and related habitat types used in the Wild San Juans Alternative's design consist of the following:

Table 4. Focal Species and Habitat Types in the Wild San Juans Alternative Design

Species	Represented Habitat
Lewis' woodpecker	ponderosa pine; primary cavity nester
flammulated owl	ponderosa pine old-growth; secondary cavity nester
Abert's squirrel	ponderosa pine late successional
marten	mature mixed-conifer and spruce-fir
northern goshawk	mature pine, mixed-conifer, aspen
lynx	mature spruce-fir
elk	movement corridors
river otter	high-quality aquatic habitat
Colorado River cutthroat trout	high-quality aquatic habitat without non-native species
beaver	high-quality riparian forests

The focal species also represent the following landscape categories:

Table 5. Focal Species and Landscape Categories

Category	Species
Interior and old-growth forest	flammulated owl, marten, Abert's squirrel
Large undisturbed tracts	lynx, marten, goshawk
Wide-ranging dispersal	elk, grizzly bear, lynx

Reliable population data do not exist for most of these species (other than elk, river otter and trout). Until the early 1999 reintroduction, evidence of lynx had not been reported in the San Juans since 1990, for example, and the few goshawk data closely correlate with timber sales because monitoring resources come with timber sale budgets.

Corridors and important habitat connections are located using elk migration data (which are quite reliable), riparian corridors, ridgelines, and blocks of contiguous forest cover. Elk are assumed to be a good surrogate for large predators which would be moving with their elk prey base. Riparian corridors and ridgelines are chosen both to avoid significant road density and to accommodate various species that prefer streams or ridges. Areas of contiguous forest cover are chosen to accommodate movement of interior sensitive species such as marten and lynx that prefer not to stray far (more than 100 meters) from forests. These requirements result in generally large habitat connections that incorporate home-range requirements for focal species, encompass diverse habitat types for different species' needs, and maximize suitable habitat during dispersal and migration while minimizing edge habitat (Noss and Cooperider, 1994).

The resulting Wild San Juans Alternative reserve design is expected to serve well the needs of spruce-fir dwelling species and those needing large contiguous blocks of habitat. Large habitat blocks are contiguously located at higher elevations across the breadth of the entire SJNF in the Wild San Juans Alternative. A middle-to-low-elevation forested corridor connects the Weminuche and South San Juan Wilderness Areas.

Species requiring large blocks of mature and old-growth mixed conifer and aspen are relatively well served by the Wild San Juans Alternative design. Numerous lower elevation additions to existing wilderness, expansion of the Piedra area, and protection of the Hermosa area all create an interlocking system accommodating species such as goshawk. The heavily fragmented western end of the Forest is less accommodating, although the numerous roadless canyons create natural fingers of habitat lacing throughout this region.

Species with requirements for old-growth ponderosa pine habitats may be accommodated in the central portion of the SJNF, among the cluster of Piedra/HD Mountains/Hermosa roadless areas, but are probably less protected in the heavily fragmented blocks of second-growth ponderosa pine on the Forest's west end. The Wild San Juans Alternative proposes two special interest areas surrounding remnant stands of ponderosa old-growth on this west end to create a base of old-growth ponderosa reserves from which to build in the future. Restoration of ponderosa pine forests to conditions typical of pre-European settlement periods as advocated by this

Wild San Juans Alternative would increase habitat for species needing this type of old-growth. These ponderosa old-growth special interest areas serve as future core reserves in an important habitat type lacking protection in the western San Juan Mountains.

Riparian species are well represented in the Wild San Juans Alternative reserve system. River otters have expanded their range from the Piedra River to the nearby Pine River within the Weminuche Wilderness, and several cutthroat trout streams are included within Research Natural Areas.

A final consideration in the reserve design is coordination with adjacent private land ownership. In some cases, the SJNF is very fortunate to have adjacent landowners adopting management that furthers objectives spelled out in the Wild San Juans Alternative. For example, conservation easements have been placed on several ranches in the critical low-elevation forest corridor between the Weminuche and South San Juan Wilderness. The 35,000-acre Banded Peak Ranch which juts into the south side of the South San Juan Wilderness is similarly managed with conservation goals in mind. The lower three miles of the Pine River immediately adjacent to the Weminuche Wilderness is under the Granite Peak Ranch's conservation easement. The Division of Wildlife manages the Perins Peak Wildlife Management Area for critical winter range and non-motorized recreation at the lower end of the SJNF's Junction Creek Roadless Area. Recognition of these interrelated landscapes ensures the Wild San Juans Alternative's reserve design is not defeated once outside the National Forest boundary.

G. EVALUATING PERFORMANCE OF THE WILD SAN JUANS RESERVE DESIGN

Only time will tell if the Wild San Juans Alternative's proposed reserve design truly functions to preserve biological diversity and viability of species over the long term. However, the following analytical techniques can be used to estimate the utility of the reserve design compared against the focal species.

1) Estimated Area Requirements of Focal Species:

Canada lynx (*Lynx canadensis*): The lynx specializes in high mountain boreal forests in Colorado (Armstrong, 1972); especially dense spruce-fir stands (Fitzgerald, et al, 1994). They can be found in dense coniferous forests in the subalpine zone to timberline. The lynx population also seems to be closely tied to the snowshoe hare population: 35-97% of the lynx diet consists of snowshoe hares, but they also occasionally eat squirrels, mice, grouse and ptarmigans as availability of prey changes (McCord and Cardoza, 1982). Snowshoe hare populations determine where lynx are found, and how many of them are found (Brand and Keith, 1979). The hares and lynx of the western mountains of the U.S. exhibit life history characteristics resembling those during hare population lows in northern boreal forests. Instead of 10 year fluctuating cycles, both species occur at relatively stable densities (Koehler, 1994). Wolff (1982) speculated that this difference in population dynamics is due to the presence of additional predators and competitors of hares at the lower latitudes. Lynx tend not to cross open areas greater than 100 m in diameter. Home ranges are estimated at 2 to 4 square miles in summer and 8 to 20

square miles in winter (Hoover and Wills 1987). Thus, a population of 10 lynx would require 80 to 200 square miles (50,000 to 128,000 acres) of suitable habitat (Hoover and Wills 1987). A realistic minimum viable population of 100 lynx would logically require 500,000 to 1.2 million acres.

American marten (*Martes americana*): The marten prefers late-successional stands of mesic conifers, especially those with complex physical structure near the ground. They may inhabit talus fields above treeline. In the central and southern Rockies, marten prefer stands dominated by spruce and subalpine fir. Martens generally avoid habitats that lack overhead cover; the largest openings martens have been observed to cross are 100 meters in width. Little is known about marten dispersal other than anecdotal reports of long-distance movements assumed to be dispersal in nature. Martens are habitat specialists with low reproductive rates. Marten densities have been measured in Canada 1.2-1.9 per square km (0.5-0.7 per square mile). A population of 100 martens would require approximately 200 square miles, or approximately 128,000 acres. (Buskirk and Ruggiero, 1994)

Elk (*Cervus elaphus*): Elk are also associated with semi-open forests or forest edges adjacent to parks, meadows and alpine tundra (Hoover and Wills, 1987). At dawn and dusk elk graze in more open areas, while during the daytime and nighttime they retreat into the forest for cover (Benedict, 1991,cited in Fitzgerald et al, 1994). Elk tend to inhabit higher elevations during the late spring, summer, and early fall, and then they migrate to lower elevations for the winter (Boyd, 1970). The seasonal migration of elk herds range from 6 to 60 km. Their daily migrations average one km (Fitzgerald et al, 1994). A minimum viable population of 75 elk, half of which should be cows of breeding age, would require 3,000 acres of optimal habitat (Hoover and Wills, 1987).

Abert's squirrel (*Sciurus aberti*): The Abert's squirrel is dependent on late successional ponderosa pine forests. Abert's squirrels require larger winter ranges than summer range because of increased foraging behavior for the inner bark of pine twigs (Farentinos, 1979). Population densities of Abert's squirrels are estimated in the range of 0.25 to 2.5 squirrels/acre (Nash and Seaman, 1977). The San Juan National Forest previously estimated Abert's squirrel density at about 0.1 squirrels/acre of suitable habitat (USDA Forest Service, 1992). The San Juan NF previously estimated approximately one-half of the forest's ponderosa pine, or about 150,000 acres, provided the conditions of clumps of interlocking trees required by Abert's squirrel (ibid).

Grizzly bear (*Ursus arctos*): The grizzly bear is a flagship species that also serves as an indicator of the health of large, wild habitats. The grizzly bear is a wide-ranging omnivore that requires secure habitat. The grizzly was thought extirpated from the San Juans in the 1970s, but the accidental killing of an old sow in 1979 reinvigorated interest in grizzlies. Recent investigators (Petersen, 1995) believe perhaps a half dozen secretive grizzlies may still populate the South San Juan Wilderness and surrounding area. The San Juans are considered to have superlative grizzly habitat, superior to that commonly found in the Northern Rockies and thus capable of supporting higher densities of bears. Thus the area requirements calculated for Canada (12 million acres for a minimum

viable population of 50 bears) (Hummel 1990) or the Northern Rockies (32 million acres for 2000 bears) (Metzgar and Bader 1992) are likely overstated for the San Juans. Using Northern Rockies ratios, a genetically effective population of 50 bears translates to a population of about 200 bears which might require less than 3.2 million acres of habitat.

Flammulated owl (*Otus flammeolus*): The flammulated owl is associated with mature and old-growth ponderosa pine forests, foraging primarily in late successional stands. Data from Colorado studies indicate owls prefer roosting in dense vegetation such as in large Douglas-firs or ponderosa pines with sprawling form. Mistletoe may augment the usefulness of trees for roosting. Flammulated owls are secondary cavity nesters and in Colorado typically use cavities created by the sapsucker. Flammulated owls may occur in clusters that are either a remnant from previous population declines caused by widespread habitat change (logging of old-growth ponderosa pine forests) or may indicate that less habitat is optimal than predicted for the owls. The flammulated owl is a low-fecundity species and its intrinsic rate of natural increase is low. Little is known of natal dispersal distances and have been assumed to be 5-10 territory diameters like other birds. This would amount to natal dispersal distances of 1-2 miles. Breeding densities of Colorado owls are estimated at 4-6 nests per 1,000 acres. Assuming 10 breeding pairs required for a minimum viable population, this translates to a habitat requirement of about 2,000 acres. The flammulated owl is considered a neotropical migrant, moving southward in October. (USDA Forest Service, 1994)

Lewis' woodpecker (*Melanerpes lewis*): This woodpecker relies exclusively on ponderosa pine and cottonwood riparian ecosystems. The Lewis' woodpecker prefers open, park-like stands of trees with brushy understories. Consequently, lack of prescribed fire in ponderosa pine stands may have diminished the openness favored by these woodpeckers. The Lewis' woodpecker is a primary cavity nester, generally excavating its own nest cavity in dead trees or tall stumps. The cavities it excavates are later available for secondary cavity nesters such as the flammulated owl. The woodpeckers require a minimum snag density of one snag per ten acres to sustain the species. A viable population of ten breeding pairs requires only 150 acres of habitat. (USDA Forest Service, 1999)

Northern goshawk (*Acipiter gentilis*): The goshawk is most often associated with mature and old-growth coniferous forests, but may also use mixed conifer-aspen stands or aspen stands adjacent to or intermingled with conifers. For nesting, the goshawk prefers 200-acre blocks of forest with small openings located within 1/4 mile of water. The goshawk prefers mature and old-growth structural stages for cover. A minimum viable population is estimated as 10 pairs prior to breeding. With a range of nesting densities of 1 nest per 5.1 to 10.6 square miles, it is estimated between 33,000 and 68,000 acres of habitat required to maintain a minimum viable population (Hoover and Willis, 1987).

River otter (*Lutra canadensis*): Otters require permanent water of relatively high quality with minimum estimated water flows of 10 cubic feet per second. Other habitat factors include water depth, stream width, and suitable access to shoreline (Lytle et al 1981,

Goodman 1984). In Colorado, river otters historically occupied relatively large rivers at low-moderate elevation (Armstrong 1972). Otter habitat is closely associated with beavers. Little study has been done on the river otter's population dynamics. but home ranges are estimated from 2 to 78 km long (Melquist and Hornocker 1979 and 1983) with a mean length of 32 km reported for 13 telemetered animals in Colorado (Mack, 1985). River otters become sexually mature at 2-3 years old which is when they may disperse up to 200 km (Melquist and Hornocker, 1983).

Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*): The Colorado River cutthroat trout historically occupied much of the Colorado River drainage, including the San Juan Mountains. Behnke (1979) suggests today the species occupies less than 1% of its former range. In the San Juans, Colorado River cutthroat populations still occur in the Hermosa Creek watershed, tributaries of the Piedra River, and perhaps in the upper Florida River drainage. The native cutthroats have declined primarily because of hybridization with introduced trout species (Behnke and Zarn, 1976). Water contamination from mining wastes, inadequate streamflows from water diversions, sedimentation from roads and logging, and overfishing have played additional roles in population declines. Colorado River cutthroat trout apparently thrived in a wide variety of habitat conditions, and external factors such as hybridization with non-natives, pollution, and overfishing are the major land management limiting factors.

Beaver (*Castor canadensis)*: Beaver are a keystone species vital for maintaining water flow, raising water tables, and providing habitat for fish and other species. Beaver feed on aspen, alder, willow, birch, cottonwood and other woody riparian species. Perhaps more than any other species, beaver creates landscape-scale effects on hydrology and habitat. Beaver can hasten recovery of degraded streams by raising the water table and thereby improving conditions for willow, cottonwood and other species. Beaver also serve an important function as a prey species for predators such as wolves. The presence of beaver is an indicator of healthy riparian systems.

Table 6. Estimated Habitat Area Requirements of Focal Species

Species	Habitat Category	Requirement
lynx	spruce-fir; large area	0.5-1.2 million acres for minimum pop of 100
marten	mixed-conifer/spruce--fir; fragmentation; large area	128,000 acres for minimum population of 100
grizzly bear	large area; dispersal	Up to 3.2 million acres for minimum pop. of 200 (effective population of 50)
elk	semi-open forests, forest edges	3,000 acres for minimum pop. of 75
Abert's squirrel	ponderosa pine; fragmentation	1,000 acres for minimum pop. of 100
flammulated owl	ponderosa pine O-G;	2,000 acres for 10 breeding

	fragmentation	pairs
Lewis' woodpecker	ponderosa pine	150 acres for 10 breeding pairs
northern goshawk	mature pine, mixed-conifer, aspen; large area	33,000-68,000 acres for 10 breeding pairs
river otter	high water-quality, montane river corridors	rivers > 10 cfs and > 32 km length
cutthroat trout	high water-quality	absence of nonnative species
beaver	quality riparian habitat	riparian forests

2) Comparison of Reserve Design to Focal Species Area Requirements:

The reserve design proposes wilderness designation and roadless area management for approximately 1.2 million acres of the San Juan NF (management prescriptions 1.1, 1.2, and 1.3). Approximately 450,000 acres, or 40%, of this undeveloped acreage consists of the spruce-fir ecosystem type, including essentially all of the 68,000 acres of spruce-fir stands with old-growth scores exceeding 55. Using structural stage data from the 1992 plan amendment (since the new data is not yet available), approximately 230,000 acres of spruce-fir fell into the mature and old-growth categories. It is assumed that essentially all of this mature acreage is within the wilderness and roadless portions of the forest.

Lynx: The reserve design accommodates the target requirement for a minimum population of 100 individuals. The 1.2 million acres of undeveloped lands meet the upper end of the range for large area requirements, and the 450,000 acres of spruce-fir (approximately one-half of which is mature and old-growth) satisfies the lower end of the area requirements in terms of pure spruce-fir ecosystem. An additional 250,000 acres of designated wilderness on the adjacent Rio Grande NF is contiguous to the Weminuche and South San Juan wilderness areas on the San Juan NF. This estimate meshes well with the San Juan NF's previous estimate of 554,000 acres of suitable habitat for snowshoe hares, the primary prey species for lynx (USDA Forest Service, 1992).

Marten: The reserve design readily accommodates populations of marten greatly exceeding the target population of 100. In addition to the 450,000 acres of protected wilderness/roadless spruce-fir forest described above, the reserve design also includes 150,000 acres of undeveloped mixed conifer forests, including most of the estimated 100,000 acres in mature and old-growth structural stages.

Grizzly bear: Grizzlies pose the greatest hurdle to meeting the reserve design's requirements. In the entire San Juan Mountains region, including the San Juan NF, the Rio Grande NF, the southern portions of the Gunnison NF and the Uncompahgre NF, and BLM lands, there is approximately 2 million acres of designated wilderness and other large roadless areas proposed for wilderness protection in the Wild San Juans Alternative and other citizen proposals. The quality of habitat in the San Juans is generally considered superior to the Northern Rockies habitat on which the population

density estimates are based. Consequently, the 2 million acres of available undeveloped habitat might be capable of supporting a population of 200 bears.

Elk: Elk populations are limited by available winter range. Summer range in the San Juan's large wilderness and roadless areas is much more abundant. The San Juan contains approximately 650,000 acres of elk winter range with an estimated carrying capacity of 12,000 elk. Elk herds are close to this carrying capacity.

Abert's squirrel: The reserve design easily accommodates multiple populations of Abert's squirrels that should be viable over the long term. The San Juan NF includes approximately 25,000 acres of ponderosa pine with old growth scores greater than 40, of which about 14,000 acres are located within wilderness and roadless management categories. Because the squirrels depend on clumps or stands of trees with interlocking canopies to a great degree, even much of the ponderosa not considered mature provides suitable habitat. The old-growth alone should support at least 2,500 squirrels. One consideration might be the pattern of mature and old-growth blocks and whether squirrels can repopulate regions that experience local extinctions.

Flammulated Owl and Lewis' Woodpecker: The San Juan NF's 25,000 acres of ponderosa pine old-growth occur in several concentrations: along the Piedra River, in the Devils Creek watershed, along Hermosa Creek, near Electra Lake, in upper House Creek, around Smoothing Iron Reservoir, and in various canyons on the Forest's west end. Analysis indicates that concentrations of old-growth ponderosa pine greater than 2,000 acres in size exist specifically in the proposed Hermosa Wilderness and existing Piedra Area (a congressional designation). The proposed House Creek and Spruce Water Canyon Special Interest Areas each contain old-growth blocks roughly 500 acres in size. The Wild San Juans Alternative proposes wilderness, roadless, Research Natural Area, or other protective management for all of these old-growth concentrations. Assuming each old-growth block supports the target breeding population of 10 pairs, the Alternative should support at least three or four populations each consisting of 10 breeding pairs of flammulated owls. The Lewis' woodpecker requires far less area to sustain viable breeding populations.

Northern goshawk: The San Juan NF includes approximately 25,000 acres of mature and old-growth ponderosa pine, approximately 110,000 acres of mature and old-growth mixed conifer, and approximately 133,000 acres of mature aspen (USDA Forest Service, 1994). Taken together, this totals about 268,000 acres of prime habitat for goshawk. However, the question then arises whether this occurs is contiguous blocks of sufficient size to support 10 breeding pairs of goshawk. Two significant unfragmented blocks of 40,000 acres and larger occur in the Piedra Area (a congressional designation) and the Hermosa Roadless Area (proposed wilderness in the Wild San Juans Alternative) in the forest's eastern and central portions. Each of these blocks should support a minimum viable breeding population of goshawk. A more fragmented block of large habitat occurs around Stoner Mesa (proposed wilderness in Wild San Juans Alternative) on the Forest's west end.

River otter: The San Juan NF offers excellent habitat along numerous stream segments satisfying the habitat requirements of river otter. The Wild San Juans Alternative proposes wilderness designation, backcountry management, and wild and scenic river management for most of these river segments, including the Piedra, Los Pinos, and Dolores Rivers which already harbor river otter populations, as well as other significant streams such as Bear Creek, Fish Creek, Hermosa Creek, Vallecito Creek, and the Rio Blanco. Since reintroduction in the 1980s, otter have already dispersed unaided from the Piedra watershed into the Los Pinos drainage, and additional range expansion is expected.

Colorado River cutthroat trout: The Wild San Juans Alternative offers enhanced protections for the major watersheds still harboring native cutthroat trout: the Hermosa Creek drainage, the Piedra River watershed, and the upper Florida River. Nearly all tributary streams in which Colorado River cutthroat trout are known to occur are protected as existing or proposed wilderness in the Wild San Juans Alternative. Additional suitable habitat is proposed for wilderness protection in Dolores River tributaries on the San Juan's west end, where no native cutthroats now exist, but presuming appropriate barriers to non-native trout are installed and other necessary management actions taken, the habitat exists for reintroduction in this river basin as well. Similarly, numerous tributaries of the San Juan River on the forest's east end are protected within wilderness.

Beaver: The Wild San Juans Alternative provides many miles of protected habitat along streams possessing riparian areas favored by beaver. Suitable habitat is protected throughout the central and eastern San Juans with additional wilderness designations. In the western San Juan NF, numerous streams and canyons are protected as non-motorized backcountry zones free from surface disturbing activities, including appropriately named Beaver Creek.

Table 7. Citizens Wild San Juans Plan Design vs. Habitat Needs

Species	Habitat Requirement	Citizens Plan Provision
lynx	0.5-1.2 million acres roadless spruce-fir for minimum pop of 100	0.45 million acres spruce-fir and 1.2 million acres roadless
marten	128,000 acres mixed-conifer/spruce-fir for minimum population of 100	150,000 acres roadless mixed-conifer and 450,000 acres roadless spruce-fir
grizzly bear	Up to 3.2 million acres for minimum pop. of 200 (effective population of 50)	2 million acres wilderness on San Juan NF and adjacent forests
elk	open forests and forest edges; 3,000 acres per 75 animals	650,000 acres winter range supporting 12,000 elk
Abert's squirrel	1,000 acres mature ponderosa pine for minimum pop. of 100	25,000 acres old-growth ponderosa pine
flammulated owl	2,000 acres ponderosa pine old-growth for 10 breeding pairs	25,000 acres old-growth ponderosa pine w/ two 2,000-acre blocks
Lewis' woodpecker	150 acres ponderosa pine for 10 breeding pairs	25,000 acres old-growth ponderosa pine
northern goshawk	33,000-68,000 acres mature pine, mixed-conifer, aspen for 10 breeding pairs	268,000 acres mature pine, mixed-conifer, aspen with at least two 40,000-acre blocks
river otter	32 km stream reaches with >10 cfs high-quality water	Several dozen qualifying stream reaches in wilderness and proposed wilderness
cutthroat trout	high-quality water without nonnative trout species	Several dozen qualifying stream reaches in wilderness and proposed wilderness
beaver	streams with healthy riparian forests	Several dozen qualifying stream reaches in wilderness and proposed wilderness

LAND MANAGEMENT DESIGNATIONS – CORE RESERVE CATEGORIES

A. NEW WILDERNESS RECOMMENDATIONS

Principles of Core Reserve Design emphasize the priority for protection of large, cohesive undeveloped roadless areas. Permanent legislative protection as wilderness offers the single most enduring land management prescription for preserving the natural ecological processes inherent in large, undeveloped roadless areas.

Wilderness benefits most of the identified multiple uses in terms of watershed protection, recreation, and wildlife. Many community watersheds are located within wilderness or roadless areas such as Durango's Florida River watershed within the Weminuche Wilderness and Silverton's Bear Creek watershed within the San Miguel Roadless Area. Wilderness provides the highest quality primitive recreation opportunities for hiking, backpacking, horsepacking, hunting, fishing, mountain climbing, and backcountry skiing. Livestock grazing is legally permissible within wilderness as well. Only extractive uses such as logging and mining, and recreational motor vehicle use are not permitted within wilderness.

In keeping with the Wild San Juans Alternative's central tenet of designing a functional reserve system which interconnects a network of large roadless areas, the following categories for allocation of new wilderness areas are offered:

1) Additions to Existing Wilderness Areas

The most effective core reserves are those that are largest and with the most cohesive boundary (the lowest perimeter to area ratio). Existing wilderness areas, including the special Piedra area, include the following:

Table 10. Existing Wilderness Areas
(includes acreage on adjacent Rio Grande National Forest)

Area	Acres
Lizard Head	41,496 acres
Piedra	62,550 acres
South San Juan	158,790 acres
Weminuche	492,418 acres

Substantial additions can be made to each of these areas, both to increase their utility as a core reserve simply by increasing their sizes and to improve their boundary configurations.

Lizard Head Additions (6,656 acres): Spruce-fir old growth extending the primary forested landscape corridor on the west side of Highway 145 toward the San Miguel Roadless Area to the east.

Piedra Additions (47,887acres):
a) First Fork (13,866 acres): aspen and mixed conifer forests in tributary watersheds of the existing congressionally-designated area.
b) Devils Creek (12,407 acres): rugged stands of old-growth ponderosa.
c) Upper Piedra River (12,092 acres): 3 miles of river corridor populated with stands of old-growth ponderosa pine.
d) Bear Creek (8,126 acres): low-elevation aspen and mixed conifer forests in the Pine River valley.

South San Juan Additions (38,233 **acres):**
a) Squaretop (26,429 acres) -- includes the most significant lower-elevation landscape habitat connection in the San Juans and the defunct East Fork Ski Area site (connects with the Turkey Creek corridor to the Weminuche).
b) Rio Blanco (9,707 acres) -- expansive forests of aspen and ponderosa pine.
c) Lost Creek (1,560 acres) -- rugged spruce forests near the East Fork's headwaters.
d) Navajo Peak (537 acres) – pristine mountain along southern border of wilderness area.

Weminuche Additions (93,740 **acres):**
a) Turkey Creek (25,750 acres) -- most significant lower-elevation corridor on the Forest.
b) Martinez Creek (3,132 acres) -- largest old-growth spruce forest in the San Juans.
c) Monk Rock (5,193 acres) -- a portion of the Middle Fork Piedra River proposed Wild and Scenic River segment.
d) Poison Park (5,773 acres) -- Williams Creek RNA and occupied river otter habitat.
e) Graham Park (13,817 acres) -- extraordinary elk calving and rearing areas amidst uncommon wet meadows.
f) Runlett Park (4,969 acres) -- lowest elevation ponderosa pine forests contiguous to the Weminuche.
g) Miller Mountain (14,849 acres) -- lower elevation ponderosa pine forests along the Pine and Florida Rivers.
h) East Animas (15,532 acres) -- 7 miles of the rugged Animas River Gorge and scenic narrow gauge railroad on the east side of the Animas.
i) West Needle (4,725 acres) -- 7 miles of the rugged Animas River Gorge and scenic narrow gauge railroad on the west side of the Animas, and the area around Andrews Lake.

2) Designation of New Large Wilderness Areas (> 50,000 acres)

Hermosa: The largest remaining unprotected roadless area on the San Juan NF is contained within the Hermosa Creek watershed. The Wild San Juans Alternative proposes to designate 119,908 acres as wilderness in two units. Hermosa serves a particularly important role spanning the Animas and Dolores watersheds. It provides the only mid-elevation, roadless corridor between the Animas Valley (at Hermosa Creek) across the LaPlata Mountains to the Dolores Valley (via Bear Creek). Hermosa contains perhaps the most diverse array of forest habitats on the entire San Juan NF, with numerous superb examples of old-growth ponderosa pine stands, and two

significant proposed Research Natural Areas. Hermosa also harbors thriving populations of Colorado River cutthroat trout.

San Miguel: The 67,996-acre roadless area offers outstanding opportunities for primitive recreation and solitude in one of the most stunningly spectacular settings in all of Colorado. The San Miguel range consists of craggy and difficult summits between Molas and Lizard Head Passes. A generous network of trails laces the area, including a 20-mile segment of the Colorado Trail, offering hikers abundant opportunities for exploration. San Miguel occupies a key link in the landscape of intact spruce-fir forest ecosystems in the San Juans. The area's old-growth and mature spruce-fir forests fill the gap between similar forests in the Weminuche Wilderness to the southeast and the Lizard Head Wilderness directly northwest across Lizard Head Pass.

3) Designation of New Small Wilderness Areas to Serve as Landscape Linkages (corridors) and to Protect Underrepresented Ecosystem Types (< 50,000 acres)

Landscape linkages provide important habitat connections and also permit migration, dispersal, and recolonization. These areas are generally less than 50,000 acres in size, but tend to include roadless valleys and canyons with high-quality riparian habitat, isolated old-growth stands, and significant vegetative diversity. In many cases, rugged topography has provided a natural barrier to development in these areas. These areas also tend to exist at lower elevations, in ecosystem types currently underrepresented in, or entirely absent from, existing wilderness.

Fish Creek: Fish Creek's lowest elevations are covered with lush willow-dominated riparian zones and several small stands of old-growth ponderosa pine. Aspen tend to dominate south-facing slopes while spruce-fir forests populate north-facing slopes. The 10,778-acre Fish Creek roadless area offers recreational opportunities distinctly different from those found in the fourteen-thousand-foot peaks of the nearby Lizard Head Wilderness. Fish Creek attracts backcountry horsemen and hikers looking for fishing holes amidst varied forests.

HD Mountains: Old-growth ponderosa pine is the most underrepresented ecosystem type in Region 2's wilderness system. The 39,172-acre HD Mountains include some of the highest quality old-growth ponderosa pine left in the San Juan Mountains, and in Colorado for that matter. Inclusion of this representative old-growth ponderosa ecosystem will significantly enhance the National Wilderness Preservation System and meet the needs identified in the Region's Wilderness Needs Assessment. The HD Mountains also include the largest, roadless stands of oakbrush and pinyon-juniper forest on the San Juan. The roadless offers a landscape linkage to the tribal forests of the Southern Utes and Jicarilla Apaches and portions of the Carson National Forest in New Mexico.

Ophir Needles: The Ophir Needles roadless area straddles the San Juan-Uncompahgre National Forest boundary in the spectacular alpine country southwest of Red Mountain Pass. The area is characterized by a series of interconnected alpine basins holding sparkling lakes surrounded by jagged, rocky ridges and peaks. The area's namesake is

the rugged Ophir Needles which provide a popular rock-climbing destination near the town of Ophir on the Uncompahgre NF side of the area. 3,815 acres of the roadless area are in the San Juan National Forest. The abundance of high lakes, jagged peaks, and remote backcountry results in outstanding opportunities for primitive recreation and solitude.

Snaggletooth: Pinyon-juniper woodlands, scrub oak, and ponderosa pine forest characterize the 12,172 acres comprising the eastern tributaries and canyon rim of this multi-jurisdictional roadless area (an additional 19,427 acres are located on adjacent lands managed by BLM). The proposed wilderness incorporates the Dolores River Canyon downstream of Bradfield Bridge, one of the most extraordinary wilderness river segments in the San Juans.

Stoner Mesa: The 20,584-acre Stoner Mesa roadless area encompasses perhaps the highest quality roadless aspen ecosystem types on the entire San Juan NF. The area's designation as wilderness would greatly relieve the absence of aspen ecosystem types among designated wilderness. Stoner Mesa is unique among San Juan wilderness candidates in its extensive, unbroken expanses of pure aspen forest and exhibits astonishing diversity among aspen forest types. The area's elevation range between 8,000 and 9,500 feet would place it among the lowest elevation wildernesses on the forest, and one of the lowest forested wilderness areas in all of Colorado.

Storm Peak: The 43,493-acre Storm Peak Roadless Area straddles the watersheds of the East and West Dolores Rivers. Storm Peak contains a rare forest type, old-growth spruce-fir forest on gentle slopes, that is absent elsewhere in the SJNF's wilderness areas. Storm Peak comprises the roadless bridge between the Hermosa Roadless Area, the largest unprotected roadless area in Colorado, and the existing Lizard Head Wilderness.

Treasure Mountain: Treasure Mountain plugs the high-elevation gap between the South San Juan Wilderness and the Weminuche Wilderness on Wolf Creek Pass' west side. The 21,806-acre roadless area includes the site of the one-time proposed Wolf Creek Valley ski area. Ski area development would forever destroy the natural character of the West Fork Valley and forever sever the landscape link between the wilderness areas. This link provides a relatively continuous spruce-fir canopy between the two wilderness areas and consequently serves as an obvious corridor for interior type forest species.

Table 11. Summary of Wild San Juans Alternative Wilderness Recommendations

Area	Size (acres)
Fish Creek	15,740
HD Mountains	39,172
Hermosa	119,980
Lizard Head Additions	6,656
Ophir Needles	3,815
Piedra Additions	47,887
San Miguel	67,996
Snaggletooth	12,172
South San Juan Additions	38,233
Stoner Mesa	20,584
Storm Peak	43,493
Treasure Mountain	21,806
Weminuche Additions	93,740
TOTAL	531,292

4) Wilderness Management

The San Juan National Forest adopted wilderness management direction for the Weminuche Wilderness, South San Juan Wilderness, and Piedra Area in an August, 1998 plan amendment. The Wild San Juans Alternative supports the alternative that emphasized solitude and protecting unique ecosystems (Alternative D), but can accept the selection and implementation of the preferred Alternative (C) which still improves wilderness qualities while maintaining recreation opportunities.

The newly adopted wilderness management direction significantly moves wilderness management towards the more pristine end of the management scale, increasing the acreage managed as pristine and primitive while reducing the semi-primitive acreage. The new wilderness amendment reduces group sizes to 15 people and 25 people and/or stock. The amendment also sets specific standards for campsite condition, campsite density, crowding, dogs, recreational stock use, noxious weed control, and prescribed natural fire in order to maintain and improve wilderness recreation opportunities and the wilderness ecosystem quality.

B. RESEARCH NATURAL AREA DESIGNATIONS

Research Natural Areas (RNAs) should include broad representation of the natural variability that occurs on the SJNF. RNAs have three main objectives: 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.

The Forest Service uses four criteria for evaluating potential RNAs:

- Quality: how well does the site represent the targeted ecosystem type or biological diversity elements;
- Condition: has the site been degraded or altered from natural or optimal conditions;
- Viability: what is the likely long-term survival for the ecosystem and its biological diversity elements;
- Defensibility: can the ecosystem and biological diversity elements be protected from extrinsic human factors over the long-term.

Table 9. Proposed Research Natural Areas

RNA	Size (ac.)	Major Ecosystem Type and Features
Archuleta Creek/ Deep Canyon	6,821	Ponderosa pine, Douglas-fir, pinyon-juniper
Bear Park	6,934	Mixed conifer & spruce-fir old-growth
Buck Creek/Hope Creek	27,000	Mixed conifer, spruce-fir, aspen, Thurber fescue, wetlands
East Mancos River	1,316	Aspen, mixed conifer, ponderosa, cottonwood
Electra Lake	2,265	Ponderosa pine, mixed conifer, aspen
Grizzly Peak	5,672	Spruce-fir, tufted hairgrass, willow wetlands
Grouse Rincon	8,345	Spruce-fir, alpine, wetlands, aspen
Ignacio Creek	6,193	Ponderosa pine, mixed conifer, pinyon-juniper, oak
Martinez Creek	1,062	Spruce-fir old-growth
Middle Peak	2,729	Spruce-fir, thurber fescue, aspen
Navajo River	7,085	Spruce-fir, tufted hairgrass, alpine, Doug-fir, wetlands
Needle Mountains	16,520	Alpine, wetlands, spruce fir, aspen, mixed conifer
Porphyry Gulch	12,104	Spruce-fir, alpine, mixed conifer, wetland
Quien Sabe	8,597	Spruce-fir, thurber fescue, aspen, wetland, alpine
Rio Blanco	9,454	Spruce-fir, alpine, mixed conifer, wetland
Rock Lakes	1,874	Spruce-fir, alpine, wetlands
Sand Creek	14,246	Mixed conifer, spruce-fir, aspen, alpine, wetlands
Shaw Creek	3,000	Spruce-fir, wet meadows
Stoner Mesa	2,000	Pure aspen stands
West Needles	14,040	Mixed conifer, aspen, spruce-fir, cottonwood
Williams Creek add	~300	Willows, cottonwood

The Wild San Juans Alternative recommends designation of 21 Research Natural Areas that represent the broad sweep of SJNF ecosystems, from ponderosa pine stands to alpine tundra. These are described as follows:

Archuleta Creek/Deep Canyon RNA (6,821+ acres): Two proposed adjacent RNAs at the lowest elevations (6,300-feet) on the Forest are combined into a single RNA. Archuleta Creek/Deep Canyon contain the largest acreages of ponderosa pine, pinyon-juniper and Douglas-fir found on any potential RNA on the Forest. Sand and shale barrens support unique assemblages of plants. High quality and diverse understory grasslands are also present. A few exotic species exist along boundary roads. No suitable timber occurs in the area. The RNA is closed to motorized recreation use and has low potential for mineral development. The grazing allotment is vacant and would be permanently closed. The RNA is not readily accessible to public recreation use due to adjacent Southern Ute Tribal lands.

Bear Park RNA (6,934 acres): The Bear Park RNA contains extensive areas of old-growth of all forest types and is located largely within the Piedra Area. This RNA contains the greatest range and variety of forested cover-types of any potential RNA on the Forest. The RNA harbors Colorado River cutthroat trout. Exotics are limited to Kentucky bluegrass and a few dandelions. The area is closed to motorized use, unsuitable for timber harvest, and unavailable for mineral leasing. The grazing allotment is vacant and would be permanently closed.

Buck Creek/Hope Creek RNA (27,000+ acres): These combined RNAs encompass most of the western watershed of the Hermosa Roadless Area. A motorized trail along Clear Creek separated the two RNAs; this trail would be converted to non-motorized uses only and included within the RNA. The RNA contains very mesic conditions due to high precipitation. At low elevations, there is good representation of ponderosa pine/gambel's oak associations, while higher elevations contain many old-growth spruce-fir stands. Mid-elevation mixed conifer forests are exceptionally varied with mixtures of Douglas-fir, white fir, aspen, blue spruce, ponderosa pine, southwestern white pine, and gambel's oak. Riparian communities are in excellent shape and the RNA harbors a population of Colorado River cutthroat trout. Exotic species occur rarely. The area is unsuitable for timber harvest, is largely closed to motorized vehicle use, and is unavailable for mineral leasing other than a few NSO leases. The grazing allotments are vacant and would be permanently closed.

East Mancos River RNA (1,136 acres): The East Mancos River is a diverse, high quality riparian cottonwood/shrub community mixed with very old conifers as large as any in Colorado. Side-canyon seeps support diverse communities of bryophytes, ferns, columbines, and graminoids. Beaver activity is common along the river. Very few exotics exist, a rare condition for riparian cottonwood communities in the San Juans. Water quality may be compromised by upstream development activities. The RNA has no suitable timber and has no evidence of recent mining interest. The area is closed to

motorized recreation. The grazing allotment is vacant and would be permanently closed.

Electra Lake RNA (2,265 acres): Electra Lake RNA is located between the lake and the Animas River. It includes gently rolling uplands with mesic areas of aspen and numerous kettle ponds scoured during past glaciation. Open ponderosa pine stands characterize the RNA's forest along with common limber pine. Two state rare species occur, yellow lady's slipper orchid and shineleaf wintergreen. The RNA contains no suitable timber and has low mineral potential. The area is closed to motorized recreational use. The grazing allotment is vacant and would be permanently closed.

Grizzly Peak RNA (5,672 acres): Grizzly Peak is a high elevation RNA containing high quality tufted hairgrass meadows along with sedge and willow dominated wetlands. A wet spruce-fir forest with some old-growth stands blankets the lower slopes. The alpine vegetation occurs on large areas of Mancos shale interspersed with volcanic intrusions and provides good examples of patterned ground in an alpine setting. The area is deemed unsuitable for timber harvest, has not experienced any mining activity, and is closed to motorized recreation. The grazing allotment is vacant and would be permanently closed.

Grouse Rincon RNA (8,345 acres): This RNA contains a wide diversity of vegetation types, ranging from extensive willow carr wetlands near and above timberline to mature spruce-fir forests to common young stands of aspen. The RNA is located entirely within the Weminuche Wilderness and is thus closed to mining, logging, and motorized vehicles. The grazing allotment is vacant and would be permanently closed.

Ignacio Creek RNA (6,193 acres): Ignacio Creek drains the southern half of the HD Mountains and the RNA encompasses almost its entire watershed. There are substantial stands of old-growth ponderosa pine, with mixed-conifer forest dominated by Douglas-fir at lower elevations giving way to white fir dominated forest at higher elevations. The area receives no motorized recreational use and suitable timber is inaccessible. Hardrock mineral potential is low, but coalbed methane wells occur south and east of the RNA. The RNA includes numerous archeological sites as well. The grazing allotment is vacant and would be permanently closed.

Martinez Creek RNA (1,062 acres): Martinez Creek contains the largest known area of old-growth spruce-fir forest in the San Juans, as well as the highest quality old-growth spruce-fir. There has been no stand-replacing fire in this location for at least 300 years which makes it an ideal site for research. This forest occurs at a relatively low elevation for spruce-fir and includes high structural diversity, high snag density, and high density of large down and dead trees. The area has low mineral potential, is closed to motorized recreation, and contains no suitable rangeland within the proposed RNA.

Middle Peak RNA (2,729 acres): Middle Peak contains a spruce-fir forest in a mosaic of stands of widely-varying age. Sedge dominated wetlands occur where landslides create benches and swales. Thurber fescue meadows are also common. Exotic species are rare

other than lodgepole pine which was planted near the area's southwest boundary. The RNA is largely within the Lizard Head Wilderness and is thus mostly unavailable for logging, mining, or motorized recreation. The grazing allotment is vacant and would be permanently closed.

Navajo River RNA (7,085 acres): The Navajo River begins amidst the high, gently rolling volcanic plateau of the Continental Divide. The RNA includes extensive tufted hairgrass meadows and very diverse alpine vegetation on the plateau as well as islands of spruce-fir krummholz. A large wet meadow complex exists in the upper Navajo River Basin. The RNA includes the complete upper watersheds of the West Fork of the Navajo River, Angustora Creek, and Fish Creek, and supports a population of Colorado River cutthroat trout. This RNA includes the site of the last known grizzly bear occurrence in Colorado in 1979. The RNA is entirely within the South San Juan Wilderness and is closed to mining, logging, and motorized use. The grazing allotment is vacant and would be permanently closed.

Needle Mountains RNA (16,520 acres): The Needle Mountains are one of the most spectacular glaciated mountain landscapes in the Southern Rockies. The RNA ranges from extensive narrowleaf cottonwood/conifer riparian vegetation along the Animas River to exceptionally diverse alpine plant associations. Four complete watersheds with distinct notable features are contained within the RNA: the willow carrs of Noname Creek; the extensive tundra of Tenmile Creek; the lakes and wetlands of Sunlight Creek; and the open subalpine forests of Leviathan Creek. Because the area is located entirely within the Weminuche Wilderness, it is closed to mineral development, logging, and motorized recreation. The grazing allotment is vacant and would be permanently closed.

Porphyry Gulch RNA (12,104 acres): Porphyry Gulch is located entirely within the Weminuche Wilderness and includes the complete watershed of the Piedra River's upper Middle Fork. It represents spruce-fir forest over a wide range of elevation, slope, aspect, and successional stages including old-growth. Porphyry Gulch also contains large areas of alpine wetlands and extensive avalanche chutes with associated disturbance communities. Because it lies within wilderness, the RNA is closed to mining, logging, and motorized vehicles. The grazing allotment is vacant and would be permanently closed.

Quien Sabe RNA (8,597 acres): Quien Sabe includes large aspen stands with conifer understories, large grassland areas of Thurber fescue, and a few stands of very old Douglas-fir with a young understory of Englemann spruce. Three-fourths of the area is located within the Weminuche Wilderness. Mining, logging, and motorized recreation are not present. The grazing allotment is vacant and would be permanently closed.

Rio Blanco RNA (9,454 acres): Rio Blanco RNA completely encompasses the large upper watershed of the Rio Blanco. Steep slopes and deep canyons create many rocky cliffs. The riparian zone receives energetic spring floods and consists of willow, alder, and dogwood communities on high terraces. An old spruce-fir forest clings to steep

slopes with very large trees occupying inaccessible benches mid-way up canyon walls. The area is considered a focal point for a rumored remnant grizzly bear population. The RNA is located entirely within the South San Juan Wilderness. The grazing allotment is vacant and would be permanently closed.

Rock Lakes RNA (1,876 acres): The RNA includes the complete watershed of Lake Creek near Wolf Creek Pass. It contains a large area of mesic mature and old-growth spruce-fir. The floor of Lake Creek valley is filled with numerous small lakes and wetlands, mostly sedge fens. Two-thirds of the RNA falls within the Weminuche Wilderness. The area is unsuitable for timber harvest, mining, and motorized recreation. The grazing allotment is vacant and would be permanently closed.

Sand Creek RNA (14,246 acres): The RNA covers the entire watershed of Sand Creek with a high diversity of vegetation types along a large elevational gradient. Small stands of old-growth mixed conifer and spruce-fir are intermixed within larger expanses of forest, including frequent aspen stands. The RNA includes the location of a reliable lynx sighting, a threatened species. The majority of the area lies within the South San Juan Wilderness, thus issues about development of timber and minerals or motorized recreation are not pertinent. The grazing allotment is vacant and would be permanently closed.

Shaw Creek (several thousand acres): A prospective RNA including an uncommon mosaic of wet meadows around Shaw Creek and Falls Creek.

Stoner Mesa (2,000 acres): This somewhat undefined RNA encompasses the steep, western slopes of Stoner Mesa that include stands of possibly climax aspen with few conifer invaders. The slopes fall within an active grazing allotment and receive light grazing that might conflict with the intent of the RNA. Ungrazed, uncut stands of pure aspen are almost entirely lacking in the San Juans and should be a high priority for identification and research.

West Needle Mountains and Animas River RNA (14,040 acres): The RNA includes the exceptionally diverse riparian vegetation of the Animas River, one of the few large undammed and relatively ungrazed riparian systems in the San Juans. The river is an active hydrologic system experiencing regular flood events. Mixed conifer and spruce-fir forests are intermingled with aspen stands. Few exotics are present which is rare for large riparian ecosystems. The RNA is 90% within the Weminuche Wilderness and is therefore closed to mining, logging, and motorized recreation. Most of the area is in a vacant grazing allotment except for Purgatory Flats and some of the Crazy Woman Gulch allotment. The Durango-Silverton Narrow Gauge Railroad runs along the rivers west side through most of the RNA.

Williams Creek RNA Addition (several hundred acres): An extension to the existing Williams Creek RNA to add the riparian willow community along the east bank of Williams Creek. The RNA is currently focused on a white fir community on the hillside

above the willow community. The addition is closed to motorized use, and the creek protects it against livestock grazing occurring on the west bank of the creek.

C. CULTURAL RESOURCES SPECIAL INTEREST AREAS

The five existing National Register Districts are allocated to the Special Interest Area management prescription in the Wild San Juans Alternative. Under the current plan, only two of the existing Districts are already managed under this prescription.

Each of the National Register Districts would be:

- closed to motorized vehicle use except for administrative purposes;
- withdrawn from mineral entry;
- closed for firearm use;
- closed to visitor use until adequate funding is obtained for planning, management, and long-term monitoring of each District's cultural resources;
- managed to increase public education and maximizing volunteer partnerships;
- managed to maintain consultation with Native American tribes and pueblos concerning appropriate management of sacred sites.

The five National Register Districts include the following:

1) Anasazi (15,977 acres)

The largest National Register District on the Forest is the Anasazi District surrounding McPhee Reservoir, but located primarily on the west side of the lake, though it also includes the shores of Beaver Creek and House Creek. This District abuts the BLM's Anasazi Heritage Center and Dominguez-Escalante Ruins. The Anasazi District has an extremely high density of cultural sites, at least 977 sites of Ancestral Puebloan, Pueblo I, and Pueblo II origin. The District has been extensively researched because of the McPhee Dam construction. Very high uncontrolled visitation has resulted in site impacts, but also provides the opportunity for high public contact and interpretative opportunities. There is also an opportunity to consolidate various artifact collections here. Issues include the need to reinter 400 human burials and adjacent private land development.

2) Chimney Rock (2,800 acres)

One of the two sites currently managed as a special interest area, Chimney Rock contains 89 sites of Ancestral Puebloan, Pueblo I, and Pueblo II periods. Chimney Rock is located on the Pagosa Ranger District east of the Piedra River and south of Highway 160. Chimney Rock is a classical example of a successful partnership with volunteers and private, non-profit organizations in running a popular educational program with regularly-scheduled guided tours. The site has well-controlled access that maintains site integrity and is self-sustaining financially from tour revenue. High site visitation creates problems of stabilization and maintenance.

3) Falls Creek (1,500 acres)

Falls Creek is a recently acquired site located just north of Durango in close proximity to rural subdivisions. The District includes 52 sites of Ancestral Puebloan, Basketmaker

II & III origin. An active partnership is planned with the new Southwest Center at Fort Lewis College, and many interested volunteers and Native Americans are involved with the site, but its ready proximity to Durango poses problems with monitoring and security. Falls Creek is currently managed under special interest area prescription.

4) Lost Canyon (820 acres)

Lost Canyon is comprised of 24 sites of Ancestral Puebloan, Pueblo I, and Pueblo II origin at the mouth of Lost Canyon northwest of Mancos. This is a remote and pristine site that lends itself to small guided tours and a discovery experience. No artifacts have been collected from the District, but its proximity to private land development poses problems of security and monitoring. The lack of research at this site may result in a need for expanded boundaries later.

5) Spring Creek (12,500 acres)

The Spring Creek District is located in the HD Mountains near Bayfield. The existing National Register District currently consists of 2,500 acres at the mouth of Spring Canyon that include 95 sites of Ancestral Puebloan and Basketmaker III origin. Spring Creek is a remote and pristine site that also lends itself to a discovery experience for visitors. No previous research has occurred in the area. A significant conflict exists with potential oil and gas development which would bring new roads and increased accessibility. The positive correlation between access and vandalism is well-documented at numerous cultural sites throughout the southwest (Nickens et al 1981; Williams 1977). The Wild San Juans Alternative proposes to expand the current National Register District to include two addition sites: approximately 4,000 acres in Sauls Creek on the north end of the HD Mountains and approximately 6,000 acres in Turkey Creek on the east side of the HD Mountains.

D. PONDEROSA-PINE OLD-GROWTH RECRUITMENT SPECIAL INTEREST AREAS

Old-growth ponderosa pine is the least protected forest type in the San Juans, with an estimated 5% of original old-growth remaining. The most extensive tracts of ponderosa pine forest type exist in the San Juan NF's western reaches in the so-called Ponderosa Pine Zone, an area of gently sloped tablelands. Old-growth ponderosa pine in this area is largely restricted to inaccessible canyons, but analysis of ponderosa pine old-growth inventories reveal two substantial old-growth clusters in the Spruce Water Canyon and House Creek areas. In each location, there exist one or more pockets of old-growth ponderosa pine 500 acres in size.

The Wild San Juans Alternative proposes to manage the two clusters as Special Interest Areas, with the aim of using the existing old-growth concentration as the focus to create larger forests dominated by roadless, old-growth ponderosa pine. In these areas, no cutting of large diameter trees would be permitted; ecological restoration would proceed via thinning small diameter trees followed by reintroduction of surface fire;

and all roads would be obliterated to recreate roadless pockets to ensure long-term protection for a restored ecosystem.

According to the Wild San Juans Alternative's analysis, the two proposed Ponderosa Pine Old-Growth Recruitment areas each contain about 2,500 acres. Of the total 4,900 acres, approximately 1,400 acres consist of old-growth ponderosa pine (scores greater than 40).

This approach helps extend geographic protection of old-growth ponderosa pine to the western reaches of the San Juan NF. Under the Wild San Juans Alternative, significant old-growth ponderosa pine stands are protected in the eastern portions of the Forest in the Piedra Area and proposed HD Mountains wilderness, and in the central portion of the Forest in the proposed Hermosa wilderness. There are no similarly qualifying roadless areas on the Forest's west end, and this Ponderosa Pine Old-Growth Recruitment Area approach aims to develop such areas for future protection.

An alternative management prescription for these areas might be as late successional forests, an undefined management prescription (numbered 2.3) with the general aim of managing large tracts (> 2,000 acres) of late successional pine forest type.

1) Spruce Water Canyon Old-Growth Ponderosa Pine Recruitment Zone

The area surrounding Smoothing Iron Reservoir and Spruce Water Canyon hosts the best remaining stands of old-growth ponderosa pine on the Mancos-Dolores District. Stand exam data for stand #102502-0005 around Smoothing Iron Reservoir reports an old-growth score of 49 for this 485-acre stand. The stand contains lots of natural clumpiness and numerous burn marks and scars. In many portions of the stand, larger diameter yellow-barked ponderosa pine trees dominate. There are frequent snags, broken tops, and standing dead within the stand. Past logging activity occurred over 40 years ago. Old logging tracks will be closed to prevent firewood cutters from destroying the snags.

The Spruce Water Canyon old-growth recruitment zone is enhanced by the presence nearby of two additional, though smaller, stands with similarly impressive scores. Stand #102511-0015 contains 70 acres on the west rim of Spruce Water Canyon with 6-10 larger yellow-bark ponderosa per acre and scores 49. Stand #102511-0021 comprises only 22 acres on the steep slopes of Spruce Water Canyon, but its ponderosa pine and Douglas fir score 56.

The boundaries of the Spruce Water Canyon old-growth recruitment zone are drawn to encompass the mesas surrounding the canyon as well as the Rock Spring tributary (see attached map).

2) House Creek Old-Growth Ponderosa Pine Recruitment Zone

An area surrounding the headwaters of House Creek offers the western San Juan's second-best opportunity for creating a substantial stand of old-growth ponderosa pine on the mesas. Two stands each exceeding 400 acres anchor the ends of this old-growth

ponderosa recruitment zone. Located just west of the Dolores River rim, stand #101611-0002 scores 51 and contains 10-15 large diameter yellow-bark ponderosa per acre, with some greater than 290 years old. On the flats west of Peel Reservoir, stand #101607-0004 scores 44, and includes numerous small grassy openings and trees exceeding 200 years old. This stand includes a few classic groves of clumped, park-like, yellow-bark, ponderosa pines.

The House Creek old-growth ponderosa recruitment zone boundary is drawn generously to include to encompass these two significant stands, plus the smaller stand #101609-0006 (score 45), while following roads and drainages (see attached map).

E. COLUMBIAN SHARP-TAILED GROUSE RECOVERY AREA

The Wild San Juans Alternative proposes establishment of a management zone in the Glade portion of the San Juan NF for recovery of the Columbian sharp-tailed grouse. The grouse depends on unmodified grassland and shrubland habitat with a diversity of native shrubs, forbs, and grasses. Additional site-specific reconnaissance is needed to verify the abundance of adequate habitat and food sources such as hawthorn, serviceberry, and chokecherry.

Specific management standards and guidelines would be prepared under a specialized wildlife management prescription. Management standards could include reductions in grazing of domestic livestock and/or modification of livestock grazing schedules or techniques, changes in fire management prescriptions, seasonal closures to human use of breeding grounds (leks), and active habitat restoration through seeding or hand plantings. Reduction in open road density may also be required.

F. WILD AND SCENIC RIVERS

The Wild San Juans Alternative proposes to manage several key river and stream corridors according to the criteria of the Wild and Scenic Rivers Act so as to protect their eligibility and suitability for designation by Congress.

The Wild San Juans Plan supports all rivers and streams the Forest Service has found eligible for wild, scenic, or recreational status in its analysis dated September 1, 2005. Some of those rivers and streams are also described here. In addition to those on the Forest Service list, several others are listed here that are found to be eligible, which should also be considered and studied for suitability. All of the segments, which are recommended, do qualify under one of the individually outstandingly remarkable values specifically mentioned in the Act, or they are covered by the language, "other similar values" in Section 1 (b) of the Act.

Management to protect eligibility and suitability for Wild and Scenic River designation includes a prohibition on new diversion structures, withdrawal from mineral entry and mineral location, and a ban on any federal permitting decisions that might disqualify the river from future congressional designation under the Act.

The Wild San Juans Wild and Scenic proposal includes rivers and streams in two categories:

a) Rivers previously studied and found to be eligible, and which we believe to be both eligible and suitable. Congressionally mandated wild and scenic river studies were previously completed for portions of the Dolores, Piedra, Animas, and Los Pinos rivers. These studies should be updated or redone as noted.

b) Rivers and streams that are clearly eligible and need to be studied for a finding of suitability.

1) Dolores River

The Dolores River has been studied for Wild and Scenic River suitability. The following recommendations were made. The Wild San Juans Alternative supports these determinations.

The Dolores River mainstem from McPhee Reservoir to the river's sources above Rico (excepting McPhee Reservoir), plus the West Dolores from the confluence with the mainstem to its source in the Lizard Head Wilderness, are eligible and suitable for designation under the Wild and Scenic Rivers Act.

- Segment 1 ~ Wild
  The mainstem of the Dolores from the Highway 145 upstream to its source near Bolam Pass is Wild.

- Segment 2 ~ Recreational
  From Highway 145 to McPhee Reservoir (excluding the reservoir) is Recreational.

- Segment 3 ~ Wild
  The West Dolores from the Navajo Lake trailhead upstream to its source is Wild.

- Segment 4 ~ Recreational
  The West Dolores from the Navajo Lake trailhead downstream is Recreational.

The Dolores River provides outstandingly remarkable scenic, recreational, historical, cultural, geological, and fish and wildlife values throughout its length. The river above McPhee Reservoir is free-flowing with the exception of several minor irrigation diversions. The outstandingly remarkable scenic values of the river have been recognized through the designation of the San Juan Skyway Scenic Byway, which parallels the river for most of its length. The Colorado Department of Natural Resources found that the 35 miles of the West Fork were eligible and suitable.

The Wild San Juans Alternative also supports the following recommendations as given in the "Dolores River Wild and Scenic Study Report" completed by the Colorado Department of Natural Resources, the U.S. Department of Agriculture, and the U.S. Department of the Interior as revised in 1978.

- Segment 5 ~ Recreational
  The Dolores River from 1.3 miles below the McPhee Dam to the Bradfield Bridge qualifies as a Recreational river under the Act.

- Segment 6 ~ Scenic
  The Dolores River from Bradfield Bridge to Disappointment Creek qualifies as Scenic under the act.

- Segment 7 ~ Recreational
  The Dolores River from Disappointment Creek to the Little Gypsum Valley Bridge qualifies as Recreational under the Act.

- Segment 8 ~ Wild
  The Dolores River from the Little Gypsum valley Bridge to the Colorado Highway 90 Bridge qualifies as Wild under the Act.

Further the Wild San Juans Plan supports the following recommendations set forth in the "Wild and Scenic River Study and Final Environmental Statement for the Colorado and Lower Dolores Rivers," completed in 1979 by the National Park Service, the Colorado Department of Natural Resources, and the Utah Department of Natural Resources. The following reaches of the river are marked by outstandingly remarkable scenic, recreational, geological and wildlife values.

- Segment 9 ~ Scenic
  The Dolores River from Gateway to Fisher Creek qualifies for Scenic designation under the Act.

- Segment 10 ~ Wild
  The Dolores River from Fisher Creek (river mile 17 to river mile 11) to Bridge Canyon qualifies as Wild under the Act.

- Segment 11 ~ Scenic
  The Dolores River from Bridge Canyon to its confluence with the Colorado River qualifies for Scenic designation under the Act.

Much of the Dolores River that is recommended for designation under the Wild and Scenic Rivers Act is out of the boundaries of the San Juan National Forest Plan Revision Process. However, the river should be included to its confluence with the Colorado River. The river below the dam deserves to be considered as a whole in determining proper management prescriptions. This is an outstanding natural landscape, which includes several unique plant and animal communities. Most of the land bordering the river is under public ownership and the river is highly regulated by the McPhee Dam. This resource will require coordinated management in order to preserve these resources for the future.

2) Piedra River

The Piedra River from Highway 160 upstream is found suitable as noted in the 1979 Wild and Scenic River study and again in a memo from the forest supervisor to the regional office in 1989 and managed under the following categories:

- Segment 1 ~ Recreational
  The Piedra River from Highway 160 to Indian Creek qualifies as Recreational under the Act.

- Segment 2 ~ Wild
  The Piedra from Indian Creek to FDR 631 qualifies as Wild under the Act.

- Segment 3 ~ Scenic
  The Piedra River along the Middle Fork and East Fork from FDR 631 to the Weminuche Wilderness boundary qualifies as Scenic under the Act.

- Segment 4 ~ Wild
  The Middle Fork and East Fork of the Piedra River inside the Weminuche Wilderness qualifies as Wild under the Act.

A total of 50.9 miles is recommended. The inclusion of several tributaries in the upper reaches of the basin is warranted, as they are both eligible and suitable. The Piedra River and the recommended tributaries offer outstandingly remarkable scenic, recreational, cultural, geological, and fish and wildlife values.

3) Los Pinos

Los Pinos has previously been studied. The Wild San Juans Alternative supports the recommendations made.

- Segment 1 ~ Wild
  Under previous studies, 54 miles of the Los Pinos and its tributaries within the Weminuche Wilderness, upstream of the Granite Peak Ranch boundary, were recommended for designation under the Wild category for protection of outstandingly remarkable scenic values. A final environmental impact statement was completed in July of 1979. In 1983 the Reagan administration's proposal to Congress was identical to that of the Forest Service. Additionally, Lake Creek supports an outstandingly remarkable fishery and wildlife values because of the fishery in Emerald Lakes.

One error in the assessment of the Pine and its tributaries was the failure of the USFS to recognize the remarkably outstanding recreational value of the watershed. While the river is not unique in the San Juan forest it is very special from a regional perspective. The recreation opportunities created by the scenery, the fishery and solitude should be recognized. The limitation of forms of recreation due to the wilderness designation of the area only serve to make the permissible forms of recreation more unique. Recreation and wildlife need to be added to its outstandingly remarkable values.

4) Animas River

The Animas has been previously studied. When it was studied in the late 1970's it suffered from low water quality created by legacy mining in the upper basin. Extensive remediation efforts in the headwaters have improved water quality so that it meets applicable standards in all but a few headwaters segments. In addition, the Animas La Plata water project decision making process has been completed. The resolution of this question adds greatly to the river's suitability.

The Animas River needs to be restudied. From Bakers Bridge to Animas Forks is likely eligible under the Wild and Scenic Rivers Act.

- Segment 1~ Recreational
  The Animas River from Bakers bridge to Deer Park is eligible for Recreational designation under the Act.

- Segment 2 ~ Recreational
  The Animas River from Deer Park to Animas Forks should also be eligible for Recreational designation under the Act, though there are still some problems with water quality, which may affect its eligibility.

Also, the headwaters tributaries listed as eligible on the San Juan National Forest Wild and Scenic list dated September 1, 2005 are appropriate for study for eligibility and suitability.

The Animas River offers some of the San Juan Mountains most remarkable scenic, recreational, historical, cultural, geological, and fish and wildlife values. The Animas River hosts the Durango-Silverton Narrow Gauge Railroad. Hundreds of thousands of visitors annually marvel at the dramatic scenery along the gorge. The railroad itself contributes outstandingly remarkable cultural and historic significance. The river corridor includes extensive narrow leaf cottonwood/conifer riparian vegetation so exceptional as to be included within the proposed Needle Mountains RNA. The river offers challenging Class V whitewater recreation. Below Elk Park, inflow improves the Animas River's water quality and marks the beginning of an outstanding fishery. No water diversions exist along this length of the river.

5) San Juan River – East Fork

The East Fork of the San Juan River has not previously been studied but is clearly eligible and should be studied for a finding of suitability.

- Segment 1 ~ Scenic
  The San Juan River's entire East Fork is found suitable for designation from the confluence to its headwaters under the Scenic classification. The East Fork contains excellent water quality and offers outstandingly remarkable scenic, recreational, historical, cultural, geological, and fish and wildlife values.

  The outstandingly remarkable wildlife values include the presence of lynx and the valley's role as vital habitat as an elk migration corridor. The river corridor provides outstandingly remarkable geologic features because of the imposing cliff features, variety of terrain, and colorful volcanic deposits. The original wagon route across the San Juan Mountains via Elwood Pass traversed the East Fork Valley, creating a portion of the "Navajo Trail," contributing to the river's outstandingly remarkable cultural values.

  The East Fork is entirely free of water diversions. Previously, private owners modified a portion of the river channel on the private lands in the East Fork Valley, but subsequent restoration efforts have returned the channel to its previous course. The East Fork is by all accounts one of the San Juan Mountains' most extraordinary valleys.

6) San Juan River – West Fork

The West Fork of the San Juan River has not previously been studied but is clearly eligible and should be studied for a finding of suitability.

- Segment 1 ~ Recreational
  The San Juan River's West Fork meets the criteria for designation as a Recreational River from the confluence to the Weminuche Wilderness boundary, and as a Wild River inside the wilderness.

  The West Fork includes outstandingly remarkable scenic, recreational, historical, cultural, geological, and fish and wildlife values. The West Fork Valley, as viewed

from the Wolf Creek Highway overlook, takes in scenery among the most spectacular in Colorado. Recreational attributes include the popular West Fork hot springs. The West Fork contains several minor irrigation diversions that do not significantly detract from its otherwise freeflowing characteristics.

7) Mancos River – East Fork

The East Fork of the Mancos River has not previously been studied but is clearly eligible and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  The East Fork of the Mancos River is eligible for wild designation under the Act. The East Fork has outstandingly remarkable ecological and fishery values.

  The East Mancos River is a diverse, high quality riparian cottonwood/shrub community mixed with very old conifers as large as any in Colorado. Side-canyon seeps support diverse communities of bryophytes, ferns, columbines, and graminoids. Beaver activity is common along the river. Very few exotics exist, a rare condition for riparian cottonwood communities in the San Juans. The riparian ecosystem is so healthy and diverse that the East Mancos River Research Natural Area is proposed along a significant stretch of the river. The East Fork of the Mancos has outstanding opportunities for fishing and other forms of recreation such as hiking in the scenic, undeveloped steep canyon.

  The East Fork is currently listed on the Clean Water Act 303 D list for exceedences for metals. There is a question about whether this is from natural background pollution or from mining. If current levels of copper are found to be due to natural causes or if the stream is brought into compliance with the Clean Water Act it is eligible under the Wild and Scenic Rivers Act.

8) Hermosa Creek

Hermosa Creek has not previously been studied but is clearly eligible and should be studied for a finding of suitability. The Hermosa Creek basin, including all of its tributaries, is eligible for designation from the source to the forest boundary on the main stem

- Segment 1 ~ Recreational
  Above the Upper Trailhead to the source the river is recreational due to four-wheel drive roads.

- Segment 2 ~ Wild
  The main stem from the upper Hermosa Trailhead to the Lower Hermosa Trailhead qualifies for wild designation under the Act.

- Segment 3 ~ Recreational
  Below the lower trailhead to the forest boundary is recreational because of the proximity of the road.

The tributaries in the basin are clearly eligible and suitable. The basin has outstandingly remarkable scenic value. This basin would be a good place to attempt to protect a whole watershed under the act. It is a part of a landscape opportunity that should include wilderness and outstanding waters protection. In 2004 and 2005 the State of Colorado sampled the main stem. Results of this sampling indicate that the basin most likely qualifies for outstanding waters under Colorado Standards.

9) Lime Creek

Lime Creek has not previously been studied but is clearly eligible and should be studied for a finding of suitability. The entire length of Lime Creek is eligible for Wild and Scenic designation, beginning at its headwaters in the San Miguel Roadless Area, extending to its confluence with Cascade Creek.

- Segment 1 ~ Wild
  From the headwaters northwest of Molas Pass to Highway 550, including both of the upper forks Lime Creek is eligible for wild designation. Segment one has outstandingly remarkable scenic, old growth, wildlife, and recreation values.

  The headwaters of Lime Creek are found in one of the largest remaining roadless areas in the San Juan National Forest. The San Miguel Roadless Area with impressive peaks towering over several alpine cirques graced by indescribably delightful lakes, harbors some of Colorado's most breath-taking mountain scenery.

  The portion of Lime Creek close to the highway in this segment lies within a State Stewardship Trust section, an area that the state recognizes for conservation importance and significance. Spruce forests flank Lime Creek, including impressive stands of old growth. These areas are also outstanding habitat for the federally threatened and state endangered lynx. Of the 144 lynx documented in the San Juan between 1999 and 2005, DOW maps indicate heavy use of the lime Creek area. The general vicinity of Lime Creek has also been determined to be an extremely important travel corridor for lynx between the Weminuche Wilderness and other habitat further west.

  The headwaters of Lime Creek originate adjacent to the Colorado trail, which crosses highway 550 at Molas Pass as it heads west. The trails in the area create outstanding opportunities for recreation and for accessing solitude. Lime Creek is an excellent fishery, providing an outstanding remote fishing experience along Segment 1.

- Segment 2 ~ Recreational
  From Highway 550 south to the creek's confluence with Cascade Creek is eligible for recreational designation. Segment 2 provides outstandingly remarkable scenic, recreational, and historic values.

Almost the entire length of this segment borders the northwestern portion of the Weminuche Wilderness, lending a quality of outstandingly remarkable scenery. The Lime Creek Road, which follows the creek in this segment, is a historic road built in the early 1940s by the Civilian Conservation Corps. The road provides an excellent opportunity for access and recreation to this segment of Lime Creek, which is an excellent fishery providing an accessible, yet pristine, recreational experience.

10) Cascade Creek

Cascade Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  From the headwaters at the northern boundary of the San Juan National Forest to the Summer Homes Group near Highway 550, Cascade Creek is eligible for Wild designation under the Act. Cascade Creek provides outstandingly remarkable scenic, recreational, vegetation, and wildlife values.

  All most the entirety of this segment falls in the San Miguel Roadless Area, which is proposed for wilderness designation. Impressive peaks towering over several alpine cirques graced by indescribably delightful lakes in the San Miguel create some of Colorado's most breath-taking mountain scenery.

  Specifically, the area surrounding Cascade Creek is home to some of the most spectacular scenery in the San Juan National Forest with spectacular views of the San Juan Mountains. Aspen forests grace the slopes around Cascade Creek. The Colorado Trail crosses Cascade Creek near Grizzly Peak. There are outstanding opportunities for solitude and backcountry recreation experiences in the area around the creek. Cascade Creek also boasts a terrific fishery, providing a wonderfully remote fishing experience.

  The Grizzly Peak Research Natural Area is proposed adjacent to Cascade Creek, encompassing the alpine slopes and subalpine forests surrounding Grizzly Peak. The RNA is proposed for protection because of its high quality tufted hairgrass, its wet spruce-fir forest on moderate slopes, and alpine vegetation on large areas of shale geology. The spruce-fir forest offers important habitat for the federally threatened, state endangered lynx, which is thriving in the area.

11) Bear Creek

Bear Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  From the headwaters on the northwest side of the La Plata Mountains to its confluence with the Dolores River, Bear Creek is eligible for wild designation

under the Act. Bear creek provides outstandingly remarkable fish and wildlife, and recreational values.

Bear Creek is the only entirely roadless tributary of the upper Dolores River. The creek is surrounded by outstandingly remarkable scenery and is a remarkable fishery harboring native Colorado River Cutthroat trout of above average size.

Bear Creek falls in a roadless area inventoried by both citizens and the Forest Service. Its part of the citizen proposed Hermosa Wilderness Area. The Bear Creek watershed in combination with the Hermosa Creek watershed offers the only lower elevation, undeveloped landscape linkage between the Animas and Dolores river drainages, creating an extremely important corridor for wildlife, including elk, deer, and bear. To the north of Hermosa, historic clearcuts and road construction have dramatically fragmented habitat. South of the La Platas, development activities on private land and Highway 160 have also significantly disturbed habitat, demonstrating the importance of the Bear Creek corridor.

The Highline Loop Trail flanks the Creek in its upper reaches, providing spectacular recreational access to the remote beauty of the drainage.

12) Fish Creek

Fish Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  Fish Creek from the Headwaters near the boundary of the Lizard Head Wilderness to the boundary of the Fish Creek State Wildlife Area is eligible for wild designation under the Act. Fish Creek provides outstandingly remarkable vegetation, recreation, and wildlife values.

  Fish Creek is surrounded by one of the rare lower elevation roadless areas in the San Juans. The roadless area's lowest elevations, along Fish Creek, are covered with lush willow-dominated riparian zones and several small stands of old-growth ponderosa pine.

  A Forest system trail traverses Fish Creek, beginning at the state wildlife area and ending at the Dunton-Norwood road. Fish Creek offers abundant opportunities for outstanding recreational opportunities such as hiking, horseback riding, and hunting and fishing. The area's relatively remote location and undeveloped tributaries provide outstanding opportunities for solitude as well.

  Fish Creek sits astride several major elk migration corridors between winter range to the southwest and summer range around the Lizard Head Wilderness.

- Segment 2 ~ Recreational
  Fish Creek from the northern boundary of the Fish Creek State Wildlife Area to the confluence with the Dolores River is eligible for recreational designation under the Act, offering outstandingly remarkable hunting, fishing, and other recreation opportunities.

13) Junction Creek

Junction Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  From its headwaters to the Junction Creek Recreation Area, Junction Creek is eligible for a wild designation under the Act. Junction Creek offers outstandingly remarkable fish and wildlife, vegetation, and recreational values.

  The lower portion of the creek is flanked by the popular Colorado Trail, providing an outstanding recreational experience. This trail is very popular, providing beautiful scenery, fishing, hiking, close to Durango, though still conveying a remote feeling. The trail also crosses the creek again in its upper reaches.

  The portions of the creek away from the trail are extremely wild and remote offering an outstanding wilderness recreation and fishing experience. The scenery along Junction Creek is outstanding, with the La Platas to the west and the Hermosa Roadless Area to the north. Numerous stands of old growth ponderosa pine flank the creek.

- Segment 2 ~ Recreational
  From the Junction Creek Recreation Area to the forest boundary, Junction Creek is eligible for recreational designation under the Act, offering outstandingly remarkable recreation and fish and wildlife values.

14) Ignacio Creek

Ignacio Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  The entire length of Ignacio Creek within the forest, from the headwaters in the HD Mountains to the southern boundary of the forest, is eligible for a wild designation under the Act. Ignacio Creek provides outstandingly remarkable vegetation, wildlife, and cultural values.

  Ignacio Creek drains the southeastern portion of the HD Mountains, which is completely roadless and wild. Ignacio Canyon harbors some of the finest stands of old-growth ponderosa pine left in the San Juans. Numerous stands of old-

growth ponderosa line Ignacio Canyon for over two miles. These trees are well over 250 years of age, with many exceeding three feet in diameter. The ponderosas' cork-like bark glows red in late afternoon sunlight. Lush undergrowth fills the riparian zone below the ponderosas' canopy. The trees are generally ramrod-straight and free of blemishes, indicating an extremely high-quality genetic pool. The San Juan National Forest's old-growth inventory identifies several significant stands of ponderosa pine with old-growth scores greater than 40 located within the roadless area. The old-growth stands of Ignacio Canyon have been identified as a potential RNA, which encompasses almost its entire watershed.

A number of springs along Ignacio Canyon help feed the creek. The area around Ignacio Creek also includes numerous cultural sites that have never been inventoried. Ignacio Creek exists in a truly unique and outstanding ecosystem, rich in both archaeological and ecological resources. In addition to cultural sites and old growth ponderosa, this important low elevation forest also harbors habitat crucial for winter elk calving and an invaluable migration corridor for many other species.

15) Turkey Creek

Turkey Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild

  From the headwaters in the Weminuche Wilderness at Turkey Creek Lake to the forest boundary, Turkey Creek is eligible for wild designation under the Act. Turkey Creek provides outstandingly remarkable scenic, wildlife, and recreational values.

  The popular Turkey Creek trail follows the creek in the Weminuche and for about half of the length of the creek outside the wilderness boundary. Not only are there outstanding opportunities for recreation along the trail, the scenery around Turkey creek is spectacular, both within the wilderness boundary and outside of the boundary.

  The portion of the creek outside the wilderness boundary is in the Turkey Creek Roadless Area. The overwhelmingly remote and undeveloped character of the roadless area provides outstanding opportunities for primitive recreation and solitude along the creek.

  The Turkey Creek Roadless Area is the most significant landscape corridor on the San Juan National Forest. This is the only lower elevation, unroaded corridor connecting the South San Juan and Weminuche Wilderness Areas. Turkey Creek contains extensive stands of ponderosa pine and aspen, and provides suitable habitat for lynx and wolverine. It also comprises an important big game migration corridor.

16) Vallecito Creek

Vallecito Creek has not previously been studied but is clearly eligible for designation under the Wild and Scenic Rivers Act and should be studied for a finding of suitability.

- Segment 1 ~ Wild
  From the headwaters deep in the Weminuche Wilderness at the Vallecito Lake to the southern wilderness boundary is eligible for wild designation under the Act. Vallecito Creek offers outstandingly remarkable fish and wildlife, recreational, and scenic values.

  The entire length of Vallecito Creek proposed for wild designation is within the Weminuche Wilderness. The Vallecito Trail follows the entire length of the creek, creating an outstanding opportunity for recreation, from hiking and backpacking to fishing. There are cutthroat trout large for the small stream size in the headwaters of the creek, creating an excellent fishery.

  The backdrop of the Needle Mountains and the Grenadier Range to the west create outstanding scenery the entire length of the creek.

G. LAND TENURE ADJUSTMENT

Consolidation of the ownership within the San Juan National Forest is a key step towards 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 receive approval for new or improved roads providing 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 the existence of willing sellers, but the Forest can assist the process by pro-actively encouraging land exchange proponents to offer private lands in key areas.

The Wild San Juans Alternative prioritizes consolidation efforts in the critical areas of the reserve design -- wilderness and roadless areas, and corridors. Private inholdings should be pursued via purchase or exchange in the following priority:

1) wilderness areas, areas recommended for wilderness designation, and backcountry areas

2) corridors

3) critical "hotspots" of biological diversity such as rare plant communities or other habitat for threatened and endangered species

4) buffer zones such as ecological recovery zones and wildlife areas

5) sustainable use zones

The highest, specific priority for acquisition should be the 2,800-acre East Fork Ranch, located adjacent to the South San Juans Wilderness and in the midst of a critical ecological corridor along the San Juan River's East Fork.

Note: All of the Wild San Juans Alternative's Research Natural Areas and Special Interest Areas (both archeological districts and future old-growth ponderosa pine zones) are entirely in public ownership now and have no private inholdings.

LANDSCAPE CORRIDORS and CONNECTIVITY

Habitat corridors tie together the landscape by providing routes for wildlife dispersal, life cycle migration, genetic exchange, and migration of plant and animal species in response to climate change. Effective corridors make real the concept of meta-populations by offering high-probability routes for movement between large blocks of undeveloped habitat.

In the Wild San Juans Alternative's corridors, road densities ideally should be less than 0.5 mile/square mile, and motorized travel is restricted to designated roads and trails. Corridors must represent the needs of focal species and must be wider if they run for greater distances. Road densities indicated for the following corridors do not include Class 4 unimproved roads that are typically closed logging roads.

The Wild San Juans Alternative incorporates landscape corridors into core reserve (wilderness, recommended wilderness, and backcountry areas primarily) and corridor management prescriptions. The key corridors on the SJNF and their focal species are described as follows:

Weminuche--South San Juan Wilderness Areas: The two largest wilderness areas on the Forest are the heart of the Wild San Juans Alternative's reserve design. Three critical links connect these two wilderness areas:
1) East Fork Valley -- a major elk migration route and location of confirmed lynx tracks in early 1990s;
2) Treasure Mountain -- the high-elevation spruce-fir forest corridor between the wilderness areas that lynx might likely use;
3) Turkey Creek-Johnny Creek -- the only possible low-elevation corridor between the areas, crossing the San Juan River and the only place the Weminuche and South San Juan greater roadless areas abut. This low-elevation corridor is also a major elk migration route and is a wide, forested corridor that might be favored by marten or grizzlies.

The road density for these corridors exceeds 1 mi./sq. mi. but is something of an artifact of the corridor description. The corridors between the adjacent wilderness/roadless areas are long and narrow, flanking major roads. If roadless lands were included, the calculated density would significantly decrease.

Weminuche--Piedra: Elk migration routes define movement corridors between higher elevation Weminuche summering areas and lower elevation forests in the Piedra area. Several key habitat corridors run through the Piedra:
1) Mosca Corridor -- location of one of the last trapped grizzlies in the 1950s, also an extremely significant elk migration corridor. Targeted for lynx, marten, grizzly and similarly far-ranging mammals. The Wild San Juans Alternative proposes to close all existing roads in this corridor, resulting in a road density of zero.
2) Upper Piedra Basin -- the three forks of the upper Piedra River are occupied by river otters and are used by elk moving between the central Weminuche and the lower

Piedra through the open grasslands of the Piedra Basin. The average road density for this corridor, excluding Class 4 unimproved roads, is 0.68 mi./sq. mi.
3) Lower Piedra River -- elk move along the lower Piedra through ponderosa forests to low elevation winter range. Also occupied river otter habitat, and surrounding mature mixed conifer/aspen forests, are likely important corridors for goshawks. Road density for this corridor excluding Class 4 unimproved roads is 0.89 mi./sq. mi.

Coalbank Pass (Weminuche Wilderness-San Miguel Roadless Area): The only continually forested spruce-fir corridor across Highway 550 between adjacent core reserves. The continuous old-growth and mature forest provides suitable habitat and corridor for lynx and marten. In fact, Colorado Division of Wildlife staff surveying for snowshoe hare as an indicator of lynx habitat rated Coalbank Pass as among the very best snowshoe hare habitat in the San Juans. Road density here is approaching zero except for the paved highway.

Lizard Head Pass (San Miguel Roadless Area--Lizard Head Wilderness): The best continuously forested corridor crossing Highway 145 because of its connection between two adjacent core reserves. Old-growth and mature spruce-fir forests provide suitable corridor for lynx and marten. Road density here is approaching zero except for the paved highway.

Lower Rio Blanco: Gentle, expansive forests of aspen, mixed conifer and Douglas-fir offer habitat for marten and goshawks and is a large migration corridor for elk. The road density here excluding Class 4 unimproved roads is 0.74 mi./sq. mi.

Hermosa: The largest undeveloped, low-elevation watershed in the San Juans is extensively used by elk. Extensive mature ponderosa pine, mixed-conifer, aspen, and spruce-fir forests offer excellent habitat corridor for focal species including marten, goshawk, flammulated owl, and grizzly. Tributary streams are occupied by Colorado River cutthroat trout, an aquatic focal species. Hermosa serves as a mid-watershed basin roadless bridge between the Animas and Dolores watersheds. Road density is zero in this roadless area.

Groundhog-Stoner: Significant elk migration route through mid-elevation aspen and mixed conifer forests on west end of SJNF. Likely use by marten and goshawk. Road density excluding Class 4 unimproved roads is 0.48 mi/sq. mi.

Forested Canyons of Pine Zone: The half-dozen roadless canyons incised into the Pine Zone northwest of Dolores offer ponderosa pine and Douglas-fir habitat favored by flammulated owls and Mexican spotted owls. The canyons include Narraguinneap, Beaver, House, and Plateau. Road densities here are zero.

Highway 160, Durango - Pagosa (HD Mountains – Piedra and Weminuche): The HD Mountains represent some of the only remaining undeveloped lowland forest habitat on the San Juan, functioning as critical winter habitat for elk, and important for other species such as deer and bear. As a result, the corridor across 160 between the HDs to

higher elevation habitat such as the Piedra Special Management Area and the Weminuche Wilderness is very important.

ELEMENTS OF BIOLOGICAL DIVERSITY

A. BIOLOGICAL DIVERSITY and MULTIPLE USE – THE REGULATORY FRAMEWORK

Conservation and restoration of biological diversity goes hand-in-hand with the Forest Service's mandate to manage the national forests for multiple use. The Multiple Use Sustained Yield Act (MUSY) of 1960 (16 USC 528-531) requires the national forests be "administered for outdoor recreation, range, timber, watershed and wildlife and fish purposes" (sec 1). It also requires such uses be managed so there is no "impairment of the productivity of the land" (sec.4a).

Allowing species to significantly decline in population and distribution, or even to be extirpated, constitutes a permanent impairment of the wildlife and fish resource in violation of MUSY. Therefore, the Wild San Juans Alternative advocates aggressive action to restore and maintain viable populations of all native species with reintroductions of extirpated or nearly extirpated species where feasible.

In addition, direction for sensitive species, or those declining in population or distribution, is found at Forest Service Manual 2672.41:

> **"Objectives of the Biological Evaluation.**
> 1. To ensure that Forest Service actions do not contribute to loss of viability of any native or desired non- native plant or animal species.
> 2. To ensure that activities do not cause any species to move toward federal listing.
> 3. To incorporate concerns for sensitive species throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation". (emphasis added)

Existing law, regulation and policy require the Forest Service to carefully consider the needs of native plant and animal species in deciding how to manage the national forests. Designing and implementing a forest plan that protects and restores biological diversity is clearly within the legal and regulatory mandates under which the Forest Service must operate, in addition to the agency's own policies. In fact, failure to protect biodiversity may place the agency outside the legal and regulatory limits and violate the multiple use concept. The Wild San Juans Alternative proposes aggressive steps to pro-actively protect and restore biological diversity.

B. RESTORING NATURAL DISTURBANCE REGIMES

Maintaining biological diversity involves protecting habitats for all native species, as discussed throughout the Wild San Juans Alternative. Natural processes, including fire, insect and disease activity, and windstorms, are responsible for maintaining these habitats across the landscape over time. Thus any proposal to protect biological diversity must also provide ways for these processes to operate, including reintroducing them if necessary.

Fire was probably the most important disturbance process operating on what is now the San Juan National Forest in pre-European settlement times. Fire had the capability of changing the landscape dramatically in a short time, as with the Lime Creek fire of 1879. Other fires burned more frequently over smaller areas, providing continual habitat maintenance and preventing catastrophic conflagrations.

There is little question fire suppression has altered the landscape. A panel of Forest Service scientists believe that "efforts to suppress disturbance ... have resulted in reduced biodiversity and ecosystem health" (Averill et all, 1994).

Because of its importance in shaping the landscape, the Wild San Juans Alternative recommends an aggressive program to restore fire to its natural role in the ecosystems of the San Juan National Forest. The widespread human presence throughout southwest Colorado makes full restoration of fire in all areas impossible, since the considerable loss of human property and life and the degradation of air quality that would result from unsuppressed fires would be politically and socially unacceptable.

An important part of fire restoration is public education. It is necessary to achieve public acceptance of fire and the need to restore it on the SJNF. This public education needs to begin immediately. The groups supporting the Wild San Juans Alternative are willing to help in this effort.

1) Fire Zoning

As part of the forest planning effort, the SJNF should designate one of the following zones to all areas of the Forest, exclusive of water and alpine areas:

1) Fires will generally be allowed to burn;
2) Fires will be contained or confined but generally allowed to burn within the containment/confinement area;
3) Natural fires that threaten property and safety will be suppressed with fast initial attack.

Zone 1 areas can include: wildernesses, roadless areas, most core areas, most Research Natural Areas, and much of the ponderosa pine and pinyon/juniper timber types. In some of these areas, allowing fires to burn may only be possible in certain seasons. In the ponderosa pine type, fuel reduction may first be necessary.

Zone 3 areas include those parts of the SJNF near cities and towns and other places where a substantial loss of human life or property could occur if fires were not suppressed (the Wildland-Urban Interface or WUI), or areas with rare and imperiled species and natural communities with limited distribution.

Zone 2 areas would be the remainder of the San Juan National Forest.

In times of very low fuel moisture and very high ambient air temperature, fires in burn areas (zone 1) might have to be contained or confined, and fires in contain/confine areas might have to be suppressed. However, the SJNF should make the most of natural ignitions in restoring fire to the landscape.

The WUI can be defined as areas where forested lands meet or overlap among urban development, particularly houses. The joint USDA/USDI report (January 4, 2001) explains that only houses and other buildings qualify for protection in Federal WUI projects. Therefore, fences, power lines, trails, roads, and properties with no buildings do not on their own constitute WUI areas.

During planning, the SJNF should also prioritize areas for reintroduction of fire. Highest priority should be all of the ponderosa pine type, including those areas once dominated by ponderosa but where Douglas-fir or white fir now predominate. Pinyon/juniper and gambel oak/mountain shrub areas should also be high priority. Mixed conifer stands could be either high or moderate priority, depending on aspect and elevation. High priority mixed conifer stands might be drier, south-facing sites closer to the ponderosa pine band, while lesser priority stands would be cooler, moister sites at higher elevations closer to the spruce-fir band and those areas on north-facing slopes above about 8,500 feet elevation.

No later than the completion of the Forest Plan, the SJNF should begin preparing site-specific fire plans for all high priority areas. These plans should be prepared with public involvement.

2) Fire In The Ponderosa Pine Type

Light surface fires were common in the ponderosa pine type prior to European settlement (see Harrington and Sackett, 1992; Romme et al, 1998). These fires kept fuel levels low, preventing more severe crown fires from developing. Cooper, 1960, (in DellaSalla et al, 1994) noted that crown fires in ponderosa were extremely rare or nonexistent prior to the 1950's. However, other research (Shinneman and Baker, 1997, Kaufmann et al. 2000) argues for an important contribution of crown fires to the ponderosa pine forest landscape of the Black Hills and the Colorado Front Range, respectively.

The regular fires also created conditions favorable for ponderosa pine regeneration by destroying competing vegetation and exposing or creating mineral soil necessary for seed germination. Romme et al, 1998 found a median fire interval of 13-30 years on six sites on the San Juan National Forest during periods of indigenous settlement.

Heavy grazing of domestic stock as early as the 1870's probably reduced fuels sufficiently to lengthen the fire cycle in the ponderosa pine type. And since the establishment of the national forest system in Colorado around 1905, fires in all timber types have been routinely suppressed. This has led to considerable change in ponderosa stand structure (Covington and Moore, 1992; Harrington and Sackett, 1992). Romme et al, 1998, found after European settlement that most ponderosa pine stands have not burned for at least 100 years.

Generally, ponderosa stands have become much more dense with fire suppression. This causes increased competition amongst the trees in the stand, including the larger trees that existed prior to fire suppression. Fires would have killed many trees while they were seedlings or small saplings. With fire suppression, however, these trees have grown to pole size, tall enough to reach at least the lower portion of the crowns of the larger trees. This means any fire could easily carry into the crowns of the larger trees and kill them. Under the worst conditions (prolonged hot temperatures with little or no precipitation), this could be very devastating to the SJNF's ponderosa pine type. Indeed, the Hayman Fire on the Front Range in June, 2002 burned almost 130,000 acres of mostly ponderosa pine. About 70,000 acres burned hot enough to kill all the trees, a much larger area of stand-replacing fire than has ever been documented in the ponderosa pine type of the Front Range. (Romme et al, 2003). Since southwest Colorado has a dry season in May and June, and can have extended hot, dry periods in July and August, crown fires in ponderosa pine become likely with any ignition.

To reintroduce fire, some removal of trees will first be necessary in many areas to reduce the fuel loading to an acceptable level so that a crown fire will not occur after ignition. The trees removed should be the ponderosa pine and Douglas-fir that most likely would not exist if a natural fire regime had been allowed to operate.

It is important to maintain the clumpy structure of ponderosa stands when designing thinnings. See **Timber Cutting and Silviculture**, for further detail.

Some thinned trees will be large enough to have commercial value, but many will not. These small diameter trees are not generally desired by the timber industry, as they are not readily made into salable wood products other than firewood and fence posts, and possibly biomass for energy on a small scale. Thus there is some danger the more desirable larger trees, usually containing the best genetic material as well as the most wood, will be cut illegally by loggers. Sales of ponderosa pine must be closely supervised to prevent this.

Some retooling of industry will be necessary to be able to efficiently use these smaller trees. Through the Ponderosa Pine Rural Development Project, some money has been secured for this effort. Funding for fire should be pursued simultaneously.

The accumulation of needlecast, branches, and twigs around the bases of large diameter trees may allow any fire, deliberately set or not, to burn long enough to kill the large

trees by dehydrating the root systems (Harrington and Sackett, 1992). Therefore, ground fuels may have to be raked away from the bases of large trees prior to ignition.

The easy accessibility of most ponderosa stands on the SJNF has led to significant human caused alterations. Many large trees that would have survived fire have been cut. Snags, critically important for cavity- nesting wildlife, are cut by firewood gatherers almost as soon as they appear. Restrictions on human use of this and other pine areas may be necessary to restore and maintain the natural structure, composition and function of ponderosa stands. See Buttery and Gillam, 1984.

Grazing may have to be limited in some places after fire is restored. Covington and Moore, 1994, noted that grazing greatly reduces herbaceous fuels which are needed to carry a fire through ponderosa stands. Similarly, they note roads and trails break up fuel continuity. Some roads will be needed to administer the reintroduction of fire, but they can be closed and obliterated after the successful reintroduction of fire.

The combination of fire suppression and direct human manipulation has greatly changed the structure of ponderosa pine stands on the SJNF. The Forest Service must continue its efforts to restore the natural role of fire in the ponderosa pine type and reduce fire suppression there.

3) Fire In Mixed Conifer Stands

For purposes of this discussion, mixed conifer includes white fir and Douglas-fir, alone or together and/or in combination with Englemann spruce, subalpine fir and/or ponderosa pine. Aspen are frequently present. Elevations range from approximately 8,000 to 10,000 feet.

The natural fire regime for this forest type varies considerably with aspect and elevation. Stands on south- and west-facing slopes at the lower end of the altitude range probably had a fire regime similar to ponderosa pine: frequent low-intensity ground fires, with occasional, usually small, acreages of stand-replacing fires. In contrast, the fire regime in north- and east- facing stands, especially at the upper limit of the elevational range, was similar to that in the subalpine zone: occasional very small fires and very infrequent, but large, stand-replacing events. Thus there is no one fire regime applicable to the entire mixed conifer type.

Though not enough is known about fires in the mixed conifer type to fully ascertain the natural fire regime, generally it appears that the composition of many mixed conifer stands on the SJNF have changed toward white fir and away from Douglas-fir as a result of fire suppression. This trend has been accelerated by logging, which has mainly removed Douglas-fir and left white fir.

Fire tends to favor Douglas-fir , as its thicker bark makes it somewhat fire resistant, and its lower shade tolerance allows easier establishment in openings created by fire and other disturbances. Under these conditions, Douglas-fir generally outlives white fir.

In some already logged mixed conifer stands, pole-size and smaller white fir could be thinned and left on the ground to provide fuel for a prescribed fire. The roads in these areas can serve as fuel breaks and be used for access by fire crews so fires do not escape prescription. In extensively roaded areas, several ignitions may be necessary, as fuels may be so discontinuous that only small areas would burn.

Where it can be done safely, considering terrain, fuel loading and ability to minimize the possibility of fires escaping prescription, fire can also be reintroduced into roadless areas in the mixed conifer type.

Reintroduction of fire must not be used as an excuse to construct roads in roadless areas. These areas, especially those at elevations below the subalpine zone, are simply too valuable for the solitude and habitat they provide for wildlife. Roads, even if closed after completion of the project for which they were constructed, allow easy entry of humans and exotic animal and plant species. There is no scientific documentation to indicate the apparent change in composition toward white fir is so ecologically detrimental to justify invading roadless areas.

Before fires are ignited or allowed to burn in mixed conifer, the fire history of the particular stand should be determined so that any prescribed fire can remain within the range of natural variability.

Fires in the mixed conifer type can be designed to regenerate aspen. Regeneration of aspen through fire is much preferable to logging.

4) Fire In The Native Bunchgrass-Shrub Ecosystem

Fire suppression, along with livestock grazing practices, has undoubtedly altered this ecosystem. Fire may be one method for beginning to restore the native vegetation. However, in those stands where the palatable native species have been severely reduced or even locally extirpated by prolonged grazing, more intensive methods may be needed for re-establishment of native bunchgrasses such as planting seeds from nearby local genotypes. In stands with well-established alien weed populations, fires might stimulate weeds to take over the site. This is especially true where cheatgrass (Bromus tectorum) is present. Consequently, site-specific information is needed before embarking on treatment. Livestock grazing will have to be restricted also in order for enough fuel to accumulate to carry a fire. Some roads may have to be revegetated, as they provide fuel breaks that prevent fires from burning to their natural extent. See Noss and Cooperrider, 1994, and Covington and Moore, 1994.

A key objective in restoring fire to its natural role in the bunchrass-shrub ecosystem is the reintroduction of sharp-tailed grouse.

5) Fire In The Subalpine Zone

Fires in the Englemann spruce- subalpine fir zone consisted of occasional small fires that partially burned a few acres or less, plus very infrequent stand-replacing fires that burned large areas (Veblen et al, 1994). There is no need to "reintroduce" fire here

because the time of fire suppression (about 100 years) is much shorter than the fire return interval in this timber type. Fire suppression has probably not yet had a significant effect on these stands. A let-burn or contain/confine policy over most of the SJNF's spruce-fir acreage would help keep fire and its nutrient-cycling function on the landscape.

6) Logging Is Not A Substitute For Fire

Given the enormity of the task of restoring fire to its natural role in the landscape, it is tempting to try to mimic fire's function via logging. This should not be done, as logging is not equivalent to fire. Logging removes nutrients from the site, including trace elements that have been sequestered over centuries and retained in the biomass through slow decomposition (DellaSalla et al, 1994, citing Harvey et al, 1994). Fire recycles these nutrients into new soil. The use of heavy equipment in logging compacts soil; fire does not. The roads constructed and used for logging have no counterpart in nature. They provide easy pathways for entry by humans and exotic plants and wildlife, and often accelerate soil erosion.

Because of industry demands, large trees are often removed, even though these are the trees most likely to survive a natural disturbance. They probably provide the best genetic material for a new stand. Dead and dying trees are very important to cavity-nesting and perching birds and mammals, but they are often removed during logging because they pose a safety hazard to loggers and other forest visitors.

The SJNF must resist any pressure to salvage log recently burned stands. Such logging often does considerable damage to soils, watershed and wildlife habitat. See Beschta et al, 1995. Unburned islands, critical for the re-establishment of forested cover, would likely be cut.

7) Insects And Disease

Insects and disease are a natural part of forest ecology. They are yet another method for change of the structure, and sometimes also the composition, of forests. Short of elimination of the forest, these agents of change will always be present.

In the short term, efforts to control insect and disease attacks often do more harm than the insects and diseases. For example, bark beetles kill trees, but leave them standing, often for a long time in the case of Englemann spruce. (e.g., the 1939-1952 outbreak centered on the Flattops. Some of the dead trees there are still standing!) The dead trees provide perches and nests for various birds and some mammals. Eventually the trees fall down and return to the soil. The insects that aid decomposition are food for birds and small mammals. The decaying logs provide habitat for pine marten, lynx and other species.

Logging, on the other hand, removes nutrients and destroys habitat for a variety of species, including some that help prevent insect epidemics (Perry, 1988, in DellaSalla et al, 1994).

Diseases common to older subalpine forests, such as root rots, create decadence and allow cavity nesters places to carve their homes. These species are preyed on by other species, such as goshawk, creating a whole web of life not present, or only minimally so, in younger forests. See Buttery and Gillam, 1984 and Finch, 1992.

Insect and disease epidemics in mixed conifer and ponderosa pine forests are more likely to occur in fire-suppressed stands, since trees in such stands are often stressed. Trees become weaker with increased competition and are thus more susceptible to attack. Therefore, the best measures on the landscape scale for reducing insect and disease epidemics are: 1) restoration of fire, which will create and/or maintain a mosaic of vegetation types and structures, making widespread epidemics less likely; and 2) maintenance of habitat for species, such as various species of woodpeckers, that can keep insect populations at endemic levels.

Even non-clearcut logging, sometimes done with the intention of making stands more insect resistant, is likely to reduce or degrade habitat for these species by: destroying nest trees; increasing sunlight hitting the forest floor, which dries the ground and slows the decay process; and by providing an easy pathway for entry of exotic species. Partial cutting can also cause windthrow of much of the residual stand.

Trees should not be cut just because they are infected with dwarf mistletoe (*Arceuthobium spp.).* Mistletoe provides nesting habitat for various birds, and forage for these and other species. In fact, a study by Bennetts, et al, 1996 found bird species richness positively correlated with the level of dwarf mistletoe in Colorado ponderosa pine forests. They stated that in areas "where management goals are not strictly focused on timber production, control of dwarf mistletoe may not be justified, practical, or even desirable."

8) Monitoring

It is very important to monitor the results of all fires, whether intentionally set or not. Fire sites should be visited as soon as it is safe to do so in order to determine the possibility of erosion and the likelihood of regeneration of various types of vegetation. Burns should then be visited at least 1, 3 and 5 years after a fire to chart the progress of revegetation.

As part of preparation of fire management plans, fuel levels should be measured. As these areas burn, similarities and differences can be noted between sites with similar and different factors such as: fuel load, aspect, elevation, vegetation composition, slope, etc. This will help future fire management efforts by allowing the development of fire behavior models.

In the case of controlled burns, sites should be monitored before ignition. Weeds are a concern in this regard.

Postfire rehabilitation will not be required on many sites, and may even be counterproductive following natural fires. See Beschta et al, 1995. Any rehabilitation

should rely on native species and natural successional processes, and avoid planting alien plant species.

C. RIPARIAN AREAS

Riparian areas are those lands directly influenced by permanent water, and have vegetative or physical characteristics reflective of permanent water influence. Ephemeral streams and washes that do not exhibit such characteristics, while not considered riparian areas, are also important, and are considered areas of unique concern below.

Riparian areas are critical components of healthy ecosystems. Some of the roles that riparian areas play for a healthy ecosystem include:

- improving water quality and removing sediment;
- holding water for slow release, thus reducing flooding and contributing to a steady supply of water throughout the year;
- providing habitat for instream life, including insects mollusks, and crustaceans, that are key elements of a healthy food chain;
- providing healthy fish habitat, which requires clean and cool water, stable channels, both vegetative and other foods, and physical cover from predators;
- providing birds with critical habitat for food, cover, nesting, and migratory routes;
- providing wildlife with critical habitat for water, food, relief from temperature extremes, and cover.

In addition, riparian areas are used extensively for recreation, including fishing, hunting, boating, swimming, as well as relaxing. They also often include important archeological and cultural sites.

1). Management Guidelines

The San Juan Wild San Juans Alternative recognizes the critical role played by riparian areas for the conservation of biological diversity and ecological functioning. The Wild San Juans Alternative's primary strategy recommends the following management to preserve and restore riparian health.

a) All riparian areas will be inventoried and evaluated for the desired conditions (as described below); those which do not meet the desired conditions will have a plan implemented in order to meet the desired conditions within 5 to 10 years.
b) Riparian areas will be dominated by native, perennial plants, including a nearly continuous cover of shrubs and trees in areas where such native vegetation exists or formerly existed.
c) No channel or streambank instability caused by roads, trails, livestock, or other human uses will be evident.
d) There will be sufficient woody debris and shade to prevent overheating of surface waters and to provide for a healthy aquatic ecosystem.
e) Adequate buffering of riparian areas from livestock, logging, roads, and trails is mandatory.

f) Natural processes will be allowed to occur, including floods, beaver activity, and stream migration.
g) Where trails, roads or management activities do occur in riparian areas, they will be constructed or managed in order to minimize all disturbance to the natural system.
h) Those stream reaches that currently host native cutthroat trout shall be managed to maximize the health and viability of that species. Those stream reaches which currently do not host native cutthroat trout, but that are viable habitat, will be managed to foster the reintroduction of the cutthroat.
i) Stream channels will not exhibit excess fine sediment loads which impair aquatic life.

2). Ephemeral Streams and Washes

a) Ephemeral streambeds and washes will have an adequate cover of perennial vegetation to prevent significant soil loss during water flow events.
b) No channel or streambank instability caused by roads, trails, livestock, or other human uses will be evident.
c) Natural processes will be allowed to occur, including floods, beaver activity, and stream migration.

D. WETLANDS

Wetlands are those areas inundated or saturated by water at a frequency and duration sufficient to support a prevalence of vegetation adapted to live in saturated soil conditions.

1). Management Guidelines

a) All wetlands will be inventoried and evaluated for the desired conditions; those which do not meet the desired conditions will have a plan implemented in order to meet the desired conditions within 5 to 10 years.
b) Wetlands will be dominated by native, perennial plants, including shrubs and trees where appropriate for natural conditions.
c) Adequate buffering of wetlands from livestock, logging, roads, and trails is mandatory.
d) A policy of no loss of wetlands will be strictly followed.

E. AQUATIC ECOSYSTEMS

Aquatic resources include all fish, aquatic invertebrates, vegetation, and other life associated with water bodies. The San Juan Wild San Juans Alternative considers healthy aquatic ecosystems to be critical to the health of the terrestrial ecosystems. As such, the Wild San Juans Alternative recommends a policy of no further degradation, but rather large-scale improvement of the aquatic ecosystems of the San Juan NF, be implemented. Some key components of such a program are:

- The strict protection of the remaining native Colorado Cutthroat Trout populations.
- A program, in conjunction with the Colorado Division of Wildlife, to increase the miles of streams which host native Colorado Cutthroat Trout, as well as exclude non-native trout species. Streams where this program could be implemented

include: Hermosa Creek, Bear Creek, the whole of the Piedra River basin north of Highway 160, the East Fork and West Fork of the San Juan, and the Rio Blanco east of Highway 84.
- The monitoring and evaluation of the health and diversity of the aquatic life in the streams and rivers on the Forest.

F. REINTRODUCTION OF EXTIRPATED SPECIES AND RECOVERY OF SELECTED THREATENED, 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 the fundamental premise underlying the Wild San Juans Alternative's habitat reserve system. Species which were systematically exterminated by humans should be reintroduced where practicable.

1). Colorado River Cutthroat Trout

The Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus*) is of special interest on the San Juan National Forest. The conservation of this species is the subject of Langlois et al, 1994. This report identifies three chief factors in the decline of this species: habitat loss, introduction of non-native fish (which interbreed with cutthroats) and over-harvest by people.

The Wild San Juans Alternative proposes habitat be restored and managed by:
- creating or improving migration barriers that prevent the upstream migration of nonnative fish into streams currently containing cutthroats;
- creating habitat in watersheds comprised of several tributaries that are linked by migration routes. This will create a metapopulation that would resist extinction if part of the watershed suffered a catastrophe (extensive hot fire, sudden habitat loss, etc.). Candidate watersheds include Hermosa Creek, Piedra River, East Fork and West Fork of the San Juan River, Navajo River, and Rio Blanco.
- improving stream cover, pools and spawning gravel with structural improvements;
- improving streambank stability and riparian vegetation conditions; and
- improving water quality where needed, as cutthroats are very sensitive to water pollution.

There must be no new introductions of non-native fish into water inhabited or potentially inhabitable by cutthroats. Fishing in streams containing cutthroats will be carefully regulated to prevent over-harvest. Fishing may be prohibited altogether in some of these streams for enough time to allow cutthroats to establish viable populations. While regulation of fishing is the purview of the Division of Wildlife, the Forest Service will need to actively cooperate in the development and enforcement of fishing regulations in order to insure the successful recovery of cutthroats.

2). Columbian Sharp-Tailed Grouse

This species (*Tymphanuchus phasianellus columbianus*) is native to the San Juan National Forest and was once common here (Wait, 1995), but has disappeared because large areas of shrub/grasslands have been converted to rangelands containing plants more

palatable for domestic livestock. Heavy livestock grazing has severely reduced the quality of brood-rearing habitat (Towry, 1984; Giesen and Connelly, 1993).

Giesen (1985) was unable to confirm reported sightings of sharp-tails in Dolores and Montezuma Counties, but he did note that other sites "may be suitable for a transplant of Columbian sharp-tailed grouse".

Before reintroduction of sharp-tails, a habitat restoration program should be implemented to reestablish native shrubs and other native vegetation. Saab and Marks, 1992, found sharp-tails selected habitat in Idaho that was least modified by livestock grazing. This habitat was typically "flat to rolling ... with a diversity of native shrubs, forbs and grasses". They also stated: "[p]rotecting habitats within 2.5 km of dancing grounds is critical for maintenance of summer habitat". Marks and Marks, 1988, found that hawthorn (*Crataegus douglassi*), Saskatoon serviceberry (*Amelanchier alnifolia*) and common chokecherry (*Prunus virginiana*) were very important as winter food sources.

The Colorado Division of Wildlife has identified a site for reintroduction of sharp-tails on private land west of McPhee Dam (Wait, 1995). A reduction in grazing of domestic stock on much of "The Glade" area and a change in management of this grazing would have to take place in order to insure the survival of a reintroduced population(s) of sharp-tails.

3). Grizzly Bear

It is reasonable to presume grizzly bears (*Ursus arctos*) still exist in the South San Juan Wilderness. The Wilderness and surrounding roadless areas should be managed as if grizzly bears exist there. Signs should be placed at trailheads educating people about how to travel in grizzly country.

It is possible grizzlies also exist in the Weminuche Wilderness, as there have been some unconfirmed sightings there. The Weminuche and South San Juan Wildernesses and surrounding roadless areas should be studied in cooperation with the Colorado Division of Wildlife and the U. S. Fish and Wildlife Service to see if grizzlies exist and see how much habitat suitable for this species might exist. This study should also look at increasing the quality and security of habitat through road closures, law enforcement and education of Forest visitors.

Several specific land management actions should be taken to secure grizzly habitat:

- Sheep grazing allotments should be phased out of the South San Juan and Weminuche Wilderness Areas. Vacant allotments should be permanently closed and terminated; current permittees should be encouraged to exchange wilderness sheep allotments for other vacant allotments not located in potential grizzly habitat.
- All roadless lands contiguous to the South San Juan and Weminuche Wilderness Areas should be proposed for addition to the wilderness and otherwise made

unavailable for logging, mining, construction of new roads, and intensive motorized recreation.

- The San Juan National Forest should work cooperatively with the Colorado Division of Wildlife to close the South San Juan Wilderness and suspected grizzly habitat to black bear hunting. Grizzly mortality caused by humans is most likely to occur by black bear hunters mistaking a grizzly for a black bear. (Petersen, 1995).

4). Lynx

A confirmed track identification of this species (*Felis lynx canadensis*) occurred in the East Fork of the San Juan area around 1990. There are historic records of lynx occurring in the San Juans, including one killed on Cumbres Pass in the early 1900s. Southern Colorado probably was the southernmost extension of this species' range. However, considerable suitable habitat, generally mature/old growth forest above 9,000 feet elevation, exists for this species on the Forest. A Colorado Division of Wildlife survey for lynx in the 1990s identified the East Creek drainage in the Piedra special management area as some of the best known habitat based on populations of snowshoe hare (Lepus americanus), the lynx's preferred prey. This habitat, which is typical of habitat for the snowshoe hare, must be conserved.

Lynx are known to move considerable distances in search of prey and denning sites (Koehler and Keith, 1994). Thus it is very important to maintain landscape linkages between core habitat areas to give this species a chance to reestablish viable populations. The reserve system for this Wild San Juans Alternative is designed in part with lynx in mind.

In 1999, the Colorado Division of Wildlife reintroduced 43 lynx in the San Juan Mountains. The reintroduction program has continued since then and it has proven to be a successful one, especially in the San Juans. The most recent numbers show that 144 lynx have been scattered across the San Juan National Forest. Researchers for the project note that the 2004-5 reproductive season was excellent. Their survival in the rugged San Juan proves that the habitat suites lynx well and the great success of reproduction further indicates that ensuring protection of habitat for these threatened species is important. The new forest plan should reflect past successful efforts to reintroduce the lynx.

In spite of the success of the lynx in the San Juan National Forest, considerable deaths have resulted from human activity. Lynx deaths continue to be attributed to vehicles, shootings, and other hunting methods, such as traps. The plan should also consider this impact and manage lynx habitat in a manner that limits negative human impacts to lynx habitat and members of the population.5). Mexican Spotted Owl
The USFWS designation for critical habitat for this species (*Strix occidentalis lucida*) includes some lands on the San Juan National Forest. These lands must not be altered in any way that would damage characteristics that make it good current or future habitat for the owl. Owls prefer unlogged mature mixed conifer forests and steep canyons (Ganey and Balda, 1989).

6). Wolf

The gray wolf (*Canis lupus*) was once common throughout much of Colorado. This top-level predator played a very important role on the landscape by controlling populations of deer, elk, bighorn sheep, beaver, and other animals. Wolves did this by culling weaker animals, thereby helping maintain the genetic vigor and integrity of these species. In contrast, populations of most of these species are now controlled by hunting or trapping. However, hunters do not kill only the weaker animals. Indeed, trophy hunters search for and often kill some of the healthiest animals. Also, hunting does not sufficiently limit populations of deer and elk, which have grown very large due to lack of predators and the fact that most winters over the last 10 years have been relatively mild. As winter range continues to be developed, these deer and elk increasingly reside on private land. The Colorado Division of Wildlife pays over $1 million annually to landowners for game damage.

Wolves are needed as predators. In preying on big game animals, wolves provide carrion for a host of other species, including rare species such as grizzly bears, bald eagles, ferruginous hawks and wolverines, and more common species such as magpies, crows, ravens, and black bears.

In addition to providing important ecological benefits, wolves provide direct benefits to humans. Many people would take pleasure knowing that wolves were back on the landscape. Many backcountry recreationists would enjoy hearing the howl of the wolf and/or actually seeing wolves. In a 1976 poll of visitors to Rocky Mountain National Park, more than 75% of respondents said they would like to see wolves returned to the Park. More recently, in a 1994 poll conducted by Colorado State University on behalf of the U. S. Fish and Wildlife Service, 71% of Coloradans surveyed stated they support wolf recovery (Manfredo, 1994).

Wolves can also provide an economic benefit to communities near the national forest. A 1982 Park Service study indicated that returning wolves to Yellowstone National Park would provide $19 million in direct and indirect economic returns to northwestern Wyoming.

There is no question that wolves would thrive on the habitat available on the San Juan/Rio Grande National Forest. A study by the Fish and Wildlife Service stated that the San Juan National Forest and the adjacent Rio Grande National Forest could support 121 and 89 wolves, respectively (Bennett, 1994). The study noted that "wolf density estimates are conservative based on minimum animals, numbers, and weights of available prey species ... No allowance was included for alternative prey species or carrion utilization"(ibid.). This compares favorably with the Yellowstone ecosystem population viability goals of 100 wolves in 10 wolfpacks.

As part of the forest planning process, the San Juan Forest should examine the potential socio-economic impacts of wolf reintroduction, and identify actions that can be taken to moderate reasonable concerns about livestock predation. The annual damage to

livestock was estimated at 1- 6 cows and 4- 27 sheep on the San Juan NF and 1- 5 cows and 6- 21 sheep on the Rio Grande NF (Bennett, 1994).

7). Wolverine

The Colorado Division of Wildlife has emphasized the viability of the San Juan/Rio Grande area for wolverine (*Gulo gulo*) reintroduction. The San Juan region contains the largest contiguous block of suitable habitat, large wilderness and roadless areas, moderate human activity, abundant potential denning sites, and potential carrion from large elk herds.

Wolverines occupy a variety of habitat types, including tundra and subalpine forests, that probably depend largely on density of food sources (Banci, 1994). Female wolverines occupied a home range of 100 sq. km in studies conducted in Montana and Alaska. Researchers believe wolverines require large refugia such as wilderness areas and appropriate dispersal and travel corridors between refugia. Dispersal corridors may include routes frequented by prey species, and consequently elk migration routes may serve as useful surrogates for wolverine movement corridors. Conservation strategies that benefit grizzly bears should also benefit wolverines.

ECONOMIC ACTIVITIES

A. SUITABLE, SUSTAINABLE, AND STABLE RESOURCE ECONOMIES

The Wild San Juans Alternative's premise is that if the land is to be properly cared for in any real, long-term sense, then it must be inhabited by people connected and committed to it's sustainability on many different levels. The basis of this connection must be one of reciprocation in which we as dwellers on the land give as least at much as we take. Only through this ongoing act of reciprocation can we ensure the survival of all the natural communities: human, animal, botanical, soils.

Our connection to the land manifests itself in many different ways -- spiritual, psychological, recreational, and practical. A proper practical relationship with the land is one in which we extract the resources we need for human economies such as food, clothing, shelter, while ensuring the survival of the basis of every economy -- a fully functioning ecosystem.

This chapter discusses, analyzes, and gives specific recommendations regarding the practical (economic) relationships between the surrounding local human communities and the land within the boundaries of the San Juan National Forest. While no humans continually inhabit the SJNF, the Wild San Juans Alternative Coalition regards it in a socio-economic sense as a commons. As a major portion of the landscape, the SJNF is an integral part of our local economies.

However, the Wild San Juans Alternative asserts our local economy is healthiest when it is well diversified and must never rely on natural resource outputs from the SJNF to meet arbitrary economic goals for the following reasons:

1) Resource extraction on the SJNF in the past 100 years has in many ways exceeded the carrying capacity of the land (lack of reciprocation), and has resulted in extirpation of species, severe overgrazing, unhealthy forest stand structures (including clearcuts without regeneration), soil instability and erosion. Therefore, there may very well be long periods of recovery and restoration necessary in areas of the SJNF that will result in a reduction or cessation of resource extraction.

2) The SJNF, like any living system, is dynamic and unpredictable. As ecologist Frank Egler put it, "Ecosystems are not only more complex than we think, they are more complex than we can think." Therefore, we must be able to change management direction, with a possible resultant decrease in resource outputs, if information arises that indicates we are putting the forest ecosystem at risk. If local industries are overly dependent on SJNF resource extraction, inevitable social and economic dislocation and disruption will result.

3) The SJNF is inherently limited biologically as to how many natural resources it can contribute to our local economies. Being a landscape of semi-arid, sub-

montane to montane ecosystems with generally shallow soils and a short growing season, any proposed extractive activity must be severely scrutinized.

4) The SJNF, like all National Forests in the late 20th century, has become one of the last preserves of functioning biotic communities and places of psychological, spiritual, and physical refuge for the American people. Therefore, the burden of proof must rest on us that resources can be extracted in a way that protects the long-term viability of the land. In all cases in which there is conflicting science and assumptions regarding the appropriateness of resource extraction, the benefit of the doubt must go to the land and not to pre-determined, arbitrary economic goals.

Maintaining high environmental quality results in strong economic activity (Powers, 1996). People choose a preferred location to live based on quality of life considerations such as scenery, outdoor recreation opportunities, wildlife, wilderness, and clean air. Economic activity follows people to these high-quality environments. Either newcomers bring economic activity with them, or businesses expand or relocate to take advantage of qualified, motivated work forces present in these high-quality environments.

It comes as no surprise that people make economic sacrifices to live in a high-quality environment exemplified by the San Juan Mountains. Protecting the natural landscape is an economic act that enhances the local economic base (Powers, 1996). The Wild San Juans Plan ensures economic health by avoiding needless damage to the natural environment.

The Wild San Juans Alternative asserts the key to establishing and maintaining a viable and stable economic relationship between local communities and the SJNF is recognizing the importance of scale. Small scale, locally-owned industries serve the needs of the forest and the local economies better in every way when compared to large-scale corporations generally owned and managed by people that do not reside in the area.

Characteristics of small-scale local industry operating on National Forests include:

1) Operator is a local citizen.

2) Operator accountable to the community.

3) Operator must live with the impacts of the actions he/she takes on the forest.

4) Operator has generational responsibilities to the land. (i.e. his/her descendants must live with his/her actions on the forest).

5) Small scale operators have smaller resource extraction requirements. (i.e. small timber sales).

6) Small scale operators tend to hire family and local citizens. This protects the economy against big downturns, since a large company can lay off a large number of workers in a short time, causing dislocation.

7) Small scale operators have more creativity and flexibility that is conducive to potentially changing needs of the land.

8) Profits stay in the community with a commensurate increase in the local tax base.

9) Changes to local economies tend to be gradual and easily assimilated.

10) Goods produced locally have a better chance of being bought and used locally, either as raw material or with value added.

Characteristics of large-scale, corporate industries operating on National Forests include:

1) Owner/decision makers not locally accountable.

2) Owner/decision makers do not live with the consequences of their actions.

3) No generational responsibility to the land.

4) Large scale operators have large capital investments that require high levels of resource outputs.

5) Large scale operators tend to hire from cheapest labor pool, often not local, including contract labor without benefits.

6) Large scale operations are by their nature inflexible and are unable to respond to changing forest conditions in a timely manner.

7) Profits leave the community. The relationship between the corporation and the local economy is one of colonialism.

8) Actions of large scale operators tend to cause abrupt, harsh, dramatic changes to the local economy with attendant strains on families, the community, and local governments. There is an absolute correlation between boom and bust economic cycles and large scale corporate operations on public lands.

9) Resources extracted from National Forests by large corporate interests tend to shipped away from the community with little or no value added.

In summary, three words must guide the agonizing decisions of resource extraction on the SJNF in the context of multiple use management:

SUITABILITY:
Is the economic pursuit suitable for the unique lands of the SJNF? Does it make biological and social sense to carry out the extractive activity?

SUSTAINABILITY:
Is the proposed activity comprehensively sustainable? This means not just from the traditional USFS timber output definitions, but sustainable to all affected communities, human and natural.

STABILITY:
Will the economic pursuit tend to stabilize the natural communities of the SJNF and the surrounding human communities, or will it tend to disrupt, dislocate and destabilize these communities?

B. SPECIFIC SOCIO-ECONOMIC RECOMMENDATIONS BY FOREST USE

1). Timber Program

a) Make full use of the Special Small Business Set-Aside Program which favors forestry operations of 25 employees or less.

b) Encourage creation of stewardship contracts, especially in mixed-conifer and Ponderosa pine forest types.

i) Utilize a comprehensive management strategy oriented toward ecological health;
ii) May include some or all of: fee-for-service (contractor paid by Agency), product for service (i.e. timber for service), and product for fee (contractor buys trees).
iii) The Forest Service must maintain oversight of all stewardship contract activities. Any privatization of the San Juan National Forest lands is unacceptable.
iv) The timber removed under this program will be considered part of the ASQ.

c) Encourage and allow cooperation between local small operators by:

i) Bundling of timber sales in the same area or immediately adjacent areas to minimize up-front costs to the contractors, and to decrease the cost to the Forest Service of preparing NEPA documents.
ii) Explore the ability of Region 9 Economic Development Council acting as a bonding agency for contractors to decrease performance bond, incentive deposit, and pre-payment of sale costs, which currently decrease the ability of smaller contractors to effectively bid on sales.

d) Offer small timber sales (from 50 MBF-500 MBF) which can be bought by smaller operators. This portion of the timber program should constitute 90%, by volume, of the

total timber program for any given year. Sales which meet this criteria may be bundled for NEPA and preparation activities.

e) Utilize the "Ranger Sale" program for the local home-builder, rancher, small POL (products other than logs) operator, with the following guidelines:

i) These sales are part of the ASQ.
ii) The program will not exceed 250MBF on an individual Ranger District.
iii) Each year a programmatic NEPA analysis will be conducted by each Ranger District for the projected needs of the program.
iv) Under no-conditions will roadless areas be considered eligible for this program.

f) In an effort to make the entire timber sale program more efficient and more accessible to the small operator, the entering of roadless areas for any timber management effort must be excluded.

g) The Wild San Juans Alternative encourages "scaling" of timber sales, in an effort to make the program more efficient, with the following guidelines:

i) This is allowed only on sales of 500 MBF or less.
ii) Monitoring and enforcement are effective and diligent.
iii) Scaling is only offered to proven operators on the SJNF.

h) The Wild San Juans Alternative encourages "ecological restoration" forestry in those areas of the forest which meet the following criteria, and in a manner that meets the following criteria:

i) Where past timber harvest and other management activities (such as fire exclusion) have created large areas which are outside the range of natural variation.
ii) When the economic considerations are absolutely secondary, and the ecological restoration of the forest is primary. In order assist these actions we encourage the use of stewardship contracts, ranger sales, and other non-conventional contracting.
iii) On a scale that recognizes the experimental nature of such ventures, and is thus limited to projects that can be, and are, readily monitored to insure that the ecological goals of the project are met. The continuation of any such project is dependent upon successful monitoring and indications of ecological success.

i) The Wild San Juans Alternative encourages offering of sales environmentally and economically conducive to horse and mule logging.

2). Grazing

a) The Wild San Juans Alternative does not oppose subsidized grazing, but considers such subsidies part of a social contract between the public and the lessee. In reciprocity for a SJNF lease, there will be excellent stewardship of the land by the lessee.

b) Fees for grazing permits should be on a sliding scale which is determined by:

i) Proper management of the SJNF lands.
ii) Ownership which is tied to local owners, i.e., those whose primary residence is in a county contiguous with the SJNF.

c) All predator control activities must be paid for by the operator, with the close supervision of the SJNF.

3). Guiding and Outfitting

a) Permits are preferentially given to those with a proven record on the SJNF. Assuming there is capacity for a new business, a two year probationary period will be required to establish a proven record.

b) Permits are preferentially given to those whose primary residence is in a county contiguous with the SJNF.

c) Permits are a privilege, and as such must be tied to good conduct.

d) A moratorium on total numbers of outfitting and guiding permits on the SJNF will be maintained.

4). Minerals: Oil and Gas, Coal, and Hard-Rock Mining

Mineral development should be excluded from the following sensitive areas: recommended wilderness areas, backcountry recreation areas, corridors, ecological restoration areas, wild and scenic river corridors, Research Natural Areas, special interest areas, scenic byways, and crucial wildlife habitat such as the sharp-tailed grouse recovery zone. Mineral leasing should occur only after application of the suitability requirements outlined under the Wild San Juans Alternative's Oil and Gas Leasing section.

5). Developed Winter Recreation

No new developed winter recreational areas should be permitted. Within the one existing area on the San Juan (Durango Mountain Resort), facility upgrades will be permitted, but no expansion of the permit area will be considered. Ample opportunities for developed winter recreation exist, with Silverton Mountain now operating near Silverton on BLM land and Wolf Creek Ski Area on adjacent Rio Grande National Forest. The San Juan National Forest should not allow an expansion of Wolf Creek Ski Area in to the Treasure Mountain Roadless Area, which is proposed here for wilderness designation.

C. TIMBER CUTTING and SILVICULTURE

1) Determining An Appropriate Timber Program

Several factors must be considered when determining a timber program appropriate for the San Juan National Forest. First and foremost is the capability and condition of

the land. Many of the San Juan's best and most easily accessed stands have already been entered and cut, some of them too heavily. Many of the remaining stands are in rugged terrain, meaning road costs are high and operating conditions limit timber removal for resource protection reasons.

Even though the San Juan is warmer and moister than other Colorado national forests, growing conditions for timber are still not very good compared with places like the southeast and Pacific northwest. A growing season of two to four months does not allow trees to grow very rapidly, even on the best sites, compared with warmer areas of the United States.

Another very important consideration is the value of uncut forested lands for non-timber purposes, especially wildlife habitat and soil and watershed protection. It is the thesis of the Wild San Juans Alternative that these values must be considered first, as large, mostly forested areas necessary for the sustainability of populations of certain wildlife species are found almost exclusively on national forest land. Wood products, on the other hand, can be produced elsewhere, although it should be noted the Wild San Juans Alternative does provide for some wood production to meet local needs.

A large timber program adversely impacts wildlife by destroying and fragmenting habitat and by constructing roads which further fragment habitat and allow for entry of exotic plant and animal species. Species requiring specialized habitats, such as goshawk, marten, golden-crowned kinglet, olive-sided flycatcher, and boreal owl, may not be able to recover from such disturbances. In other words, these species may become locally extirpated.

Therefore, large-scale commercial timber operations are inappropriate for the SJNF. It is possible that a small timber program on the Forest would not conflict with protecting ecological values and biological diversity. In fact, some mechanical manipulation may be necessary to restore the natural fire regime in the ponderosa pine type, as discussed in **Restoring Natural Disturbance Regimes**. All sale offerings should be designed for small mills producing material primarily for local consumption.

A small-scale timber program has the following advantages over a much larger commercial timber program: 1) It is sustainable over the long term, considering all resources and values present on the SJNF, including the maintenance of viable populations of all native species of wildlife. In the past, the term "sustainable" has referred primarily to wood fiber production; here it applies to ecological and economic landscapes. 2) It will not contribute to boom/bust economic cycles. Large timber operations are subject to forces that originate far outside the local area, some of which cause sudden closures of large mills, such as Louisiana-Pacific's mills in Kremmling and Walden. Rapidly increasing or decreasing economies cause difficulties for local governments and infrastructure. 3) It supports local businesses. Large timber companies often make it difficult for small, locally-owned operations to secure sufficient amounts of timber, as the former can easily outbid the latter for wood offered from national forest land. For more details, see the **Socio-Economics** chapter.

2) Determination Of Lands Suitable For Timber Production

Because the emphasis of the citizen's alternative is to protect, and in some cases, restore, biological diversity, much of the SJNF will not be suitable or appropriate for timber production.

Note that land is **not suitable** for timber production if:

> "Technology is not available to insure timber production from the land without irreversible resource damage to soils productivity, or watershed conditions" (36 CFR 219.14 (a) 2;)."

Land "shall be tentatively identified as **not appropriate** for timber production....if

> (1) Based on a consideration of multiple-use objectives for the alternative, the land is proposed for resource uses that preclude timber production...(36 CFR 219.14 c)."

Given the theme of the Wild San Juans Alternative, i. e., protection of biological diversity and native plant and animal species, there will be many areas of the Forest where timber production is inappropriate, including **all roadless areas**. In addition, the following areas should be considered either not suitable or not appropriate for timber production:

- All lands containing critical habitat for threatened, endangered or sensitive species of wildlife.

- Areas containing threatened, endangered or sensitive plants. Adjacent areas should also be unsuitable to allow colonization by rare plants to facilitate their recovery, unless the soil disturbance from logging creates favorable conditions for extending the distribution of these plants.

- Land within at least 100 feet of streams and lakes. In some cases, this area will have to be even larger to fully protect the riparian environment.

- All land classified as wetlands according to the 1987 Wetlands Delineation Manual.

- All land designated as recommended wilderness areas, backcountry non-motorized recreation areas, and connecting corridors in this Wild San Juans Alternative. These areas are so designated to protect wildlife from edge effects and from human disturbance. Allowing timber cutting in these areas would defeat the purpose of having them.

- All Research Natural Areas and candidates for such designation.

- Ecological recovery areas, as well as some backcountry non-motorized areas where significant road closures are proposed, that consist primarily of higher elevation

spruce-fir forests which have received extensive past timber harvest and which have shown a distinct inability for successful restocking. Ecological recovery areas unsuitable for timber harvest include the following areas: Black Mesa, Barlow Creek, Taylor Mesa, Missionary Ridge, and the north side of Treasure Mountain. It is important to leave the remaining stands of trees in these areas to aid in recovery, i. e., the gradual reseeding of openings and re-establishment of forest cover.

- Backcountry non-motorized areas with significant road closures unsuitable for timber harvest include the following areas: Middle Mountain (above Vallecito), upper Mosca Creek and upper Sand Creek along the upper Piedra Road, and upper Rito Blanco watershed. Restoration of these high elevation spruce forests to roadless, natural forests is the goal of this management prescription in these locations.

3) Sale Size, Allowable Sale Quantity And Product Availability

Sales of wood products from the SJNF should be sized so that small local mills can comfortably handle them. No sales should be larger than one million board feet. Many should be no larger than 200,000 board feet.

The Wild San Juans Alternative cannot specify an allowable sale quantity of timber for the SJNF, as we do not have the timber stand data or the analytic methods to determine one. The Forest Service will need to do this in the Forest Plan alternative or options analysis, taking into account the reserve system and management philosophy advocated in the Wild San Juans Alternative.

A range of products can be made available, based on local demand. Products might include: firewood, poles, posts, latigas, and vegas, plus whatever products can be made from the generally small diameter trees cut as part of the Ponderosa Pine Rural Development Project.

Note that the Forest Service has considerable authority to require certain kinds of processing of timber:

> "When necessary to promote better utilization of national forest timber or to facilitate protection and management of the national forests, a management plan may include provisions for requirements of purchasers for processing the timber to at least a stated degree within the working circle, or within a stated area, and, when appropriate, by machinery of a stated type; and agreements for cutting in accordance with the plan may so require" (36 CFR 221.3b)

Under this regulation, the Forest Service could require local mills to process a certain percentage of the wood they obtain from the national forest into firewood or other products, as was appropriate based on public demand for products.

To avoid any misunderstanding, all sales of timber from the SJNF should be chargeable to the allowable sale quantity. This includes firewood and all salvage and sanitation cuts

merchantable material. Exceptions might be the sale of very small diameter products such as Christmas trees.

4) Rotation Age

The National Forest Management Act, section 6(m), requires that "prior to harvest, stands shall generally have reached the culmination of mean annual increment of growth". Culmination is the peak growth rate for trees, and is considered an indictor of maturity. The current rotation ages found at USDA Forest Service, 1992, pp. III-37, 37A, are far too short to meet this criterion, at least at the lower end. It is highly unlikely that Englemann spruce- subalpine fir stands have reached culmination at 100 years of age. Alexander (1987, p. 4) states: "Englemann spruce is a long-lived tree, maturing in about 300 years ... Englemann spruce has the capacity to make good growth at advanced ages. If given sufficient growing space, it will continue to grow steadily in diameter for 300 years, long after the growth of most associated tree species slows down".

Similarly, most mixed conifer stands are not mature at age 100. It is unlikely that very many aspen stands reach culmination at age 70.

Even though the Wild San Juans Alternative advocates the use of uneven-aged cutting methods except in aspen, rotation age probably still applies legally. In any case, the Forest Service should determine minimum entry ages for stands where commercial cutting may occur via uneven-aged methods. These ages should be set so at least a substantial portion of the older trees have reached culmination. The SJNF may need to establish different minimum entry ages for stands at different elevations and/or on different soil types.

5) Cutting Methods

Timber cutting should be designed to facilitate a return to the natural fire regime. The following cutting methods should be used on the SJNF:

Ponderosa Pine

Primarily individual tree selection and commercial and precommercial thinning followed by a light broadcast burn where possible. Group selection can be used in conjunction with individual tree selection in very dense stands, but care must be taken not to destroy Abert's squirrel habitat (see below). These methods should be used in stands that are overstocked because of fire suppression.

Slash will have to be treated (i. e., by burning or redistributing) to ensure that there is the right amount of material for burning. Too much slash would result in a fire that burned too long or too hot. This could kill large trees and sterilize the soil. See Harrington and Sackett, 1992.

We recommend that any slash piling be done by hand. If machinery must be used, a brush rake or similar implement is preferable to a dozer blade. The latter scrapes off the topsoil layer and moves it into piles, which would decrease the productivity of

ponderosa stands. Piles should be limited to no more than about eight feet across and five feet high.

For slash pile burning, mainly smaller diameter material, such as tops and branches, should be burned, as this material will have a shorter residence time, and thus do less damage to soils. Burning large slash piles is known to damage soils (DeBano et al, 1998). After burning piles of any size, soil beneath burned piles should be tilled to break up compaction caused by fire.

Chipping of slash must be limited, as having a large area covered with any depth of chips is likely to inhibit, if not prohibit, the growth of ground vegetation, which is necessary for soil stabilization after logging. We recommend limiting coverage of chips to no more than 20 percent of a logged area. Also, because decomposition is slow, depth should be limited to no more than two inches. Similar limits must be imposed on mastication, i. e., the larger wood chunks produced by machinery such as a Hydro-axe.

Not treating slash that is about two inches diameter and larger also risks providing an excellent breeding environment for the pine engraver, (*ips pini*). While this insect is generally "not an aggressive tree killer", it is known to breed in slash and build to populations that can kill pole sized trees and top-kill larger ones. See USDA Forest Service, 1997.

The threat of ips beetle attack is highest for wood cut in late winter and early spring, before it has had sufficient chance to dry out and become unattractive to this insect. Ips can produce 2-3 generations per year. Therefore, seasonal limitations on ponderosa pine logging may be needed. Alternatively, strict requirements for slash treatments could be imposed for ponderosa pine cut between about February and late August, but to dispose of this slash economically would likely require piling and burning of larger diameter material, which is not good for soils, as discussed above. In either case, we recommend that forest-wide standards and guidelines be developed to address this issue.

Precautions against ips are most important during drought conditions. Trees would be weaker and suffer increased ips-caused mortality, as the trees would be less able to resist this insect.

According to the Forest Service's regional entomologist, material greater than about 5 cm (2 inches) in diameter can be colonized by ips beetles and thus this material

> should be destroyed as soon as possible by burning, chipping, crushing, debarking, burying, or piling under a clear plastic tarp in a sunny location. Piling material without treatment, especially cull logs and larger diameter material, should be avoided.

From "Stand Hazard Conditions for Ips", unpublished manuscript by Jeff Witcosky; emphasis added.

The largest ponderosa trees in each stand must not be cut. These trees are needed as genetic source material for new trees. Since timber industry values the large trees, as they produce the largest amount of wood for the least effort, special measures may be necessary to insure that these trees are not cut. These measures may include daily (or nearly so) visits to active ponderosa sales by the sale administrator and sale contract provisions detailing special penalties for cutting large trees.

It is especially important that snags and dying trees that may soon become snags not be cut. Snags are sorely lacking from most ponderosa stands on the SJNF. These trees are critically important for numerous cavity nesting birds and mammals, especially flammulated owl (*Otus flammeoulus*) (see Reynolds and Linkhart, 1992). They are also necessary for primary cavity nesters such as: Williamson's sapsucker, flicker, yellow-bellied sapsucker, hairy woodpecker, downy woodpecker, and Lewis' woodpecker. Secondary cavity nesters such as bluebirds, tree swallows and nuthatches, also use snags.

It is also mandatory that clumps of trees be left for Abert's squirrel nesting and feeding. Patton (1977) found the minimum for Abert's squirrel (Sciurus aberti) nesting was six trees with diameters 11- 16 inches and interlocking crowns. He also stated there should be no more than 50 feet between tree groups.

It is important that a qualified biologist survey any proposed ponderosa pine sale prior to sale approval to ensure that Abert's squirrel nesting and feeding trees are not cut. Some clumps of trees not currently having any Abert's activity need to be left intact for future colonization by the species.

Mixed conifer (white fir and Douglas- fir, alone or in combination with each other and/or Englemann spruce, subalpine fir and ponderosa pine)
Any cutting of mixed conifer should conform to group and individual tree selection. As with ponderosa pine, it is very important to leave large trees (they will be mostly Douglas-fir in this type) and snags.

The limits on chipping, mastication and slash burning, described above under ponderosa pine, must apply for mixed conifer also. Any ponderosa pine slash consisting of material two inches or more in diameter resulting from logging mixed conifer stands must be treated to reduce the possibility of ips beetle breeding, as described above.

Englemann spruce and subalpine fir
The structure and composition of these stands has probably not been significantly changed by fire suppression. There is no ecological justification for harvest in the spruce-fir ecosystem type. Past experience on the SJNF provides strong evidence that harvest in this type is unsustainable and leads to extensive ecological type conversion, generally from cool, moist spruce-fir forest to hot, dry meadows. Many clearcuts in the spruce-fir type on the SJNF have not regenerated, even with multiple plantings.

The Wild San Juans Alternative therefore advocates no commercial timber harvest in the Englemann spruce-subalpine fir ecosystem.

Lodgepole pine
The SJNF's lodgepole stands are not native. They were planted to establish tree cover on burns and on areas where Englemann spruce had been clearcut and plantings of that species had failed. As such, lodgepole stands should gradually be eliminated, where this can be done and still leave tree cover.

To accomplish this, some lodgepole stands will have to be underplanted with Englemann spruce and/or subalpine fir. When these plantings are well-established, the lodgepole overstory can gradually be cut. To avoid exposing the planted spruce and fir to too much sunlight and too dry of a micro-climate all at once, lodgepole could be cut with small (5- 10 acres) clearcuts or group selection. Lodgepole stands adjacent to spruce-fir stands should seed in naturally with the latter species and the lodgepole can be removed at the proper time. Any lodgepole pine regeneration should be removed. As usual, it is important to monitor the results.

Aspen
The acreage of aspen on the SJNF naturally fluctuates over time in response to natural disturbances. There were many such disturbances approximately 100-130 years ago, resulting in a large amount of aspen regeneration, especially in the Dolores River drainage, where extensive acreages of aspen remain. It is possible the SJNF was at or near an historic high in the current climatic period for aspen acreage as a result of these disturbances. As part of the range of natural variability study, the SJNF should attempt to determine how much aspen existed in 1860, for example, prior to extensive European settlement. This study should also determine which aspen stands are climax and which are seral.

In the meantime, the SJNF should not attempt to maintain a set acreage of aspen. The loss of some acreage of aspen is natural and should not be considered an adverse impact. Mixed conifer and aspen stands are often very diverse in terms of wildlife species richness.

Mature aspen stands will not necessarily disappear in the absence of human management. Jones and DeByle (1984a) noted that all-aged stands are more common than expected. USDA Forest Service (1991) found 22% of the suitable aspen stands on the Grand Mesa-Uncompahgre-Gunnison National Forest were self- regenerating. Approximately 40% of aspen stands on the San Juan NF are thought to be stable and possibly climax (USDA Forest Service 1999). These stands should be able to perpetuate themselves in the absence of disturbance.

Schier, et al (1984) noted that in stands with just a few aspen prior to disturbance, aspen will dominate regeneration after a disturbance if root densities are adequate. Jones and DeByle (1984b) found a severe fire in conifer stands with a mere scattering of aspen results in a new aspen forest. But they also found light fires kill aspen, and some suckers

arise after any fire in stands containing aspen. This means there is no urgency for extensive clearcuts to regenerate aspen stands on the SJNF.

Furthermore, Cryer and Murray (1992) found clearcutting seral aspen stands whose soils have aged too far towards a spruce-fir site (i. e., mollic soils becoming albic) was likely to hasten the demise of the aspen. Burning the same stands, however, increased the soil pH and allowed aspen to better compete against other vegetation on these sites.

Another researcher found no decrease in the percent of aspen on the Routt National Forest from 1899 to 1993 (USDA Forest Service, 1998).

Fire is the preferred method of regenerating aspen in the Wild San Juans Alternative, as this is how most of the SJNF's aspen stands came into existence. Fire does not remove all the trees as clearcutting does; rather it leaves numerous snags, which are extremely valuable for wildlife. Any non-fire aspen treatments should take place only in roaded areas, as areas without roads are too valuable as undisturbed havens for wildlife.

Cutting methods might include small, irregularly- shaped clearcuts and group selection. Islands of uncut trees, particularly where there are bird nests, can be left in clearcuts. However, if this is done, care must be taken to minimize blowdown. In addition, if the alleged justification for aspen harvest is regeneration of aspen stands in the face of invasion by white fir and other conifer species, all invading conifers should first be removed from the harvest site.

D. LIVESTOCK GRAZING.

No proposal to protect biological diversity is complete without a discussion of livestock grazing. Inappropriate grazing of domestic stock has an adverse impact on native plants, riparian areas, and wildlife. (See, e. g., Platts 1991). Free-ranging cattle exhibit a strong preference for riparian areas due to availability of water, shade, and increased forage and will spend a disproportionate amount of time in these areas (Roath and Krueger 1982, Clary and Medin 1990). Overgrazing in riparian areas reduces overall plant biomass and especially impacts the woody riparian vegetation. Cattle will preferentially browse young willow and cottonwood shoots eventually resulting in streamside locations lacking these important woody species (Glinski 1977, Kauffman et al. 1983, Case and Kauffman 1997). Overgrazing in riparian areas can cause decreases in fish and wildlife species (Kauffman and Krueger 1984). Overgrazing in riparian areas can also increase streambank instability and erosion by reducing riparian vegetation, trampling stream banks, and compacting soil (Fitch and Adams 1998, Armour et al. 1994).

1) Rangeland Suitability.

As required by 36 CFR 219.20, the Forest Service must determine the suitability of lands for livestock grazing. Note that suitability is defined at 36 CFR 219.3 as:

> "The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone."

This is distinct from capability, which is defined as:

> "The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity" (36 CFR 219.3).

Lands with the following conditions should be considered not capable for livestock grazing:

- land not capable of producing a certain amount of forage (measured in pounds per acre) each year with normal precipitation;
- slopes 30% or greater;
- soils prone to erosion, landslides, and/or detrimental compaction.

Some lands capable of producing sufficient range forage should be deemed not suitable, including the following:

- lands already in a substantially degraded condition due to excessive or improper grazing. This includes lands undergoing restoration from the adverse impacts of grazing or other disturbance such as fire;
- lands where livestock grazing is likely to damage habitat for threatened, endangered or sensitive species, especially rare plants and plant communities;
- critical winter range for antelope, deer, and elk;
- potentially occupied grizzly bear habitat;
- municipal watersheds;
- developed and popular dispersed recreation areas;
- Research Natural Areas, unless at least part of the purpose of having the RNA is to research the impacts of livestock grazing.

2) Maintaining Good Ecological Range Condition.

The goal of managing livestock on national forests should be to achieve and maintain all rangelands in the potential natural community (PNC) of vegetation. This means maintaining the structure and species composition that would be expected to exist in the absence of intensive or repeated human-caused disturbances. Meeting this goal will provide quality habitat for wildlife and also in most cases a sufficient quality and quantity of forage for domestic stock.

Where the PNC cannot be met, the Forest Service should establish a desired plant community (DPC) that includes as great a percentage of native plant species as is possible. The goal should be to recover heavily grazed lands to the best ecological condition attainable, and to make steady progress in that direction, beginning immediately.

Rangelands grazed too heavily and/or too frequently usually have a "mowed" appearance; i. e., tall grass seldom or never develops. This removes forage for native ungulates and nesting and feeding habitat for some birds and mammals. Such rangelands will also exhibit certain species of vegetation in an abundance that occurs with repeated disturbance. These species include: forest fleabane (*Erigeron*), yarrow (*Achillea lanulosa*), rabbitbrush (*Chrysothamnus nauseosus* and *Vicida floris*), and shrubby cinquefoil (*Potentilla spp.).* Such range will often be devoid of bunch grasses such as fescues (*Festuca spp*.),needlegrasses (*Stipa spp.),* and Parry oatgrass (*Danthonia parryi*), species that would likely be present if there were not frequent disturbance.

Desired range condition. The standard for satisfactory range (USDA Forest Service, 1996) is that 65% of the range must meet or be moving toward meeting either the desired plant community or the potential natural community, whichever applies. Range below this standard should move toward the 65% standard at a reasonable rate. For example, a range at only 20% of the DPC or PNC should not be allowed to move very slowly toward the 65% and still be considered satisfactory.

The Forest Service should determine the PNC for all ranges containing more than a minor percentage of native grasses, forbs and shrubs, and manage toward meeting the 65% similarly. On rangelands dominated by bluegrass (*Poa pratensis*), a DPC should be determined that includes increasing the presence of native vegetation, or if totally absent, reintroducing native species where feasible.

It is probably not realistic in most cases to restore native vegetation on range totally dominated by bluegrass. However, native grasses resist drought much better than bluegrass. Where bluegrass dominates, there will be much less forage available for stock in dry years than in normal or wetter years. Thus range where bunch grasses still exist must be managed to maintain (and in many cases increase) the coverage of these grasses in accordance with the PNC. This must be reflected in the permit, in the annual operating instructions, and in the allotment management plan.

Rest. The Forest Service must order total rest of ranges in degraded and unsatisfactory condition for as long as necessary to establish satisfactory range condition. Note that the agency has the authority to modify "the seasons of use, numbers, kind, class of livestock allowed, or the allotment to be used under the permit, because of resource condition" (36 CFR 222.4[a]8).

Vacant allotments. These should generally not be restocked. These allotments present an excellent opportunity to conduct scientific research on recovery of range from livestock grazing. In particular, vacant allotments within wilderness areas should be permanently closed.

3) Grazing Systems.

Extensive (season-long) grazing should not be allowed. Grazing an entire area for a full season every year puts too much stress on the vegetation and destroys or degrades

habitat needed by wildlife. It also increases pressure on riparian areas and often leads to their degradation.

Straight rotation (i. e., with no rest or deferment) is also not recommended, as the vegetation gets grazed at the same time each year. This can cause problems such as leaving inadequate forage for native ungulates and overuse of the vegetation (necessitating the untimely depletion of root reserves.

The best systems to use are deferred rotation and rest rotation. Under these systems, vegetation is not grazed the same time every year, allowing perennial plants to rebuild root reserves and annual plants to become established.

Distribution. Proper movement of stock is essential in any grazing system. Most of the problems of degraded range condition could be solved or at least alleviated with better distribution.

Stock should move regularly and not be allowed to congregate in riparian areas for any longer than necessary for watering or pass-through. Stock must also move quickly through areas unsuitable for grazing, such as recently burned areas, poor soil types, and already overgrazed areas, if these areas cannot be avoided entirely.

Fencing can be used to separate pastures and prevent or reduce drift of cattle into pastures being rested or deferred and pastures already grazed. However, fencing is expensive to install and maintain. Fences also restrict the movement of native ungulates.

4) Range Analysis And Monitoring.

Regular monitoring of every allotment is imperative. Only in this manner can long-term trend be established, which is essential in determining whether the range is remaining in, or moving toward, satisfactory condition.

Permanent transects and exclosures should be established on key areas of all allotments. The larger the exclosures, the better; however, a very large exclosure is not necessary to display the difference in grazed versus ungrazed areas.

A thorough range analysis should be done every five years. This analysis should include: utilization, streambank stability, water quality, and rangeland vegetation composition, and the needs of wildlife in accordance with Forest Service Handbook(FSH) 2212.

5) Permits And Allotment Management Plans.

The Wild San Juans Alternative recommends allotment management plans (AMPs) and permit reissuance be done simultaneously or nearly so. Whether permits are renewed at all and, if renewed, what conditions need to be attached to renewed permits, should be based on analysis of the range condition. AMPs also address possible improvements such as fencing and water courses away from riparian areas and other measures that

can be used to mitigate impacts from grazing. Thus information developed in the AMP process is needed to make decisions of whether to renew permits.

Getting the AMP and all the permits on the respective allotment on the same timeline will require that some permits be renewed (or canceled if conditions warrant) before they expire. This is allowed by 36 CFR 222.3.

6) Noxious Weeds.

The Forest Service, in cooperation with range permittees and other Forest users, should take an aggressive approach to fighting noxious weeds. The weeds of greatest concern are: leafy spurge, toadflax, knapweed, and some thistles. Other weeds that can propagate by root expansion are also of concern as they are difficult to eradicate.

New and rapidly spreading populations should receive top priority for treatment. Chemical herbicides will be necessary in some cases, but other treatment methods should be attempted first where feasible, including: disking, plowing, removal of individual plants by hand (using volunteer labor), bio-controls (such as insects that eat seeds or roots), fire, and animal consumption (such as domestic sheep eating leafy spurge).

7) Livestock Management In Special Designation Areas.

In wilderness areas, livestock grazing should be phased out by not restocking vacant allotments. Livestock grazing is allowed in wildernesses where it existed prior to designation, but such use is clearly not the primary purpose of wilderness areas. (See 16 USC 1131(c), which defines the purposes of wilderness.)

In Research Natural Areas, grazing should be prohibited except as part of scientific experiments.

In wilderness areas and backcountry non-motorized areas, grazing should be limited to no more than 25% utilization of the annual growth. This includes forage used by native ungulates. Where there is a conflict, preference in forage use shall be given to native ungulates. Wilderness areas and backcountry non-motorized areas are designed to provide high quality wildlife habitat; livestock grazing must be conducted in a manner consistent with this goal.

No new stock driveways should be constructed in wilderness areas, backcountry non-motorized areas, and RNAs. Existing driveways can continue to be used, but there must be no non-emergency motorized use of them.

In ecological restoration areas, utilization should be no more than 35% of the annual growth. Utilization by domestic animals shall be reduced as needed if wildlife habitat capability is adversely affected by the domestics. Good ecological condition of riparian and upland areas must be attained and maintained.

Livestock grazing in corridors is allowed but must not interfere with deer and elk migration.

8) Animal Damage Control.

The Forest Service must evaluate the need for animal damage control on a case-by-case basis involving an interdisciplinary team. The permittee must be required to attempt non-lethal methods first. These include: dogs, llamas, noisemakers or other scare devices, and human attendants.

Aerial gunning will be prohibited on the San Juan National Forest. Aerial gunning endangers the public and fails to target offending individual predators.

Pre-emptive predator control will not be authorized on the San Juan National Forest. Predator control may only be initiated against offending individual predators. Blanket approaches to shooting, poisoning, and trapping predator species will be banned.

E. OIL and GAS LEASING

The San Juan National Forest is adjacent to the San Juan Basin, one of the largest natural gas reserves in the world. This has created strong pressures for drilling on the Forest in the past and will continue to do so in the future. The southern edge of the Forest is closest to the San Juan Basin and has received the brunt of the drilling. Areas farther to the north at higher elevation may come under increasing pressure as oil and gas development continues, although it is unlikely exploration will expand north of the Fruitland formation. Exploration for carbon dioxide deposits has occurred on the west end of the Forest in the area of Doe Canyon.

1) Forest Plans And The Leasing Process

One purpose of the National Forest Management Act (NFMA) is to fully integrate the direction of all multiple-use activities on the Forest into one management document (See, e. g., 36 CFR 219). The Wild San Juans Alternative therefore treats oil and gas leasing, and subsequent development, as just one of the multiple uses of the SJNF, not as a dominant or primary use over other Forest uses as has historically occurred. Oil and gas leasing and minerals management are still the most poorly managed and integrated of all Forest uses. Other Forest uses such as timber development are planned under a standard procedure with a relatively high level of detail that oil and gas planning has barely begun to approach.

Along with better integration of oil and gas leasing with other Forest uses, the Wild San Juans Alternative imposes a higher standard of compliance with the 1987 Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA). The regulations implementing FOOGLRA, (36 CFR Part 228) must be strictly adhered to. FOOGLRA mandates two distinct and separate decisions for oil and gas leasing. The first is referred to as the "d" decision (from 36 CFR 228.102(d)) and decides which lands are administratively available for leasing. The second decision is referred to as the "e" decision (36 CFR 228.102 (e)) and applies to the leasing of specific sites.

The "d" decision is the time to look at "big picture" items such as endangered species, critical habitat, winter range, watershed, landscape fragmentation, and scenic and recreational values that may be affected over a leased area. It is **not** appropriate to offhandedly authorize a large area for leasing and then claim these issues will be addressed on a site-by-site basis. Additionally, it is inappropriate to analyze an area for the "d" decision unless an interest in leasing has been expressed or where potential for oil and gas occurrence is high. Any areas not analyzed for the "d" decision must not be authorized for leasing. If industry expresses interest in leasing these areas in the future, a Forest Plan Amendment, with full public participation, must be completed before leases are granted in any of these areas.

In order to properly use the "d" decision, the Forest Service must actively exercise the discretionary no-lease authority granted by FOOGLRA. In fact, the regulations requires the Forest to identify those areas that will be "closed to leasing ... through exercise of management direction," (36 CFR 228.102(c)(1)(iii).

The "e" decision should be used to make small adjustments at a specific site within a larger overall management plan, and to make sure that impacts of leasing and subsequent exploration and production have been disclosed in proper documentation under the National Environmental Policy Act. See 36 CFR 228.102(e)(1). Adjustments include placement of a well-site to avoid a sensitive area, restrictions on time of year when activity is allowed, and application of the no surface occupancy (NSO) stipulation. The NSO should not be used as a substitute for a no lease decision. NSO should only be used in those cases where it is technically and financially feasible for an oil and gas operator to directionally drill into the area. Also, an NSO stipulation should not be applied to roadless areas because surface disturbance around the perimeter of core areas would cause an edge effect, disrupting and fragmenting the core area and linkage corridors. Roadless areas should not be leased.

Most often, the environmental consequences of development are examined only when a lessee submits an application for a permit to drill, with the assumption that any such consequences can be mitigated through the use of appropriate lease stipulations. This process is inadequate for several reasons. Once a lease is granted and an application for a permit to drill (APD) is requested, the government has a legal obligation to allow development. The lease stipulations the government can use at this point are notoriously ineffective at mitigating environmental damage. One example is the timing restrictions which are routinely waived because it costs too much to cease drilling once it has begun. Another problem is any attempt to make the lease too restrictive could result in a lawsuit brought by the oil and gas operator alleging a taking of their lease rights.

The Wild San Juans Alternative requires the "e" decision be made in a separate site-specific NEPA document when the leasing of particular tracts is proposed, and not in a programmatic, forest-wide document as has occurred on other forests in the region.

The Wild San Juans Alternative requires a reasonable foreseeable development (RFD) scenario developed in conjunction with the BLM. This is simply a best guess based upon currently known geologic strata, past activity, and future demand. The first priority for determining the RFD is an accurate picture of the number and locations of wells on the Forest. Next, because it is impossible to accurately predict the oil and gas prices and political factors over the next 15 years that will determine the level of drilling activity on the Forest, the Wild San Juans Alternative calls for a regular periodic review every two to five years of the RFD scenario to make sure it is still accurate. If a review of the RFD shows a change in the level of oil and gas activity on the Forest, then additional NEPA analysis will be conducted before any more leases are issued.

Waivers, exemptions, or modifications (WEMs) to stipulations will only be granted under extraordinary circumstances. There will be no WEMs for no surface occupancy stipulations. WEMs will only be granted after review that includes full public involvement.

2) Oil and Gas Road Systems

The large network of continually expanded roads is one of the most insidious and destructive problems resulting from oil and gas development because large networks of roads are ecologically devastating. The problem is insidious because while each additional road added may seem insignificant, the overall effect of a large network of roads is ecologically devastating. Roads increase human activity in formerly undisturbed areas. Studies show elk are particularly susceptible to increased human activity (Smith and Bloomfield, 1980). Poaching is significantly greater in areas with roads as compared with roadless areas. Roads allow easy entry of exotic animal and plant species, exacerbating the existing threat posed by various weeds. Roads lead to increased vandalism of archeological sites (Nickens et al 1981). Once built, roads are politically difficult to close and obliterate because recreationists become used to driving these roads and demand they be kept open.

The cumulative effects and the long-term consequences of roads have not been adequately analyzed in oil and gas leases. This analysis must occur at the time of the "d" decision because the effects of a large road network cannot be addressed on a site-by-site basis. Most roads should be open only to gas production personnel during the production period, both to minimize disturbance and to prevent development of a tradition of road use by the general public.

3) Site-Specific Recommendations

The Wild San Juans Alternative's most important goal is to require greater analysis **before** leasing, greater use of discretionary no-lease where appropriate, and less reliance on lease stipulations. Managers will never be able to evaluate or mitigate the cumulative effects of oil and gas development using lease stipulations.

The following management prescription areas are not available for oil and gas leasing in the Wild San Juans Alternative: recommended wilderness areas, backcountry recreation areas, corridors, ecological restoration areas, wild and scenic river corridors,

Research Natural Areas, special interest areas, scenic byways, and crucial wildlife habitat such as the sharp-tailed grouse recovery zone.

No surface occupancy leasing stipulations should be applied to protect other significant scenic, environmental, and recreational features in areas otherwise available for leasing.

F. RECREATION and TRAVEL MANAGEMENT

The primary management goal of recreation management should be maintenance of biological diversity and ecosystem processes. The Wild San Juans Alternative assumes that recreation has as much potential to damage the SJNF as any of the traditional extractive uses of the SJNF. Recreation is clearly the dominant human use of the Forest and is increasing rapidly every year. The public seeks to recreate in our National Forests to enjoy wild streams, solitude, beautiful vistas, wildlife, clean air, and the forest in its natural state. This dramatic rise in recreation poses a serious threat to the health of public lands. While recreational use of the Forest will remain an important use, the rights of any user group, whether hikers, bikers, or off -road vehicle (ORV) users, should not supersede concerns over biological diversity.

The Wild San Juans Alternative's primary thrust is to secure and manage large blocks of habitat unfragmented by roads, and to a lesser extent, trails. Research shows both roads and trails have deleterious effects on wildlife, particularly the success of nesting birds (Knight and Gutzwiller, 1995). It is especially important to maintain the few remaining intact corridors between low elevation and high elevation habitats.

Recreation, combined with travel management, has a significant role in determining landscape condition since it dictates how, when, and where people access public lands. Landscape health is diminished in places with human development; recreational experiences are diminished as landscape health declines.

Where it can, the Forest Service must prioritize reversing ecological degradation of areas of the SJNF that have sustained and continue to sustain excessive recreational use. In order to protect and enhance healthy biodiverse habitats, policies must be adopted that prevent new areas from becoming similarly impacted.

Despite the proliferation of motorized recreational vehicles on public lands, non-motorized recreational pursuits remain considerably more popular with the public. Non-motorized recreational pursuits are also growing at faster rates than motorized pursuits. It is the goal of the Wild San Juans Plan to designate appropriate routes for motorized use while also providing appropriate areas for quiet recreation.

Recreation is the dominant use of public lands in terms of numbers of participants as well as acreage, and this use is continuing to grow. It is essential that the Forest Service develop comprehensive and thoughtful recreation plans that allocate uses across the landscape in such a way that cumulative and site impacts are minimized and maintained to 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 restricted, or in severe cases, temporarily prohibited, 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 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 but rather improve it where possible. The agency should provide a wide spectrum of opportunities within this broader mandate, and at no point should the agency sacrifice the goal of landscape sustainability to provide additional recreational opportunities.

Many of the Wild San Juans Alternative's goals for maintaining large blocks of undisturbed habitat and reducing human impacts on native ecosystems are implemented through the SJNF's travel management prescriptions. The Wild San Juans Alternative's forest-wide philosophies for travel management are described in this section, whereas proposed prescriptions for specific roads and trails follow.

1) General Guidelines for Recreation

Many areas of the San Juan National Forest show signs of overuse and require a new management approach. The combination of ever decreasing funds for the Forest Service and the explosive growth of recreational users requires radical changes in recreation management.

The overall goals of the San Juan's recreation plan should be:

- Ensure landscape sustainability and reduce landscape fragmentation.
- Provide for a reasonable spectrum of uses within the ecological constraints of the landscape.
- Plan for the long-term by anticipating trends in recreational use and ecological condition.
- Utilize monitoring to facilitate compliance with standards and guidelines, and to indicate the need for adjusting standards and guidelines and/or devising new ones.
- Avoid allocations to special recreational activities that would require expenditures that would exceed existing or expected budgets.
- 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:

- determining the number and types of recreational activities that are appropriate in the San Juan,
- developing zones for recreational access based on a comprehensive ecological and socio-economic analysis, and
- applying 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 San Juan National Forest to

adequately manage recreational uses to minimize resource damage and conflicts between recreationists.

2) Mechanized, Non-Motorized Recreation

A new recreational category is necessary to properly manage the explosive growth of mountain bicycles. There is a need to separate this group from recreational hikers and horse riders on some trails (e.g., Haflin Creek) to avoid increased user conflicts, physical danger, and possible resource damage. Trails are categorized according to motorized, mechanized, and foot/horse. Some trails are exclusive to one category while others allow a combination of two or all categories.

3) Motorized Recreation

Motorized recreation is inherently more intrusive and damaging to forest resources than non-motorized recreation. The Wild San Juans Alternative emphasizes increased regulation and decreased access to motorized recreational users of the Forest.

Because off-road vehicles (ORVs) have and will continue to impact resources and other Forest users, the Forest Service must analyze and plan for ORV recreation carefully. 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 and skills to manage it adequately. Further, the Forest Service must implement policies which ensure 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 dispersed ORV recreation leads to the creation of new routes.

The Wild San Juans Alternative designates all portions of the SJNF as closed to motorized vehicles unless specifically opened. This designation greatly relieves the burden on managers and facilities by notifying forest users that sensitive areas such as meadows, wetlands, abandoned roads and such are automatically closed unless a sign designates them open. This approach eliminates several management problems, including the need for the SJNF to sign every single meadow and abandoned road as closed (since all such areas are now closed unless signed open) and the problem of users removing signs and then claiming not to know an area was closed.

Motorized recreation should be eliminated in areas intensively used by other recreational users in order to reduce the potential for resource damage and user conflicts (e.g., the Hermosa trail system). No motorized trails should be designated leading to a wilderness boundary to reduce likelihood of motorized trespass.

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. Until recently, our landscape seemed capable of providing everything to everyone. Of late, 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 SJNF must incorporate an analysis of noise into its travel management and

recreation plan by creating standards and guidelines for various prescriptions that will ensure a quiet backcountry.

Access to our public lands, while beneficial to users, can also disturb natural habitats: 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 area values. High-quality recreation experiences in National Forests depend on healthy and intact landscapes.

General Management Recommendations for Motorized Recreation:

- 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 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 singletrack routes to foot, horse, or two-wheeled travel only. Total trial width is to be no more than 24".
- Use seasonal closures as necessary to protect wildlife, plant communities, soils, and water quality, and to avoid excessive resource damage, especially during elk calving seasons.
- Locate high-use areas in previously disturbed zones where further impacts can be geographically contained and are at least one mile from riparian and sensitive species habitat, and one mile from 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 devoid of vegetation).

4) 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.

- Prohibit any new road and motorized trail construction in roadless areas of National Forests.
- Prohibit re-construction and new construction of staging areas in roadless areas.
- New trail construction is allowed only to reduce impacts.

5) Group Size

Group size in all backcountry areas of the SJNF is limited to a maximum of 15 people. In addition, groups with pack livestock may not exceed a total of 20 members including pack stock.

6) Outfitters

The existing temporary ceiling on new outfitter permits should be made permanent. Group size limitations apply equally to outfitters as to private parties. Restrictions on camping distance from lakes and streams should be enforced in locating semi-permanent outfitter camps.

The Forest Service horse-packing and trail-riding awareness programs should be continued and expanded as more horsepackers are contacted through the wilderness permit system.

7) Campgrounds

Large campgrounds at the edge of the wilderness lead to overuse of the nearby wilderness area. These campgrounds should be closed for rehabilitation, and relocated further away from the wilderness boundary. The goal is to eventually minimize or eliminate campgrounds on wilderness boundaries.

The Forest Service should resist pressure to build more campgrounds with more amenities. Servicing the needs of recreational vehicles is a more appropriate role for the private sector than for the Forest Service. The SJNF will not privatize campgrounds within the Forest boundaries. In general, campgrounds will be moved gradually to more intensively used corridors along paved highways. Commercialization of the campgrounds either through Forest Service efforts or through privatization is antithetical to the overriding philosophy of maintaining a natural experience for recreational visitors.

8) Ski Areas

The Wild San Juans Alternative permits no new ski areas on the SJNF. Durango Mountain Ski Resort is contained within its present boundaries and no expansion is permitted to Graysill Mountain. Wolf Creek Ski Area is also contained within its present boundaries (currently on the adjacent Rio Grande National Forest), and should not be expanded into the San Juan, as it would impair the Treasure Mountain Roadless Area. The ski area management prescriptions for the proposed Wolf Creek Valley and East Fork ski resorts are eliminated and in both cases changed to suitable wilderness prescriptions. Silverton Mountain is contained within its present boundaries and no expansion is permitted.

9) Special Use Events

As recreational events grow in popularity, consistent approaches to accepting and analyzing applications, incorporating use into capacity models, and fairly allocating use between outfitters, event organizers, and dispersed users must be established. Those events that are permitted will be carefully managed to minimize impacts to wildlife and ecosystem health.

- All special recreation event applications for events greater than 49 participants or on 5 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 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.

10) Game retrieval policy

The SJNF will not allow exemptions to travel management regulations for hunters to use off-road motorized travel in otherwise closed areas to retrieve killed game. Allowing such exceptions creates numerous problems of enforcement, infringes on foot hunters in non-motorized recreation areas, and pushes big game herds like elk out of drainages.

11) New Forms of Recreation

As new forms of recreation are created and pursued on public lands, environmental analysis will be completed to ensure such uses do not have the potential to cause harm to resources. It cannot be assumed that new forms of recreation are appropriate even on existing trails until such analysis is completed. Public input should be initiated to determine the appropriate locations for new recreational activities before they become established by use in inappropriate areas.

H. AREA, TRAIL, AND ROAD-SPECIFIC MANAGEMENT PRESCRIPTIONS

The Wild San Juans Alternative identifies the following specific areas for non-motorized backcountry recreation and dispersed recreation management prescriptions.

Non-motorized backcountry recreation areas were identified as:

1) roadless areas less than 5,000 acres in size or otherwise inappropriate for wilderness designation; or
2) areas left available for non-wilderness compatible recreation uses such as mountain biking; or
3) areas with extensive past human disturbance where all roads are proposed for closure and past clearcuts are proposed for recovery.

Dispersed motorized recreation areas are identified along existing road corridors that receive intensive use.

1). Non-motorized Backcountry Recreation Prescription Areas

One specific recreation need identified in the Wild San Juans Alternative is the need for lower elevation, non-motorized backcountry recreation areas. These same areas typically are located close to major towns and serve the multiple purposes of offering readily accessible primitive recreation locations; physically accessible areas during spring and fall seasons when the majority of the Forest's large, higher-elevation backcountry areas are still snow-covered; and protecting in an undeveloped condition significantly unfragmented low-to-high elevation habitat corridors.

Roadless Areas less than 5,000 acres or otherwise not suitable for wilderness: (including the many narrow canyons on the west end of the Forest)

- Middle Mancos River
- West Mancos River
- Lost Canyon
- Beaver Creek
- Plateau Creek
- Dry Canyon
- Salter Canyon
- Narraguinnep Canyon (beyond the RNA boundary)

Larger areas not suited for wilderness but proposed for non-motorized backcountry recreation prescriptions include:

- Anvil Peak near Red Mountain Pass
- Potato Lake
- Mesa Cortado
- Valle Seco

Areas left available for mountain biking: Areas which are popular for mountain biking, some of which also provide lower-elevation primitive recreation opportunities near towns such as Durango, include the following non-motorized backcountry recreation prescription areas:

- lower Junction Creek
- Hoffhein Trail
- the Hermosa Creek Trail
- lower Missionary Ridge
- Ryman Creek
- Blackhawk Mountain
- Thomas Mountain

Areas with significant road closures and available for mountain biking: These areas are primarily higher-elevation spruce-fir forests which were extensively clearcut and need rehabilitation. Mountain biking would be allowed in these areas also. Areas with non-motorized backcountry recreation prescriptions include:

- upper Mosca Creek/Piedra Road
- West Prong Road
- Rito Blanco

- Jackson Mountain
- Middle Mountain (above Vallecito)
- upper Missionary Ridge

2). Dispersed Motorized Recreation Prescription Areas

Areas managed for substantial intensive motorized recreational use along existing road corridors include:

- Hermosa Park and Hotel Draw
- Barlow Creek
- Scotch Creek
- Mineral Creek
- La Plata Canyon
- Junction Creek Road
- Missionary Ridge
- Lemon Reservoir
- Vallecito Reservoir
- lower Pine River.

3). Roads to be closed

FDR 012, Blue Creek - Bear Basin road; from the SJNF boundary to the end. To reduce soil loss, resource damage, and protect a large area of wildlife habitat.
FDR 081, Lime Mesa road; from Henderson Lake to the end. This road contributes to excessive soil loss and the continued degradation of very poor timber management decisions. The vast majority of recreational users already park very near Henderson Lake.
FDR 123, Zabel Canyon road; entirely. To minimize unnecessary archeological resource damage. The stock tanks can be maintained without the road.
FDR 135, Beaver Meadows road; from First Fork trailhead to end of road. This road is unnecessary.
FDR 245 A, Hunt Creek road; entirely. To reduce resource damage.
FDR 328, 329, and 332, Rampart Hills - Box Canyon roads; entirely. To protect the SJNF from existing and historical resource damage.
FDR 606, Mesa Cortado road; entirely. This road is of minimal use currently.
FDR 615 and 615 A, Goose Creek and upper Turkey Creek roads; from the forest boundary in the Goose Creek canyon and the upper edge of the private land in Turkey Creek to the end of the road. To minimize unnecessary maintenance cost with absolutely minimal impact. These roads are currently not open to the public due to tribal lands.
FDR 618, and 856, Archuleta Creek and Mesa roads; from the SJNF boundary to the end. These roads are currently closed to the public by tribal land, and their closure will protect a superb Ponderosa Pine forest.
FDR 631, Mosca road; from the boundary of the SJNF on the west side of the Weminuche Valley to the end of the road. This road served to access some of the worst examples of timber harvesting on the SJNF. Currently it serves limited use for recreational and hunting access. This road effectively bifurcates the Piedra Area from

the Weminuche Wilderness Area. With it's closure, these two areas would once again be allowed to become ecologically one.
FDR 638, East Fork Dolores road; from Bolam Pass to end of road. This road is unnecessary.
FDR 646, Snowball Creek road; from FDR 037 to private land, including all smaller roads to west of Turkey Creek road. To reduce resource damage and road costs.
FDR 651, Eightmile Mesa road; from the Forest boundary to the end of the road. To protect rare plants and prevent unnecessary resource damage.
FDR 660, Fish Creek road; from the Opal lake turn-off to the end of the road at Fish Creek. To greatly reduce road maintenance costs at minimal loss of access, as well as reduce possible human-grizzly conflicts.
FDR 664, the V- Mountain to Rio Blanco road; entirely. To reduce road costs, soil loss, resource damage, and protect a large area of wildlife habitat.
FDR 665, 735, and 024, Little Blanco and Sparks roads; from the end of the private land to the end of the road. These roads, and their offshoots, served to access timber sales, and currently serve limited recreational and hunting access. Their closure will provide critical mid-elevational habitat for wildlife in the east Pagosa Basin.
FDR 682, upper Missionary Ridge road; from the turn off of FDR 081 to the end of the road. This road serves limited recreational and hunting access. Its closure will protect the southwestern edge of the Weminuche Wilderness from excessive use.
FDR 684, Quartz Creek road; from the end of the private land to the end. To reduce unnecessary road costs and minimize resource damage.
FDR 724, Middle Mountain road; from Beaver Park to the end. To reduce unnecessary road costs and minimize resource damage.
FDR 727, Willow Divide road; from the West Fork of the Dolores north to the end of the improved road. This closure would allow the Willow Divide-Black Mesa area to serve as a much needed mid-elevational roadless area on the west side of the SJNF.
FDR 756, HD Mountain road; from the radio towers to the end of the road. This road serves no real use, and its closure will minimize impacts to very important area of healthy Ponderosa Pine forests.
FDR 987, the lower Poison Park area; from FDR 644 to the end of the road. This road is unnecessary for all purposes.

4). Trails Recommended for Travel Management Changes
Category 1: motorized and mechanized travel allowed;
Category 2: motorized travel not allowed, mechanized travel allowed;
Category 3: motorized and mechanized travel not allowed.

Table 8. Trails Recommended for Changes in Travel Management

Trail Name	Trail Number	New Category
Wildcat	207.2	3
Calico	208	3
Rico- Silverton	507	3
Engineer Mtn.	508	3
Columbine Lake	509	3
Dutch Creek	516	3
Corral Draw	521	3
Pinkerton - Flagstaff	522	3
Runlett Park	530.1	3
Saul's Creek	531	3
Clear Creek	550	3
Junction Creek	553	2 below Hofhein's Connection, 3 above
Haflin Creek	557	3
Shearer Creek	558	3
Treasure Mtn.	565	3
Windy Pass	566	3
Coal Creek	581.1	3
Piedra Stock Driveway	583.2	3 for southern 1 mile
Middle Fork	589.1	3
Sand Creek	593.3	3
Devil Mtn.	600	3
Dudley	601	3
Devil Creek	603.1	3
Devil Mtn.	603.2	3
Beaver Lakes	604	3
Bear Creek	607.1	3
Grindstone	608	3
Little Bear	609	3
Box Canyon	617	2
West Mancos	621	2
Stoner Mesa (Lower)	624.1	3
Stoner Mesa (Lower)	624.2	3
Stoner Mesa (Upper)	624.3	3

Trail Name	Trail Number	New Category
Stoner Creek	625.1	3 for northern 2 miles
Horse Creek	626	3
Spring Creek	627	3
East Fork	638	3
Johnny Bull	639	3
Fall Creek	640.2	3
Burnett Creek	641	3
Priest Gulch	645.1	3
Priest Gulch	645.2	3
Geyser Spring	648	3
Calico	649.2	3 for northern 4 miles
Middle Mtn.	654	3
Stump Lake	662	3
Lost Lake	663	3
Stevens Creek	728	3
Twin Springs	739.1	3
Twin Springs	739.2	3

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APPENDIX A: Forest Service Management Prescriptions

The Wild San Juans Alternative has chosen to use the following prescriptions in spite of the fact that the San Juan National Forest is using "themes" for the revised management plan. The themes being used are extremely broad and poorly defined. The definitions of these prescriptions more adequately describe the management goals of the Wild San Juans Alternative across diverse ecosystems and watersheds.

Diverse ecosystems with a variety of specific management requirements should not be lumped into themes for convenient management purposes. With this in mind, management prescriptions correspond to the themes being used by the San Juan National Forest as follows:

- Theme 1, Natural Process Dominate: Management Prescriptions 1.1, 1.2, 1.31,1.5
- Theme 2, Special Interest Areas: Management Prescriptions 2.1, 2.2, 3.5x
- Theme 3, Natural Landscapes w/ limited Management: Management Prescriptions 3.22, 3.31, 3.5, 3.55, 4.3
- Theme 4, Recreation Emphasis Area: Management Prescriptions 4.21, 4.32
- Theme 5, Active Management: Management Prescriptions 5.11
- Theme 8, Permanently Developed: Management Prescriptions 8.22

Descriptions of Forest Service management prescriptions are briefly summarized below.

1.1 Wilderness: Manage under the Wilderness Act to protect and perpetuate natural conditions while providing opportunities for solitude and self-reliance.

1.2 Recommended for Wilderness: Roadless areas managed to protect wilderness characteristics until Congressional action is taken.

1.31 Backcountry Recreation – Non-Motorized: Areas, 2,500 acres or larger, generally unroaded. Natural or natural-appearing with little or no evidence of recent human-caused disturbance. Important for providing non-motorized recreation near the primitive end of the recreation opportunity spectrum. Potential for wildlife habitat improvement projects and small vegetation alterations to provide vistas. No surface occupancy mineral leasing allowed.

1.5 Wild and Scenic River: Managed to protect and perpetuate eligible river segments in the current condition so highest potential designation under the National Wild and Scenic River System is not diminished. Depending on the classification, may be roadless

(Wild River) or may have dirt roads (Scenic River) or even paved highways and residences (Recreational River). Withdrawn from mineral development.

2.1 Special Interest Areas–Minimal Use and Interpretation: Managed to protect special botanical, geological, historical, paleontological, scenic, and zoological areas. Withdrawn from mineral entry, and taken out of suitable timber base. Prohibit new roads, and close existing roads in old-growth ponderosa pine recruitment zones.

2.2 Research Natural Area: Managed to maintain pristine or conditions representing periods of indigenous settlement by allowing ecological processes to prevail with minimal human intervention. Motorized and extractive uses are prohibited, and recreational use is not encouraged. Grazing is not allowed if not already occurring.

3.22 Ecological Restoration: Limited extractive uses may occur while maintaining habitats for species which exist in the area. No logging of spruce forest type permitted. Withdrawn from mineral entry, and no surface occupancy mineral leasing only. Motorized use restricted to existing, designated routes. Open road density restricted to one mile/sq. mile.

3.31 Backcountry Recreation–Motorized: Managed to provide primitive recreation opportunities on primitive roads and trails in a natural-appearing landscape. Motorized travel restricted to designated routes, and no new roads constructed. Open road density restricted to one mile/sq. mile. No surface occupancy mineral leasing only.

3.5 Wildlife Habitat: Manage to provide high quality forage, cover, escape terrain, solitude, breeding habitat, and protection for a variety of wildlife species. Restrict motorized travel to designated routes. Timber harvest activities may occur to benefit wildlife. Mineral development allowed with seasonal stipulations.

3.5x Sharp-Tail Grouse Recovery: Management emphasis to provide quality habitat to recover viable population of Columbian sharp-tail grouse. Adjust livestock grazing to meet sharp-tail grouse habitat objectives, and close vacant allotments as they arise. Restrict motorized travel to designated routes. Withdrawn from mineral development.

3.55 Corridors: Managed to protect migration and dispersal of wildlife. Closed to mineral development. Restrict motorized travel to designated routes. Open road density less than 0.5 mile/sq. mile. Management activities should replicate biological processes found in nature.

4.21 Scenic Byway: Managed to preserve scenic values and recreation uses of designated Scenic Byways.

4.3 Dispersed Recreation: Provide dispersed undeveloped recreation opportunities such as camping, picnicking, fishing, snowmobiling, skiing, viewing wildlife and scenery in a relatively natural forested environment. Available for mineral development, timber management, recreation sites.

4.32 High-Use Dispersed Recreation: Managed for recreational opportunities and visual qualities adjacent to developed recreation sites and bodies of water, specifically Lemon and Vallecito Reservoirs on the San Juan NF. Located along existing road corridors with more social types of recreation experience.

5.11 Range and Forest: Managed for a mix of forest products, forage, and wildlife habitat. Mineral development, range improvements, timber harvest, recreation facilities, and other extractive uses allowed.

8.22 Ski Area: Managed to provide for downhill skiing and Nordic skiing in a resort setting.

APPENDIX B: Wilderness Analysis of Roadless Areas

1) Fish Creek

Capability: The Fish Creek Roadless Area is located in the northwestern portion of the San Juan National Forest and includes the Fish Creek and Little Fish Creek drainages. Despite the fact this is a 15,740-acre roadless area and obviously greater than 5,000 acres in size, it was missed during RARE II and has not previously been considered an inventoried roadless area.

Fish Creek is one of the rare lower elevation roadless areas in the San Juans. The area's lowest elevations, along Fish Creek, are covered with lush willow-dominated riparian zones and several small stands of old-growth ponderosa pine. Aspen tend to dominate south-facing slopes while spruce-fir forests populate north-facing slopes. Above the stream valley rims, the spruce forests of Black Mesa have been extensively clearcut. These clearcuts on Black Mesa and Willow Divide form the boundary of the roadless area.

A Forest system trail traverses Fish Creek, beginning at the state wildlife area and ending at the Dunton-Norwood road. No official trail heads up Little Fish Creek, but hunting and other social trails are readily passable. Fish Creek Roadless Area offers abundant opportunities for outstanding recreational opportunities such as hiking, horseback riding, and hunting and fishing. Fish Creek sits astride several major elk migration corridors between winter range to the southwest and summer range around the Lizard Head Wilderness. The area's relatively remote location and undeveloped tributaries provide outstanding opportunities for solitude as well.

There are no roads or other evidence of human activities within the roadless area. Aspen and spruce clearcuts on the rims above the stream valleys tend to define the roadless area boundaries on all sides.

Fish Creek Roadless Area possesses outstanding opportunities for primitive recreation and solitude in an area substantially unmodified by humans and is therefore capable of wilderness designation.

Availability: The entire roadless area lies outside the suitable timber base on the San Juan National Forest as designated in the 1992 Plan Amendment. The Fish Creek and Little Fish Creek valleys are closed yearlong to all motorized vehicle use. Fish Creek Roadless Area lies outside any known mineral producing region and has low potential for economic mineralization. The area receives livestock grazing use, but the only range developments consist of a couple of fences.

There are no compelling resource extraction or development uses for Fish Creek. In contrast, the area's position as a lower elevation undisturbed ecosystem in an important big game migration corridor strongly argues in favor of its designation as wilderness. Fish Creek is available for wilderness designation.

Need: The Region 2 Wilderness Needs Assessment identifies lower elevation ecosystems as lacking in the Region's system of established wilderness areas. Fish Creek helps solve this gap in ecological representation in the Region.

Fish Creek offers recreational opportunities distinctly different from those found in the nearby Lizard Head Wilderness. Recreationists are drawn to Lizard Head to scale its fourteen-thousand-foot peaks and to camp along the scenic shores of Navajo Lake. In contrast, Fish Creek attracts backcountry horsemen and hikers looking for fishing holes amidst varied forests. Fish Creek thus provides wilderness recreational opportunities absent in other nearby designated wilderness areas.

For these reasons, Fish Creek is needed for wilderness.

Fish Creek meets the requirements of capability, availability, and need and is recommended for designation as wilderness.

2) HD Mountains

Capability: The HD Mountains is a 39,172-acre roadless area centered around Ignacio Creek. The HD's appearance from a distance is deceptive, inviting an impression of low rolling hills. Instead, streams incise deep and rugged valleys whose drier slopes are choked with Gambel's oak and other dense shrubs, and whose wetter slopes are covered with stands of ponderosa pine, Douglas fir, aspen and white fir. The area offers prime habitat for turkeys, black bear, goshawk, and Mexican spotted owl. The area's rugged topography has kept it free of extraneous roads and associated development such as logging and intensive grazing. Some spur roads penetrate the lower ends of valleys on the area's periphery, such as Goose Creek and Turkey Creek, but the entire length of Ignacio Creek on the national forest is free of roads. One vehicle route extends north from the radio towers (FDR 756) and is proposed for closure and rehabilitation. Otherwise, the area is entirely free of roads and vehicle ways. Several range fences cross the area, and small stockponds can be found in the lower, open draws on the area's periphery.

The rugged terrain and absence of trails results in outstanding opportunities for solitude. Primitive recreational opportunities are abundant and exceedingly high quality. The remote canyons of the HD Mountains require highly developed backcountry skills.

The HD Mountains in general, and Ignacio Canyon in particular, harbor some of the finest stands of old-growth ponderosa pine left in the San Juans. Numerous stands of old-growth ponderosa line Ignacio Canyon for over two miles. These trees are well over 250 years of age, with many exceeding three feet in diameter. The ponderosas' cork-like bark glows red in late afternoon sunlight. Lush undergrowth fills the riparian zone below the ponderosas' canopy. The trees are generally ramrod-straight and free of blemishes, indicating an extremely high-quality genetic pool. The San Juan National Forest's old-growth inventory identifies several significant stands of ponderosa pine with old-growth scores greater than 40 located within the roadless area. The old-growth stands of Ignacio Canyon have been identified as a potential RNA.

At the lowest elevations, the HD's merge into more open grasslands and parks with more widely scattered ponderosas and substantial stands of pinyon-juniper. This ponderosa/pinyon-juniper ecosystem is completely absent within designated wilderness on the San Juan NF.

The HD Mountains contain numerous diverse micro-ecological habitats surrounding springs and riparian areas, often including substantial stands of blue spruce.

The HD Mountains provide a landscape linkage to the tribal forests of the Southern Utes and Jicarilla Apaches as well as the Carson National Forest in New Mexico. The Archuleta Creek/Deep Canyon RNA is situated immediately east of the roadless area and forms an additional piece of this landscape corridor.

The HD Mountains meet Wilderness Act requirements for roadlessness, naturalness, special ecological values, and outstanding opportunities for solitude and primitive recreation. The area is clearly capable of wilderness designation.

Availability: Grazing allotments cover much of the HD's, although the utilized area is relatively small because of topographic limitations. Grazing is a compatible use with wilderness in any case, and presents no conflict in use.

The old-growth ponderosas offer some appeal in terms of timber management, and portions of Ignacio Creek are included within the suitable timber base. However, topography limits utility of the area for timber management. In addition, the rarity of old-growth ponderosa pine in the region argues against timber management.

Suspected deposits of coal bed methane, natural gas, and other hydrocarbons offers the only substantial extractive resource conflict with wilderness designation. The HD Mountains were previously off-limits to surface oil and gas development, but this restriction was lifted in the early 1980s. The 1990 HD Mountains oil and gas EIS approved approximately 30 new gas wells proposed by Amoco, primarily in the Sauls Creek watershed. None of these wells were located within the HD Mountains roadless area. The extraordinary nature of the area's old-growth forests and its protection via wilderness designation outweighs the much more commonplace natural gas potential. For these reasons, the HD Mountains is available for wilderness designation.

Need: Old-growth ponderosa pine is the most underrepresented ecosystem type in Region 2's wilderness system. The HD Mountains include some of the highest quality old-growth ponderosa pine left in the San Juan Mountains, and in Colorado for that matter. Inclusion of this representative old-growth ponderosa ecosystem will significantly enhance the National Wilderness Preservation System and meet the needs identified in the Region's Wilderness Needs Assessment. The HD Mountains are unquestionably needed for wilderness designation.

The HD Mountains meet the requirements of capability, availability, and need for wilderness and the area is recommended suitable for designation as wilderness.

3) Hermosa

Capability: The Hermosa roadless area encompasses one of Colorado's largest and most biologically diverse forests, including at least 17 separate ecosystems, ranging from rocky scrub oak and pinyon-juniper at lower elevations to aspen, spruce, and fir. Tracts of virgin timber exist at elevations as low as 7,000 feet, well below the typical elevation of most protected forested areas in Colorado. In fact, Hermosa contains some of the largest stands of old-growth ponderosa pine remaining in the San Juan Mountains.

Hermosa's extraordinary ecological variety has compelled a proposed Research Natural Area covering approximately 26,000 acres of Hermosa Creek's western tributaries, centered on Buck Creek and Hope Creek. This RNA provides representation of exceptionally varied mixed-conifer forests containing Douglas-fir, white fir, aspen, blue spruce, ponderosa pine, southwestern white pine and Gambel's oak. Extensive stands of old-growth spruce-fir occur at the highest elevations to complement the lower forests, and riparian communities in excellent condition occur throughout.

The 142,385-acre Hermosa Roadless Area has been managed to retain its wild character since the 1970s Roadless Area Review and Evaluation (RARE) studies. Current management plans perpetuate Hermosa's undeveloped backcountry values by prohibiting logging and mining. Mountain bicyclists discovered Hermosa in the 1980s, however, and the main Hermosa Creek trail now serves as one of the most popular and scenic mountain bike routes in Colorado. The undeveloped Hermosa watershed and dendritic drainage pattern offers extraordinary opportunities for backcountry treks and in this respect provides a positive alternative to heavily-used routes in nearby wilderness areas such as the Weminuche. More than 125 miles of trails lace through the roadless area. The extremely popular Hermosa Trail is presently open to all forms of backcountry recreation, including hiking, horses, mountain bikes, motorcycles, and ATVs. Ten tributary trails branch from the main Hermosa Trail and offer access to numerous more remote valleys.

 The crest of the La Plata Mountains defines Hermosa's western boundary, along which runs a 20-mile segment of the Colorado Trail between Kennebec Pass and Hotel Draw. Hermosa allows hikers the uncommon opportunity to ascend from the Animas Valley at 7,000 feet through a dramatic change in ecosystems to the La Plata's summits above 12,000 feet. Hermosa's colorful landscape owes its beauty to thick sedimentary formations, including the crimson red shales and sandstones laid down as marine deposits during the Permian period some 250 million years ago. The area's wild core hosts significant wildlife populations and provides quality habitat for elk calving and summer range. Several major migration routes cross the roadless area. The endangered peregrine falcon inhabits the area and Hermosa provides habitat for the Mexican spotted owl as well. The Colorado River cutthroat trout occurs in Hermosa Creek and its tributary streams.

The Hermosa roadless area includes a western spur that descends along Bear Creek to the Dolores River. Travelers can thus traverse from the Animas to Dolores Rivers, over the crest of the La Platas, without crossing a road or otherwise

encountering signs of civilization. Not only does the Hermosa roadless area provide a critical corridor between the two river drainages, in a larger context it constitutes a link in the landscape between the state's largest protected area, the Weminuche Wilderness, and lower elevations along the San Juan Mountains' western perimeter.

Hermosa is essentially free of human imprints. Timber sales and associated roads penetrate the edges of Hermosa in the Dutch Creek area, in the upper Mancos River watershed west of Hesperus Peak, and at the upper end of the Junction Creek Road. The southernmost extensions of the roadless area into the high peaks of the La Plata Mountains contain a number of patented mining claims and associated jeep trails. The area also includes several minor range developments in the form of livestock allotment fences. However, these human imprints are insignificant over the large 142,000-acre extent of the area.

Hermosa clearly and obviously provides outstanding opportunities for primitive and unconfined types of recreation and outstanding opportunities for solitude in a substantially unmodified environment. For these reasons, the Hermosa roadless area is capable of wilderness designation.

Availability: Essentially none of the Hermosa Roadless Area is included within the suitable timber base as designated in the 1992 Plan Amendment. Very small portions of the Dutch Creek, Elbert Creek, and Mancos River watersheds include suitable timber lands on the fringes of the roadless area.

Hermosa's sedimentary geology makes hardrock mineral deposits extremely unlikely. There is also no identified potential for coal or oil and gas. The entire area is unavailable for mineral leasing.

Hermosa is entirely national forest ownership with the exception of several patented mining claims in the southernmost reaches of the La Plata Mountains, south of Kennebec Pass.

The Hermosa Trail receives substantial mechanized recreation use, largely in the form of mountain bicycling. This activity would be incompatible with wilderness designation.

The lack of mineral potential and the area's unsuitability for commercial timber management indicate no significant resource development conflicts with wilderness designation. Hermosa is therefore available for wilderness designation with the possible exception of areas with major existing mechanized recreation use such as the Hermosa Trail.

Need: Old-growth ponderosa pine is the most under-represented ecosystem type in Region 2's wilderness system. Hermosa includes some of the highest quality old-growth ponderosa pine left in the San Juan Mountains, and in the entire state of Colorado. Numerous ponderosa pine stands with old-growth scores exceeding 40 occur along the lower reaches of Hermosa Creek and its tributaries. Inclusion of this representative old-growth ponderosa ecosystem as well as other lower elevation vegetation types such as pinyon-juniper forest and oakbrush will significantly enhance the National Wilderness Preservation System and meet the needs identified in the Region's Wilderness Needs Assessment.

The Hermosa Creek-Bear Creek watershed combination offers the only lower elevation, undeveloped landscape linkage between the Animas and Dolores river drainages. To the north of Hermosa, historic clearcuts and road construction have dramatically fragmented habitat. South of the La Platas, development activities on private land and Highway 160 have also significantly disturbed habitat. As the largest unprotected roadless area remaining in the entire state of Colorado, and the best example of undisturbed lower elevation forest ecosystems, Hermosa fills a yawning gap in the system of protected wilderness in the Rocky Mountains.

Hermosa's extensive trail network receives little recreational use other than during hunting season and other than along the main Hermosa Creek Trail. As such, the area provides high quality wilderness recreation opportunities in the most pristine portion of the wilderness opportunity spectrum and might offer positive alternatives to reduce pressure on the Weminuche. Hermosa's low elevations also make the area accessible to backcountry recreation earlier than in the alpine-dominated environments of existing wilderness.

Hermosa easily meets the requirements of capability, availability, and need for wilderness.

In order to remove the portions of the roadless area most modified by past human activity, and to accommodate mechanized recreational activities such as mountain biking that are incompatible with wilderness designation, the Citizen's Management Alternative proposes wilderness designation for 119,980 acres of Hermosa in two distinct units separated by the Hermosa Trail. The Hermosa Trail is left out of the wilderness boundary to accommodate existing mountain bicycling use and forms a non-wilderness corridor separating the two units.

The 36,066-acre East Hermosa unit includes the drainages on the east half of the Hermosa watershed running from Jones Creek on the south to East Cross Creek near Hermosa Park.

The larger 83,914-acre West Hermosa unit includes the drainages in the west half of the Hermosa watershed and carries over the La Plata Mountains to incorporate the wild Bear Creek canyon all the way from the watershed divide to the Dolores River. The southwest extent of the unit includes Hesperus Mountain, the Sharkstooth, and the uppermost portions of the West Fork Mancos River watershed.

The Colorado Trail connecting Kennebec Pass and the Junction Creek road forms the southern boundary of the West Hermosa wilderness unit in order to accommodate mechanized recreational use of this trail link as well as to remove the past mining activity and patented mining claims along the southernmost spur of the La Plata Mountains.

4) Lizard Head Addition

Capability: The 6,656-acre Lizard Head Addition Roadless Area is comprised of the forested toe slopes of the rugged peaks which form the core of the Lizard Head Wilderness. This fringe of mature spruce-fir forest runs from the wilderness boundary downhill to Highway 145 on Lizard Head Pass, FDR 535 around the Meadows, and FDR 611 southwest of Dolores Peak. The dark forest nicely complements the existing wilderness which consists largely of alpine peaks, rocks, and ice.

The Lizard Head Addition Roadless Area receives relatively little recreational use other than the start of the Kilpacker Creek Trail which is a popular approach route for climbing El Diente Peak. The forests and glades of the area offer a refreshing change from the popularity of the three fourteeners and Navajo Lake basin at the heart of the wilderness. These adjacent unroaded areas complement the outstanding primitive recreation and solitude opportunities present in the wilderness.

There are no significant human imprints in the form of roads or past timber sales other than perhaps some informal social camping tracks in the upper Fish Creek drainage. The Groundhog Stock Driveway forms the boundary between the Slate Creek roadless portion and the existing wilderness. This is little more than a wide trail.

The Lizard Head Addition Roadless Area possesses outstanding opportunities for primitive recreation and solitude, particularly when considered in conjunction with the existing wilderness. The adjacent lands are substantially unmodified by human activities. The Lizard Head Addition Roadless Area is capable of wilderness designation.

Availability: The Slate Creek and Meadows portions of the Lizard Head Addition Roadless Area fall outside the suitable timber base as designated in the 1992 Plan Amendment. The upper Fish Creek portion is identified as suitable for commercial timber harvest. However, extensive spruce clearcuts with extremely poor regeneration occur west of FDR 611 just downstream of the Fish Creek addition. The cumulative impacts of these previous clearcuts, the poor regeneration, and high elevation conspire to make timber harvest in the upper Fish Creek watershed of dubious wisdom. Enhancing the wilderness character of the existing Lizard Head Wilderness clearly outweighs commercial timber management of these adjacent lands.

The Lizard Head Addition Roadless Area is considered to contain moderate potential for hardrock minerals, including uranium. However, there are no patented mining claims anywhere near the roadless area and no evidence of any substantial interest in mineral development within the area.

Other than the stock driveway, there are no significant livestock range developments. The Slate Creek and Meadows areas are currently closed yearlong to motorized vehicle use. The upper Fish Creek addition is closed in summer to motorized vehicles but open in winter to snowmobiling. However, the forests and topography make upper Fish Creek unattractive for snowmobiling.

The Lizard Head Addition Roadless Area has no compelling resource development conflicts with wilderness designation and is available for designation as wilderness.

Need: A basic tenet of conservation biology is that large protected areas are more useful than small protected areas for perpetuating species. The Lizard Head Addition Roadless Area increases the existing wilderness by ten percent and improves the wilderness's utility as a refuge for wildlife.

The wilderness additions to Lizard Head include verdant spruce-fir forests which expand the ecological diversity of the existing wilderness.

The Slate Creek addition in particular encompasses a critical landscape connection. This addition extends the protected wilderness to include mature spruce-fir forest all the way to Highway 145 at a point immediately across from the San Miguel Roadless Area east of the highway. The San Miguel Roadless Area at this point is a similar dense spruce-fir forest. These two linked spruce-fir forests form the most intact forested corridor anywhere crossing Highway 145. Species which prefer or require forested cover, such as lynx and pine marten, might be expected to prefer a relatively continuous forested landscape with only a single road such as the corridor created by the Slate Creek-East Fork Dolores River connection. For this reason, the Lizard Head Addition Roadless Area fills a critical need in the larger picture of maintaining an ecologically connected landscape.

The Lizard Head Addition Roadless Area meets the requirements of capability, availability, and need for wilderness and are recommended for addition to the wilderness.

5) Ophir Needles

Capability: The Ophir Needles roadless area straddles the San Juan-Uncompahgre National Forest boundary in the spectacular alpine country southwest of Red Mountain Pass. The area is characterized by a series of interconnected alpine basins holding sparkling lakes surrounded by jagged, rocky ridges and peaks. Two popular jeep trails bound the area on north and south, the Black Bear Pass road on the north, and Ophir Pass on the south. The area's namesake is the rugged Ophir Needles which provide a popular rock-climbing destination near the town of Ophir on the Uncompahgre NF side of the area. 3,815 acres of the roadless area are in the San Juan National Forest.

The area's rugged nature defies easy trail construction. The primary recreational use on the San Juan side is the steep and lightly-used trail to Columbine Lake. This steep climb takes hikers quickly above timberline and opens up sweeping panoramas of the breathtaking San Juan Mountains. A collection of named an unnamed lakes are scattered throughout the area. The prominent central peak in the area is 13,661-foot Lookout Peak. The area's western extent, on the Uncompahgre NF, includes the precipitous ridge due north of the town of Ophir. The abundance of high lakes, jagged peaks, and remote backcountry results in outstanding opportunities for primitive recreation and solitude. In fact, the Ophir Needles roadless area offers one of the very best opportunities to avoid interaction with other recreational users.

The predominant ecosystem type in the area is alpine tundra. Spruce and fir forests creep up the steep, lower slopes of the area. The peaks are comprised of marine sediments including limestones, sandstones, and shales. Glaciation carved the landscape into the peaks and valleys that we see today.

The area's steep and precipitous slopes have precluded vehicular use. The current travel management prescription identifies the Columbine Lake Trail as open to motorized use, but terrain precludes actual motorized use and there is no evidence that motorcycles ever travel the route's steep switchbacks.

Several patented mining claims are located within the area, but there is no substantial physical disturbance associated with those claims. Columbine Lake has a small water impoundment structure associated with it, but primarily appears to a natural lake. Overall, the Ophir Needles roadless area is primarily affected by the forces of nature and the imprints of humanity are few to nonexistent.

Ophir Needles clearly meets Forest Service criteria for wilderness capability.

Availability: The primary use of the Ophir Needles roadless area consists of hiking, backpacking, climbing and other primitive recreation. The area is closed to motorized recreation except for the Columbine Lake Trail and snowmobiles. However, the area's steep and avalanche prone terrain precludes motorized use.

There is no suitable timber present for harvest. The area was extensively explored by early miners for hardrock minerals such as gold and silver, apparently without success because there are no significant historic mines in the area. There appears to be no valuable mineral potential in the area.

The lack of resources for timber or mineral extraction, and the lack of suitability for motorized recreation means there are no reasonable conflicts between wilderness designation and other activities incompatible with wilderness.

Need: The Ophir Needles roadless area is classic high alpine San Juan wilderness, similar in attributes to the nearby Weminuche and Lizard Head wilderness areas. However, unlike those existing wilderness areas with their 14,000-foot peak that attract large numbers of visitors, Ophir Needles offers superior opportunities for solitude amid a wilderness setting. Like the nearby San Miguel Roadless Area, Ophir Needles can help to divert demand from overused portions of existing designated wilderness areas.

The Ophir Needles roadless area also helps fill the gap in the larger landscape of protected areas in the heart of the San Juans. As more development proposals spread across the landscape, such as the newly approved Silverton Mountain ski area, wild landscapes such as Ophir Needles become rarer and more valuable.

In conclusion, the Ophir Needles roadless area satisfies the requirements for capability, availability, and need for wilderness and the area is recommended suitable for designation as wilderness.

6) Piedra Additions

Capability: The 1993 Colorado Wilderness Act designated a 60,000-acre portion of the 114,000-acre Piedra roadless area as a special management area equivalent to wilderness in all respects other than reservation of wilderness water rights. Approximately 10,000 acres of the RARE II roadless area have been modified by timber harvest and road construction in the last twenty years. This leaves over 40,000 acres of undisturbed roadless lands contiguous to the existing Piedra special management area.

The Piedra Area and its adjacent roadless areas are probably the largest expanse of contiguous, undeveloped forest remaining in Colorado. Only the nearby Hermosa Roadless Area may compare to Piedra. The greater Piedra Roadless Area consists primarily of the mid-elevation stretches of the Piedra River and a half-dozen major tributaries. Piedra includes a large amount of the remaining old-growth ponderosa pine in the San Juans. This occurs along the Piedra River and the lower reaches of its tributaries. Most of the ponderosa pine old-growth is already included within the existing congressionally-designated area. However, additional significant stands of old-growth ponderosa pine occur along the Piedra River immediately upstream of the protected area. An additional large block of contiguous old-growth ponderosa is found in the roadless Devil Creek watershed, the southeast portion of the Piedra Additions Roadless Area. The Piedra adjacent areas also include significant stands of aspen, mixed-conifer, and spruce-fir.

The spectacular and pristine forests and streams of Piedra offer refuge for numerous wildlife species. The area contains the endangered Peregrine falcon and is home to a thriving population of reintroduced river otters. Piedra is considered suitable habitat for the Mexican spotted owl and goshawk. The forests of Piedra comprise an important elk migration corridor between winter range in oak and pinyon-juniper woodlands along the lower Piedra and summer range in the adjacent Weminuche Wilderness and in the headwaters of Piedra River tributaries. A Colorado Division of Wildlife survey identified the Piedra's western forests as some of the best available habitat for lynx based on snowshoe hare populations.

Significant primitive recreation opportunities exist in the Piedra Additions roadless areas. The upper end of the First Fork Trail beginning at Beaver Meadows is included within one large adjacent roadless addition to the west. This trail is popular with backcountry horsemen and during hunting season. The East and West Devil Creek trails in the southeast addition are rugged and relatively unused. The upper Piedra River Trail is popular with anglers downstream of the Piedra picnic ground in the eastern roadless addition. The area's dense forests combine with this trail system to provide outstanding opportunities for primitive and unconfined types of recreation.

Portions of the Piedra Additions roadless area previously entered for timber harvest have been excluded from the area. The remaining areas are generally free from noticeable human imprints. A dilapidated line cabin for livestock permittees is located along the First Fork in the western roadless addition, along with several livestock fences and an improved pond, but these impacts are insignificant given the large unmodified forest surrounding the cabin. An old road bed provides a faint reminder of one-time human activity in the Indian Creek area on the southwest boundary of Piedra. There are no significant human imprints other than evidence of hunting camps and similar recreational activities in the other roadless additions around Devil Creek and the upper Piedra.

The Piedra Additions Roadless Areas offer outstanding opportunities for primitive recreation and solitude. The areas are substantially natural in appearance. These additions to the Piedra are therefore capable of wilderness designation.

Availability: Most of the Piedra Additions Roadless Areas falls within the suitable timber base for the San Juan National Forest as designated in the 1992 Plan Amendment. There is little or no justification for harvesting these forests. The old-growth ponderosa pine stands in the Devil Creek drainages and along the upper Piedra River comprise much of the last 5% of remaining old-growth ponderosa stands in the San Juans. There is no conceivable reason for commercially harvesting this tiny remnant of original forest. No ecological reason exists for timber management of the spruce-fir forests which occur at higher elevations in the Devil Creek drainages and in the upper First Fork drainage. Some nearby spruce-fir forests have been harvested simply to provide wood fiber for commercial timber mills. Stands of aspen and mixed-conifer might be harvested to enhance regeneration, but the uniqueness of the greater Piedra Roadless Area as the largest unmodified forest in the state argues strongly against intensive human manipulation of the forest. In addition, the required annual sale quantity on the San Juan National Forest can be readily obtained from areas outside the Piedra Additions Roadless Area. Finally, serious concerns about slope stability and erosion have counseled against road construction and timber harvest on the steeper slopes draining into the First Fork.

The Piedra Additions Roadless Areas lie north of the Fruitland outcrop which is generally considered the northern extent of prospective coal-bed methane deposits. Piedra contains no known significant hardrock mineral potential either.

Conflicts with mechanized recreation are relatively few. The Piedra River Trail is closed yearlong to mechanized recreation. In the southeast, the East and West Devil Creek trails were closed to motorized use in a 1998 plan amendment. Only the Devil Mountain Trail receives regular motorized use at this time. The Heflin Creek and upper Indian Creek addition to the southwest is closed to motorized recreation use by special closure in the travel management plan. The upper First Fork drainage is closed to summer motorized use but winter snowmobile use is allowed. This use occurs primarily along the West Prong timber road and in the adjacent Beaver Meadows, both of which are largely excluded from the roadless area. Approximately one-half the Bear Creek unit is closed to all motorized vehicles, and the remainder contains no trails suitable for motorized vehicles.

Resource extraction is not justified in the Piedra's undisturbed forests, and motorized recreation conflicts are few and localized. Piedra is therefore available for wilderness designation.

Need: Large expanses of undisturbed, lower elevation forests are extremely rare in the Rocky Mountains. Piedra provides the best remaining example of this type and every effort should be made to protect the largest extent practical.

Conservation biology tells us that wide-ranging, solitude-dependent species such as lynx require large tracts of continuous forest cover. Again, Piedra offers the best opportunity for providing unbroken expanses of native forest.

Ecologists also know that larger undeveloped tracts provide more suitable habitat than smaller undeveloped tracts of land. Edge effects are reduced and more interior habitat is provided by large undeveloped tracts. Piedra's unique position as the largest undeveloped forest in Colorado literally demands its long-term preservation.

In addition, the Piedra adjacent areas include substantial stands of aspen and ponderosa pine, both of which are underrepresented within designated wilderness according to the Region 2 Regional Wilderness Needs Assessment.

For these reasons, the Piedra Additions are needed as wilderness.

Four major additions are recommended for addition to the existing Piedra Area in the Wild San Juans Alternative:

1) Upper First Fork watershed, including Heflin Creek (13,866 acres): This addition extends the wilderness boundary westward to include the aspen and mixed-conifer forests of the Trout Creek, Clear Creek, Red Creek, and West Prong tributaries to the First Fork. The boundary excludes the West Prong timber road and adjacent areas of past timber harvest. The Heflin Creek and Devils Hole portion extends the southwestern boundary to take in the headwaters of Death Valley Creek and adds Heflin Creek watershed to the existing protected area. Portions of the upper Indian Creek watershed are also added.

2) Devils Creek (12,407 acres): The drainages of East and West Devils Creek east of Horse Mountain are added to the southeastern boundary of the protected area. This addition includes substantial stands of old-growth ponderosa pine and the rugged valleys of Devils Creek.

3) Upper Piedra River (12,092 acres): The three miles of the Piedra River corridor immediately upstream of the existing protected area are added along with the lower portion of Weminuche Creek. This addition includes substantial stands of old-growth ponderosa pine along the stream bottoms.

4) Bear Creek (8,126 acres): Dense forests of aspen and mixed conifer blanket the slopes of Grassy Mountain above Vallecito Reservoir. The addition connects the Piedra with the important big game wintering areas in the Pine River Valley.

7) San Miguel

Capability: The San Miguel range consists of craggy and difficult summits between Molas and Lizard Head Passes. A dozen summits top out above 13,000 feet in elevation, the highest of which is 13,984-foot Grizzly Peak, and many are banded by impenetrable cliffs that make route-finding a challenge. These impressive peaks tower over several alpine cirques graced by indescribably delightful lakes, creating some of Colorado's most breath-taking mountain scenery, including the extraordinary Ice Lake Basin. A generous network of trails laces the area, including a 20-mile segment of the Colorado Trail, offering hikers abundant opportunities for exploration. Popular trails to Engineer Mountain and Ice Lake provide additional recreational highlights within the area. The combination of alpine lakes, difficult peaks, and abundant trails create outstanding opportunities for recreation and for solitude.

While aspen forests grace the area's lower slopes around Cascade Creek and elsewhere, and thick forests of spruce and fir blanket the western fringes around Sheep Mountain and Lizard Head Pass, most of San Miguel Peak roadless area lies above treeline. An extensive forest fire in 1879 denuded the slopes west of Molas Pass, leaving stumps and skeletal trees. In July and August, these alpine fields explode in a profusion of red, blue, yellow, and white blossoms of wildflowers such as columbines, paintbrush, buttercups, and lupine. The area's mountains consist largely of marine sediments eroded from the Ancestral Rockies more than 200 million years ago and now comprise the limestones and red sandstones and shales which dominate these high peaks. An immense icecap in the last few million years smoothed the terrain surrounding the jagged peaks into the modern landscape's rolling slopes and deep u-shaped valleys.

The area’s ecological pristineness is attested by the proposed Grizzly Peak Research Natural Area. This RNA encompasses the alpine slopes and subalpine forests surrounding Grizzly Peak in the roadless area’s northwest quadrant. The RNA is proposed for protection because of its high quality tufted hairgrass, its wet spruce-fir forest on moderate slopes, and alpine vegetation on large areas of shale geology.

Several once and current vehicle routes occur within the 67,996-acre roadless area, but are substantially unnoticeable when compared against the vastness of this high landscape. A dead-end spur leaves Forest Development Road 578, the Bolam Pass Road, at the pass’s summit and meanders into the headwaters of the East Fork of the Dolores River. This road serves no apparent recreational purpose, and harvesting the old-growth spruce-fir forest in the watershed would be ecological folly. This road should be closed at its junction at Bolam Pass and revegetated for inclusion in the wilderness.

A second road accesses the 320-acre private inholding near Sheep Mountain. This jeep road is used only by the landowner and is a minor influence on the larger landscape. A third route, an abandoned jeep trail, leads into the headwaters of South Mineral Creek where it disappears above treeline near Rolling Mountain. This route has degenerated into a hiking trail within the roadless area.

Though less impacted by historic mining activities than nearby areas along Red Mountain Pass and around Telluride, the area contains numerous patented mining claims in its high valleys that might complicate long-term management as wilderness.

Fortunately, several acquisitions are in process that will result in significant consolidation of public land ownership within the roadless area. One land exchange completed in 1998 resulted in acquisition of approximately 150 acres of patented mining claims in the South Mineral Creek and Cascade Creek drainages, including all of the claims around Rolling Mountain. A second pending purchase includes the two private parcels, 160 acres and 80 acres in size, on Flattop Mountain in the roadless area's western reaches. Previous Forest Service purchases have resulted in acquisition of several additional patented mining claims near Fuller Lake.

San Miguel easily meets the criteria for wilderness capability. Most of the roadless area is located on the San Juan National Forest, but a small portion overlaps onto the adjacent Uncompahgre National Forest as well. San Miguel is a large, roadless area over which human imprints are substantially unnoticeable. The area offers outstanding opportunities for primitive recreation and solitude in one of the most stunningly spectacular settings in all of Colorado. The presence of scattered private land holdings which might have previously reduced the area's appeal as wilderness have been substantially reduced through purchase and exchange.

Availability: San Miguel's primary human activity currently consists of primitive recreation. Most of the area is closed to year-round motorized recreation. Some snowmobile use occurs in the extreme southwest corner of the area near Bolam Pass. Some summer mountain bike use occurs on the Colorado Trail and trails feeding into it.

The current San Juan Forest Plan identifies timber suitable for commercial timber harvest in the East Fork Dolores River watershed and around Flattop Mountain. These forests, as well as additional forests in Cascade Creek and South Fork of Mineral Creek, contain significant stands of spruce-fir with old growth scores exceeding 55. Previous timber sales proposed for the slopes of Sheep Mountain in mature and old-growth spruce-fir generated intense public controversy. It is anticipated any future timber sales proposed for the roadless forests within San Miguel would result in similar public controversy. There is no ecological need to manipulate these forests through mechanical means.

Large portions of the roadless area are underlain by shale, sandstone, limestone and other sedimentary strata lacking in potential for hard rock minerals. The northern portions of the unit contain more volcanic rocks. The Mineral Creek drainage was the focus of historic mining activities. Few observers believe hard-rock mining is an economically viable activity in the San Juans in general. There is little interest in mining the old patented mining claims which still remain in the upper Mineral Creek watershed. One recent seller of two such claims is a professional mining engineer who frankly concurs there is no valuable mineral potential in the area.

Previous sheep livestock allotments have fallen out of use and relatively little of the area receives livestock use.

There is almost a complete absence of development potential in the San Miguel Roadless Area, leading to the conclusion the area is available for wilderness designation.

Need: San Miguel lacks the official title of wilderness, but it still offers the wild attributes that draws throngs to the Weminuche, Lizard Head, and Mount Sneffels Wildernesses. The only difference is that unlike those areas, the summits in San Miguel Peak roadless

area don't quite reach to 14,000 feet so peak baggers are less attracted to the area. As such, San Miguel Peak provides a desirable alternative to heavily used wilderness areas such as the Chicago Basin portion of the Weminuche. The area can readily serve to divert demand from overused portions of nearby wilderness areas elsewhere in the San Juans.

San Miguel occupies a key link in the landscape of intact spruce-fir forest ecosystems in the San Juans. The area's old-growth and mature spruce-fir forests fill the gap between similar forests in the Weminuche Wilderness to the southeast and the Lizard Head Wilderness directly northwest across Lizard Head Pass. Wide-ranging wilderness-dependent species who prefer undisturbed interior forests such as lynx and pine marten will require intact landscape linkages such as that provided by San Miguel for successful propagation in perpetuity.

San Miguel satisfies the requirements for capability, availability, and need for wilderness and the area is recommended suitable for designation as wilderness.

8) Snaggletooth

Capability: The proposed Snaggletooth Wilderness comprises 31,635 acres of BLM and San Juan National Forest lands split into two units by a powerline. The area is located six miles east of Dove Creek and about 25 miles north of Cortez. The northern unit encompasses approximately 18,000 acres and the southern unit approximately 14,000 acres. The proposed Snaggletooth Wilderness is named for a rapid in the Dolores River, which runs through the unit.

12,172 acres of the proposed wilderness are administered by the San Juan NF; the remaining 19,427 acres are managed by BLM.

The Snaggletooth unit was never inventoried for its wilderness potential previously because the Dolores River Canyon below Bradfield Bridge consisted of alternating, intermingled BLM and Forest Service jurisdiction up until 1983. Congress enacted Public Law 98-141 in 1983 to modify boundaries of the San Juan National Forest. In brief, the Forest Service transferred 22,717 acres below Bradfield Bridge to the BLM, while BLM transferred 4,124 acres above Bradfield Bridge to the Forest Service (plus additional lands near Silverton).

Most of the proposed Snaggletooth Wilderness is presently managed by BLM as part of the Dolores River Special Recreation Management Area in recognition of its extraordinary recreation activities. The Forest Service component consists largely of the rugged eastern tributary canyons, and the sloping tablelands above these canyons dominated by ponderosa-pine forest.

The river segment through the wilderness is one of the premier whitewater rafting stretches in Colorado and the Rocky Mountain West. In the last visitor study BLM estimated more than 12,500 visitor days annually during the typically brief snowmelt period during May and June (1984 figures). After several years of drought that decreased visitor use, the spring of 2005 saw a large jump in visitor use, with record release flows from McPhee Reservoir.

The entire segment of the Dolores River flowing through the proposed wilderness was studied and recommended for designation under the Wild and Scenic Rivers Act in a study completed in 1976. The recommendation was forwarded to Congress but no congressional action was ever taken. A temporary mineral withdrawal associated with the Wild and Scenic study expired in 1981 leaving the river corridor susceptible to road construction, mining, and other activities incompatible with the river's extraordinary scenic and recreational values.

River otters were reintroduced to the Dolores River by the Colorado Division of Wildlife and now thrive. Other wildlife in the corridor includes mule deer, black bear, mountain lions, and numerous raptors as well as species that depend upon mature ponderosa pine forests such as Abert's squirrels and flammulated owls. The river also supports a healthy trout population that attracts anglers year-round.

The central feature of the wilderness is the Dolores River Canyon. The Forest Service component of the wilderness protects the eastern canyon rim and preserves the forested setting of the canyon. The proposed wilderness boundaries exclude existing and past timber harvest. Several closed vehicle ways and some livestock fences intrude

into the area, but overall these imprints are substantially unnoticeable. Snaggletooth qualifies as capable of wilderness designation.

Availability: The Forest currently manages its portion of the proposed wilderness for semi-primitive, non-motorized recreation; wildlife winter range; and livestock grazing. The tributary canyons are rugged and inaccessible, making development activities infeasible. Active grazing allotments exist on the plateau above the canyon rim. Ponderosa pine forest offers timber management possibilities in pockets on the plateau as well. Active timber operations are excluded from the boundary, such as the recent Guard Station timber sale.

Past uranium exploration roads and evidence are excluded from the boundary, eliminating areas of significant mineral potential. Potential exists for carbon dioxide and natural gas deposits, although topography limits access to the extreme boundaries of the proposed wilderness.

The Snaggletooth area is available for wilderness designation.

Need: The Snaggletooth area encompasses a low-elevation river canyon covered largely by pinyon-juniper woodlands, ponderosa pine forest, and scrub oak. These ecosystem types are largely absent from existing designated wilderness. Wilderness designation of Snaggletooth is needed to expand the ecosystem diversity of the NWPS.

The Dolores River segment through the proposed wilderness is the most popular wilderness river experience in southwest Colorado. Wilderness designation is needed to preserve the outstanding nature of a unique recreational opportunity.

Snaggletooth is capable, available, and needed for wilderness and should be recommended suitable for designation as wilderness.

9) South San Juan Additions

Capability: Two large roadless areas and two small units, with a combined acreage of 38,233 acres, are contiguous to the South San Juan Wilderness. The 158,790-acre South San Juan Wilderness is considered by many Colorado's wildest landscape. This reputation relates to the belief the South San Juans harbor the last remnant population of grizzly bears in the Southern Rocky Mountains. The South San Juans are considered suitable for two other rare species as well, the Canada lynx and the wolverine. Three RNAs are proposed within the existing wilderness, further highlighting the pristine nature of the South San Juans wilderness ecosystem.

The largest adjacent roadless area is the 26,429-acre Squaretop Mountain unit which is draped around the northwest quadrant of the wilderness. Squaretop Mountain encompasses the dense forests of largely mixed conifer and aspen blanketing the lower slopes between the Rio Blanco and Rito Blanco. Significant stands of old-growth spruce occur at the area's highest elevations near the wilderness boundary. The roadless area contains the most significant low-elevation landscape corridor in the San Juans, the densely forested connection between the South San Juan and Weminuche Wilderness Areas bridging Highway 160 between Johnny Creek and Turkey Creek. The Johnny Creek corridor extends down to ponderosa pine forests at its lowest elevations along the San Juan River. This corridor follows an elk migration route and is the most logical movement route for forest-dwelling species such as lynx, wolverine, and pine marten dispersing from the South San Juans to the Weminuche and back. On the wilderness area's north boundary, the roadless area includes the Clamshell area, site of the now-defunct proposed East Fork Ski Area. Several wilderness trails originating at trailheads on the roadless area boundary head into the wilderness from the Squaretop Mountain. The combined Squaretop/South San Juan complex offers some of Colorado's most extraordinary opportunities for primitive recreation opportunities in a setting of outstanding solitude.

Rio Blanco is a large roadless area adjacent to the South San Juan's southwest boundary. This 9,707-acre roadless area is characterized by dense aspen stands and abundant ponderosa pine forests, including significant stands with old-growth scores in excess of 40. The gently rolling nature of the area has made it accessible to a number of meandering two-track motor vehicle routes, none of which are constructed or maintained. The portion of the roadless area impacted by past aspen timber sales has been excluded from the remaining area. Rio Blanco includes the historic Murray Homestead, an example of early European attempts to settle this portion of Colorado. The only established trail through the area is the V-Rock Trail beginning at Buckles Lake and heading into the nearby wilderness. This lack of a trail system enhances opportunities for solitude and unconfined types of primitive recreation.

The third contiguous roadless area is small 1,560-acre Lost Creek unit on the South San Juan's northern boundary. Dense spruce forests cover this triangular unit packed between the East Fork of the San Juan and Quartz Creek. The area is steep, rugged, and trail-less which guarantees outstanding solitude as well as challenging primitive recreation opportunities. Fourth is the 537-acre piece of roadless land around Navajo Peak along the southern border of the South San Wilderness Area.

The four roadless areas offer outstanding opportunities for primitive recreation and solitude in settings substantially unmodified by human activity. The areas are capable of wilderness designation.

Availability: Essentially none of the Squaretop roadless area includes any commercially suitable timber lands, other than small portions along the area's extreme western edges. Past high-elevation clearcuts in the headwaters of the Rito Blanco have never regenerated, strongly suggesting the climate and soils make the area inappropriate for timber harvest. No producing wells or operating mines are located anywhere in the vicinity, suggesting a low probability of mineral potential. The entire unit is closed to summer motorized recreational travel. Small portions are open to winter snowmobile use, but topography greatly limits the extent of this use. The 4,660-acre Clamshell portion of the unit was once the site of the proposed East Fork Ski Area, but the proponent declined to pursue development and the ski area permit has lapsed.

The Rio Blanco contains substantial areas of suitable timber lands, much of it aspen, as designated in the 1992 Plan Amendment. However, there is no compelling ecological reason to fragment the second-largest undeveloped landscape in the San Juans with timber harvest aimed simply at preventing conifer succession in some stands, the reason given for timber harvest in this area. Rio Blanco is closed to summer motorized recreation except for existing two-track vehicle routes. Some winter snowmobile use may take place. The Blanco Tunnel of the Chama Transbasin water diversion project passes underneath the area. The adjacent V-Rock portion of the South San Juan Wilderness was at one time leased for oil and gas development, but no exploration or development ever occurred. This indicates a strong lack of interest by oil producers in the area.

The Lost Creek unit does not contain any suitable commercial timber lands. The area has no trails, is closed to summer motorized vehicle use, and topography precludes any winter snowmobile use. The area was previously explored for potential deposits of molybdenum and at one time contained unpatented mining claims. No development has been proposed since exploratory core drilling occurred in the early 1980s.

The Navajo Peak unit does not contain any suitable commercial timber lands. It has no development for recreation or otherwise. There are no roads or trails.

No significant extractive resources will be foreclosed by designation of these roadless areas as wilderness. Most are unsuitable for timber management, and no mineral potential has been proven. The areas are primarily closed to motorized vehicle use. The East Fork Ski Area is defunct. These areas are therefore readily available for wilderness designation.

Need: Squaretop includes the most significant low-elevation landscape corridor in the San Juans. This is the only opportunity to preserve unfragmented forested habitat where the Weminuche and South San Juan Wilderness Areas could abut. Wilderness designation will ensure security and pristine habitat for a remnant grizzly bear population rumored to exist in the wilderness headwaters of the Rio Blanco and other drainages immediately upstream of the roadless area. Wilderness designation would also forever preclude development of the East Fork Ski Area. A ski area in the East

Fork valley is the single most damaging development decision the Forest Plan can furnish. The ski area would result in a new community with a planned daily population of 10,000 in a currently undeveloped valley containing a single cabin. The secondary impacts of this massive development on the most pristine wilderness ecosystem in the Southern Rockies would be devastating. For these reasons, Squaretop is definitely needed as wilderness.

Rio Blanco fills the need identified in the Region 2 Wilderness Needs Assessment for increased biological diversity among the Region's wilderness system. Rio Blanco consists almost entirely of flowing aspen forests and expansive ponderosa pine forests, including significant high-scoring old-growth. The extension of biological diversity, combined with added security for possible surviving grizzlies, are compelling arguments about the need for wilderness designation of Rio Blanco.

The Lost Creek unit extends the wilderness boundary to the East Fork valley, and adds rugged topography inappropriate for any development activity. The prospect of industrial mining in this valley would be catastrophic to the integrity of this most pristine of wilderness areas. Lost Creek is needed for wilderness designation to preclude inappropriate industrial development.

The Navajo Peak unit slightly extends the wilderness boundary to the south, adding a pristine undeveloped ecosystem which is inappropriate for any other use.

10) Stoner Mesa

Capability: Stoner Mesa roadless area comprises 20,584 acres of unroaded lands with few imprints of humanity. The roadless area is characterized by the gently sloping, level surface of Stoner Mesa itself; the mesa's steeply sloping sides; and the narrow valley of Stoner Creek. Only Stoner Mesa shows any noticeable signs of human activity.

The Stoner Mesa roadless area contains no maintained or constructed roads, and no obvious two-track ways. It is a classically undeveloped roadless area. Human imprints are few and concentrated primarily on Stoner Mesa itself. There exist 6-7 stock reservoirs scattered across Stoner Mesa. Several of these blend closely into the environment and are almost indistinguishable from natural Stoner Lake. The others have obviously constructed earthen berms, but these 6-7 stock ponds are widely scattered across the mesa and are usually screened by dense aspen forest. There also exist several range fences crossing the mesa from rim to rim, which are also well screened.

Stoner Mesa roadless area consists primarily of aspen forests with scattered pockets of ponderosa pine and oakbrush at lower elevations or on sunny, dry southern slopes. At the highest elevations, stands of spruce and fir intermingle with aspen. Blue spruce occur occasionally, particularly along streams. The steep slopes below Stoner Mesa's rim, and below the west rim of Taylor Mesa, offer absolutely pure stands of virgin aspen. Many stands harbor no conifers in the understory, and the steep topography makes the area unsuitable for grazing. Consequently, some of the San Juan's best examples of pure, unaltered aspen occur along the slopes of Stoner Mesa and Taylor Mesa.

Stoner Mesa's gently undulating plateau provides a remarkable range of aspen forest types. The aspen forest is unbroken but for a few scattered grassy parks, but these stands vary considerably with soil type. Stands on shallow, rocky soils are thin and stunted in appearance. These quickly change to dense, vigorous stands rooted on deeper, loamy soils. A peculiar characteristic of these forests are gigantic ghostly ponderosa snags rising above the aspen. One such snag measured more than 55 inches in diameter; several living trees measured over 40 inches in diameter. Occasional white fir and Engelmann spruce struggle to invade some stands, but Stoner Mesa is easily 99% pure aspen.

Two main trails traverse the roadless area: the Stoner Mesa Trail which runs the length of the mesa and the Eagle Peak Trail which parallels Stoner Creek. Neither receive great use except during hunting season. This lack of recreational pressure, combined with dense aspen forests, makes for outstanding opportunities for solitude. Recreational activities include hiking, backpacking, horsepacking, hunting, and fishing. The uncommon experience of hiking many miles through varying aspen forests makes recreational opportunities particularly unique and outstanding among San Juan NF roadless and wilderness areas.

Stoner Mesa meets the criteria for wilderness capability. It is a large, roadless area with human imprints substantially unnoticeable. The area offers outstanding opportunities for primitive recreation and solitude in a splendid wilderness setting.

Availability: The primary extractive resource use present in Stoner Mesa is nothing more than livestock forage. Livestock graze the mesa's top, but it's steep sides preclude grazing. There are no apparent mineral values present. The aspen stands on the mesa's surface might offer commercially-viable logging opportunities, but road construction costs would potentially dwarf the financial return from timber sales. This is particularly true if a new road were constructed up the mesa's steep sides. A narrow neck and unstable soils, as evidenced by numerous slumps along the steep slopes above Stoner Creek, counsel against road construction across this narrow neck from Forest Road 686 to the north. Because of these slope stability concerns, none of Stoner Mesa falls within the suitable timber base. There is little or no motorized recreation except errant ATVs during hunting season that wander south onto the mesa.

The lack of compelling resource development opportunities and the area's extraordinary wilderness attributes indicate that Stoner Mesa is available for wilderness designation.

Need: The Rocky Mountain Region's Wilderness Needs Assessment identified aspen as an underrepresented ecosystem type within the Region's system of designated wilderness. Stoner Mesa encompasses one of the highest-quality, roadless, aspen ecosystem types on the entire San Juan NF. The area's designation as wilderness would greatly relieve the absence of aspen ecosystem types among designated wilderness. Stoner Mesa is utterly unique among San Juan wilderness candidates in its extensive, unbroken expanses of pure aspen forest. The area's elevation range between 8,000 and 9,500 feet would put it among the lowest elevation wildernesses on the forest, and one of the lowest wilderness areas in all of Colorado.

Stoner Mesa and its extraordinary aspen forests are needed as a wilderness addition to improve representation among wilderness ecosystem types, to extend wilderness ecosystems to lower elevations, and to provide additional wilderness recreation opportunities significantly lacking in the aspen ecosystem type.

Stoner Mesa meets the requirements of capability, availability, and need for wilderness and the area is recommended suitable for designation as wilderness.

11) Storm Peak

Capability: Storm Peak includes 43,493 acres of roadless lands in the Rico Mountains surround 12,133-foot Eagle Mountain. The area straddles the watersheds of the East and West Dolores Rivers. The Rico Mountains are a colorful and overlooked segment of the San Juans, dwarfed by the nearby 14,000-foot peaks of the Lizard Head Wilderness to the north.

Storm Peak contains extensive stands of spruce-fir and mixed conifer forest. Much of this forest is located on the gentle slopes of Truby Creek north of Calico Peak. A large percentage of the remaining old-growth spruce-fir in the Dolores River drainage occurs in Storm Peak, including the expansive old-growth stands of Truby Creek. The Truby Creek old-growth spruce forest is extremely uncommon on the San Juan National Forest because it is located on gentle slopes, almost all of which have been extensively clearcut elsewhere on the SJNF.

The easily accessible and previously roadless forests of Storm Peak have in the past 20 years experienced the greatest impacts from logging of any roadless area on the SJNF. Approximately 7,500 acres of RARE II roadless lands have been roaded and logged in a handful of timber sales during the 1980s.

A well-developed trail system winds through Storm Peak. The Calico National Recreation Trail follows the ridgeline from the Dolores River to Storm Peak and continues on through spruce forests to Morrison Creek. The roadless area includes the parallel Priest Gulch Trail as well as the upper end of the Stoner Mesa Trail. The area's lack of high peaks and alpine lakes makes it less popular than nearby wilderness areas, and contributes to the area's outstanding opportunities for solitude.

Patented mining claims dot the Horse Creek watershed west of Rico, but evidence of human activity is restricted to the lower end of the drainage, which is excluded from the roadless area in any case. Otherwise, the area appears to be substantially unmodified by human activity.

Storm Peak offers outstanding opportunities for primitive recreation and solitude, and is unmodified by human activity. The area clearly qualifies as capable of wilderness designation.

Availability: Large portions of the Storm Peak Roadless Area fall within the SJNF's suitable timber base as designated in the 1992 Plan Amendment, particularly those areas surrounding Morrison Creek and Truby Creek on the northern end. Previously timber sale proposals in the roadless, old-growth spruce forests in these areas have generated fierce public opposition. The rarity of unmodified old-growth spruce forests on gentle terrain in the San Juans outweighs any reason to enter these forest for timber management.

Rico was once an active mining center and Storm Peak's proximity to Rico was used as justification against wilderness during RARE II. In the past two decades, hard-rock mining has vanished from the San Juans. The likelihood of economic mineral development in Storm Peak is extremely remote.

The Calico Trail and the Priest Gulch Trail are open to motorized recreation use, although the terrain of the Priest Gulch Trail is such that little or no motorized use takes

place. The abundance of historic logging and mining roads in areas outside the roadless area preclude the need to permit motorized recreation in Storm Peak.

Need: Storm Peak contains a rare forest type, old-growth spruce-fir forest on gentle slopes. Previous timber sale proposals inside the roadless area in Truby Creek combined with timber harvest eating into the roadless area boundaries indicates that only legislative protection as wilderness will prevent future managers from obliterating a rare old-growth forest for short-term timber targets. This relatively level old-growth, high-elevation forest type is almost entirely absent from existing wilderness areas in the SJNF.

Storm Peak is capable, available, and needed for wilderness and is recommended suitable for designation.

12) Treasure Mountain

Capability: Treasure Mountain plugs the high-elevation gap between the South San Juan Wilderness and the Weminuche Wilderness on Wolf Creek Pass' east side. The 21,806-acre roadless area consists largely of the prominent ridge called Treasure Mountain which descends west from the Continental Divide. Elevations range from 8,400 feet to 12,000 feet, and vegetation is predominantly spruce-fir forest at higher elevations and aspen/mixed conifer at lower elevations.

Treasure Mountain bounds the East Fork Valley to the north. A lynx track was identified in the East Fork in the early 1990s. The nearby South San Juan Wilderness is also considered the last best hope for remnant grizzly bear populations. The area also hosts an active peregrine falcon eyrie along the cliffs and rock outcrops of the western end of the area.

Treasure Mountain is managed primarily for semi-primitive, non-motorized recreation. However, several trails including the Windy Pass Trail and the Treasure Mountain Trail are open to motorized use, though there is little evidence of any occurring.

Several old spruce clearcuts are located just outside the northern boundary of the area, but no evidence of human activities is found within the core of the roadless area.

Treasure Mountain Roadless Area possesses outstanding opportunities for primitive recreation and solitude in an area substantially unmodified by human activity and is therefore capable of designation as wilderness.

Availability: Treasure Mountain contains no lands identified as suitable for commercial timber harvest as designated in the 1992 Plan Amendment. Topography precludes access to the remaining roadless lands. Potential for mineral development was cited as a rationale for non-wilderness recommendation during RARE II, but there are no producing mines or oil wells anywhere in the vicinity of Treasure Mountain and the likelihood of mineral development is extremely remote.

Treasure Mountain includes the site of the one-time proposed Wolf Creek Valley ski area, approximately 2,370 acres on the area's western boundary. The ski area proposal has been defunct for at least a decade. New ski area development, and more importantly associated private real estate development in the West Fork Valley, would greatly compromise this important landscape corridor between the South San Juan and Weminuche Wilderness Areas. Ski area development would also obliterate the rural character of the West Fork Valley.

Need: Treasure Mountain is the key high-elevation landscape connection between the South San Juan and Weminuche Wilderness Areas. The probable presence of lynx and perhaps grizzly bear in this region argues strongly for securing Treasure Mountain as the missing puzzle piece between the two wilderness areas with wilderness protection in its own right.

Wilderness designation will also preclude future consideration of the West Fork Valley ski area site. Development of a new ski area at this location would be an ecological catastrophe of the largest magnitude. Ski area development would forever

destroy the natural character of the West Fork Valley and forever sever the landscape link between the wilderness areas. Perhaps the single decision with the greatest land use implications in the entire San Juan Forest Plan revision is the allocation of land to future ski area sites since development of ski areas results in entire new towns and cities in previously rural valleys. Wilderness designation of Treasure Mountain permanently ensures protection against this fate.

The Treasure Mountain Roadless Area is capable, available, and needed for wilderness designation and is recommended as such.

13) Weminuche Wilderness Additions

Capability: Numerous roadless areas, totaling 93,740 acres, lie contiguous to the existing 492,418-acre Weminuche Wilderness. These span a diverse range of ecosystem types. The Weminuche Wilderness is the largest wilderness and roadless area in the Southern Rocky Mountains. The Weminuche is primarily a high-elevation wilderness, containing over 80 miles of the Continental Divide and numerous peaks exceeding 13,000 and 14,000-feet in elevation. The primary forest type present in the wilderness is spruce-fir, with small amounts of aspen occurring in several major stream drainages. Ponderosa pine is almost entirely absent within the wilderness, and aspen is severely underrepresented.

There are nine distinct roadless areas contiguous to the Weminuche Wilderness.

The largest adjacent roadless area is the 25,750-acre Turkey Creek unit on the wilderness area's eastern boundary. The Turkey Creek unit is the most significant landscape corridor on the San Juan National Forest. The area is a broad skirt of dense forest extending from 12,000-foot peaks at the wilderness' edge to the San Juan River. This is the only lower elevation, unroaded corridor connecting the South San Juan and Weminuche Wilderness Areas. Turkey Creek contains extensive stands of ponderosa pine and aspen, greatly expanding the ecological diversity of the Weminuche Wilderness. Turkey Creek provides suitable habitat for lynx and wolverine. It also comprises an important big game migration corridor. The popular Turkey Creek trail cuts through the area's center. The overwhelmingly remote and undeveloped character of the roadless area provides outstanding opportunities for primitive recreation and solitude. There are no noticeable human imprints within the unit. Adjacent private ranch lands are protected in part by private conservation easements.

The heart of the 3,132-acre Martinez Creek unit is the proposed 1,062-acre Martinez Creek Research Natural Area. Martinez Creek contains the largest known area of old-growth spruce-fir forest in the San Juans. This ancient forest has escaped disturbance for perhaps 600 years or more. The old-growth forest occurs at a relatively low elevation for unlogged old-growth in the San Juans. Opportunities for solitude are extraordinary because of the absence of trails and other infrastructure within the area.

The 5,193-acre Monk Rock roadless area includes the steeply sloping, forest front of Davis Mountain and Monk Rock around the East and Middle Forks of the Piedra River. The unit is covered with forests of spruce-fir and aspen. No trails penetrate the area, offering outstanding opportunities for solitude. A segment of the Piedra River's Middle Fork that is proposed for designation under the Wild and Scenic Rivers Act runs along the western boundary of the unit. Combined with the extremely scenic rock features of the unit, the area offers outstanding recreation opportunities as well.

Poison Park is a 5,773-acre roadless area surrounding Williams Creek Reservoir. Its central feature is the existing 580-acre Williams Creek Research Natural Area which was created as an excellent representative sample of white fir forest. Other notable ecological features include numerous grassy parks and stands of ponderosa pine at the lowest elevations. The unit's cliffs offer excellent Peregrine falcon habitat, and reintroduced river otters have been spotted in Williams Creek at the existing wilderness boundary. Opportunities for primitive recreation and solitude abound.

Graham Park is a 13,817-acre unit comprising the southern flanks of Graham Peak and Bald Mountain. Its most significant feature is the wet meadows in the Shaw and Falls Creek drainages that provide outstanding elk calving and rearing areas. Dense spruce forests offer a stark contrast to the unregenerated clearcuts outside the roadless area boundary. A number of lightly used trails penetrate the area and provide outstanding opportunities for solitude and primitive recreation.

The 4,969-acre Runlett Park roadless area consists of a uniform ridge extending from the Runlett Peak on the wilderness boundary to the Pine River confluence with Vallecito Reservoir. The area's steep elevation gradient spans a complete range from ponderosa pine along the river through mixed conifer to spruce at the wilderness boundary. One lightly-used trail bisects the area, offering access for enjoyment of the unit's outstanding solitude and primitive recreation opportunities.

The Miller Mountain roadless area includes 14,849 acres of the Florida River RARE II unit and is the southern extension of Endlich Mesa. 15,200 acres of this 50,380-acre RARE II area were designated wilderness in 1980; Miller Mountain covers the eastern half of the remaining roadless area which is the terrain between Lemon and Vallecito Reservoirs. The area includes some of the lowest elevation forests contiguous to the Weminuche Wilderness, 7,000-foot elevation ponderosa pine forests along the Florida and Pine River valleys. Two trails penetrate the area, but the vast bulk of the unit is trailless and utterly remote. Hiking and hunting highlight the outstanding primitive recreation opportunities which are present in Miller Mountain.

The 15,532-acre East Animas roadless area takes in the rocky, steep slopes between the Animas River and Missionary Ridge. The unit is largely vegetated with mixed conifer forests, but ponderosa pines typify the lowest 7,000-foot elevations along the river while spruce-fir dominate the highest elevations near timberline. East Animas incorporates the viewshed for the Durango-Silverton Narrow Gauge Railroad for at least ten miles. The unit's rugged topography and scant trails create outstanding opportunities for primitive recreation and solitude.

The 4,725-acre West Needle roadless area is on the west end of the existing wilderness area, east of highway 550 from Molas Pass to just south to Electra Lake. This addition is part of an important wildlife connection between the Weminuche and areas to the west including the San Miguel Proposed Wilderness and Lizard Head Wilderness.

The nine distinct units each offer outstanding opportunities for primitive and unconfined types of recreation and outstanding opportunities for solitude in settings substantially unmodified by human activities. Each clearly qualifies as capable for wilderness designation.

Availability: The Turkey Creek unit includes large areas of suitable timber base as designated in the 1992 Plan Amendment. Harvest of these areas would require extensive road construction which would destroy the unfragmented nature of the most important low elevation corridor in the San Juans. Protecting the integrity of this unfragmented landscape connection outweighs any need for timber management. Turkey Creek has moderate potential for coal and oil and gas occurrence, but little interest has been expressed. The unit is closed to motorized recreation and there are no recreational conflicts with wilderness.

Almost all of the Martinez Creek unit lies within the suitable timber base as designated in the 1992 Plan Amendment. An extremely controversial timber sale in the early 1990s generated substantial research interest which identified the area as containing a unique old-growth forest. The area is now proposed for designation as a Research Natural Area, which would preclude timber harvest. RNA status would also withdraw the area from mineral development. There are no trails and no motorized recreation activity in the area.

Monk Rock includes large areas within the suitable timber base as designated in the 1992 Plan Amendment. These are primarily spruce-fir forests for which there is no ecological necessity for human manipulation. Timber for commercial harvest can be readily obtained from existing roaded areas, so there is no need to enter Monk Rock for timber management. The area's topography makes it unsuitable for mineral leasing, and mineral-related development is extremely unlikely based on past activity. The unit is closed to motorized recreation.

Most of the Poison Park unit is considered suitable timber lands as designated in the 1992 Plan Amendment. However, areas adjacent to the Williams Creek RNA might be added to the RNA, removing them from the suitable timber base. The area's value in enhancing the adjacent Weminuche Wilderness by adding lower elevation ecosystems outweighs any need harvest timber. Mineral potential is largely non-existent. The unit is closed to summer motorized travel. Southern portions of the area along roads have been open to winter snowmobile use but hiking and hunting are the primary recreational activities.

Approximately one-half of the Graham Park roadless area was obliterated by timber harvest and road construction during the 1980s. The remaining roadless area falls largely outside the suitable timber base, particularly the remarkable wet meadows of Falls and Shaw Creeks. Mineral potential is minimal. The unit is closed to summer motorized travel, but snowmobiling is permitted off FDR 631 in winter.

Runlett Park includes large areas of suitable timber adjacent to vast tracts of unregenerated spruce clearcuts dating to the 1960s. Extensive cumulative impacts from past timber harvest make the area inappropriate for future sales. Runlett Park is considered to have insignificant mineral potential. Most of the area is open to motorized recreation, although topography poses constraints on the extent of this use.

Miller Mountain contains small areas of suitable timber in the Willow Creek drainage as designated in the 1992 Plan Amendment, but vast expanses of clearcuts abut the area's north boundary. Cumulative impacts from these past harvests argue against additional mechanical manipulation of the remaining forests. The area lies north of the Fruitland formation and offers little potential for oil, gas, or coal development. The unit is almost entirely closed to all types of motorized recreation; only areas around Miller Mountain on the north end are open to motorized uses.

Small pieces of the East Animas unit lie within the suitable timber base near the Missionary Ridge Road. Previous proposed timber sales like Grasshopper generated vehement public opposition, in part because of the cumulative impacts from vast areas of unregenerated spruce clearcuts on Missionary Ridge. The unit has no significant mineral potential. East Animas is closed to all summer motorized vehicle use, and rocky topography restricts winter snowmobile use to existing roads outside the area's

boundary. The large private inholding at Sawmill Park was acquired in a recent land exchange.

The West Needle unit does not have significant mineral or timber potential.

None of the nine additions includes suitable timber whose harvest outweighs the values of wild, undisturbed country adjacent to the largest wilderness in the Southern Rockies. There are no significant mineral resources present. Conflicts with mechanized recreation are mostly absent because of existing motor vehicle travel restrictions or topographic considerations. All nine areas are available for designation as wilderness.

Need: Turkey Creek is the most important low elevation landscape corridor in the San Juans. Low elevation forests of the greater Weminuche Wilderness/Roadless area abut similar unroaded low elevation forests of the greater South San Juan Wilderness/Roadless Area, split only by Highway 160 at the San Juan River. This is the only location where the Weminuche and South San Juan connect, and it occurs in a forested corridor suitable for movement by species such as lynx and wolverine that prefer forested movement routes. This landscape connection also occurs at the confluence of several major elk migration corridors, and private lands adjacent to the northeast of the corridor are already protected in part by conservation easements. Turkey Creek also adds lower elevation ponderosa pine and aspen ecosystem types lacking within designated wilderness according to the Region 2 Regional Wilderness Needs Assessment. This unique convergence of critical habitat type, existing migration corridor, compatible private land management, and adjacent large roadless units cries out for permanent recognition and protection as wilderness.

Martinez Creek contains the most significant old-growth spruce-fir forest in the San Juans. This stand is the largest known old-growth stand, and occurs at low elevations for spruce-fir old-growth. Designation as wilderness will ensure the long-term preservation of Martinez Creek's extraordinary old-growth forest.

Monk Rock includes almost six miles of the recommended Piedra River Middle Fork Wild and Scenic River. Wilderness designation will provide most of the same protections afforded under the Wild and Scenic Rivers Act and will further protect the river's watershed from incompatible road construction and logging activities. Wilderness designation would also add to the Weminuche the forested flanks of the rocky peaks which currently denote the wilderness boundary.

Poison Park expands the ecological diversity of the Weminuche Wilderness by adding grassy parks, stands of ponderosa pine, and exemplary white fir forest to the generally rocky, spruce-covered slopes of the higher elevations lands currently within the wilderness. Williams Creek has proven itself attractive to river otters as well.

Graham Park offers outstanding elk calving and rearing habitat as well as forming the heart of a major game movement corridor between the Weminuche and Piedra areas. The area's wet meadows are an uncommon feature that enhances the higher, rocky slopes of the adjacent Weminuche Wilderness. Wilderness designation will enhance the solitude required by the thriving elk herds.

Runlett Park extends the wilderness to include low-elevation ponderosa pine stands presently lacking in the Weminuche. Its addition to the wilderness protects the north side of the Pine River valley, complementing wilderness protection inherent in the Piedra and Weminuche designations on the valley's south side. Wilderness

designation also buffers the recent significant conservation easement placed on the private Granite Peak Ranch.

Miller Mountain extends the wilderness to the lowest elevation forests available in the San Juans. Stands of ponderosa pine and mixed conifer fill the need for expanding ecological diversity of the existing wilderness.

East Animas incorporates the viewshed from much of the Narrow Gauge Train's route, as well as extending the wilderness to the middle elevation reaches of the Animas River. This addition greatly extends the elevational range and diversity of ecosystem types present in the existing wilderness.

West Needles incorporates the opposite side of the viewshed from the train route, as well as the spectacular view from Electra Lake. It also extends the wilderness to include Andrew's Lake, a popular quiet use winter recreation area.

The Region 2 Wilderness Needs Assessment identified the lack of lower elevation ecosystems as a glaring gap in the system of existing wilderness. Many of these additions fill that gap with contiguous lower-elevation ponderosa pine forests. The additions include significant ecological features, including two RNAs, the largest old-growth spruce forest in the SNJF, the most significant low elevation corridor on the Forest, uncommon wet meadows, and the Animas River Gorge. All nine units are needed for designation as wilderness.