Revised Land and Resource Management Plan

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Preface

UNDERSTANDING THE FOREST PLAN

Background

The Rio Grande National Forest Land and Resource Management Plan, usually called the "Forest Plan," was first issued in January 1985. It was prepared according to the *1976 National Forest Management Act* (NFMA), the *1969 National Environmental Policy Act* (NEPA), and other laws and associated regulations.

The regulations associated with NFMA state that a Forest Plan should ordinarily be revised on a ten-year cycle or at least every 15 years (36 CFR 219.10). Accordingly, Rio Grande Forest personnel prepared a Draft Revised Forest Plan, which was released December 7, 1995.

The Draft Revised Forest Plan was available for public review and comment for 120 days. The Forest received over 5,200 comments from approximately 1,200 persons. Based on the public comments, many changes were made to the Plan and EIS.

Throughout the remainder of this chapter, unless otherwise noted, the term "Forest Plan" is intended to refer to the Final Revised Forest Plan.

The Rio Grande National Forest and the San Juan National Forest were officially combined in February 1995 for administrative purposes. The Forests are now known as the San Juan-Rio Grande National Forests. This Revised Forest Land and Resource Management Plan is applicable only to the Rio Grande portion of the Forest. The San Juan will prepare a separate Plan. The two Plans will tier to one another. The Final Revised Rio Grande Forest Plan will be amended, if needed, because of the San Juan Forest Plan.

Purpose of the Forest Plan

The Final Revised Forest Plan, like the 1985 Forest Plan, provides guidance for all resource management activities on the Rio Grande National Forest. It establishes management Standards and Guidelines; it describes resource management practices, levels of resource production, people-carrying capacities, and the availability and suitability of lands for resource management.

The Forest Plan, like the 1985 Forest Plan, embodies the provisions of the NFMA, the implementing regulations and other guiding documents. Land-use determinations, Management-Area Prescriptions, and Standards and Guidelines are statements of the management direction. It should be understood, however, that projected outputs, services, and rates of implementation are dependent on the annual budgeting process, and are shown at both the full and experienced budget level.

Relationship of the Forest Plan to other Documents

Several alternatives have been developed for revising the Forest Plan. Portions of the Forest Plan are the same in all alternatives, while other parts vary. The management direction is shown for the selected alternative in this document. **Alternative G is the selected alternative.**

Alternatives were formulated according to the NFMA and NEPA. An extensive analysis of the alternatives is described in the accompanying Final Environmental Impact Statement (FEIS). The planning process and the analysis procedures used to develop this Final Revised Forest Plan are described or referred to in the FEIS. The FEIS also describes other alternatives considered in the planning process.

Upon release of this Final Revised Forest Plan, specific activities and projects will be proposed to carry out the Plan's direction. Forest Service managers will do environmental analyses on all proposed projects incorporating data and evaluations in the Final Revised Forest Plan and FEIS. All project analysis will tier to the FEIS.

Reader's Guide to the Forest Plan

The reader will find the following in this document:

* Chapter 1: Forestwide Desired Conditions

  The Desired Condition statement is a description of the future mosaic of land and resource conditions that Forest personnel are managing for over the entire Forest, once the Forestwide Objectives are accomplished.

* Chapter 2: Forestwide Objectives

  This chapter contains multiple-use objectives for the integrated resource management of the entire Forest.

  Objectives describe specific results or conditions resulting from actions. The allowable sale quantity is a good example of an objective. Forest Objectives include Regional Goals and Objectives identified in the *Rocky Mountain Regional Guide* (1992).

* Chapter 3: Forestwide Standards and Guidelines

  This chapter contains Standards and Guidelines applied Forestwide.

  Standards are courses of action or levels of attainment required by the Forest Plan to promote achievement of the Desired Condition and Objectives. Standards are mandatory, and deviation from Standards is not permissible without an amendment to the Forest Plan.

  Guidelines are preferred or advisable courses of action or levels of attainment designed to promote achievement of the Desired Condition and Objectives. Deviations from Guidelines are permissible if it is documented that objectives are still being met.

* Chapter 4: Management-Area Direction

  This chapter contains direction that applies only to specific portions of the Forest, as shown on the Management-Area Map. Management-area direction is applied in addition to the Forestwide direction. Each management area contains the following:

  (1) Management-Area Theme, Setting, and Desired Condition: This section describes the Desired Condition for the Management Area in a narrative form. It represents the land and resource conditions that may be found after the Goals have been met. The Desired Conditions result from applying Standards and Guidelines that help meet the Forestwide Objectives.

  (2) Management Area Standards and Guidelines: These are the specific Standards and Guidelines for the Management Area. They are applied in addition to the Forestwide Standards and Guidelines. Standards must be followed and no deviation is allowed without an amendment to the Forest Plan. Guidelines are preferred or advisable courses of action.

* Chapter 5: Forest Plan Monitoring and Evaluation Process

  This chapter describes how the Forest Service will ensure that the Forest Plan remains current and has the effect it is intended to have.

* Appendix A: Related National Goals

  This appendix contains national goals found in the Forest Service Manual (FSM) concerning land and resource management.

* Appendix B: Key National and Regional Policies

  This appendix describes key national policies related to land and resource management contained in the Forest Service Manual (FSM) and Forest Service Handbook (FSH). This appendix replaces Standards and Guidelines in the 1985 Forest Plan, which reference these documents.

* Appendix C: Relevant Federal and State Statutes, Regulations, and Executive Orders

  This appendix describes key statutes, regulations, and executive orders related to land and resource management. This appendix replaces Standards and Guidelines in the 1985 Forest Plan that reference legal direction.

* Appendix D: Mineral Leasing Stipulations and Lease Forms

  This appendix contains the Stipulations to be included in mineral leases, and where they are to be applied. The appendix also contains a sample lease form.

* Appendix E: Land Adjustment Strategy

  This appendix summarizes the strategy for acquisition or transfer of National Forest System lands.

Implementation of the Forest Plan

Introduction

The Revised Forest Plan, like the 1985 Forest Plan, provides the framework to guide the day-to-day resource management operations of the Rio Grande National Forest, and subsequent land and resource management decisions made during project planning. The NFMA requires that resource plans and permits, contracts, and other instruments issued for the use and occupancy of National Forest System lands be consistent with the Forest Plan. Site-specific project decisions must also be consistent with the Forest Plan, unless the Forest Plan is modified by amendment.

Project-Level Decisions

There are two objectives for project planning. In agency-initiated actions, the objective is to move toward or achieve the integrated direction in the Forest Plan through the proposed action. For example, if improvement of fisheries habitat is a Forestwide Goal, projects to move toward or achieve that goal might include placement of fish habitat structures in a stream, to promote recovery of streamside vegetation.

For proposals made by others, the objective of project planning is to decide if the proposal is or could be made consistent with Forestwide and Management-Area Standards. It must also be decided if the project is in the public's interest in terms of Forestwide Goals and Objectives. An example of an external proposal might be the proposed construction of a road or utility line serving private land across National Forest System lands.

The following ideas are important:

* Forest Plan Goals and Objectives guide the identification and selection of potential agency projects.

* The determination of whether an individual project is consistent with the Forest Plan shall be based on whether the project follows Forestwide and Management-Area Standards.

* Projects that cannot comply with Standards in the Forest Plan must be found inconsistent with Forest Plan management direction, unless the Standard is modified through Forest Plan amendment. In the latter case, project approval and Forest Plan amendment may be accomplished simultaneously.

* Plan Objectives, Forestwide and Management-Area Guidelines, project-specific outputs, and activity schedules should not be used in the consistency determination. Under those circumstances where a guideline is modified or not applied as described in the Forest Plan, the responsible official should recognize the purpose(s) for which the Guideline was developed. He or she should also provide assurance that any subsequently approved actions do not conflict with the Objective(s) the Guideline was intended to achieve. This will be documented during project analysis following the NEPA procedures.

* Resource plans and permits, contracts, and other instruments issued for the use and occupancy of National Forest System lands must be consistent with the Forest Plan, unless specifically exempted from applicability in an amendment or revision decision document. Determinations of consistency

of permits, contracts, and other instruments for occupancy and use of National Forest System lands are based on whether they follow Forestwide and Management-Area Standards.

* Generally, it is during Forest Plan implementation--when a project decision is made-- that the irretrievable commitment of resources is also made. Therefore, before making decisions, additional environmental analysis and site-specific disclosure of environmental effects are required according to NEPA procedures.

  Following are some examples of site-specific project decisions that require additional environmental analyses and disclosure as the Forest Plan is carried out. This list is not intended to be all-inclusive.

  - ❑ Allotment management plans
  - ❑ Timber harvest methods and related activities
  - ❑ Wildlife improvement projects
  - ❑ Watershed improvement projects, abandoned-mine reclamation, and Federal Facility Compliance projects (projects generating air and/or water pollutants and hazardous-material treatment or removal)
  - ❑ Prescribed-burn projects in support of resource management objectives
  - ❑ Decisions for winter-sports development, outfitter-guide proposals for Wilderness or other areas, and other externally generated projects involving occupancy and use of National Forest System lands
  - ❑ Selection of roads and trails where motorized vehicle travel will be allowed, prohibited or limited
  - ❑ Construction and reconstruction of trails, roads, staging areas, buildings, dams, bridges, recreation sites, utilities, potable water systems and road closures
  - ❑ Notice of Intent to Operate, Prospecting Permits, Plans of Operation, Surface Use Plans of Operation (36 CFR 228 A and C), and mineral sales contracts.

Operational Activities Exempt from the National Environmental Policy Act (NEPA) Process

To help carry out the Forest Plan, Forest staff conduct resource inventories, prepare action plans and schedules, and administer previously approved activities. These are called operational activities. They represent neither binding decisions nor irretrievable commitments of resources, so they are not subject to environmental analyses and disclosure under NEPA procedures.

Following are some examples of operational activities that do not constitute site-specific project decisions, and are therefore exempt from NEPA procedures. The list is not all- inclusive.

- ❑ Scheduling the revision of allotment management plans (FSM 2210)

- Amending grazing permits to comply with the Forest Plan (FSM 2230)
- Developing five-year wildlife action plans (FSM 2620)
- Conducting resource inventories or identifying adverse air-quality conditions in Class I airsheds (FSM 2580)
- Developing fire-situation reports, escaped-fire-situation analyses, fire evaluations, fire-season severity requests, fire-management action plans, and dispatching fires (FSM 5120, 5130)
- Developing implementation schedules, three- to five-year plans, etc. Examples : Five-year timber sale plan and timber "gate system"
- Scheduling maintenance for developed recreation sites, developing heritage-resource overview, Scenic-Byway management plans, and interpretive plans (FSM 2330, 2360, 2380, 2390)
- Developing Wilderness operation and maintenance schedules (FSM 2320)
- Preparing landownership adjustment plans (FSM 5400)

Note: Operational activities exempt from the NEPA process are not synonymous with "categorical exclusions". Operational activities, as indicated in the examples above, do not represent irreversible commitments of resources and do not, in themselves, create any environmental effects. Actions that can be categorically excluded from documentation in an environmental assessment or environmental impact statement are described in FSM 1952.2 and FSH 1909.15. These actions may represent irreversible commitments of resources, but do not individually or cumulatively have significant effects on the human environment.

Public Involvement and Coordination with Other Government Agencies

Ongoing public involvement and governmental coordination are a central part of carrying out the Forest Plan. The Rio Grande National Forest has committed to an intensive program of public involvement. The Forest subscribes to the philosophy of "fish bowl" planning and management. This means that the door is always open and that Forest personnel are available to explain management objectives, decisions, policy, or procedure, or answer any other questions people may have. Project planning will include public involvement and cooperation. In essence, the Forest has committed to a **partnership with the public** and with other government agencies (local, state, or federal). Monitoring and evaluation reports will be available annually for public review.

To receive more information, or to be placed on the Forest mailing list, please write to the Forest Supervisor, San Juan-Rio Grande National Forests, 1803 West Highway 160, Monte Vista, Colorado, 81144.

Budget Formulation

Annual Forest budget proposals are based on the activities and actions required to achieve the Goals and Objectives of the Revised Forest Plan. Monitoring results and actual costs of carrying out the Standards and Guidelines will be the basis for each year's budget proposals. Costs to carry out the Forest Plan are not complete without providing for an adequate level of monitoring and evaluation of projects.

Budget Execution

The annual budget must comply with the Revised Forest Plan and any specific direction provided in the annual *Appropriations Act* (FSM 1930). As actual allocations rarely provide for full funding of the Forest Plan, the scheduled activities and actions for any particular year are adjusted to conform to the intent of Congress. Although budget changes themselves do not require Forest Plan amendment, implications of budget changes may. For example, a project for which money is appropriated must be consistent with the Forest Plan; the project or the Forest Plan may require modification to assure this consistency.

Forest Plan Amendment and Revision

Forest Plan Amendment

The amendment process allows changes in components of Forest Plan management direction. Unless circumstances warrant a revision, an amendment is generally done when monitoring and evaluation show either of the following:

* that the achievement of one or all of the Forestwide Objectives is constrained by conflicting Forest Plan direction, or

* that adequate progress toward achieving the Desired Condition is not being made.

Other needs for amendments may arise during the evaluation of agency-initiated projects to achieve the integrated direction in the Forest Plan, or during the evaluation of external proposals. Amendments arising from agency-initiated projects or external proposals may be analyzed and decisions documented in a decision notice or record of decision simultaneously with project-approval decisions. This can be done if the consequences of the proposed amendment, and alternatives to it, are specifically disclosed in the project environmental assessment or environmental impact statement.

Significant and non-significant amendments are defined in 36 CFR 219.10(f). Significant amendments are those that affect the long-term balance of goods and services on the Forest or the biological "health" of the Forest.

Forest personnel conduct the process and forward proposed significant Forest Plan amendments to the Regional Forester, the responsible official for significant amendments, for approval. The Forest Supervisor is the responsible official for non-significant amendments.

Forest Plan Revision

Normally the Forest Plan will be revised on a ten-year cycle. This means that the anticipated completion of a normal revision will occur about 10 to 15 years following completion of this Forest Plan Revision. Variations of this general rule may occur for various reasons. For example, a major event might suggest an acceleration of the revision. However, scheduled inventories, anticipated staffing changes, or other circumstances that might improve planning efficiency, might warrant a delay. Delaying a revision is not appropriate if monitoring and evaluation show immediate changes in the Forest Plan are needed.

A thorough review of the Forest Plan should be completed before initiating a Forest Plan Revision. The Forest interdisciplinary team conducts this review, which includes the following:

* Results of recent monitoring and evaluation, along with pertinent research findings and recommendations.

* New laws, regulations, or policies that may suggest a need to change the Forest Plan.

* How well the Forest is progressing toward the stated Desired Condition.

* Demand projections for selected outputs.

* Predicted and actual ecosystem responses.

* Predicted and actual costs, outputs, responses, etc.

* Emerging issues and opportunities.

Integration with Forest Service Directive System

Management direction in the Forest Service Directive System, including the Forest Service Manual (FSM) and the Forest Service Handbook (FSH), is part of the Forest Plan management direction and is appropriately referenced within the Forest Plan. Management direction also includes applicable laws, regulations, and policies, although they might not be restated in the Forest Plan.

Appendices A and B reference the minimum resource management direction described in the Directive System. Nothing precludes the development of additional minimum resource management direction whenever appropriate. Under the following circumstances, this Forest Plan does not reference minimum resource management direction:

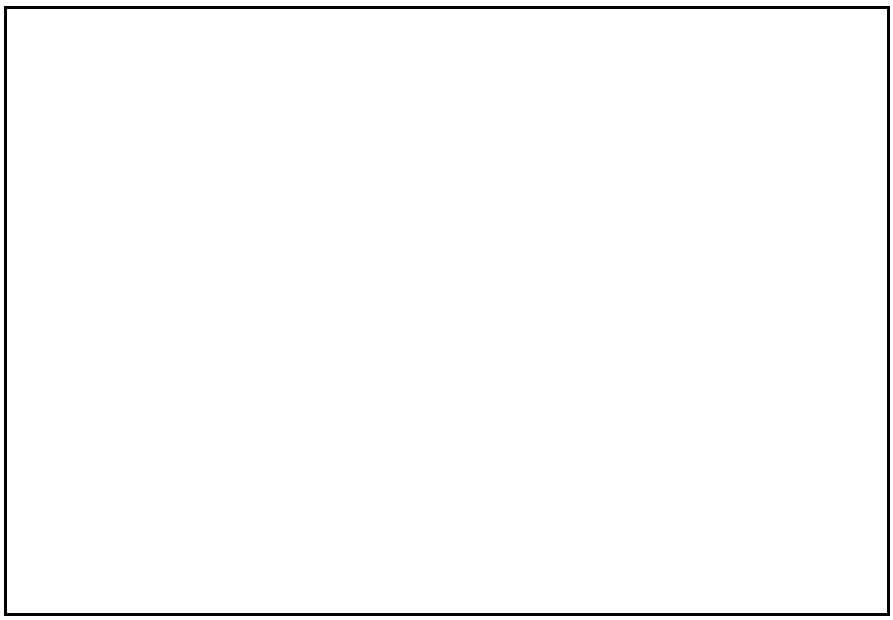
* The specific resource or use is not present on the Forest,

* The requirement addresses a condition or problem not applicable to the Forest, or

* The planning records document a sound rationale for the exception.

UNDERSTANDING THE RIO GRANDE NATIONAL FOREST

The Rio Grande National Forest is the eastern portion of the San Juan-Rio Grande National Forests. The two Forests were officially combined for administrative purposes in February 1995. The Rio Grande portion of the Forests consists of about 1,852,000 acres, and is in south-central Colorado. The Forest surrounds and forms the backdrop for the San Luis Valley, one of the largest mountain basins in the world. Water for municipal, industrial, and agricultural purposes come from the Sangre de Cristo range on the Valley's east side, and the San Juan range to the west. The headwaters of the Rio Grande River originate in the Rio Grande National Forest, and most watersheds on the Forest drain into the Rio Grande system.



Elevations range from about 7,800 feet in the foothills to more than 13,000 feet in the San Juans, along the Continental Divide. A few Sangre de Cristo elevations exceed 14,000 feet.

The San Luis Valley is composed of unconsolidated sediments laid down in the late-Tertiary period. The two mountain ranges on either side of the San Luis Valley (where the Forest is) are very different in origin and geology. Volcanic rocks and shallow, intrusive rocks of the mid-to-late Tertiary period make up the San Juan mountains. The Sangre de Cristo mountains are of more recent origin than the San Juans, although the rocks are older. Faulting and upthrusting along the Rio Grande rift formed the Sangre de Cristo mountains into a steep, narrow range.

Common vegetation types on the RGNF, generally from lowest to highest elevations, include sagebrush, grass, oakbrush, Pinyon-juniper, Douglas-fir, ponderosa pine, aspen, lodgepole pine, spruce/fir, and alpine tundra.

The RGNF has habitat for almost 300 species of mammals, birds, reptiles, amphibians, and fish. Threatened or Endangered animal species on the RGNF are the Mexican spotted owl, peregrine falcon, bald eagle, and possibly the grizzly bear.

Counties containing lands covered by the Forest Plan include Hinsdale, San Juan, Archuleta, Alamosa, Conejos, Mineral, Rio Grande, and Saguache. These counties are generally characterized by their low population densities, high unemployment, and low per capita income. While there are no Forest lands in Custer and Costilla counties, people there rely on the Forest for gathering forest products and recreating.

The San Juan-Rio Grande (the Rio Grande side): Distinctive Roles and Contributions

There are over 191,553,000 acres of National Forests and Grasslands nationwide. Colorado ranks sixth highest in the nation, with approximately 14,471,800 acres of National Forests and Grasslands that provide an abundance of recreation activities for tourists and residents. Of the many recreation activities offered, driving for pleasure is the most popular activity. With 21 designated Scenic Byways in Colorado, scenery is a major attraction.

For Colorado and most of the Rocky Mountains, tourism is a main source of income. There is a direct tie between beautiful scenery and local economic benefits. People come to Colorado for the outstanding scenery. The "*Report of the President's Commission on America's Outdoors*" (Alexander et al., 1986) said that America's most important attribute for a recreation area is natural beauty.

The Rio Grande National Forest makes up 13% of the National Forest System lands in Colorado. The Forest has two designated Scenic Byways, the Silverthread and Los Caminos Antiquos, and an abundance of roads and trails. In addition, there are many outfitter and guide tour services that give people the opportunity to experience the Forest.

The Forest falls within the south-central portion of the Rocky Mountain Range. Because of this, it offers a unique scenic experience. The Forest combines the unique flora of the Southwest with the central Rocky Mountains. To the east, the open Valley floor is surrounded by the rigid mountain peaks of the Sangre de Cristos. These mountains descend into steep slopes covered with colorful aspen against a background of subalpine fir, spruce, and Pinyon-juniper that abruptly ends at the Valley floor. To the north, the high mountain peaks give way to much gentler rolling hills covered by lodgepole pine, which extend to the valley bottom. To the west, the scattered mountain peaks are interspersed with rolling hills of mixed rock canyons and open meadows. The southern portion of the Valley is fairly flat, with several dominant, rounded mountains that rise above the horizon.

These characteristics offer visitors some of Colorado's most unique scenery. The Sangre de Cristo Range is home to several of Colorado's 14,000-foot peaks, such as Crestone Peak, Crestone Needles, Kit Carson Mountain, and Blanca Peak, and also the Great Sand Dunes National Monument.

The western part of the Forest has spectacular views of the Rio Grande Pyramid, the 100-foot high North Clear Creek Falls, Bristol Head Mountain, the headwaters of the Rio Grande, and the Weminuche and San Juan Wildernesses. Many open parks and meadows, such as Saguache Park, contain a variety of plant and animal life, including a wide range of wildflowers. In addition, there are a number of historical scenic areas, including the Bachelor Loop, near Creede; the Bonanza Loop, near Villa Grove; and the Cumbres and Toltec Scenic Railroad, near Antonito. Tucked within the foothills are many unique rock formations like the Natural Arch and Summer Coon Volcanic Areas. There are several canyons of rounded rock formations such as Penitente, Witches, Sidewinder, and the Rock Garden canyons, known worldwide by avid rockclimbers, which lie on adjacent BLM lands.

Factors That May Affect the Rio Grande National Forest

Many factors may affect management of the Rio Grande National Forest. Some are global, some national, and others regional or local. These may include:

Global/Intercontinental/National Scope

Global warming
Balance-of-trade issues
Shifts in the volume of timber supplied by Canada, southern states, and the West Coast
Changes in off-road-vehicle technology
Changes in modes of recreation
Military needs
Tourism

Multi-State/Regional Scope

Regional population trends
Shifts in employment and manufacturing base
Shifts in tourism
Drought and water availability
Major fire risks
Insect and disease outbreaks
Trends in visitor use

Forest Scope

Development of new industry
Shifts in recreation-visitor preferences
New uses for forest products

Resource Commodities and Services from the Rio Grande National Forest

This section consists of a brief summary of the current management situation, including demand and supply conditions for resource commodities and services, production potentials, and use and development opportunities within the Rio Grande National Forest. This information was derived from the accompanying Final Environmental Impact Statement.

Dispersed Recreation

Outdoor recreation is the primary resource on the RGNF. The management emphasis is to feature and perpetuate undeveloped and diversified dispersed-recreation opportunities. The qualities and flavor of the RGNF are characterized by moderate summer temperatures, abundant snow, clear blue skies, high-elevation country, sparkling cool streams and lakes, and an array of beautiful scenery. It's a great place to get away from crowds and congestion, where you can find friendly people, a rich and colorful history, a rich Hispanic culture, and small towns. Demand for dispersed-recreation opportunities has been growing and is expected to continue to do so.

The key to providing quality dispersed-recreation opportunities and experiences is to manage a broad spectrum of recreation settings. The mix of recreation settings on the Forest provides for summer and winter, as well as motorized and nonmotorized recreational activities. Balancing the mix and resolving the conflicts is the challenge.

Developed Recreation

Developed recreation includes all recreation activities that take place on a developed recreation site. Managed capacity ranges between 809,750 and 851,250 people-at-one-time, depending on the alternative. Demand is expected to remain within the capacity over the next 10 years.

Locatable Minerals

Locatable minerals that may be important on the Rio Grande National Forest include gold, silver, and copper. All alternatives continue mineral production according to the 1872 Mining Act.

Leasable Minerals

The only known leasable minerals on the Rio Grande National are oil and gas. Currently, there are no producing wells on the Forest. Projections suggest the potential for as many as 23 wells during the 10-year planning period.

Timber Production

Timber harvest is an important component of forest management. In December 1992, Douglas B. Rideout, Ph.D., Professor of Forest Economics at Colorado State University, published an *Administrative Study of the Timber Supply and Demand Situation of the Rio Grande National Forest and Its Timbershed*. This report addressed the sawtimber economy of the RGNF and its timbershed from fiscal years 1982 - 1991. It also assessed the sawtimber from the Forest Plan Revision. Rideout estimated the demand for timber from the RGNF and its timbershed to average approximately 50 MMBF per year.

This Forest Plan projects an Total Sale Program Quantity (TSPQ) of 79 MCCF/year or 29 MMBF/year at the full budget level. TSPQ at the experienced budget level is projected at 39 MCCF/year or 15 MMBF/year. TSPQ is comprised of hardwood and softwood sawtimber, fuelwood, posts and poles, salvage, and house logs.

The Sawtimber ASQ will be 51 MCCF/year or 21 MMBF/year at the full budget level and 28 MCCF/year or 11 MMBF/year at the experienced budget level.

Livestock Grazing

This plan projects the capacity for livestock grazing at 143,077 head months. This figure includes grazing by sheep and cattle. There are about 577,000 acres of land considered suitable for grazing on the Rio Grande National Forest.

Special Forest Products

The Plan allows the gathering or collection of special Forest products such as herbs, mushrooms, rocks, small trees and shrubs, floral products, etc. on a case-by-case basis. The program is administered by the Ranger Districts, upon request.

Chapter I

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Chapter I

Forestwide Desired Conditions

INTRODUCTION

This chapter contains the Desired Condition statements for the various resources of the Rio Grande National Forest (RGNF). Desired Conditions are essentially the same as Goals and are a fundamental part of the Forestwide management direction. The Desired Condition statement is a description of the mosaic of land and resource conditions that Forest personnel are managing for, on the entire Forest, once the Forestwide Objectives are accomplished.

ECOLOGICAL RESOURCES

BIOLOGICAL DIVERSITY	Habitat composition (including seral stage), structure, pattern (including connection), and disturbance frequencies similar to those that result from natural disturbances (insects, disease, and fire) are maintained to the extent possible, given legal and policy limitations, and the desired condition for the area. Viable populations of existing native and desired non-native vertebrate species are sustained with sufficient numbers of reproductive individuals. Native species are favored over non-native species. Habitats for federally listed Threatened, Endangered, and Proposed Endangered species and Regionally listed Sensitive species are protected, restored, and enhanced. Habitat on National Forest System lands is managed to help assure that those species whose viability is a concern survive throughout their range, and that habitat conditions improve or stabilize.
AIR RESOURCES	Air quality remains excellent. It is better than state and federal standards. Visibility distances are among the best in the country. Forest activities do not affect long-term changes or contribute to off-Forest problems.
TIMBER RESOURCES	The vegetative structure on the RGNF is capable of sustaining timber harvesting that supplies wood products for humankind while providing for the biological diversity of those forested areas. Harvest operations are designed to emulate smaller-scale disturbance events or processes.
RANGE	Vegetation is managed for a mixture of seral stages, with most of the rangelands in mid to high seral stages. The specific desired condition is identified in each allotment management plan.
FIRE	Fire's role in ecosystem dynamics is recognized and sponsored when and where it does not threaten human life, property, or resources needed to support long term

industries.	Prescriptions 3.3 (Backcountry), 1.11-1.13 (Wilderness), 1.5 (Wild Rivers), and 2.2 (Research Natural Areas).
Prescribed Natural Fire (PNF) is common in Management Area	The amount, arrangement, and continuity of live and/or dead material, which would contribute to fire spread (fuel profiles), are consistent with land uses and estimates of historic fire regimes.
NOXIOUS WEEDS	Noxious weeds are managed using an integrated pest management approach. All control methods, such as physical removal, prescribed fire, mechanical devices, biological treatments, or chemical applications, will be evaluated to reduce potential adverse effects on human health and the environment, and designed to meet Management Objectives.
WATER AND AQUATIC RESOURCES	Healthy watersheds operate in a dynamic equilibrium between extreme natural events. Surface-disturbing activities are managed so that floods, droughts, sediment loads, bank erosion, rills, gullies, and landslides are not markedly increased. Water quality is maintained or improved, with all stream segments having a near-reference-stream appearance. Water is suitable for municipal water supplies after normal treatment, including those using shallow alluvial aquifers. Chemical, physical, and biological attributes are improved and maintained in a healthy condition, ensuring future use. Stream health is maintained through natural processes without artificial controls. Streams have the expected range of habitat features, (for example, healthy riparian vegetation, stable banks, overwintering pools and healthy aquatic organisms). Riparian areas and floodplains are healthy, fully functioning ecosystems. Vegetation is diverse and is generally in a later-seral condition, to provide site stability. Fish thrive in Forest lakes and streams due to adequate habitat and water quality. Natural fish habitat is preferred and promoted over human-made habitat.
SOILS	Soils are maintained, or improved to healthy conditions, so that the ecosystems they support can flourish. Healthy soils and ecosystem sustainability will be assured if soil damages, such as erosion, displacement, compaction, scorching, and nutrient drains, are kept within allowable limits. Ecosystem management activities are harmonious with soil capabilities, potentials, and limitations. Soils may be periodically disturbed by management activities, but are restored and reclaimed to original potentials after activities have been completed. Where fire is used to perpetuate an ecosystem, it is done in a way that accomplishes resource objectives without unnecessarily risking or jeopardizing the site's ability to sustain ecosystems.

Healthy soils provide certain products such as

wood, forage for livestock and wildlife, water, recreation, minerals, and aesthetic benefits. These benefits can be continued for the long term, provided soil health remains within acceptable limits.

MINERALS

Mineral development is compatible with ecosystem capabilities and resource values. Balanced use and development of mineral resources are allowed, while protecting other resource values with stipulations, mitigation, and careful monitoring. Problems caused by historic mining are corrected.

SPECIAL FOREST PRODUCTS

Special forest products, such as firewood, building rock, herb and vegetable products, medicinal and pharmaceutical products, wild edible mushrooms, wild berries and fruit, landscaping products, craft products, and floral and greenery products, continue to be available from the Forest. Plants include trees, shrubs, water plants, forbs, grasses, mosses, lichens, and fungi. Plant parts that are used include leaves, boughs, bark, bulbs, corms, seeds, nuts, and fruits.

The gathering of such products depends on the sustainable limits of the resource. In addition, permits may be required for some of these products.

The RGNF recognizes the needs of people from the San Luis Valley and surrounding areas, and strives to meet their needs for forest and wood products, while protecting those resources for future generations.

SOCIAL RESOURCES

RESEARCH NATURAL AREAS	Several Research Natural Areas (RNAs) represent a variety of ecosystems in the Sangre de Cristo and San Juan Mountains. Ecosystems represented are typical plant associations found on the Forest, from the lowest elevations up through the alpine zone.
UNROADED AREAS	Maintain selected unroaded areas to offer nonmotorized - or limited motorized - recreation opportunities outside Wilderness. Ecologic composition, structure, pattern, and natural processes (fire, insects, disease, floods, etc.) are maintained, where feasible, to perpetuate biological diversity.
WILD AND SCENIC RIVERS	The "outstandingly remarkable" resources and values of selected rivers and their adjacent corridors are managed to protect their existing conditions for the benefit and enjoyment of present and future generations.
WILDERNESS	Designated Wilderness is managed to: * retain its pristine character and natural processes, with minimal evidence of human influence; * offer opportunities for solitude; and * retain its ecological, scientific, educational, scenic, and historical values.
SPECIAL INTEREST AREAS	The Forest has several Special Interest Areas managed to protect or enhance their unique botanical, archeological, geological, or other values. Some areas offer interpretative sites and educational opportunities.
HERITAGE RESOURCES	Heritage resources supply information about the nation's heritage, offer quality recreation opportunities for the public, and contribute information that aids management of other Forest resources. Proactive consultation with American Indian peoples helps ensure the protection, preservation, and use of areas that are culturally important to them. Heritage resources are systematically evaluated and nominated for the National Register of Historic Places when they meet eligibility criteria. Heritage resources are protected from damage by project activities or vandalism through project design, specified protection measures, monitoring, and coordination.
RECREATION	Management of the Forest's recreation programs: * offers opportunities for motorized and nonmotorized recreation within appropriate settings; * is responsive to visitors' desires and increases service to the public; * maintains a broad range of quality developed recreation facilities; * features traditional and nontraditional dispersed-recreation opportunities;

* showcases Scenic Byways and landscape;	* expand our interpretative services; and * allows for current areas used as summer homes, resorts, and youth camps to continue to be managed as recreation special-use development areas.
SCENERY	The outstanding scenery of the RGNF is a major attraction for visitors. Management is focused on maintaining this high scenic quality, especially of areas seen from road and trail corridors, developed recreation sites, administrative sites, and towns and cities near the Forest. Encourage vegetative diversity and feature scenic attractions. Areas exceeding Unacceptably Low Scenic Integrity Levels are rehabilitated to a higher Scenic Integrity Objective.

ADMINISTRATIVE

GENERAL INFRASTRUCTURE	**Reservoirs and Ponds**: All dams on National Forest System lands are inspected to ensure public safety and comply with all appropriate laws and regulations. High- and moderate-hazard dams shall have current Emergency Preparedness Plans (EPPs). **Facilities**: Safe, accessible, functionally efficient, aesthetically pleasing, energy-efficient, and cost-effective buildings and related facilities (owned, operated, occupied, or authorized by the Forest Service) needed to achieve resource management objectives are maintained or constructed. **Drinking Water**: The Forest Service will test water at facilities under special-use permit, to ensure that human health is protected according to the *Safe Drinking Water Act.* **Waste Water**: Discharge or infiltration of pollutants from all wastewater disposal facilities owned and operated by the Forest Service, or that are under special-use permit from the Forest Service, do not create health hazards or nuisance conditions. This discharge does not alter the quality or characteristics of ground water and surface water beyond applicable federal or state water-quality and effluent-discharge standards. **Roads**: The road system continues to serve as adequate access for the public to enjoy the Forest. Road construction is limited, and the amount of reconstruction has decreased. Road closure is emphasized in some areas to enhance wildlife habitat, soil, and water resources.
REAL ESTATE	Develop a landownership pattern that improves our ability to meet Forest needs and public objectives. Land adjustments through purchases, exchanges, and donations include an array of unique plant and animal habitats, riparian areas, geologic features, heritage resources, and recreational opportunities.

HEALTH AND SAFETY	The Forest Service is responsive to public needs in emergencies, and supports and enters into cooperative agreements with local officials. Forest work programs are conducted within the guidelines of the *National Health and Safety Codes* and the Occupational Safety and Health Administration.
RURAL DEVELOPMENT	Recognizing the economic dependency of rural communities on National Forest System lands and resources, Forest managers cooperate with local rural communities to develop sustainable enterprises that contribute to the general economic and social vitality of the area. Forest managers also give sufficient advance notice to rural communities about potential changes that may affect local economies. Forest managers cooperate with local, county, state, and American Indian partners to meet rural-community needs. Forest managers strive to improve rural conditions by helping to solve local problems in ways that enhance environmental quality according to existing authorities and laws.

Chapter II

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Chapter II

Forestwide Objectives

INTRODUCTION

This chapter contains the multiple-use Objectives that were developed by the Forest Planning Team for integrated resource management across the entire Forest. Objectives identify quantities of items within the planning time frame. Objectives concisely describe specific, measurable, desired results or conditions that are action-oriented. These objectives are tied directly to the Regional Objectives identified in the *Rocky Mountain Regional Guide*, 1992**.**

Regional Objective 1 Protect basic soil, air, water, and land resources.

Forestwide Objectives

1.1. Protect the environment from air pollution, at least to the degree required by law.

1.2. Maintain or improve long-term soil productivity, and protect against significant or permanent impairment of the land.

* Keep soil losses within tolerance limits, and maintain acceptable amounts of ground cover.

* Revegetate disturbed areas.

* Meet the requirements for minimizing soil displacement and compaction.

* Where excessive soil impacts exist from prior activities, emphasize preventing any additional detrimental impacts, and reclamation where feasible.

1.3. Maintain or improve the integrity of aquatic ecosystems to provide for good water quality, stream-channel stability, water yield, and aquatic resources.

* Manage for sustained water flows according to negotiated agreements with water users.

* Improve watershed conditions to restore favorable soil relationships and water quality.
* Mitigate impacts from ground-disturbing activities before closing out project activities.

* Maintain chemical, physical, and biological stream attributes in a healthy condition. If necessary, improve them.

1.4 Maintain sport-fishing opportunities by providing quality fishery habitat. Support the maintenance of native fish species by protecting existing suitable habitats for both natural and reintroduced populations.

1.5. Cooperate with other federal and state agencies to control and clean up hazardous mining waste and mine drainage.

1.6. Protect the integrity of the soil and water resources by discouraging motorized-vehicle use in wetlands, wet meadows, and riparian areas.

Regional Objective 2 — Provide for a variety of life through management of biologically diverse ecosystems.

Forestwide Objectives

2.1. Allow natural processes to function with little or no human influence in designated Wildernesses and in areas categorized as Backcountry, Wild Rivers, and RNA's.

2.2. Manage the Forest to maintain or improve the health and vigor of all native plant associations.

2.3. Ensure the sustainability of viable populations of all native wildlife species through the maintenance or improvement of habitat conditions.

2.4. Manage wildlife habitat at the appropriate scale (e.g., local, regional, statewide, or beyond) to maintain the ability of species to disperse over large areas.

2.5. Supply ample forage to sustain wildlife and permitted-livestock populations without damaging range condition.

2.6. Maintain or improve fish habitat in streams, lakes, and ponds.

2.7. Protect, conserve, and restore important terrestrial and aquatic habitats. These include riparian areas, wetlands, and the lands immediately next to them, and representative examples of native plant and animal communities.

* Cooperate with state agencies in improving aquatic ecosystems to meet mutually agreed-upon objectives.

* Protect, conserve, and improve habitat for Threatened, Endangered, and Sensitive species.

2.8. Treat aspen stands to maintain or improve wildlife and scenic values.

2.9 Use Prescribed Natural Fire and Management-Ignited Fire where forest ecosystems evolved under the influence of wildfires.

2.10 Use appropriate vegetative-management methods (e.g., Prescribed Natural and Management Ignited Fires, timber harvesting, grazing, etc.) to modify unacceptable fuel profiles and reduce potentially unacceptable future high-intensity wildfires.

Regional Objective 3 Provide for multiple uses and sustainability of National Forests and Grasslands in an environmentally acceptable manner.

Forestwide Objectives

3.1. Manage ecosystems at the appropriate scale (e.g., local, regional, statewide).

3.2. Emphasize long-term sustainable production of resources for economies, communities, and people.

3.3. Use a range of silvicultural prescriptions to achieve ecosystem management objectives. These objectives may include supplying forage for wildlife, reducing insect and disease infestations, maintaining or improving aspen stands, or enhancing scenery.

3.4. Use existing roads, instead of constructing new ones.

Regional Objective 4 Provide for scenic quality and a range of recreational opportunities that respond to the needs of Forest customers and local communities.

Forestwide Objectives

4.1. Provide natural-appearing landscapes with diverse scenery, and increase access to recreation opportunities in attractive settings.

* Meet the Scenic Integrity Objectives (SIOs) as described in the Forest Plan.

4.2. Manage heritage resources and integrate them with recreation and education, while complying with all applicable laws and regulations.

* Increase numbers and types of heritage resource interpretive sites and opportunities.

* Conduct heritage-resource stabilization and rehabilitation projects.

* Nominate eligible sites for the National Register of Historic Places.

4.3. Establish Wilderness management practices designed to enhance and perpetuate Wilderness as a resource.

* Keep wilderness use within determined social capacity.

* Avoid resource damage resulting from overuse of designated Wilderness.

4.4. Protect the integrity of any eligible Wild and Scenic Rivers.

4.5. Offer a diverse range of outdoor-recreation opportunities.

4.6. Offer interpretation, information, and environmental education as an important part of outdoor recreation.

Regional Objective 5	**In cooperation with other landowners, strive for improved landownership and access patterns to the mutual benefit of both the public and private landowners.**

Forestwide Objectives

5.1 Adjust National Forest System and private lands to create a landownership pattern that meets the needs of the public.

5.2 Acquire rights-of-way to improve public access to National Forest System lands.

Regional Objective 6	**Improve the financial efficiency of all programs and projects.**

Forestwide Objectives

6.1. Provide a cost-effective level of fire protection to prevent the loss of human life and reduce the costs of protection and damages.

6.2. Manage, as much as practicable, the Forest's market-oriented programs (timber, range, minerals, and special uses) so that they are financially profitable.

6.3. Manage the Forest's nonmarket programs (recreation, wildlife and fisheries, wilderness, soil and water, and heritage resources) to supply goods and services, as demanded by the public, in the most financially efficient manner practical.

Regional Objective 7	**Emphasize cooperation with individuals, organizations, and other agencies while coordinating planning and project implementation.**

Forestwide Objectives

7.1. Cooperate with all people, including those whose livelihood is dependent on National Forest resources, in the development of plans and projects.

7.2. Cooperate with federal, state, local, and tribal governments, as well as private organizations and individuals, to:

* promote rural-development efforts,
* support recreation and tourism,
* offer opportunities for American Indian tribes to pursue cultural beliefs and practices,
* cooperate in the management of noxious weeds,
* protect or enhance heritage resources, and
* reduce loss of wildlands and structures to wildfires.

7.3 Cooperate with federal, state, and local agencies to restore and maintain the chemical, physical, and biological integrity of waters of the United States, and provide water at Forest facilities that is free of contamination.

7.4 Cooperate with federal and state agencies and private landowners to establish wildlife and habitat objectives.

7.5 Work with state forestry agencies to ensure sound rural and urban forest management and protection on state and private lands.

7.6 Encourage cost sharing as part of cooperative efforts.

7.7 Through partnerships, encourage, establish, and sustain a diverse and well-balanced range of recreational services and facilities on the National Forest.

7.8 Seek partnerships with other recreation providers- federal, state, local, and private-sector-to define complementary roles that best serve the customer.

Regional Objective 8 Promote rural development opportunities.

Forestwide Objectives

8.1. Be a leader in working with rural people and communities including American Indian tribes, to develop opportunities and enterprises that contribute to their economic and social vitality.

8.2. Recognize the nature and extent of local economic dependencies on National Forest activities. Give special attention to resource programs that help diversify rural economies.

8.3. Coordinate with communities in achieving local goals. Participate with and give appropriate assistance to development groups. Be a predictable partner by giving sufficient advance notice about potential changes that may affect local economies.

8.4. Use human-resource programs to achieve employment opportunities, while meeting natural-resource objectives.

In addition to the preceding Forestwide Objectives which are tied to Regional Objectives, the RGNF has developed two more Forestwide Objectives that we feel are important.

Forestwide Objective: Provide high-quality customer service.

* Identify the customers who are, or should be, served by the RGNF. Survey them to learn the kind and quality of services they want, and their level of satisfaction with existing services. Post our service standards and measure results against them. Rate our customer-service performance against the best in the business, and give customers choices in both the sources of service and the means of delivery. Make information, services, and complaint systems easy to use, and offer the means to address customer complaints.

Forestwide Objective: Monitoring

* Conduct an ongoing comprehensive monitoring-and-evaluation effort to ensure compliance with the Forest Plan.

Chapter III

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Chapter III

Forestwide Standards and Guidelines

INTRODUCTION

Forest Plan management direction at its broadest level applies to National Forests and Grasslands, and for simplicity is called Forestwide direction. It consists of Desired Conditions expressed as Goals, and management requirements written as Standards and Guidelines. Objectives set measurable time or quantity constraints within which Goals are achieved.

Goals represent the Desired Condition. Desired conditions have a timeless nature and represent the Forest's ultimate intent. Achievement of goals is not mandatory, and no time frame for accomplishment is established. Where the current conditions are different from Goals, strategies are developed to make progress toward the Desired Conditions expressed in the Goals.

Standards are courses of action or levels of attainment required to achieve the Desired Conditions. Standards are mandatory; deviation from Standards is not permissible without an amendment to the Forest Plan. Standards are developed (1) when laws or policies do not exist, or benefit from further clarification; (2) when Standards are critical to Objectives; and (3) when unacceptable impacts would be expected if a Standard were not in place.

Guidelines are defined as preferred or advisable courses of action or levels of attainment designed to achieve the Desired Conditions. When deviation from a Guideline is necessary, it will be documented during the project-level analysis. Under those circumstances, the responsible official should recognize the purpose(s) for which the Guideline was developed and assure interested individuals that any subsequently approved actions are not in conflict with the purposes for which the Guideline was developed. Guidelines are developed in the following circumstances: (1) when they contribute to achievement of Goals; (2) in response to variable site conditions; (3) in response to variable overall conditions; and (4) when professional expertise is needed.

Where Standards and Guidelines deviate among the two levels of direction (Forestwide and Management Area), those that are more restrictive or stringent apply. (Additional direction is in Appendix B--Key National and Regional Policies). If changes are made in the Forest Service directives system that conflict with the Standards and Guidelines of this Forest Plan, the Forest Plan will be amended.

Objectives identify quantities of items within the planning time frame**.** Objectives concisely describe specific, measurable results or conditions desired, and are action-oriented. They closely reflect Regional Objectives in the *Rocky Mountain Regional Guide*, 1992.

Goals, Standards, and Guidelines are grouped according to the outline in the Table of Contents. Direction for managing the ecosystem in an integrated fashion often cannot be categorized to fit under one heading; direction pertaining to one subject may also be covered under others.

The following Standards and Guidelines package is designed to be specific to the Rio Grande National Forest. Laws, regulations, and Forest Service direction are generally not repeated in this package. Some resource areas, such as Heritage resources and Fire, have very specific direction in law, regulation, policy, or the Forest Service directive system. On many Forests, this direction is adequate for management of the resource at the Forest level. For such resources, Forestwide Standards and Guidelines are unnecessary.

If the reader does not see a particular resource addressed in this package of Forestwide Standards and Guidelines, that does not mean the resource is not managed, nor does it mean the Forest Service considers a particular resource less important than those listed. The entire Forest Plan, including the appendices, must be carefully read to understand how all resources will be managed. Refer to the Forestwide Desired Condition and Goal statements, Forestwide Objectives, and the appendices for complete information. In particular, Appendix B contains references or repeats key direction for resource management found outside the Forest Plan.

Since biodiversity covers a broad array of topics, the reader must consider all the Forestwide and Management-Area Prescription Standards and Guidelines that follow for a complete treatment of this revision topic.

SECTION 1 - PHYSICAL RESOURCES

Air Resources

STANDARD

1. Conduct all land management activities in such a manner as to comply with all applicable federal, state, and local air quality standards and regulations, including:

   a. Federal:
   The Clean Air Act, as amended, 1991, (P.L. 95-95)

   b. State of Colorado:
   The Colorado Air Quality Control Act, Colorado Statutes 25-7-101 through 25-7-505

Mineral and Energy Resources - General

STANDARD

1. Reclamation will be considered satisfactory when the disturbed area has been reclaimed in accordance with operating plan requirements, and desired vegetative conditions have been achieved.

Mineral and Energy Resources - Leasable Minerals

GUIDELINE

1. The following resource stipulations (NSO-No Surface Occupancy and CSU-Controlled Surface Use) will apply to all administratively available and authorized lands, unless a more restrictive stipulation is required by the Management-Area Prescription:

*	Slopes of 40%or more	NSO
*	High Mass-Movement Potential	NSO
*	Alpine Ecosystems	NSO
*	Watersheds of High Concern	NSO
*	Moderate Mass-Movement Potential	CSU

Mineral and Energy Resources - Locatable Minerals

STANDARDS

1. "Rockhounding" (hunting and collecting rocks and minerals) on National Forest System lands, except in designated Wilderness, will be allowed without a permit, providing the activity does not interfere with existing rights, and that specimens are used for personal, noncommercial uses.

2. Recreational panning, sluicing, and dredging shall be allowed outside Wilderness where such activities do not interfere with the rights of mining claimants protected under the *1872 Mining Law*, as amended. These activities shall be evaluated on a case-by-case basis, to determine if an operating plan is needed, by the authorized Forest Service official.

Mineral and Energy Resources - Reserved and Outstanding Rights

STANDARD

1. Surface management for private oil and gas minerals will be negotiated with the owner and operator to be as close as possible to the standards used for federal minerals; prohibiting such development is not an alternative.

SECTION 2 - WATERSHED

Soil, Water, and Aquatic Resources - including Fish and Riparian/Wetlands

Hydrologic Function

STANDARD

1. Manage land treatments to conserve site moisture and protect long-term stream health from damage by increased runoff.

GUIDELINES

1. In each 3rd-order and larger watershed, limit connected disturbed areas so the total stream network is not expanded by more than 10%. Progress toward zero connected disturbed area, as much as feasible. Do not add connected disturbed area to Class III watersheds (FSM 2521).

2. Design the size, orientation, and surface roughness of forest openings to prevent snow scour and site desiccation.

STANDARD

2. Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff.

GUIDELINES

1. Maintain the organic ground cover of each land unit so that pedestals, rills, and surface runoff from the land unit are not increased.

2. Restore the organic ground cover of degraded land units within the next Plan period, using native vegetation as feasible.

Riparian Areas

STANDARD

1. In the water influence zone (WIZ) next to perennial and intermittent streams, lakes, and wetlands, allow only those land treatments that maintain or improve long-term stream health.

GUIDELINES

1. Allow no land treatments that will cause long-term change to a lower-stream-health class in any stream reach. In degraded systems, progress toward robust stream health within the next Plan period.

2. Keep heavy equipment out of streams, swales, and lakes, except to cross at designated points, build crossings, or do restoration work; or if protected by at least 1 foot of packed snow or 2 inches of frozen soil. Keep heavy equipment out of streams during fish spawning, incubation, and emergence periods.

3. Ensure at least one-end log suspension in the WIZ. Fell trees in a way that protects vegetation in the WIZ from damage. Keep log landings and skid trails out of the WIZ.

4. Situate new concentrated-use sites outside the WIZ if feasible, and outside riparian areas always. Harden or reclaim existing sites in the WIZ to prevent detrimental soil and bank erosion.

5. Keep stock tanks, salt supplements, and similar features out of the WIZ if feasible and out of riparian areas always. Keep stock driveways out of the WIZ except to cross at designated points. Harden water gaps and designated stock crossings where needed and feasible.

6. Remove livestock from riparian areas when average stubble heights on key species reach 4 inches in early-use pastures and 6 inches or more in late-use pastures.

7. Avoid season-long grazing in riparian areas. Apply short-duration spring grazing, as feasible, to help regrowth and reduce utilization of willows. Control grazing-period length in spring-use riparian pastures to minimize utilization of regrowth; this is normally 20-30 days.

8. Limit utilization of riparian woody plants to 15-20% of current annual growth, and of herbaceous plants to 40-45% of annual production.

9. Maintain the extent of stable banks in each stream reach at 80% or more of reference conditions. Limit cumulative stream bank alteration (soil trampled or exposed) at any time to 20-25% of any stream reach.

10. Do not excavate borrow material from, or store excavated borrow material in, any stream, swale, lake, wetland, or WIZ.

STANDARD

2. Design and construct all stream crossings and other instream structures to pass normal flows, withstand expected flood flows, and allow free movement of resident aquatic life.

GUIDELINES

1. Install stream crossings to meet Corps of Engineers and State permits, pass normal flows, and be hardened to withstand floods as follows:

Design Life (years):	1	2	5	10	20	50
Design Flood (years):	10	10	25	50	100	225

2. Size culverts and bridges to pass debris. Install trash racks upstream if needed. Engineers should work with hydrologists on site design.

3. Install stream crossings on straight and resilient stream reaches, as perpendicular to flow as feasible, to provide passage of fish and other aquatic life.

4. Install stream crossings in this order of preference, as feasible, to keep stream beds and banks intact: bridge, hardened ford, bottomless arch, culvert.

STANDARD

3. Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health.

GUIDELINES

1. Add or remove rocks, wood, or other material in streams or lakes only to maintain or improve their health. Leave rocks and portions of wood that are embedded in beds or banks, to prevent channel scour.

2. Install fish migration barriers only if needed to protect Threatened, Endangered, Sensitive, or unique native aquatic populations, and only where natural barriers do not exist.

3. Do not relocate natural stream channels, if avoidable. Return flow to natural channels, where feasible. Construct channels

and floodways with natural stream pattern and geometry, and stable beds and banks.

STANDARD

4. Do not degrade ground cover, soil structure, water budgets, or flow patterns in wetlands.

GUIDELINES

1. Keep ground vehicles out of wetlands unless protected by at least 1 foot of packed snow or 2 inches of frozen soil. Do not disrupt drainage patterns into wetlands with roads, trails, or ditches.

2. Keep roads and trails out of wetlands if feasible; use bridges or raised prisms with diffuse drainage in wetlands. Set crossing bottoms at natural levels of channel beds and wet meadow surfaces.

3. Do not build firelines in or around wetlands, unless needed to protect life, property, or wetlands. Use hand lines with minimum feasible soil disturbance. Use wetland features as firelines, if feasible.

STANDARD

5. Maintain enough water in perennial streams to sustain existing stream health. Return some water to dewatered perennial streams when needed and feasible.

GUIDELINES

1. For **existing** dams and diversions on naturally perennial streams, obtain bypass flows at the point of diversion or storage that sustain a community of aquatic life having all regionally-expected species with all age and sex groups at permit reissuance. Native median February flow from October to March, and native median August flow from April to September, are base flows that have been shown to sustain aquatic life.

   NOTE: These base flows are minimum, not target, flows. Lands staff must verify authorities over each water use. Bypass flows and instream-flow water rights are distinctly different, but settlement of reserved water rights claims can meet this criterion if the negotiated flows are decreed to the United States by a court of jurisdiction.

2. For **new** dams and diversions, obtain bypass flows at the point of diversion or storage that protect stream processes, aquatic and riparian habitats, and recreation and aesthetic uses, where such values are important. Include base flows, and a range of high flows that bracket bankfull discharge, as needed to support these uses.

NOTE: Both base and high flows are needed to sustain stream health.

3. Obtain instream-flow water rights under Federal and State law to protect stream processes, aquatic and riparian habitats, and recreation and aesthetic uses on streams where such values are important. Top priority is to protect native, Endangered, Threatened, and Sensitive species.

STANDARD

6. Manage water-use facilities to prevent gully erosion of slopes and to prevent sediment and bank damage to streams.

GUIDELINES

1. Design all ditches, canals, and pipes with at least an 80% chance of passing high flows and remaining stable during their life.
2. Do not flush or deposit sediment from behind diversion structures into the stream below. Deposit sediment in a designated upland site.
3. Mitigate water imports so that the extent of stable banks in each receiving stream reach is at least 80% of reference conditions.

Sediment Control

STANDARD

1. Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography, and climate.

GUIDELINES

1. Construct roads on ridge tops, stable upper slopes, or wide valley terraces if feasible. Stabilize soils on-site. End-haul soil if full-bench construction is used. Avoid slopes steeper than 70%.
2. Avoid soil-disturbing actions during periods of heavy rain or wet soils. Apply travel restrictions to protect soil and water.
3. Install cross drains to disperse runoff into filter strips and minimize connected disturbed areas. Harden cuts, fills, and surfaces between stream crossings and the top of the vertical curve on both sides.
4. Where feasible, construct roads with rolling grades instead of ditches and culverts.
5. Retain stabilizing vegetation on unstable soils. Avoid new roads or heavy-equipment use on unstable or highly erodible soils.
6. Use existing roads unless other options will produce less long-term sediment. Reconstruct for long-term soil and drainage stability.

7. Avoid ground skidding with blades lowered or on highly erodible slopes steeper than 40%. Conduct logging to disperse runoff, as feasible.

8. Designate, construct, and maintain OHV travelways for proper drainage. Harden all OHV stream crossings.

STANDARD

2. Construct roads and other disturbed sites to minimize sediment discharge into streams, lakes, and wetlands.

GUIDELINES

1. Design all roads, trails, and other soil disturbances to the minimum standard for their use and to "roll" with the terrain as feasible.

2. Use filter strips, and sediment traps if needed, to keep all sand-sized sediment on the land and disconnect disturbed soil from streams, lakes, and wetlands. Disperse runoff into filter strips.

3. Key sediment traps into the ground. Clean them out when 80% full. Remove sediment to a stable, gentle upland site and revegetate.

4. Keep heavy equipment out of filter strips, except to do restoration work or build hardened stream or lake approaches. Yard logs up out of each filter strip with minimum disturbance of ground cover.

5. Build firelines outside filter strips, unless tied into a stream, lake, or wetland as a firebreak with minimal disturbed soil. Retain organic ground cover in filter strips during prescribed fires.

6. Design road ditches and cross drains to limit flow to ditch capacity and prevent ditch erosion and failure.

STANDARD

3. Stabilize and maintain roads and other disturbed sites during and after construction, to control erosion.

GUIDELINES

1. Do not encroach fills, or deposit or sidecast soil, into streams, swales, lakes, or wetlands.

2. Properly compact fills and keep woody debris out of them. Revegetate cuts and fills upon final shaping, to restore ground cover. Control sediment until erosion control is permanent.

3. Do not disturb ditches during maintenance, unless needed to restore drainage capacity or repair damage. Do not undercut the cut slope.

4. Space cross drains, from no more than 120 feet in highly erodible soils on steep grades, to no more than 1,000 feet in resistant soils on flat grades. Do not divert water from one stream to another.

5. Empty cross drains onto stable slopes that disperse runoff into filter strips. On soils that may gully, armor outlets to disperse runoff. Tighten cross-drain spacing so gullies are not created.

6. Harden rolling dips as needed to prevent rutting damage. Ensure that road maintenance creates stable surfaces and drainage.

7. Remove or breach berms that would concentrate runoff, without disturbing the original road surface and drainage features.

8. Build firelines with rolling grades and minimum downhill convergence. Outslope or backblade, permanently drain, and revegetate firelines immediately after the burn.

STANDARD

4. Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage.

GUIDELINES

1. Site-prepare, drain, revegetate, and close temporary and intermittent-use roads and other disturbed sites within one year after use ends. Use natural drainage that disperses runoff into filter strips and maintains stable fills. Do this work concurrently. Use native vegetation as feasible.

2. Remove all temporary stream crossings (including all fill material in the active channel), restore the channel geometry, and revegetate the channel banks, using native vegetation as feasible.

Soil Productivity

STANDARD

1. Manage land treatments to limit the sum of severely burned and detrimentally compacted, eroded, and displaced land to no more than 15% of any land unit (FSH 2509.18).

GUIDELINES

1. Restrict roads, landings, skid trails, developed recreation, livestock-gathering areas, and similar soil disturbances to designated sites.

2. Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least 1 foot of packed snow or 2 inches of frozen soil.

3. Conduct prescribed fires when soil, humus, and large fuels are moist.

STANDARD

2. Maintain or improve long-term levels of organic matter and nutrients on all lands.

GUIDELINES

1. On soils with topsoil thinner than 1 inch, topsoil organic matter less than 2%, or effective rooting depth less than 15

inches, retain 90% or more of the fine (less than 3 inches in diameter) logging slash in the stand after each clearcut and seed-tree harvest, and retain 50% or more of such slash in the stand after each shelterwood and group-selection harvest, considering existing and projected levels of fine slash.

2. If machine piling of slash is done, conduct piling to leave topsoil in place and to avoid displacing soil into piles or windrows.

Water Purity

STANDARD

1. Place new sources of chemical and pathogenic pollutants where such pollutants will not reach surface or ground water.

GUIDELINES

1. Put pack and riding stock sites, sanitary sites, and well drill-pads outside the water influence zone (WIZ).
2. Put vehicle service and fuel areas, chemical storage and use areas, and waste dumps and areas on gentle upland sites. Perform mixing, loading, and cleaning on gentle upland sites. Dispose of chemicals and containers in state-certified disposal areas.

STANDARD

2. Apply runoff controls to disconnect new pollutant sources from surface and ground water.

GUIDELINES

1. Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps, to fully contain spills. Use liners as needed to prevent seepage to ground water.

2. Reclaim each mine-waste dump when its use ends. Stabilize waste dumps and tailings in non-use periods, to prevent wind and water erosion. If non-use will exceed one year, perform concurrent reclamation.

3. Use lined ponds below waste dumps and tailings to contain all inflow. Build tailings dams with a 95% chance of containing floods over their design life. Permanently stabilize dams at final shaping.

4. Clean waste water from concrete batching and aggregate operations before returning the water to streams, lakes, or wetlands.

5. Inspect chemical equipment daily for leaks. If leaks or spills occur, report them and install emergency traps to contain them and clean them up.

STANDARD

3. Apply chemicals using methods which minimize risk of entry to surface and ground water.

GUIDELINES

1. Favor pesticides with half-lives of three months or less. Apply at lowest effective rates as large droplets or pellets. Follow the label. Favor selective treatment. Use only aquatic-labeled chemicals in the WIZ.

2. Use non-toxic, non-hazardous drilling fluids.

SECTION 3 - BIOLOGICAL RESOURCES

Biodiversity

STANDARDS

1. Prescriptions will be developed prior to timber harvest to identify the distribution of coarse woody debris and snags to be left on-site, as well as live green replacement trees for future snags. Table III-1 displays the minimum requirements for adequate wildlife habitat and ecosystem function. The amounts are to be calculated as a per-acre average over a project area.

   Snags are important for cavity-nesting birds and other wildlife. Coarse woody debris (CWD: woody materials greater than three inches diameter) is important for retaining moisture, trapping soil movement, providing microsites for plant establishment, and cycling soil nutrients in ecosystems. A wide variety of CWD size classes is preferred.

   On forested sites, snags and CWD should be retained (when materials are available) in accordance with the average minimums in Table III-1 below. Retain the largest-diameter snags possible.

Table III - 1. Coarse Woody Debris Retention Requirements.

FOREST TYPE	SNAGS			DOWNED LOGS
	Minimum Diameter (inches)	Minimum Height (feet)	Retention Density (number per acre)	Retention Density (tons/acre)
Spruce/Fir	12	25	2	10-15
Lodgepole Pine	10	25	2	5-10
Aspen	12	25	2	3-5
Douglas-Fir	12	25	2	5-10
Ponderosa Pine	14	25	2	4-9

All soft snags should be retained unless they are a safety hazard. If minimum-diameter snags cannot be found, use the largest available snags.

2. Local populations of native plant species (at the subsection level) will be used for revegetation efforts where technically and economically feasible. Seed mixtures should be weed free. To prevent soil erosion, nonnative annuals or sterile perennial species may be used while native perennials are becoming established.

3. On suitable lands, an inventory/reconnaissance will be conducted early in the timber sale planning process to determine if old growth is present, and make assessments of quality and distribution. The inventory/reconnaissance will be conducted for the landscape/watershed being proposed for harvest using Mehl's (1992) description as the basis for identifying old growth.

   On the remaining portions of the Forest, general information on the presence of old growth (using Mehl's description) will be collected using various techniques, such as review of plot data or walk-throughs during routine work by Forest personnel. This information will be collected over the life of the Plan to provide better information for future planning.

GUIDELINES

1. Some old-growth/late-successional forest stands may be preserved or deferred from harvesting to maintain biotic diversity within the landscape/watershed. Size, distribution, abundance, and degree of habitat variation between old-growth stands will be assessed. The following will be considered in selecting old-growth stands that may be retained:

   * Older stands that have not been manipulated are more desirable than younger ones.

   * Stands with limited uses and access by humans are better to maintain old-growth characteristics.

   * Stands that are habitat for species listed as TES or Colorado Natural Heritage Program Species of Special Concern.

   * Stands exhibiting a greater variety of attributes , such as diverse canopy layers, decadence in live trees, standing and/or downed dead, patchiness, etc. (see Mehl 1992).

2. Aspen will be maintained in the environment. Analyze aspen's spatial and structural occurrence in the landscape during project design. Use landscape spatial analysis in aspen

project design to assist in selecting which existing and future old-growth stands are retained, maintaining habitat composition and structure, and providing habitat connectivity.

Spatial analysis allows a project area to be compared with reference areas, and considers a variety of attributes (e.g., composition, structure, patch-size distribution, etc.). The intent is to use the reference areas as baseline information to guide project design. The project interdisciplinary team will suggest how quickly or closely to approximate the reference areas. The analysis and resulting decision will document the rationale for choosing to deviate from reference conditions. For those timber sales in the Englemann Spruce on Mountain Slopes Landtype Association (LTA 1), a landscape spatial-analysis approach is described in Erhard et al. (1996). To keep within the parameters of the approach, the Analysis Area should contain at least 15,000 acres or more of LTA 1. It is recommended that the area boundaries follow watersheds and remain fixed for the duration of the Plan. For those projects in the other forested LTAs, the reference conditions will have to be inferred from the literature, experts, and local knowledge. Comparisons should be made within the same ecological LTA.

3. If aspen regeneration is considered, prioritize treatment within seral aspen clones using the following criteria:

   * Identify stands with large standing and down dead basal area (20% dead) that are single-storied and showing signs of animal barking (gnawing and bark stripping) or disease. Stands which are multi-storied, have several hundred sapling-size suckers per acre under them, or show little sign of canker diseases or animal barking would be a lower priority for any management intervention.

   * Identify conifer stands that contain a small minority of live aspen basal area (less than 10% live basal area). (Aspen is likely to disappear from these stands within several decades without intervention.)

   * Identify isolated clones and stands in heavy-animal-use areas and riparian areas, and those at low elevations. Any stands in these situations that meet the criteria above should be given the highest priority for regeneration. (These stands will be at greatest risk of disappearing and will be the toughest to regenerate successfully. Protection

of treatment areas from browsing animals may be needed to achieve successful regeneration.)

* Identify stands that are more cost efficient to treat and contribute positively to aspen's distribution.

Range

STANDARDS

1. Remove livestock from the grazing unit or allotment when further utilization on key areas will exceed allowable-use criteria in the Forest Plan or allotment management plan.

2. Phase out grazing systems that allow for livestock use in an individual unit during the entire vegetative-growth period, except where determined to achieve or maintain the desired plant community.

GUIDELINES

1. Develop site-specific vegetation utilization and residue guidelines during rangeland planning, and document them in allotment management plans. In the absence of updated planning or an approved allotment management plan, the utilization and residue guidelines in Tables III-2 and III-3 will apply.

Table III - 2. Forage Utilization Guidelines.

RANGELAND CONDITION*		
Type of Management	**Satisfactory**	**Unsatisfactory**
Season-long	35%	20%
Fall and Winter	55%	35%
Deferred Rotation	45%	25%
Rest Rotation	50%	35%

* Rangeland Condition - The RGNF does not have an ecological classification for rangeland vegetation on the Forest. The inventory process must concentrate on existing vegetation. Specifically, the inventory process will involve delineation of existing plant communities according to Integrated Resource Inventory (IRI) procedures, and comparison of the existing community to a desired plant community. The degree of similarity between existing and desired plant communities gives an estimate of vegetation management status. Those communities within 65% of desired-plant-community similarity are in satisfactory condition. Those not meeting 65% similarity are in unsatisfactory condition. (See *Rangeland Analysis and Management Guide,* 1996)

Table III - 3. Residue Allowances.

CLARY AND WEBSTER RESIDUE ALLOWANCES		
Season of Pasture Use	**Satisfactory**	**Unsatisfactory**
Spring	3 inches	4 inches
Summer and Fall	4 inches	6 inches

2. Livestock use of water-influence zones will be allowed as long as use is in compliance with residual stubble heights identified by the Intermountain Research Station General Technical Report INT-263, Managing Grazing of Riparian Areas in the Intermountain Region, 1996, by Warren Clary and Bert Webster, or more recent research.

Silviculture

STANDARDS

1. Forty acres is the maximum allowable acreage opening for the forest types. Exceptions to this maximum are stipulated in 36 CFR 219.27(d)(2)(I) through (III). The regulations at 36 CFR 219.27(d)(2)(ii) allow for size limits exceeding those established at 36 CFR 219.27(d)(2) and 36 CFR 219.27(d)(2)(I). Exceptions are permitted on an individual timber sale basis after 60 days' public notice, and review by the Regional Forester. The regulations at 36 CFR 219.27(d)(2)(III) provide that the established limit shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm.

2. The scientifically defined silviculture systems shown by forest cover type in Table III-4, which meet the Management Objectives for the landscape or individual stands of trees within a landscape setting, are acceptable. Both even-aged and uneven-aged management systems can be used and applied at scales ranging from a few acres to many hundreds of acres. These silvicultural systems are to be applied in a manner that will ensure natural regeneration where artificial regeneration is not necessary for other resource objectives. Tree-stand vegetation management treatments are to be approved by certified silviculturists. The silvicultural systems identified in Table III-4 can be used to convert uneven-aged stands to even-aged management and even-aged stands to uneven-aged management.

Table III - 4. Silviculture Systems.

APPROPRIATE SILVICULTURE SYSTEMS BY FOREST COVER TYPE			
Forest Cover Type	**Even-Aged**	**Two-Aged**	**Uneven-Aged**
Ponderosa Pine	Shelterwood, Clearcut, and Seed-Tree	Irregular Shelterwood	Group Selection and Single-Tree Selection
Mixed Conifer	Shelterwood, Clearcut, and Seed-Tree	Irregular Shelterwood	Group Selection and Single-Tree Selection
Aspen	Coppice [1]	Coppice with Standards [2]	Group Selection [3]
Lodgepole Pine	Shelterwood, Clearcut, and Seed-Tree	Irregular Shelterwood	Group Selection
Englemann Spruce and Subalpine-Fir	Shelterwood and Clearcut	Irregular Shelterwood	Group Selection and Single-Tree Selection

1 Coppice is a vegetation reproduction method with clearfelling or clearcutting. Clearfelling (clearcutting) stimulates sprouting from the residual roots.

2 "Standards" are selected overstory trees reserved for a longer rotation at the time each crop of coppice material is cut.

3 Use of group selection as an appropriate silviculture system in aspen is currently under study to determine regeneration success, but is authorized on a test basis.

3. The size of the uncut forest areas between openings must be based on the Management Objectives for the landscape unit being analyzed. If these Objectives include creating a mix of vegetation types to benefit the kinds of wildlife associated with early-successional stages and edges, the uncut units can be small. If the Objectives include provisions for old-growth-associated species, the uncut units could be large enough to function as an ecological system not overly influenced by edge.

4. When trees are harvested to meet timber production objectives, the cutting shall be done in such a way that there is assurance that the technology and knowledge exist to restock these areas adequately with trees within five years after final harvest. Minimum restocking levels are defined in Table III-5.

Table III - 5. Minimum Restocking Levels by Species.

GROWING STOCK: ALL LIVE TREES							
Species	Spruce-fir	Aspen	Douglas-fir	Lodgepole Pine	Ponderosa Pine	Other Softwood	Other Hardwood
Trees per Acre	150	300	150	150	150	150	150

5. No minimum seedling-height requirements are specified. Seedlings must have survived a minimum of one year and be expected (on the basis of research and experience) to be able to produce the desired stand condition specified for this area in the Forest Plan. The numbers of seedlings in the table above represent the minimum number of seedlings required, considering natural mortality, to produce a merchantable-timber stand at rotation age without intermediate treatments. To assure that adequate restocking of openings created as a result of final harvest is accomplished, as a minimum, stocking surveys are conducted at the end of the first and third growing seasons following reforestation treatment. Adequate stocking cannot be certified until after the third-year growing-season survey.

6. “Five years after final harvest” means five years after clearcutting, five years after the final overstory removal in the shelterwood and seed-tree systems, or five years after selection cutting. The requirement for adequate restocking within five years is initiated by the final harvest. The timing of the first- and third-year restocking surveys is initiated by the reforestation treatment.

7. Where disease can be spread from an uncut stand to a newly regenerated stand, it is desirable to cut the adjacent infected stand before the newly regenerated stand reaches a height of six feet.

8. Regulated timber harvest activities will occur on only those lands classified as "Suitable" and "Scheduled" for timber production (See Figure III-1). On Unsuitable or Suitable but not Scheduled lands, limited timber cutting may occur for such purposes as salvage, protection or enhancement of biodiversity or wildlife habitat, scenic-resource management, or to perform research or administrative studies consistent with Management Area direction.

9. Trees will not be marked or harvested within approximately 600 feet slope distance from timberline.

10. Use artificial-regeneration methods when it is not possible to rely on the natural sequence of events or environmental conditions to regenerate the stand within five years.

11. When trees are to be harvested on other than suitable lands, exceptions to the stocking guidelines are appropriate (as documented in project decisions) when the harvest meets one of the following criteria:

    * For permanent openings that serve specific management direction.

    * Where provided for in specific management practices and prescriptions.

    * Where it is desirable to delay the onset of regeneration and crown closure to meet specific Desired Conditions and Management Objectives.

GUIDELINES

1. If the silviculture system being applied to a particular area of the landscape is uneven-aged, harvest trees designated for commercial timber production based on the desired density, as determined by age class or size, and the Objective for the area.

2. Silvicultural Standards and Guidelines should be applied at the watershed and landscape level, as well as to individual stands of trees. The Standards and Guidelines must be applied in such a way as to perpetuate this range of environmental conditions, while supplying goods and services to people. The range of environmental conditions is defined in the Desired Condition statements for the selected alternative. This does not imply the Forest must shoot for the range of natural variability.

3. Fuelwood demand will be reviewed as part of the environmental analyses for proposed timber sales, to determine if timber sale roads should be opened for fuelwood access after the completion of harvest activities. For areas to be opened to fuelwood cutting, decisions will also be made regarding timing and duration of fuels accessibility, in coordination with other resource concerns. Generally, the areas will be open only one to two seasons after completion of harvest activities.

4. Table III-6 gives guidelines for when an opening is no longer considered an opening.

Table III - 6. Opening Guidelines.

GUIDELINES FOR WHEN AN OPENING IS NO LONGER CONSIDERED AN OPENING			
Forest Cover Type	**Average Trees per Acre**	**Average Height of Tree**	**Distribution**
Ponderosa Pine and Mixed Conifer			
Big-Game Cover	200	6 feet	70%
Retention and Partial Retention Scenic Condition Objectives	200	25 % of the height of the adjacent stand	
Lodgepole Pine and Spruce/Fir/Aspen			
Big-Game Cover	250	10 feet	70%
Retention and Partial Retention Scenic Condition Objectives	250	25 % of the height of the adjacent stand	

5. Except for treatments designed to enhance meadows, altering more than one-third of the edge of a natural opening will be avoided whenever an artificially created opening is adjacent to a natural opening. Additional edge should not be created until previously treated areas are considered closed, according to guideline #4 above.

6. The landscape should be the primary unit of analysis for silviculture. A landscape is defined here to mean a distinct landform such as a mesa, or a Level VI watershed. There are a great variety of landscape types within the Rocky Mountain Region. Some may contain more than a single forest species. Some are "fine grained" (characterized by many small areas in various stages of plant succession). Others are "coarse

grained" (characteristically forested with large, unbroken expanses of trees and few openings). There are areas in the Region which have become a patchwork of forest and open places as a result of human use prior to establishment of the National Forests, past Forest Service management practices, and natural disturbances (wind, fire, insect activity, and earth movement).

7. In most circumstances, rely on or make primary use of those silviculture systems which ensure regeneration of forest stands through natural seeding and suckering.

8. Use artificial-regeneration methods when we cannot rely on the natural sequence of events and/or environmental conditions to regenerate the forest within five years or earlier.

9. Use thinning practices which consider genetic diversity, as well as competition among the trees for water, nutrients, and light. The frequency of thinning should depend upon the tree species, financial efficiency, and the site growing conditions (as commonly measured by Site Index).

10. Where appropriate, reduce competition between desired trees and other vegetation.

11. The chosen silviculture system should allow emulation of the pattern, timing, and frequency of natural disturbances found in the landscape being treated.

12. Regeneration harvests of even-aged timber stands (sites) should not be undertaken until the stands have generally reached (or surpassed 95 % of the) culmination of the mean annual increment, measured in cubic feet. Exceptions may be made where resource management objectives or special resource considerations require earlier harvest.

Wildlife

STANDARDS

1. Manage human disturbance at caves and abandoned mines where bat populations exist. When closing mines or caves for safety or protection reasons, reduce disturbance of residing bat populations and ensure bat access.

2. Provide adequate cover to maintain screening along roads that are kept open for human use and around openings, so as to minimize disturbance and harassment of deer and elk.

3. In areas where tall, dense cover is desired for ground-nesting birds, residual cover needs to be carried over from previous growing seasons, since some species begin nesting in April and May before spring growth.

2. Some bird species prefer to nest in undisturbed cover. In areas where these species are a primary consideration, manage livestock grazing to avoid adverse impacts on nesting habitat.

4. Protect known active and inactive raptor nest areas. The extent of the protection will be based on proposed management activities, human activities existing before nest establishment, species, topography, vegetative cover, and other factors. A no-disturbance buffer around active nest sites will be required from nest-site selection to fledgling (generally March through July). Exceptions may occur when individuals are adapted to human activity.

5. Where newly discovered Threatened, Endangered, Proposed, or Sensitive species (TES) habitat is identified, an analysis shall be conducted to determine if any adjustments in the Forest Plan are needed.

6. Activities will be managed to avoid disturbance of Sensitive species that might result in federal listing or loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components, and other pertinent factors. Special attention will be given during breeding, young rearing, and other times which are critical to survival.

7. Areas should be closed to activities to avoid disturbing Threatened, Endangered, and Proposed species during breeding, young rearing, or at other times critical to survival. Exceptions may occur when individuals are adapted to human activity, or the activities are not considered a threat.

9. If a bald eagle traditional winter roost or nest site is discovered, a management plan will be written to ensure that the necessary habitat components are maintained. In addition, a no-disturbance buffer will be established around the location. The size of the buffer will be determined by the eagle's tolerance of human activity, and local conditions (e.g., topography, vegetative cover).

10. As new recovery plans, conservation agreements, conservation strategies, designations of critical habitat, or Regional

documents that contain accepted management direction for TES species are developed, the Forest Plan will be reviewed to determine consistency with the new documents. Where appropriate, the Plan will be amended to incorporate the new direction.

11. Discourage land-use practices and development which adversely alter or eliminate the hunting habitat or prey base within ten miles, and the immediate habitats within one mile, of a peregrine falcon nesting cliff.

12. Restrict human activities within one mile of a peregrine falcon nest site between February 1 and August 31.

13. No ground-disturbing activity shall be allowed in potential Uncompahgre fritillary butterfly habitat unless a survey is conducted to determine the existence of the species. Ground-disturbing activities include trail building, livestock driveways, or domestic sheep bedding grounds. The usual grazing associated with livestock in the area is not considered ground disturbing. Potential habitat definitions and survey protocols are found in the *Uncompahgre Fritillary Butterfly Recovery Plan*.

14. If any new Uncompahgre fritillary butterfly populations are discovered, a "No Butterfly Collecting" regulation shall be imposed on the area.

15. Do not allow any even-aged timber management within canyons considered to have potential habitat for Mexican spotted owls, or within one-half mile of the canyon's rim.

16. Allow uneven-aged timber management only if the resulting timber stand contains the necessary habitat components (for native and desirable nonnative species).

17. Develop a fire strategy within potential Mexican spotted owl habitat that will reduce the risk of losing the habitat to a catastrophic fire.

18. If any Mexican spotted owl nests are discovered, limit the amount of human disturbance around the nest through such measures as special area closures, seasonal restrictions, or rerouting of trails.

SECTION 4 - DISTURBANCE PROCESSES

Undesirable Species

STANDARDS

1. Control nonnative and noxious plants throughout the Forest, with priority given to Research Natural Areas and Wilderness. For all proposed projects or activities, determine the risk of noxious-weed introduction or spread, and implement appropriate mitigation measures.

2. Only certified "weed-free" hay and straw shall be used on the RGNF.

GUIDELINE

1. Develop a noxious-weed and pest management program that addresses the following components: awareness, prevention, inventory, planning, treatment, monitoring, reporting, and management objectives. Priorities for implementing a program for undesirable plants include:

   * New invaders.
   * New areas.
   * Spreading or expanding infestations.
   * Existing infestations.

Fire

GUIDELINES

1. Where feasible and appropriate, use broadcast burning to dispose of slash, return inorganic and organic chemicals in the foliage and small woody material to the soils, reduce fire hazard, and create seedbeds for natural regeneration.

2. Develop and implement a prescribed-fire program, both management- ignited and prescribed natural, which addresses the ecosystem needs and values-at-risk of the entire Forest.

3. Initial-attack response will be planned and designated based on the values at risk and the cost of suppression.

Insects and Disease

GUIDELINES

1. Plan management activities with consideration for potential insect or disease outbreaks. Design management to meet or enhance Management-Area Objectives.

8. Manage vegetation in high-use recreation areas to ensure public safety and to improve forest health, as needed to maintain or improve the desired recreation setting(s).

9. Use integrated pest management techniques, including silvicultural treatments, to meet Management-Area Objectives. Treatment activities will be based on values of, and risks to, adjacent private lands, as well as public land. Priority should be given to areas in which values to be protected exceed the cost of protection. (For example, adjacent to subdivisions, metropolitan areas, recreation sites, or areas of concentrated public use.)

10. Project plans should consider existing infestations of insects or disease within a project area. Activities should be designed to minimize the risks of spreading the infestation, while still providing habitat for those wildlife species dependent on the presence of insects and disease.

2. Control natural insect and disease outbreaks in Wilderness only when justified by predicted loss of resource values outside Wilderness.

SECTION 5 - SOCIAL RESOURCES

Heritage Resources

STANDARD

1. Conduct all land management activities in such a manner as to comply with all applicable federal, state, and local regulations. Many heritage resources values can be protected effectively through application of the provisions of these regulations:

   * *The National Historic Preservation Act of 1966*, (P.L. 89-665, as amended).

   * *Native American Grave Protection and Repatriation Act* (NAGPRA), (P.L. 101-601).

   * *Archeological Resources Protection Act of 1979* P.L. 96-95.

Recreation -- General

STANDARDS

1. Availability of outfitter-guide special-use permits will be based on a capacity study.

2. When capacity has been met for a certain special-use activity, no further permits will be issued.

GUIDELINES

1. Use concessionaire operations whenever possible.

2. Changes in Recreation Opportunity Spectrum (ROS) class should be documented in a decision memo.

Developed Recreation

STANDARDS

1. Design and manage developed recreation sites according to the adopted ROS class and Scenic Integrity Objective(s).

2. All new or reconstructed developed recreation sites will offer a range of opportunities accessible to people with disabilities, within the limits of the site characteristics.

3. Vegetative-management plans shall be developed and implemented for all developed sites, to enhance the natural setting and maintain or develop the desired vegetation.

4. Camping will be limited to 14 days in any one location within a 30-day period.

5. Facilities at trailheads shall be consistent with the recreation setting and include adequate space for parking, trailhead panels for trail information, and appropriate sanitation facilities.

6. Developed recreation areas will be withdrawn from locatable-mineral entry.

GUIDELINES

1. Use the *Recreation Facility Design Catalog* or other approved designs, if appropriate, to assist the planning and design of recreation facilities. Quality facilities should be designed that require low maintenance and are cost effective.

2. When campground occupancy is less than 20%, analysis shall be conducted to decide whether to close the campground or convert it to a concentrated dispersed site.

3. Each Ranger District should document backlog maintenance and rehabilitation needs and associated costs, and update twice a year.

4. At fee campgrounds, furnish readily available off-site and on-site information on recreation opportunities for developed sites.

Dispersed Recreation

STANDARDS

1. A Scenic Integrity Objective of "High" (“management activities are not evident to the casual visitor and the area appears natural”) will be met within the foreground for all National Scenic and Recreation Trails.

2. Camping is limited to 14 days within a 30-day period.

3. Close, rehabilitate, or otherwise mitigate dispersed sites when:

   * Campsite condition reaches Frisell-Cole Class 4 or 5.
   * Site occupancy does not meet the adopted Scenic Integrity Objective.

* There are social conflicts.
* Unacceptable environmental damage is occurring.

4. If use exceeds the area capacity for a given ROS class, the following management actions, in order of priority, should be employed to address the impacts or effects on the recreation setting:

   * Inform the public and restore the site.
   * Regulate use.
   * Restrict the number of users.
   * Close the area or site.
5. Recreation use will be managed to stay within the capacity for the ROS objective, as shown in Table III-7.

Table III - 7. ROS Use and Capacity Levels.

MAXIMUM USE AND CAPACITY LEVELS FOR EACH RECREATION OPPORTUNITY SPECTRUM CLASS

Ros Class/capacity Range	Very Low	**Low**	**Moderate**	High
Primitive				
On Trails - PAOT/Mile	0.5	1	2	3
Area Wide - PAOT/M Acres	1	2	7	25
Semi-Primitive Nonmotorized				
On Trails - PAOT/Mile	2	3	9	11
Area Wide - PAOT/M Acres	4	8	50	80
Semi-Primitive Motorized				
On Trails - PAOT/Mile	2	3	9	11
Area Wide - PAOT/M Acres	4	8	10	40
Roaded Natural				
On Trails - PAOT/Mile	2	3	9	11
Area Wide - PAOT/M Acre	40	80	1200	2500
Rural				
On Trails - PAOT/Mile	2	3	9	11
Area Wide - PAOT/M Acre	500	800	5000	7500

Capacity Ranges are defined as follows:
VERY LOW and LOW apply to rock, mountain grass, and clearcuts 1 to 20 years old.
MODERATE applies to mountain grass, mature and pole-size ponderosa pine, mature aspen, shelterwood cuts 90 to 120 years old, selection cuts 1 to 20 years old, and clearcuts 80 to 120 years old.
HIGH applies to mature and pole-size spruce, pole-size aspen, and clearcuts 20 to 80 years old.
PAOT = Persons at one time

GUIDELINES

1. Trail development shall be coordinated with trail systems developed by municipalities, counties, states, other federal agencies, and partners.

2. Different accessibility levels will be planned, depending on the nature of the improvement and the principal form of recreation being provided.

3. Loop trails should be considered for all trail networks, especially those constructed in low elevations, for year-round use, associated with campgrounds or other attractions.

4. Congressionally designated National Historic, Scenic, or Recreation Trails and the Colorado Trail will receive higher priority than other trails for reconstruction, operation, and maintenance.

5. Dispersed camping is prohibited within a 100-foot zone around lakes and streams, unless exceptions are justified by terrain.

Wilderness Resources

STANDARDS

1. Minimize controlled driving of permitted livestock in designated Wilderness.

2 Recreational livestock are prohibited within 100 feet of lake-shores and stream banks, except during watering and through travel, unless exceptions are justified by terrain.

3 A permit system (for either day use or overnight use) or other measures, such as area closures, shall be implemented to manage use levels and use patterns, when conditions are outside the Standards and Guidelines established for the Management-Area Prescription.

4. Pristine management areas of a Wilderness should not be changed to a lesser standard of naturalness in order to disperse recreation use from other portions of the Wilderness.

5. Where forage is limited, require users camping overnight with recreational livestock to use processed feeds that are free of viable noxious-weed seeds.

6. Maximum Group size: no more than 15 people per group, with a maximum combination of people and stock not to exceed 25.

7. Prohibit pets from harassing wildlife or people. Voice control or physical restraints are acceptable.

8. Within riparian areas, the tethering of livestock is prohibited.

GUIDELINES

1. Minimize human impacts in Wilderness by considering:

   * Limiting the number of private and outfitter-guide camps.
   * Encouraging the use of self-contained stoves, or prohibiting fires which would require the use of self-contained stoves.
   * A permit system.
   * Party-size and pack-animal limitations.
   * Prohibiting dogs or requiring them to be on a leash.
   * Implementation of minimum-impact suppression tactics when managing wildfires.

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2. Printed information, where appropriate, will be posted outside Wilderness at trailheads.

Scenic Resources

STANDARDS

1. The Scenic Integrity Level(s), based on current landscape character, are usually accepted as the Scenic Integrity Objective(s) unless highly unusual or special circumstances identify a need to change, and will be limited to:

   * Treatment of small-diameter/suppressed lodgepole pine stands.
   * Harvest as a result of a disturbance such as fire, windthrow, or insect and disease infestations.

   Variations in the Scenic Integrity Objectives may dominate the valued landscape character, but must borrow from the valued attributes such as size, shape, edge effect, and pattern of natural openings, and still meet the minimum requirements of the next lower Objective chosen.

2. Management activities which are inconsistent with the Scenic Integrity Objective will be avoided unless a decision is made to change the Scenic Integrity Level. A decision to change the Scenic Integrity Objective will be documented in a project-level NEPA decision document.

3. If field analysis identifies a need to correct the inventory of Scenic Condition Objectives, the correction will be recorded in an environmental analysis document, approved, and the Forest inventory will be updated. Conditions that could warrant a change in Scenic Condition Levels are:

   * Discrepancies in "inherent scenic attractiveness" classification.
   * Changes in "viewer location" and "sensitivity level."
   * Discrepancies in "seen area" mapping.

GUIDELINE

1. For areas which do not currently meet the Scenic Integrity Level, use the interim objective of "Rehabilitation."

SECTION 6 - LAND OWNERSHIP AND SPECIAL USES

Real Estate - Rights-of-way

STANDARD

1. Retain existing access rights where needed to meet Forest Plan Goals and Objectives.

Real Estate - Land Adjustments

GUIDELINES

1. When there are opportunities to acquire or convey non-federal lands by purchase or exchange, where lands are valuable for National Forest System purposes, the Forest Service should consider whether:

    * The conveyance or acquisition would reduce Forest Service administrative costs and improve management efficiency. This includes reducing miles of landline boundaries and numbers of corners, special uses, title claims, rights-of-way grants and easements, numbers of allotments and intermingled-ownership livestock pastures, and other factors which decrease administrative costs and improve management efficiency.

    * The conveyance or acquisition would reduce conflicts between Forest Service and private-landowner objectives, especially when conflicts are adversely impacting National Forest System management.

2. Opportunities to acquire nonfederal lands by purchase or exchange, where lands are valuable for National Forest System purposes, should be considered when involving:

    * Lands with important characteristics that would enhance National Forest purposes, including access thereto.

    * Lands that will improve administration and reduce trespass.

    * Lands that will add significantly to available National Forest goods and services.

    * Lands that, if acquired, would reduce conflict between Forest Service and private-landowner objectives.

* Lands in mineralized areas that have low potential for a future patent, and where the mineral estate will be donated to the United States (only applicable to acquisition by exchange).

11. Opportunities to convey lands should be considered when involving:

    * Important or unique resources (such as wetlands, floodplains, essential big-game winter range, Threatened or Endangered species habitat, and important historical or heritage resources) that may be conveyed when resource loss is mitigated or offset by acquisition of resource values on nonfederal lands.

    * Lands in developed areas that have lost or are losing their National Forest character.

    * Lands that would contribute to community growth, development, and economic prosperity.

Real Estate - Special Uses - General

STANDARDS

1. Bury electrical-utility lines of 33 kilovolts or less, and telephone lines, unless one or more of the following applies:

    * Scenic Integrity Objectives of the area can be met using an overhead line.
    * Burial is not feasible due to geologic hazard or unfavorable geologic conditions.
    * Greater long-term site disturbance would result.
    * It is not technically feasible.

2. Do not approve new uses, and phase out current uses, including landfills, where the primary use is storage or disposal of hazardous materials, when the permits expire.

Real Estate - Utility Corridors

STANDARDS

1. Conserve existing and designated inventoried rights-of-way that are identified in the *Western Utility Study*, to protect them for future construction and occupancy.

12. Proposals to use designated utility corridors will be authorized without alternative-route analysis, subject to site-specific environmental analysis.

13. Do not authorize conflicting uses of activities in transportation and utility corridors.

4. Design of utility and transmission line corridors shall blend with the existing character of the landscape.

GUIDELINES

1. Consolidate occupancy of transportation or utility corridors and sites wherever possible and compatible.

14. Management activities in linear corridors should be compatible, to the extent possible, with the Goals of the individual Management Areas through which corridors pass.

Infrastructure - Travelways

STANDARDS

1. Closed or restricted roads may be used for administrative purposes if the use is approved by the District Ranger.

2. Designated travelways, as displayed on the Rio Grande National Forest Visitor Map, and newly constructed travelways are open to motorized-vehicle use unless a documented decision shows that:

   * Motorized use conflicts with Forest Plan Objectives.
   * Motorized use is incompatible with the Recreation Opportunity Spectrum (ROS) class.
   * Travelways are in areas closed to motorized use and are not "designated routes."
   * Motorized use creates user conflicts that result in unsafe conditions unrelated to weather conditions.
   * Physical characteristics of travelways are hazardous for motorized use.
   * Travelways do not serve an existing or identified future public need. Or,
   * Financing is not available for maintenance necessary to protect resources.

3. On all lands except designated travelways, motorized use with wheeled vehicles is restricted unless the Forest Map or a Forest Order indicates that such use is specifically allowed. Snow machine use on snow is allowed unless specifically restricted.

4. Perennial stream crossings will be constructed to maintain stream flow sufficient to allow bidirectional movement of adult and juvenile fish and related aquatic organisms.

GUIDELINES

1. Allowable modes of travel shall be clearly signed at each trailhead.

2. New trails will be developed, if necessary, to expand the range of recreation opportunities, ensure user safety, and disperse existing use into different areas.

3. Travelways no longer needed, or that are contributing to resource damage that cannot be mitigated, shall be obliterated, revegetated, and/or sloped to drain.

4. Manage road use by seasonal closure if:

   * Use causes unacceptable damage of soil and water resources due to weather or seasonal conditions.
   * Use causes unacceptable wildlife conflict or habitat degradation.
   * Use results in unsafe conditions due to weather conditions.
   * The road(s) serve a seasonal public or administration need.
   * The area accessed has seasonal need for protection or non-use.

5. Trail systems will offer a wide range of recreation opportunities, both motorized and nonmotorized.

   * A wide range of barrier-free opportunities will be considered for all new-construction or rehabilitation proposals.

Infrastructure - Facilities

STANDARDS

1. Facilities acquired by land donation, exchange, or purchase will not be retained unless they serve a definite future purpose and funding is available for their maintenance, or they are determined to be historically significant.

2. All facilities will be managed according to the Facilities Master Plan.

SECTION 7 - ECONOMIC STANDARDS

Timber Utilization

STANDARD 1. Sawtimber utilization Standards, for live and dead trees are listed in Table III-8. The Standards in Table III-8 apply to the Rio Grande National Forest. (Reference FSH 2409.18, Ch 50)

Table III - 8. Timber Utilization Standards.

TIMBER UTILIZATION STANDARDS				
Type of Product	Minimum Diameter at Breast Height	Top Diameter	Minimum Length	Percent Net Of Gross
Live Trees:				
Sawtimber				
-Coniferous	7-8	5-7	8-10	33.3-50
-Aspen	7-8	5-7	8	50
Products other than Sawtimber	5	4	6.5	Variable
Dead Trees:				
Sawtimber	7-12	7-10	8-16	33.3-50
Products other than Sawtimber	5	4	Variable	Variable

An Update to the Biological Assessment and Biological Evaluation of the 1996 Rio Grande National Forest Revised Land and Resource Management Plan in Support of the Proposed Environmental Assessment to add MIS

Rio Grande National Forest

April 2003

An Update to the Biological Assessment and Biological Evaluation of the 1996 Rio Grande National Forest Revised Land and Resource Management Plan in Support of the Proposed Environmental Assessment to add MIS (2003)

INTRODUCTION

Regional Forester Elizabeth Estill signed the Record of Decision for the Revised Rio Grande National Forest Land and Resource Management Plan (Forest Plan) on November 7, 1996. The Rio Grande National Forest (RGNF) received several appeals of the Forest Plan and its accompanying Final Environmental Impact Statement (FEIS), one of which was from Colorado Environmental Coalition (CEC) *et al.* On January 19, 2001, the Chief of the Forest Service rendered a decision on CEC's appeal. On March 29, 2001, the Deputy Under Secretary for Natural Resources and Environment, Department of Agriculture, completed a discretionary review of the Chief's decision on the appeal. The Deputy Under Secretary affirmed in part and reversed in part the Chief's decision on the appeal and provided a new set of instructions to complete for the Forest Plan. These included instructions to add to the record the scientific literature cites used to determine habitat needs, distribution, and trends of sensitive species and MIS. An update of the Forest Plan's Biological Assessment (BA) and Biological Evaluation (BE) will, in part, address these instructions.

The BA and BE for the Forest Plan were completed and signed on October 18, 1996 (FEIS Appendices pg. F1-F23). The BA determined that any of the Forest Plan alternatives *"may affect, is not likely to adversely affect"* any of the listed species. The BE determined that any of the Forest Plan alternatives "*may adversely impact individuals, but are not likely to result in a loss of viability in the Forest Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide"*. Subsequent to the adoption of the Forest Plan, the status of some of the species changed. The Canada lynx was listed as threatened, the mountain plover has been proposed for listing as threatened, the Gunnsion sage-grouse has been proposed as a candidate species, and the peregrine falcon has been delisted.

The U. S. Fish and Wildlife Service (FWS) listed the lynx as threatened, effective April 24, 2000 (65 FR 16051). The FWS concluded the chief threat to the lynx in the contiguous United States was the lack of guidance to conserve the species in federal land management Forest Plans. Formal consultation, as required by the Endangered Species Act (ESA), was completed on October 25, 2000, when the FWS issued its Biological Opinion (BO) on the Programmatic Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Use Plans on Canada Lynx (Hickenbottom et al.1999). In the BO, the FWS concluded that Forest Plans as implemented in conjunction with the Conservation Agreement (U.S. Forest Service and U.S. Fish and Wildlife Service, Feb.7, 2000) *are not likely to jeopardize the continued existence of the lynx.* The FWS no jeopardy conclusion for National Forest System lands is based upon continued implementation of the Conservation Agreement (CA) until such time that Forest Plans are amended or revised to consider the needs of lynx.

The FWS proposed to list the mountain plover as threatened in the Federal Register February 16, 1999 (64 FR 7587) and re-opened the comment period for the proposed listing in the Federal Register on December 5, 2002 (67 FR 72396) and again on February 21, 2003 (68 FR 8487). As required by the ESA, Federal entities must consider the effects of proposed actions on the proposed species and confer with the FWS if the proposed action is likely to jeopardize the continued existence of the proposed species or destroy or adversely modify proposed critical habitat.

The Gunnsion sage-grouse was proposed as a candidate species by the FWS December 29, 2000 (65 FR 82310). Under the August 30, 2000 *Memorandum Of Agreement Endangered Species Act Section 7 Programmatic Consultations and Coordination among Bureau of Land Management, Forest Service, National Marine Fisheries Service and Fish and Wildlife Service* (MOA), the Forest Service (FS) agreed to confer with the FWS on the review of effects of programmatic actions on candidate species. This MOA outlines guidance and procedures for section 7 consultations as well as consideration of candidate species conservation in Forest Plans and other programmatic level proposals prepared by the Bureau of Land Management (BLM) and FS. The scope of this MOA includes Land and Resource Management Forest Plans prepared by the FS pursuant to the National Forest Management Act of 1976 [16 U.S.C. 1601-1614] and Resource Management Forest Plans and Management Framework Forest Plans prepared by the BLM pursuant to the Federal Land Policy and Management Act of 1976 [43 U.S.C. 1701-1784].

The peregrine falcon was delisted August 25, 1999 (64 FR 46541). The FWS proposed a monitoring plan on July 31, 2001 (66 FR 39523) and extended the comment period on September 27, 2001 (66 FR 49395). A draft post-delisting monitoring plan was made available in November 2002 for State and cooperator review and a draft cooperator use copy was made available in March 2003, pending final signature. The plan fulfills the final process of species recovery, as outlined in section 4(g)(1) of the ESA, which requires that the FWS "*...implement a system in cooperation with the States to monitor effectively for not less than five years the status of all species which have recovered to the point at which the measures provided pursuant to this Act* [the ESA]."

All of this new information will be incorporated into an update of the Forest Plan's BA and BE, in response to the Deputy Under Secretary's instruction that the Forest Plan modify the existing viability analysis to correct the identified deficiencies:

- *Management indicator species were not identified, which does not meet the plain language requirements of 36 CFR 219.19.*
- *Inadequate analysis was conducted relating to species referred to in the FEIS (pages F 20-23) as the "Riparian Group" and the "Nonforested Group."*
- *No map of rangeland for which livestock grazing permits has been issued.*
- *Habitat effects were displayed for only 10 years following adoption of the Revised Forest Plan.*
- *Cursory references were made to the scientific literature regarding habitat needs, distribution, and population trends of sensitive species.*

Specifically, the Deputy Under Secretary instructed the Forest to make the following corrections:

- *Select appropriate MIS per 36 CFR 219.19 and display the environmental effects of Forest Plan alternatives on such species.*
- *Expand the display of environmental effects of Forest Plan alternatives on Riparian Group and Non-forested Group species to be commensurate with the display in the FEIS of effects on other Groups.*
- *Display habitat effects for a longer time period, to be determined by the Forest based on consideration of rotation age and rate of change in Forest Plant communities due to succession or management activities. As part of the coarse-filter and fine-filter analyses contained in the FEIS, habitat/vegetation types should be forecast into the future to ensure the persistence of these ecosystems. In addition, the disclosure of effects should include a*

- *Add direction to the monitoring Forest Plan if MIS are selected that the Revised Forest Plan does not already require to be monitored.*
- *Add to the record the scientific literature cites used to determine habitat needs, distribution, and trends of sensitive species and MIS.*

The Forest intends to meet the first, fourth and fifth items of direction through the formal selection of appropriate MIS as proposed in the Environmental Assessment (EA). The EA proposes to: 1) adopt MIS to assist the RGNF in analyzing and evaluating species viability; 2) incorporate the MIS into the Forest Plan and amend standards and guidelines as appropriate; 3) initiate additional monitoring and evaluation requirements related to the MIS to be used in evaluating species viability; and 4) add to the record the scientific literature cites used in the preparation of the MIS species assessments and evaluation documents, and in the update of the BA and BE.

Additional reports were completed in conjunction with the EA in order to address the remaining items of direction and provide precursory information for both the BA and BE. These reports include the following:

1) Expanded Habitat Effects Display Report (January 2003). This report expands the effects display of projected management activities on all affected habitats through a five-decade period.
2) Migratory Bird Supplemental Information Report (November 2002). This report evaluates the effects of the Forest Plan on migratory birds, as directed by Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds).
3) MIS Effects Display Across Alternatives (March 2003). This report evaluates and displays the effects of all Forest Plan alternatives on the selected MIS using the expanded timeframes of the Habitat Effects Display Report.
4) Expanded Environmental Effects Display Report (in progress). This report will evaluate and display the effects of all Forest Plan alternatives on Forest sensitive species in riparian and non-forested habitats.

PURPOSE AND NEED

The purpose of the updated BA and BE is to update the Forest Plan and to evaluate the effects of the EA on the Forest's threatened, endangered, proposed, candidate and sensitive species. On March 28, 2002, the Forest requested a list of threatened, endangered and proposed species to be considered when completing biological assessments. On August 8, 2002, the FWS concurred with the Forest's proposed unit species list of threatened, endangered and proposed species and reconfirmed the list on February 19, 2003. Those species will be addressed in the BA. The list also included 2 candidate species, which will be addressed in the BE as Region 2 Forest sensitive species.

DESCRIPTION OF THE ALTERNATIVES

Alternative 1: Selected alternative (Alternative G) of the 1996 Revised Forest Plan. The analysis of this alternative will review the existing Forest Plan BA and BE for currency and sufficiency, will incorporate new information, and make a determination of effect for each species. The

analysis of this alternative will serve to update the existing BA and BE to reflect the current Forest unit species list.

Alternative 2: Selected alternative (Alternative G) of the 1996 Revised Forest Plan with the amended MIS. The analysis of this alternative will examine the effects of amending MIS into the Forest Plan, adding standards and guidelines, and incorporating changes to the monitoring plan.

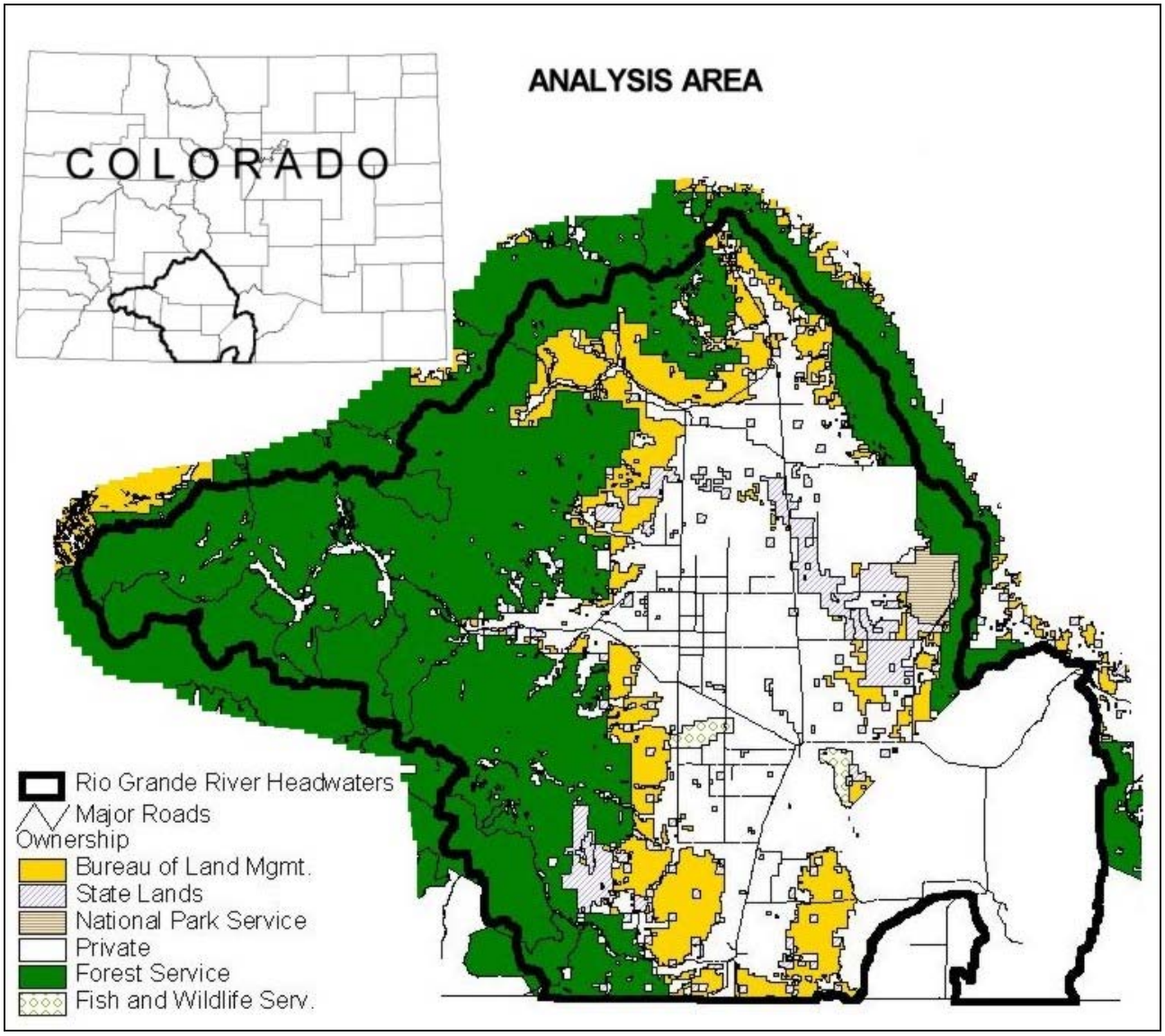
TIMING AND DURATION

Forest Plan decisions are revisited every 10-15 years as required by the National Forest Management Act. As the length of time expands, the confidence in predicting environmental consequences becomes increasingly speculative. Consequently, the Forest determined that five decades was a reasonable compromise for expanding the display of habitat effects for a longer period of time without diluting the reliability of the effects analysis with an abundance of successive assumptions. The species effects analyses in the BA and BE will use the same five-decade time projection.

LOCATION/MAP

The RGNF is located within the Upper Rio Grande River Headwaters area in south-central Colorado. The Forest contains approximately 1,852,000 acres (see Figure 1.).

Figure 1. Map of the Rio Grande National Forest



BIOLOGICAL ASSESSMENT

I. Species Evaluated

The Forest Plan BA addressed the effects of the alternatives for the following species: Bald eagle, Mexican spotted owl, Southwestern willow flycatcher, peregrine falcon, and Uncompahgre fritillary butterfly. This analysis will review the currency and sufficiency of the Forest Plan BA, and update it with new information for these species, except the peregrine falcon, which has been delisted and will be reviewed in the BE. This analysis also will include 2 new species, the Canada lynx (listed) and the mountain plover (proposed)

Table 1. List of Endangered, Threatened and Proposed species known or suspected on the RGNF.

Species	Basic Habitat Description
Uncomphagre fritillary butterfly (e) *Boloria acrocnema*	Alpine habitat above 11,000 with a snow willow component. Sites are generally found on north, northeast and east aspects.
Canada lynx (t) *Lynx canadensis*	Early successional and late mixed conifer forests and aspen/willow/shrub-steppe are used for foraging. Late-successional forests are used for denning, as well as winter foraging.
Southwestern willow flycatcher (e) *Empidonax trailii extimus*	Riparian habitats along rivers, streams or other wetlands, where dense growths of willows or other shrub and medium sized trees are present, often with a scattered overstory of cottonwood.
Mexican spotted owl (t) *Strix occidentalis lucida*	Steep canyons with a Douglas-fir, white fir, ponderosa pine/pinyon-juniper component.
Bald eagle (t) *Haliaeetus leucocephalus*	Nests and roosts are usually found in open-branched trees near larger lakes, streams, rivers and reservoirs.
Mountain plover (p) *Charadrius montanus*	High plains/short grass prairie habitats, often associated with prairie dog towns. Nesting areas characterized by very short vegetation with significant areas of bare ground.

II. Consultation History

Forest Plan

- Biological Assessment for the Rio Grande National Forest Revised Land and Resource Management Plan (1996) and FWS concurrence of *may affect, not likely to adversely affect* to all species (November 6, 1996).
- Biological Assessment for the Prescribed Fire Plan EA (1997) and FWS concurrence of *no effect* to the Southwestern willow flycatcher and of *may affect, not likely to adversely affect* to the Mexican spotted owl (January 22, 1997).
- Updated Biological Assessment for the Prescribed Fire Plan EA (2002) and FWS concurrence of *no effect* to Uncompahgre fritillary butterfly and of *may affect, not likely to adversely affect* Canada lynx (September 19, 2002).

- Biological Assessment of Programmatic - Outfitter and Guide Special Use Permit Renewals on the Rio Grande National Forest (2002) and FWS concurrence of *may affect, not likely to adversely affect* to all species (September 4, 2002).
- Biological Assessment for Developed Site - Deferred Maintenance Projects on the Rio Grande National Forest (2002) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (September 9, 2002).
- Biological Assessment for Forest Developed Recreation Site Maintenance Activities on the Rio Grande National Forest (2002) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (September 9, 2002).
- Biological Assessment for Programmatic - Minor Recreation Special Use Permit Issuances on the Rio Grande National Forest (2002) and FWS concurrence of *no effect* to Uncompahgre fritillary butterfly and of *may affect, not likely to adversely affect* to all other species (September 23, 2002).
- Biological Assessment for Trail Maintenance Activities on the Rio Grande National Forest (2002) and FWS concurrence of *no effect* to Canada lynx and mountain plover and of *may affect, not likely to adversely affect* all other species (October 11, 2002).
- Programmatic Biological Assessment/Biological Evaluation for Small Sales and other Forest Products on the Rio Grande National Forest (2001) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (July 25, 2001).

Canada Lynx

- Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx (1999) and the FWS Biological Opinion of *may affect, likely to adversely affect* (October 25, 2000).
- Canada Lynx Consultation Agreement between the Colorado U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (May 30, 2000).
- Reauthorization of Canada Lynx Consultation Agreement between the Colorado U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (June 4, 2001).

Southwestern Willow Flycatcher

- Biological Assessment for the Southwestern Willow Flycatcher - Need for Evaluating Grazing Allotment Operating Plans (1995) and FWS concurrence of *may affect, not likely to adversely affect* (September 15, 1995).
- 1997 Addendum to the 1995 Biological Assessment and FWS concurrence of *may affect, not likely to adversely affect* (July 17, 1997).

Uncompahgre Fritillary Butterfly

- Biological Assessment for the Uncompahgre Fritillary Butterfly Range Permit Reissuance with a determination of *no effect* (July 7 1995).

III. Habitat Overview

The Forest Plan FEIS (FEIS pgs. 3-41 to 3-70) described Landtype Associations (LTAs) as broad ecological units expressed as similar Forest Plant communities and ecological potential. LTAs

have a spatial resolution of hundreds to thousands of acres in size, making them generally useful and appropriate for Forest Plan scale analysis. However, except for the Canada lynx, species addressed in this biological assessment have such specialized habitat needs, that their habitats are limited in extent on the Forest and do not lend themselves to that scale of analysis. Still, use of the LTAs may provide a context for the amount of available habitat and the relative amount of risk associated with management activities on the RGNF. None of these species has designated critical habitat on the RGNF.

Table 2. Primary LTA of Listed and Proposed Species and Acres of Potential/Suitable Habitat

LISTED AND PROPOSED SPECIES	PRIMARY LANDTYPE ASSOCIATION							POTENTIAL/SUITABLE HABITAT ON RGNF
	Spruce/ Fir (LTAs 1 &13)	Willow/ Sedge (LTA 10)	Alpine (LTA 4)	Mixed Conifer (LTA 3)	Ponderosa Pine (LTA 5)	Western Wheat-Grass (LTA 12)	Aspen (LTA 2)	Suitable Acres in the LTA
Uncompahgre fritillary butterfly (e) *Boloria acrocnema*			X					4,250 (estimated acres of snow willow habitat in the San Juan Mountains)
Canada lynx (t) *Lynx canadensis*	X	X		X			X	1,083,953 (2002 LAU baseline)
Southwestern willow flycatcher (e) *Empidonax trailii extimus*		X						2,100 (GIS mapping estimate)
Mexican spotted owl (t) *Strix occidentalis lucida*				X	X			194,010 (estimated acres of late successional structural class)
Bald eagle (t) *Haliaeetus leucocephalus*		X						1,220 (estimated acres of lakes)
Mountain plover (p) *Charadrius montanus*						X		1,783 (estimated acres of mapped prairie dog towns)

IV. Analysis of Effects

CANADA LYNX

1. General Habitat Associations

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Lynx are typically associated with large tracts of higher elevation boreal or coniferous forest that is often interspersed with rock outcrops, bogs and thickets. In Colorado, lynx habitat is likely found within the subalpine and upper montane forest zones, typically between 8,000 and 12,000 feet in elevation. At the upper elevations of the subalpine, forests are typically dominated by subalpine fir and Engelmann spruce. As the subalpine transitions to the upper montane, spruce-fir forests begin to give way to a predominance of lodgepole pine, aspen, or mixed stands of pine, aspen, and spruce. Engelmann spruce may retain dominance on cooler, more mesic mid elevation sites, intermixed with aspen, lodgepole pine, and Douglas fir. Lodgepole pine reaches its southern limits in the central parts of the ecosystem, while southwestern white fir first makes its appearance in the San Juan Mountains.

Because of latitude, lynx habitat in the Southern Rockies is naturally fragmented, a function of elevation, aspect, and local moisture regimes. The high alpine tundra environments and lower, mostly open valleys typically separate subalpine and upper montane forest. Drier south- and west-facing slopes may also break up the continuity of cooler, mesic high-elevation forests that are believed to constitute primary vegetation contributing to lynx habitat.

Lynx habitat should be thought of in terms of a habitat mosaic within these forest landscapes, rather than as simple vegetation types. Spruce-fir, lodgepole pine, white fir, aspen, and mesic Douglas-fir may all provide foraging and/or denning habitat for lynx. Also potentially important in many parts of the Southern Rockies are the high elevation sagebrush and mountain shrub communities found adjacent to or intermixed with forested communities, affording potentially important alternative prey resources. Likewise, riparian and wetland shrub communities (for example, willow, alder, serviceberry) found in valleys, drainages, wet meadows, and moist timberline locations may support important prey resources.

Lynx transplanted to Colorado in 1999 and 2000 are most often found in the spruce-fir cover type, with frequent use of riparian and valley wetland shrub habitats of the upper montane and subalpine zones, especially in the late summer-fall. The ecotones formed by the integration of these various vegetation communities may offer some of the richest foraging opportunities for lynx. Foraging habitat for lynx in the Southern Rocky Mountains Geographic Area (SRMGA) includes all of the vegetation community types discussed above.

It remains unclear what role early-successional forests play in providing quality lynx foraging habitat in the SRMGA. Fire exclusion in this century has led to the maturation of many lodgepole pine forests into highly stocked, even-aged stands that do not now provide the dense ground- and snow-level cover and forage necessary to support higher densities of snowshoe hare. While these stands have a high density of tree boles, their crowns have lifted far above the reach of hares even in the deepest snowpacks. At the same time, the high dense canopy limits light penetration, contributing to a depauperate understory. Consequently, these stand types have low habitat value for snowshoe hare and other small mammal prey species, and consequently lynx. Because of their structure, mature and late-successional spruce-fir forests, by contrast, provide these characteristics and are, therefore, far superior to mature lodgepole pine. Mature and late successional spruce-fir forests are also excellent producers of red squirrels, an important alternate prey species for lynx.

Conifer-aspen forests, particularly those with dense regeneration or with an extensive shrub and woody debris understory component, may be important for snowshoe hares and other prey species. While extensive stands of pure aspen may not provide quality hare habitat due to deficiencies in winter habitat characteristics, when intermixed with spruce-fir or young lodgepole pine stands, aspen (especially younger stands) may substantially contribute to prey productivity. Regenerating burns are often quite productive because of the mixed coniferous/deciduous species composition, multiple age classes, shrub layer, dense herbaceous layer, and extensive downed woody debris. These conditions provide excellent habitat for snowshoe hare and other prey species.

Shrubland communities are found in many high elevation drainages, valleys, basins and benches between and adjacent to subalpine and upper montane forests. When these communities integrate with or are proximal to primary coniferous and conifer/aspen habitats, they may provide important alternate prey resources for lynx. Large or medium willow/alder carrs, beaver pond complexes, and shrub dominated riparian communities provide important habitat for snowshoe hare, grouse, ptarmigan (winter), and other prey species that may be utilized by lynx. The

ecotones and edges produced by these intermixed habitats may be among the most productive foraging sites for lynx in the SRMGA.

For denning habitat to be functional, it must be in or adjacent to large areas of quality foraging habitat. Because lynx may move their kittens frequently in the first few months, denning habitat should provide multiple quality den site options to the female. Lynx females seem to select dense, mature forest habitats that contain large woody debris, such as fallen trees or upturned stumps, to provide security and thermal cover for kittens.

Denning habitat in the Southern Rockies is likely to occur most often in late-successional spruce-fir forest with a substantial amount of large diameter woody debris on the forest floor, frequently found on north to northeast exposures. Selection of den sites on cooler exposures probably relates to thermoregulation, while the forest floor structure provides adequate protection for kittens. Although late successional spruce-fir forests most often provide these characteristics, it is likely that forest floor structure, and perhaps exposure, is more important than age class of the forest stand. Younger forests may, in some cases, provide similar characteristics. Fires, blowdowns, and even certain timber harvesting practices can leave considerable stacked and jackstrawed large-diameter woody debris under young forest canopies, providing excellent denning potential. The common component of natal den sites appears to be large woody debris, either downed logs or root wads. These den sites may be located within older regenerating stands (>20 years since disturbance) or in mature conifer or mixed conifer-deciduous forests. Stand structure appears to be of more importance than forest cover type.

Home range size varies considerably and is usually dependent upon prey base availability. Typical home range territories across southern Canada and lower 48 states vary between 15 to 147 square miles. Lynx movement and dispersal distances vary greatly. Documented daily movement distances have varied from 1.6 miles to 3.2 miles depending upon prey densities. Exploratory movements, usually in summer months, outside of identified home range boundaries, by lynx have varied between 9 and 25 miles. Both adult and sub-adults have been documented making long distance movements during periods of prey scarcity; recorded distances have been up to 600 miles.

Travel cover allows for movement of lynx within their home ranges and provides access to denning sites and foraging habitats. In general, suitable travel cover consists of coniferous or deciduous vegetation four feet taller than the average snowfall with a closed canopy that is adjacent to foraging habitat. Most successional stages serve as travel cover, provided they offer vegetative cover in sufficient quantity and arrangement to allow for the movement of lynx. Narrow forested mountain ridges or plateaus may provide a linkage between more extensive areas of lynx habitat. Wooded riparian communities may provide travel cover across otherwise open valley floors between mountain ranges. Linkages may be provided by forest stringers that connect large forested areas, or by low, forested passes that connect subalpine forests on opposite sides of a mountain range.

2. Local Habitat Relationships

Table 3 provides a summary of the types and acres of lynx habitat on the Forest (USDA 2003). There are an estimated 1,083,953 acres of lynx habitat, based on habitat criteria provided by the national interagency Lynx Steering Committee (USDA FS, USDI BLM and USDI FWS 2000). Lynx habitat is found throughout the Forest in almost all of the LTAs, but is primarily concentrated within subalpine, forested, and riparian LTAs.

Table 3. Summary of Lynx Habitat Acres (Percent) on the RGNF

LAU Name	LAU #	Denning[1]	Winter Foraging [2]	Other [3]	Currently Suitable Habitat[4]	Currently Unsuitable Habitat[5]	Total Lynx Habitat	Total Non-Habitat[6]	Total LAU
4 Mile to La Garita Creek	20903	40,119 (35)	31,915 (28)	33,624 (29)	105,658	9,038 (8)	114,696	68,552	183,248
Alamosa	20916	10,426 (33)	3,857 (12)	15,912 (50)	30,195	1,759 (5)	31,954	21,354	53,308
Bonanza-Cochetopa	20902	23,973 (24)	37,077 (37)	33,540 (33)	94,590	5,853 (6)	100,443	54,841	155,283
Conejos Canyon	20918	14,588 (41)	2,078 (6)	17,528 (49)	34,194	1,416 (4)	35,610	22,565	58,175
Creede	20905	10,657 (29)	4,914 (13)	20,207 (55)	35,777	636 (2)	36,413	54,900	91,313
Embargo	20907	20,189 (30)	14,372 (21)	23,328 (35)	57,889	9,584 (14)	67,473	61,054	128,527
Hogback	20912	34,896 (50)	9,400 (14)	21,419 (31)	65,715	3,743 (5)	69,458	32,894	102,352
La Jara	20917	17,482 (29)	13,295 (22)	26,641 (44)	57,418	2,563 (4)	59,981	39,880	99,861
Lagarita Wilderness	20908	6,037 (37)	1,545 (10)	7,758 (48)	15,340	768 (5)	16,108	22,372	38,480
Pinos-Rock	20915	19,451 (33)	9,922 (17)	24,271 (41)	53,643	5,714 (10)	59,357	35,575	94,932
Rito-Archuleta	20920	14,446 (34)	6,013 (14)	17,789 (42)	38,248	4,393 (10)	42,641	51,477	94,004
Saguache Park	20904	13,216 (43)	5,936 (19)	11,534 (38)	30,686	0 (0)	30,686	47,289	77,975
Sangre de Cristo North	20901	18,047 (33)	9,813 (18)	26,394 (49)	54,254	0 (0)	54,254	59,174	113,428
Sangre de Cristo South	20910	10,991 (47)	2,852 (12)	9,444 (41)	23,287	0 (0)	23,287	19,868	43,155
Snowshoe	20914	18,133 (46)	4,800 (12)	16,436 (41)	39,369	360 (1)	39,729	19,153	58,882
Stoney Pass	20909	23,749 (53)	5,041 (11)	16,143 (36)	44,943	29 (0)	44,972	58,234	103,197
Thirtymile	20911	19,393 (52)	5,017 (13)	11,455 (31)	35,865	1,624 (4)	37,489	25,760	63,249
Tres Mesa	20906	13,206 (30)	6,314 (14)	18,278 (42)	37,798	6,092 (14)	43,890	49,926	93,816
Trout-Handkerchief	20913	54,906 (41)	15,829 (12)	43,363 (32)	114,097	20,119 (15)	134,216	42,534	176,750
Victoria-Chama	20919	15,127 (37)	10,048 (24)	15,356 (37)	40,531	767 (2)	41,298	30,508	71,807
Total		**399,034 (37)**	**200,039 (18)**	**410,421 (38)**	**1,009,494**	**74,459 (7)**	**1,083,953**	**817,928**	**1,901,871**

[1]Denning habitat = Total acres within the LAU mapped as suitable denning habitat (also serves as winter foraging).
[2]Winter foraging habitat = Additional mapped winter foraging habitat (all habitat mapped as denning is also considered winter foraging but is not included in this number).
[3]Other = Low quality and additional summer foraging habitat.
[4]Currently suitable lynx habitat = Total denning, winter, and other habitat.

Four lynx linkage areas have been delineated on the RGNF (map on file in the Supervisor's Office).

- **Poncha Pass:** This linkage area provides for movement between the San Juans to the Sawatch and Sangre de Cristo Ranges. It connects central Colorado to southern Colorado and is a very important connection. The topography pattern and vegetation results in a funneling north-south connection near Poncha Pass. It also includes Monarch and Marshall Passes, as they provide a series of habitat and terrain features that provide a "stepping stones" type series of connections.

- **Cochetopa Hills/North Pass:** This linkage area provides for North-south movements from the San Juans to the Sawatch Ranges. It is a well-used movement corridor by lynx. North Pass (Highway 114) is a potential barrier or impediment to movements.

- **Slumgullion Pass:** This linkage area includes the Spring Creek and Indian Creek areas. It provides a north-south connection between Lake City to the Creede area, with threats that include highway crossing problems (Hwy 149).

- **Wolf Creek Pass:** This linkage area includes areas on both sides of Hwy 160, and provides for north-south movement. Lynx mortality at Pass Creek on the east side of the pass documents it is being used by lynx. Threats include a high volume, two lane highway, which is currently being upgraded.

3. Local Survey/Occurrence Information

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Until recently, it was generally assumed that the lynx was an indigenous but uncommon species in the SRMGA. However, records are coming to light that paint a different picture. Lynx may have been relatively common in Colorado, at least near or prior to the turn of the century. Records of lynx occurrence are distributed throughout mountainous areas of Colorado. The southernmost record is from the southern San Juans (Conejos County), one mile from the New Mexico border. Although no records exist from New Mexico, suitable habitat extends into north-central New Mexico along the Sangre de Cristo mountain range and, especially, in the San Juan Mountains.

Although lynx appear to persist in the SRMGA, the population has failed to rebound in this ecosystem despite the removal of certain key suppressing factors, including commercial trapping and indiscriminate predator control. Biologists in Colorado have concluded that this extant lynx population is too small to be self-sustaining or capable of naturally rebounding to self-sustaining levels.

In 1998, a cooperative effort between the Colorado Division of Wildlife (CDOW), the FS, FWS, BLM, and the National Park Service (NPS) developed a draft reintroduction conservation strategy for the Canada lynx and wolverine (Seidel et al. 1998) to re-establish a self-sustaining, breeding population of lynx throughout the Southern Rockies. A total of 96 lynx were transplanted into the San Juan Mountains during 1999 and 2000. Of these, 45 have died from various causes. Currently, the CDOW is tracking 31 of the 51 lynx still possibly alive (Shenk 2003).

Most lynx continue to use terrain within the core research area, which extends from New Mexico north to Gunnison, west to Taylor Mesa and east to Monarch Pass. There are some lynx north of

Gunnison up to the I70 corridor and in the Taylor Park area, but no lynx are known to be north of I70 at this time (Shenk 2003). Some lynx have established or appear to be establishing resident territories in the San Juan Mountains, including the RGNF. However, no evidence of reproduction has been found (Shenk 2003). CDOW augmentation continues with additional releases beginning in 2003.

4. Risk Factors

Various threats were identified by the FWS in the proposed rule to list Canada lynx as potentially affecting lynx populations, including competition, habitat loss and fragmentation, and the inadequacy of existing regulatory mechanisms to protect the species, specifically the lack of guidance for the conservation of lynx in Forest Plans and BLM Land Use Plans. A cooperative team from the FS and BLM prepared a national programmatic BA of the potential effects resulting from these Plans within the 16 state area where lynx were proposed for listing. The BA made a determination that the Plans *may affect and are likely to adversely affect the lynx*.

For the SRMGA, which includes the RGNF, the BA found adverse effects based on 11 of the 15 evaluation criteria used to analyze the programmatic effects of Plans on the lynx. The finding of adverse effect was primarily based on Plans providing weak direction regarding the evaluation criteria. Findings specific to the RGNF Forest Plan are similar in that regard and are shown in Table 4.

Table 4. Summary of how RGNF Forest Plan direction meets evaluation criteria.

EVALUATION CRITERIA	HOW RGNF MEETS CRITERIA
Denning Habitat (Forest Plan contains either specific or incidental direction that results in providing denning habitat)	Marginally
Foraging Habitat (Forest Plan contains either specific or incidental direction that results in providing foraging habitat)	Marginally
Habitat Conversions (Forest Plan prohibits habitat conversions that would reduce habitat suitability for lynx)	Does not meet
Thinning (Forest Plan provides direction for integrating lynx habitat needs in stand thinning projects)	Marginally
Fire Management (Forest Plan incorporates fire management direction that helps maintain or improve lynx habitat).	Fully
Landscape Patterns (Forest Plan direction either directly or indirectly results in landscape vegetation patterns that maintain or improve lynx habitat suitability)	Marginally
Forest Roads (Forest Plan contains direction pertaining to roads that helps promote lynx conservation)	Marginally
Developed Recreation (Forest Plan contains direction that mitigates the effects of developed recreation on lynx and lynx habitat)	Does not meet
Non-winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of non-winter dispersed recreation on lynx and lynx	Substantially

habitat)	
Winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of winter dispersed recreation on lynx and lynx habitat)	Substantially
Minerals (Forest Plan contains direction that mitigates the effects of minerals and energy development on lynx and lynx habitat)	Does not meet
Connectivity (Forest Plan contains direction that mitigates potential barriers to lynx movement and maintains habitat connectivity. Riparian management and other connectivity issues are considered)	Marginally
Land Adjustments (Forest Plan contains direction that maintains or improves lynx habitat during land tenure adjustments)	Marginally
Coordination (Forest Plan contains specific direction for coordinating issues that may affect lynx with nearby units and other agencies)	Marginally
Monitoring (Forest Plan contains direction for monitoring lynx and snowshoe hare or their habitats)	Does not meet

Subsequent to the BA, the lynx was listed and FWS issued a BO based on the BA, the Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000), the Canada Lynx Conservation Agreements (USDA Forest Service and USDI Fish and Wildlife Service 2000) and the Lynx Science Report, "Ecology and Conservation of the Lynx in the United States (Ruggiero et al. 2000). The BO issued a *no jeopardy* conclusion based upon implementation of the Conservation Agreements (CAs) until such time as the Plans were amended or revised to consider the needs of lynx. The FWS further concluded that continued implementation of the Plans, in conjunction with the CAs, might result in some level of adverse effects to lynx, as Plans are permissive in that they allow, but do not authorize, actions to occur that may adversely affect lynx. However, the BO included an assessment of effects if the Plans were amended or revised with the conservation measures in the LCAS and determined that such amendments or revisions would likely sufficiently minimize the potential for adverse effects and the effects of any take that might occur at the programmatic scale.

The LCAS developed conservation measures designed to minimize potential risk factors that may influence lynx or lynx habitat. Identified risk factors include:

- Factors affecting lynx productivity (timber management, wildland fire management, recreation, forest/backcountry roads and trails, livestock grazing, and other human developments).
- Factors affecting lynx mortality (trapping, predator control, incidental or illegal shooting, and competition and predation as influenced by human activities).
- Factors affecting lynx movement (highways, railroads and utility corridors, land ownership patterns, and ski areas and large resorts).
- Other large-scale risk factors (fragmentation and degradation of lynx refugia, lynx movement and dispersal across shrub-steppe habitats, and habitat degradation by non-native invasive plant species).

5. Effects Analysis

The analysis of effects is conducted in 2 parts: 1) an assessment of the sufficiency of Forest Plan direction to provide programmatic guidance (Programmatic Forest Plan Direction Analysis section) and 2) an evaluation of the potential effects of proposed Forest management actions (Proposed Forest Plan Implementation Analysis section).

General Considerations

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Many parts of the Southern Rockies currently have a shortage of regenerating forest (particularly lodgepole pine stands). Consequently, in the short term it is important to protect and encourage habitats that now support moderate to high snowshoe hare populations and those which are developing towards quality snowshoe hare habitat. It is equally important to protect and encourage those habitats that are good producers of alternative prey, such as red squirrels, grouse, and other lagomorph species. In those conifer (especially lodgepole pine) and mixed conifer-aspen stands that are regenerated, encourage development of horizontal cover at ground through maximum snow depth levels. Shrub and woody debris components should be maintained and even increased where understory cover is deficient. In the absence of widespread regenerating forest stands, mature and late-successional spruce-fir forests may constitute some of the most important habitat for lynx. These stands not only provide components necessary for denning habitat, but also produce red squirrels, grouse, and snowshoe hare. Although these forest types may support a lower density of hares than do densely regenerating stands, they also likely provide stable populations of both hares and red squirrels over time.

Consequently, manipulation of spruce-fir forests should probably be undertaken with great caution, especially until large areas of lodgepole pine can be converted into densely regenerating stands and begin to support strong snowshoe hare production. It may be desirable to reintroduce fire and silvicultural treatments into mature lodgepole pine forests (and white fir forests where they no longer provide suitable hare habitat) to increase quality snowshoe hare habitat in the Southern Rockies. Because this forest type currently provides little habitat value for lynx, the risk of such manipulation is low, while the long-term benefits (15-40 years) are potentially great. The long-term strategy across the forested landscape should be to recreate, to the extent possible, the mosaic of young, regenerating, mature, and late-successional forests typical of naturally operating disturbance regimes.

Fire, insect and disease processes have shaped vegetation patterns. Natural fire regimes in subalpine fir-spruce forests of the Southern Rocky Mountains are extremely complex, reflecting great variation due to climate, topography, elevation, vegetation, and site productivity. Because of the high elevations and higher moisture gradients of the subalpine zone, stand replacement events occur only rarely on a given site, perhaps every 250 to 500 years. Such events occur with increasing frequency at decreasing elevations. In warmer and drier montane zones, extreme fire behavior often results in stand replacement events. Here too, small diameter, highly stocked lodgepole pine stands create a fuel load favorable to major fire events. Stand-replacing fires may occur every 100 to 150 years in the montane zone, while surface fires of low to moderate-intensity occur relatively frequently (return intervals of 5 to 60 years). Smaller acreages often are subjected to low-intensity surface fires during the intervals between stand-replacing events.

Alpine tundra, open valleys, shrubland communities, and dry southern and western exposures naturally fragment lynx habitat within the subalpine and montane forests of the Southern Rockies. Because of the fragmented nature of the landscape, there are inherently important natural topographic

features and vegetation communities that link these fragmented subalpine forested landscapes together, providing for dispersal movements and interchange among individuals and subpopulations of lynx. Landscape connectivity may be provided by narrow forested mountain ridges and plateaus connecting more extensive mountain forest habitats, wooded or willow riparian communities providing travel cover across open valley floors between mountain ranges, or lower elevation ponderosa pine, pinyon-juniper woodlands or shrublands that separate high elevation spruce-fir forests.

Grazing, in conjunction with increasing elk populations, may have resulted in increased competition for forage resources with lynx prey. By changing native plant communities, such as aspen and high elevation riparian willow, grazing can degrade snowshoe hare habitat.

Recreational uses or activities that create compacted snow conditions may reduce the competitive advantage that lynx have in deep snow environments. Ski-area developments can reduce the availability of lynx habitat within localized areas and contribute to overall fragmentation of the landscape.

Programmatic Forest Plan Direction Analysis

The national programmatic BA evaluated what Plans permit or prohibit, assessing the language or direction of the Plans rather than the realized effects of their implementation. The BA in general, found there was a lack of protective direction to address all 15 evaluation criteria and specifically that the RGNF did not meet 4 of the criteria, marginally met 8, substantially met 2, and fully met 1.

The CAs commit the FS to actions that will be taken to reduce or eliminate adverse effects or risks to the lynx and its habitat. Specifically, the FS agrees that Forest Plans should include measures necessary to conserve lynx and that these measures will consider the Science Report, the LCAS and the FWS's final listing decision. These conservation measures are to be incorporated during Forest Plan revision or amendment. In conformance with the CAs, Forests have identified and mapped lynx habitat, lynx analysis units and lynx linkage areas.

In the SRMGA, the FS has a process underway to amend the affected Forest Plans. However, this regional amendment process has not yet been completed. Absent programmatic forest planning to conserve lynx, assessment of land management effects to lynx and development of appropriate conservation strategies are left to project-specific analyses without consideration for larger landscape patterns. Overall, RGNF Forest Plan direction marginally provides for lynx and lynx habitat and will require the regional amendment to fully meet the LCAS, as clarified by the Lynx Steering Committee (USDA 2002). Table 5 provides a specific comparison of RGNF Forest Plan direction to conservation measures identified in the LCAS.

Table 5. Crosswalk between the LCAS and RGNF Forest Plan direction.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
RE: ALL PROGRAMS	
Programmatic Planning Objectives	
1. Design vegetation management strategies that are	Forestwide Desired Conditions for Biological

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
consistent with historical succession and disturbance regimes.	Diversity
Programmatic Planning Standards	
1. Conservation measures will generally apply only to the lynx habitat on federal lands within LAUs.	Forest Plan direction applies to all Forest Service lands.
2. Lynx habitat will be mapped.	Mapping completed.
3. To facilitate project Forest Planning, delineate LAUs.	Completed as part of mapping.
4. To be effective for the intended purposes of planning and monitoring, LAU boundaries will not be adjusted.	LAU boundaries are fixed.
5. Limit disturbance within each LAU as follows: if no more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning Guidelines	
1. The size of LAUs should generally be 6.500-10,000ha (16,000-25,000 acres or 25-50 square miles) in contiguous habitat.	Completed as part of mapping.
2. LAUs with only insignificant amounts of lynx habitat may be discarded.	Completed as part of mapping.
3. After LAUs are identified, their spatial arrangement should be evaluated.	Completed as part of mapping.
Project Planning – Standards	
1. Within each LAU, map lynx habitat.	Completed as part of mapping.
2. Within a LAU, maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Maintain habitat connectivity within and between LAUs.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objective 2.4
RE: LYNX PRODUCTIVITY	
Timber Management	
Programmatic Planning - Objectives	
1. Evaluate historical conditions and landscape patterns to determine historical vegetation mosaics across landscapes through time.	To be completed by regional HRV analyses.
2. Maintain suitable acres and juxtaposition of lynx habitat through time.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.3, 2.7 and 2.8
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure and patterns more similar to those that would have occurred under historical disturbance regimes.	Biodiversity Standard 3; Guidelines 1 and 2 Silviculture Standard 3; Guidelines 6 and 11
Project Planning - Objectives	
1. Design regeneration harvest, planting, and thinning to develop characteristics suitable for lynx and snowshoe hare habitat.	Silviculture Guideline 11 Wildlife Standard 16

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
2. Design projects to retain/enhance existing habitat condition for important alternative prey.	Biodiversity Standard 1 and 3; Guidelines 1 and 2 Wildlife Standard 16
Project Planning - Standards	
1. Management actions (e.g., timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to unsuitable condition within a 10-year period.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
2. Following a disturbance such as blowdown, fires, insects/pathogens mortality that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres. Exceptions to this include: 1) areas such as developed campgrounds; 2) LAUs where denning habitat has been mapped and field validated (not simply modeled or estimated), and denning habitat comprises more than 10% of lynx habitat within a LAU; in these cases, salvage harvest may occur, provided that at least the minimum amount is maintained in a well-distributed pattern.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. In lynx habitat, pre-commercial thinning will be allowed only when stands no longer provide snowshoe hare habitat	No Forest Plan Guidance
4. In aspen stands within lynx habitat, apply harvest prescriptions that favor regeneration of aspen.	Forestwide Objective 2.8 Biodiversity Guidelines 2 and 3
Project Planning - Guidelines	
1. Plan regeneration harvest in lynx habitat where little or no habitat for snowshoe hares is currently available, to recruit a high density of confers, hardwoods, and shrubs preferred by hares.	Forestwide Objective 3.3
2. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc).	Silviculture Standard 2; Guideline 11
Wildland Fire Management	
Programmatic Planning Objectives	
1. Restore fire as an ecological process.	Forestwide Desired Conditions for Fire Forestwide Objectives 2.9 and 2.10
2. Revise or develop fire management plans to integrate lynx habitat management objectives.	No Forest Plan Guidance
3. Consider use of mechanical pre-treatment and management ignitions if needed to restore fire as an ecological process.	Forestwide Objective 2.10
4. Adjust management practices where needed to produce forest composition, structure, and patterns more similar to those that would have occurred under historical succession and disturbance regimes.	Forestwide Objective 2.2
5. Design vegetation and fire management activities to retain or restore denning habitat on landscapes with the highest probability of escaping stand-replacing fire events.	No Forest Plan Guidance

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
Project Planning - Objectives	
1. Use fire as a tool to maintain or restore lynx habitat.	Forestwide Objective 2.9 Fire Guideline 2
2. When managing wildland fire, minimize creation of permanent travel ways that could facilitate increased access by competitors.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
Project Planning Standards	
1. In the event of a large wildfire, conduct a post-disturbance assessment prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.	FS Handbook, Rocky Mountain Region – Forest Planning procedures.
2. Design burn prescriptions to regenerate or create snowshoe hare habitat.	No Forest Plan Guidance
Project Planning - Guidelines	
1. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare.	No Forest Plan Guidance
2. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.	No Forest Plan Guidance
3. Consider the need for pre-treatment of fuels before conducting management ignitions.	Forestwide Objective 2.10
4. Avoid construction of permanent fire-breaks on ridges or saddles in lynx habitat.	**CONFLICTS** Sediment Control Standard 1 – Guideline 1
5. Minimize construction of temporary roads and machine fire lines to the extent possible during fire suppression activities.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
6. Design burn prescriptions and, where feasible, conduct fire suppression action in a manner that maintains adequate lynx denning habitat (10% of lynx habitat per LAU).	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Recreation Management	
Programmatic Planning - Objectives	
1. Plan for and manage recreational activities to protect the integrity of lynx habitat, considering as a minimum the following: a) Minimize snow compaction in lynx habitat. b) Concentrate recreational activities within existing developed areas, rather than developing new recreational areas in lynx habitat c) On federal lands, ensure that development or expansion of developed recreation sites or ski areas and adjacent lands address landscape connectivity and lynx habitat needs.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
2. Map and monitor the location and intensity of snow compacting activities.	Concentrated winter use areas are mapped.
Programmatic Planning – Guidelines	
1. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged	No Forest Plan Guidance
2. Limit or discourage activities that result in snow compaction in areas where it is shown to compromise lynx habitat.	Dispersed Recreation Standards 3 and 4
Project Planning – Standards	
Developed Recreation	
1. In lynx habitat, ensure that federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreation developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
2. Design trails, roads, and lift termini to direct winter use away from diurnal security habitat.	No Forest Plan Guidance
Dispersed Recreation	
1. To protect the integrity of lynx habitat, evaluate (as new information becomes available) and amend as needed, winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat.	Special use permit authorizations have been consulted with FWS (September 2002).
Project Planning – Guidelines	
Developed Recreation	
1. Identify and protect potential security habitats in around proposed developments or expansions.	No Forest Plan Guidance
2. When designing ski area expansions, provide adequately sized coniferous inter-trail islands, including the retention of coarse woody material, to maintain snowshoe hare habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Evaluate, and adjust as necessary, ski operations in expanded or newly developed areas to provide nocturnal foraging opportunities for lynx in a manner consistent with operational needs.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Forest Backcountry Roads and Trails	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions	No Forest Plan Guidance
Programmatic Planning- Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning - Guidelines	
1. Determine where high total road densities (greater than 2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.	A RAP will be completed in FY04 to inform road management decisions.
2. Minimize roadside brushing in order to provide	No Forest Plan Guidance

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
snowshoe hare habitat.	
3. Locate trails and roads away from forested stringers.	No Forest Plan Guidance
4. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.	No Forest Plan Guidance
5. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.	**CONFLICTS** with Sediment Control Standard 1 - Guideline 1
Livestock Grazing	
Programmatic Planning - Objectives	
1. In lynx habitat and adjacent shrub-steppe habitats, manage grazing to maintain the composition and structure of native Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2, 2.3, 2.5 and 2.7
Project Planning - Objectives	
1. Manage livestock grazing within riparian areas and willow carrs in lynx habitat to provide conditions for lynx and lynx prey.	Range Guideline 2
2. Maintain or move towards native composition and structure of herbaceous and shrub Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2 and 2.7
3. Ensure that ungulate grazing does not impede the development of snowshoe hare habitat in natural or created openings within lynx habitat.	No Forest Plan Guidance (see effects analysis of range management)
Project Planning - Standards	
1. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components.	No Forest Plan Guidance (see effects analysis of range management)
2. Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones	Range Standard 2 and Guideline 1
3. Within the elevational ranges that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to maintain or achieve mid-seral or higher condition.	Forestwide Desired Condition for Range
4. Within lynx habitat, mange livestock grazing in riparian areas and willow carrs to maintain or achieve mid-seral or later condition to provide cover and forage for lynx prey species.	Range Guideline 2; Riparian Standard 1 - Guidelines 1, 7 and 8
Other Human Developments: Oil & Gas Leasing, Mines, Reservoirs, Agriculture	
Programmatic Planning - Objectives	
1. Design developments to minimize impacts on lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Programmatic t Planning - Guidelines	
1. Map oil and gas production and transmission facilities, mining activities and facilities, dams, and agricultural lands on public lands and adjacent	Addressed through project-level NEPA analysis.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
private lands, in order to address cumulative effects.	
Project Planning - Standards	
1. On projects where over-snow access is required, restrict use to designated routes.	Forestwide Objective 3.3
Project Planning – Guidelines	
1. If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.	Forest Plan Lease Stipulations do not address lynx. Projects proposed under a lease are subject to NEPA and ESA requirements.
2. Minimize snow compaction when authorizing and monitoring developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Develop a reclamation plan (e.g., road reclamation and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.	Mineral and Energy Resources – General Standard 1
4. Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.	No Forest Plan Guidance (see effects analysis of minerals management)
RE: MORTALITY RISK FACTORS	
Trapping	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during regulated and unregulated trapping activity, and ensure retention of an adequate prey base.	State regulated.
Programmatic Planning – Guidelines	
1. Federal agencies should work cooperatively with States and Tribes to reduce incidental take of lynx related to trapping.	State regulated.
Predator Control	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during predator control activities, and ensure retention of adequate prey base.	Responsibility of APHIS, consultation underway
Programmatic Planning - Standards	
1. Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, will be conducted by Wildlife Services personnel in accordance with FWS recommendations established through a formal Section 7 consultation process.	Responsibility of APHIS, consultation underway
Shooting	
Programmatic Planning - Objectives	
1. Reduce lynx mortalities related to mistaken identification or illegal shooting	State regulated
Programmatic Planning – Guidelines	
1. Initiate interagency information and education efforts throughout the range of lynx in the contiguous states.	State regulated
2. Federal agencies should work cooperatively with States and Tribes to ensure that important lynx prey are conserved.	State regulated

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
Competition and Predation – Human Activities	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Highways	
Programmatic Planning - Objectives	
1. Reduce the potential for lynx mortality related to highways.	No Forest Plan Guidance. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
Programmatic Planning - Standards	
1. Within lynx habitat, identify key linkage areas and potential highway crossing areas	Linkage areas are identified.
Programmatic Planning – Guidelines	
1. Where needed, develop measures such as wildlife fencing and associated underpasses to reduce mortality risk.	No Forest Plan Guidance. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
RE: MOVEMENT AND DISPERSAL	
Programmatic Planning - Objectives	
1. Maintain and, where necessary and feasible, restore habitat connectivity across forested landscapes.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. Identify key linkage areas that may be important in providing landscape connectivity within and between geographic areas, across all ownerships.	Linkage areas are identified.
2. Develop and implement a plan to protect key linkage areas on federal lands from activities that would create barriers to movement.	Linkage area plans are to be developed in consultation with FWS.
3. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability.	Forestwide Desired Condition for Range
Programmatic Planning – Guidelines	
1. Where feasible, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey, within identified key linkage areas.	Forestwide Desired Conditions for Biodiversity and Forestwide Objectives 2.2 and 2.3
Highways	
Programmatic Planning - Objectives	
1. Ensure that connectivity is maintained across highway rights-of-ways.	Linkage areas have been identified on the RGNF in consideration of risks associated with highways.
Programmatic Planning - Standards	

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
1. Federal land management agencies will work cooperatively with the Federal Highway Administration and State Departments of Transportation to address the following with lynx geographic areas: a) Identify land corridors necessary to maintain connectivity of lynx habitat b) Map the location of "key linkage areas" where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).	Forestwide Objective 7.4 Linkage areas are identified.
Programmatic Planning – Guidelines	
1. On public lands, management practices will be compatible with providing habitat connectivity.	Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4
Project Planning – Standards	
1. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx and other wildlife.	Linkage areas are identified. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
2. Within the range of lynx, complete a biological assessment of all proposed highway projects of federal lands. A land management agency biologist will review and coordinate with highway departments on development of the biological assessment.	Forestwide Objective 7.4 The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
Project Planning - Guidelines	
1. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded.	No Forest Plan Guidance
Land Ownership	
Programmatic Planning - Objectives	
1. Retain lands in key linkage areas in public ownership.	Real Estate-Land Adjustments Guideline 3
Programmatic Planning - Standards	
1. Identify key linkage areas by management jurisdiction(s) in management plans and prescriptions.	Linkage areas are identified.
Programmatic Planning – Guidelines	
1. In land adjustment programs, identify key linkage areas.	Linkage areas are identified.
Project Planning – Standards	
1. Develop and implement specific management prescriptions to protect/enhance key linkage areas.	Linkage area Forest Plans are to be developed in consultation with FWS.
2. Evaluate proposed land exchanges, land sales, and special use permits for effect on key linkage areas.	No Forest Plan Guidance.
Ski Areas/Large Resorts	
Programmatic Planning - Objectives	

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
1. When conducting landscape level planning of Federal lands, allocate land uses such that landscape connectivity is maintained.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Programmatic Planning - Standards	
1. Within identified key linkage areas, provide for landscape connectivity.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Project Planning – Standards	
1. When planning new or expanding recreation developments, ensure that connectivity within linkage areas are maintained.	Linkage areas are identified. Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Project Planning – Guidelines	
1. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.	Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4

While current Forest Plan direction is not specific to the management of lynx and lynx habitat, guidance is provided in a general and permissible manner that would allow the implementation of the related LCAS conservation measures. There is a Forest Plan wildlife standard (10) that directs consistency of Forest Plan guidance with TES conservation agreements and provides for the amendment of the Forest Plan to incorporate new direction.

Proposed Forest Plan Implementation Analysis

The EA (Appendix B Table B-1) provides a summary description of activities, and their extent, on the RGNF. Major activities on the RGNF that may impact lynx and their habitat include timber management, fire management, recreation management, livestock management, and travel management. While limited in scope on the RGNF, minerals management activities also may affect lynx. These activities may have specific consequences related to risk factors associated with lynx productivity, mortality and movement, as discussed below.

- Timber management. Reduction of large diameter woody debris may affect the survival of lynx kittens and availability of lynx prey. Pre-commercial thinning may reduce the quality and quantity of snowshoe hare foraging habitat and escape cover. Harvest treatments can affect the spatial arrangement of foraging and denning habitat, affecting reproductive success. Road construction may result in increased habitat fragmentation (impeding lynx dispersal), increased human access (disturbing lynx), and increased snow compaction (increasing inter-specific competition).

- Fire management. Fire exclusion may alter the natural mosaic of forest successional stages necessary for maintaining snowshoe hare habitat. Creation of fuel breaks on ridges eliminates cover and may discourage lynx use.

- Recreation management. Human presence in denning habitat during May through August may result in increased lynx disturbance. In winter, human use of forest roads and trails can increase snow compaction. High-intensity recreational use areas, such as ski areas, may

provide a level of disturbance that effectively precludes lynx use (at least temporarily) of otherwise suitable habitat.

- Travel management. Motorized and non-motorized access increases human presence that may be detrimental to lynx (disturbance; hunting and trapping vulnerability). Snow compaction may provide increased access for lynx predators and /or competitors. Highways, especially within linkage areas, can impede lynx movements and may result in direct mortalities due to vehicular collisions. On the RGNF, a significant highway upgrade construction project is in progress on Highway 160, within the Wolf Creek Pass linkage area.
- Livestock management. Grazing may impact microsites such as high elevation riparian meadows and willow communities, thus reducing snowshoe hare habitat.
- Minerals management. Oil and gas developments and surface mining can degrade habitat and increase human disturbances within a lynx home range.

Alternative 1

Direct and Indirect Effects

Proposed actions in the Forest Plan may impact the primary needs of lynx and their habitat use. Expected effects specific to these actions are discussed below.

- Timber management. The FEIS predicted an annual harvest level of 11 MMBF/yr, but actual harvest levels have been closer to 7-8 MMBF/yr (EA Appendix B Table B-1). The preponderance of harvest (94%) is expected to occur in LTAs 1 and 13 (EA Appendix B Table B-2) and most of that harvest would be in structure class 5 (late successional forest). Depending on harvest method, there would be concomitant increases in earlier structural classes (Table 6). The predominant harvest method would be shelterwood cuts or group selection, resulting in an increase in structure classes 1 (early successional vegetation) and 4 (mature forest), with varying size areas and stages of vegetative regeneration (FEIS Appendix K).

Table 6. Projected Structure Class change for LTAs 1 and 13.

Decade	Structure Class (Habitat Structural Stage in parenthesis)									
	1 (1, 2)		2 (3a)		3 (3b, 3c)		4 (4a)		5 (4b, 4c, 5)	
	Current 10% 95,890 Acres		Current 4% 39,000 Acres		Current 15% 140,853 Acres		Current 10% 90,670 Acres		Current 61% 580,190 Acres	
	Exp	Full	Exp	Full	Exp	Full	Exp	Full	Exp	Full
ONE (acres)	1000	1000	NC	NC	NC	NC	816	2156	-1816	-3156
(percent)	1%	1%	NC	NC	NC	NC	1%	2%	-0.3%	-1%
FIVE (acres)	25140	55847	NC	NC	NC	NC	11899	25665	-37039	-81512
(percent)	26%	58%	NC	NC	NC	NC	13%	28%	-6%	-14%

In addition to harvest of LTAs 1 and 13 (Engelmann spruce), minor amounts of harvesting would occur in LTA 2 (Aspen), LTA 3 (White Fir and Douglas Fir), and LTA 5 (Ponderosa Pine and Douglas Fir). The FEIS analysis of predicted habitat change in response to timber management was updated with the *Expanded Habitat Effects Display Report (2003).* This

report predicted a change in the late successional forested LTAs as ≤1% in the first decade and up to 14% by the fifth decade (Table 7).

Table 7. Extent of projected timber harvest within late successional forested LTAs on the RGNF.

LTA (acres)	Projected decrease in Structure Class 5 by LTA and budget level							
	Experienced Budget				Full Budget			
	Decade 1		Decade 5		Decade 1		Decade 5	
	Acres	% Change	Acres	% Change	Acres	% Change	Acres	% Change
1 and 13 (580,190)	-1816	-0.3%	-37039	-6%	-3156	-1%	-81512	-14%
2 (39,121)	-13	-0.03%	-210	-0.54%	-191	-0.49%	-1911	-4.89%
3 (93,000)	-72	-0.08%	-1149	-1.24%	-363	-0.39%	-3632	-3.91%
5 (101,010)	-5	-0.00%	-75	-0.03%	-33	-0.01%	-325	-0.13%

Additional harvest through limited thinning, mostly in lodgepole pine stands, or salvage sales for control of insects and disease may occur and firewood and post/pole sales will be by-products of timber harvest (FEIS page 3-171). Levels of these additional harvest activities are projected to be less than in the past, but as disease and bug infestations continue to escalate, more salvage sales than predicted are possible. Salvage harvest activities would be site-specific and target affected trees, limiting the size and scope of individual proposed harvests. Firewood collection is allowed across the Forest, as well as at slash removal sites, but is limited to within 300 feet of a road and not allowed within 100 feet of stream courses, riparian areas, wet areas, and bodies of water.

Harvest prescriptions include even-aged, uneven-aged and two-aged silvicultural systems, sanitation/salvage and limited thinning, with an emphasis on shelterwood and group selection harvests. Firewood removal and prescribed fire are used to treat the slash (FEIS Appendix K). These treatments will have a variety of impacts on lynx habitat, some of which will improve denning, dispersal and foraging habitat, some of which will have negative short-term impacts so that suitable habitat will become unsuitable for a relatively short period of time, and some will have no impact since lynx habitat will not be entered. Much of the treatments will have short-term (20 to 100 years) impacts. Expected changes would include reduction in late successional forests and their snag components, primarily in spruce fir, with a light to moderate accumulation of coarse woody debris throughout harvested areas (FEIS 3-172). There would be patchy distributions of created openings, varying in size and stage of vegetative regeneration. Individual harvest prescriptions will require analyses at both the landscape and LAU levels to maintain habitat effectiveness (connectivity) and to ensure effects to lynx are minimized

Timber management activities also include the construction and reconstruction of roads, which is expected to be minimal. Under the experienced budget, 10 miles of new roads and 17 miles of reconstruction could occur, but not within roadless areas. Under a full budget, which is an unlikely scenario, 28 miles of new roads and 40 miles of reconstruction could occur, and within roadless areas (FEIS pgs 3-361 and 3-439). Under either budget, additional roads would increase disturbance from harvest activities and subsequent recreational use,

such as hunting and snowmobiling. Compaction of the snow may occur, possibly increasing inter-specific competition from other predators. Road (re)construction would be considered as part of any proposed harvest prescription and would be evaluated, mitigated and consulted at the project level.

Based on implementation of the Forest Plan to date, the experienced budget level portrays a more realistic projection of expected changes to late successional forested habitats. Should this remain consistent throughout the life of the Forest Plan, timber harvest is projected to have a relatively modest influence on the overall ecological composition, structure and processes characteristic of the affected LTAs.

- Fire management. The Forest Plan calls for the development and implementation of a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires (FEIS pg 3-226). The fire management program emphasizes natural fuel management rather than activity fuel management, as it is anticipated that activity fuels created from timber harvest will be greatly reduced (FEIS pg 3-236). The priority habitats for treatment will be those that are fire-maintained ecosystems (FEIS pg 3-229) and include lower elevation mixed conifer and ponderosa pine, with some grasslands. The estimated acres of fuels treatments (1200-3000 acres average per year) were based on the ponderosa pine cover type, as it is most dependent on fire and has been dramatically affected by fire exclusion (FEIS pg 3-235).

  Prescribed and wild fire may occur in lynx habitat. Anticipated impacts on lynx habitat from prescribed fire could be reduction in denning habitat by removal of dead and down woody material, and a temporary reduction in snowshoe hare habitat. Prescribed fire in some areas may promote regeneration of prey species habitat, although depending on fire intervals, habitat may be burned earlier or more frequently than desirable to achieve winter foraging habitat condition. Since intense burns would not be implemented, most of the woody vegetation and coarse woody debris would remain and continue to provide denning and winter foraging habitat.

  An Environmental Assessment for the prescribed fire program (Fire EA) on the Rio Grande and San Juan National Forests and its biological assessment were completed in 1997 and the BA was updated and consulted on in 2002. As part of that BA, a screen was developed to assist biologists in project-specific analysis of effects to lynx, to track cumulative changes by LAU, and to provide direction on incorporating mitigation measures. Individual projects may still require consultation.

  Wildfires would have more extensive impacts to lynx habitat than prescribed fires since they would probably be stand-replacing fires, and occur mostly in spruce-fir and lodgepole pine forests. Impacts to most lynx habitat components would result, most likely making suitable lynx habitat unsuitable, eliminating denning habitat for an extended period of time by the reduction of dead and down woody material, and eliminating prey habitat (especially snowshoe hare and red squirrel) in the short to long term. The 2002 Million Fire burned approximately 10,000 acres within the Trout-Handkerchief LAU and an estimated 3,500 acres of lynx habitat was converted to unsuitable (Table 7). These estimates need to be ground-truthed, but are not expected to change substantially.

Table 7. Estimated change to lynx habitat in the Trout-Handkerchief LAU due to the 2002 MillionFire.

Lynx Habitat Type	Pre-Fire Condition	Fire Impacts	Post-Fire Condition
Total Acres within LAU	176,750	No Change	176,750
Total Acres of Non-habitat within LAU	42,534	No Change	42,534
Total Acres (%) of Lynx Habitat within LAU (*includes capable but currently unsuitable)*	134,216 (76%)	No Change	134,216 (76%)
Denning Habitat by Acres (%)	54,906 (41%)	-3,093 (-2.30%)	51,813 (38.70%)
Winter Foraging Habitat by Acres (%)	15,829 (12%)	-1,396 (-1.03%)	14,438 (10.97%)
Other Foraging Habitat by Acres (%)	43,363 (32%)	-1,298 (-1.00%)	42,060 (31%)
Habitat within LAU in a Suitable Condition by Acres (%)	114,097 (85.00%)	-51 (-4.31%)	108,311(80.69)
Habitat within LAU in Currently Unsuitable Condition by Acres (%)	20,119 (15%)	+3,549 (+4.31%)	25,905 (19.31%)

While it remains below the 30% cap defined by the LCAS, the estimate of effects to the Trout Handkerchief LAU makes it the highest percentage of currently unsuitable acres of lynx habitat on the Forest. Moderate to heavily burned areas will not provide habitat for lynx or its prey species until vegetative regeneration begins to establish foraging habitat.

Mechanical treatments to decrease fuel loads and reduce the risk of catastrophic fires also are expected to occur. Projects associated with the National Fire Plan will be evaluated and consulted in the manner prescribed for these activities.

- Recreation management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are 820 acres of developed recreation sites, and 51 summer homes, 3 resorts, 1 youth camp, 2 public use Forest guard stations and 1 ski area on the RGNF (FEIS pg 3-389). Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest, but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). Recreation use on the Forest is estimated to increase about 2-3% annually.

  Recreational developments may have minor impacts on lynx habitat and habitat use. These developments are usually small, existing inclusions within lynx habitat, so actual impacts to habitat are limited. Recreational use and routine maintenance of these developments may disturb any lynx using the surrounding areas, but this disturbance would generally be minimal. Recurring and deferred maintenance actions have been evaluated in programmatic assessments and have received FWS concurrence for a *may affect, not likely to adversely affect determination*.

  The Wolf Creek Ski Area is permitted for 1,196 acres, of which 900 acres are fully developed (FEIS pg. 3-389). The 1986 Term Special Use Permit was renewed in 1997 with a stipulation that additional construction beyond maintenance of existing improvements would not be authorized without amending the Master Development Plan (MDP). The MDP was updated in 1998 and projects are individually reviewed and consulted as they are proposed for implementation. A private ski village development is proposed in the immediate vicinity of

the Wolf Creek Ski Area and access to the private land is across Forest Service lands. A review of the Wolf Creek Ski Area special use permit and its supporting documentation was conducted in 2002 and the report (USDA 2002) recommended the development of a programmatic environmental baseline for a cumulative analysis of effects for both ski facilities. Such an environmental baseline could be developed through the NEPA review of the proposed private facility or in conjunction with the development of a Wolf Creek linkage area management plan.

Snowmobiling, cross-country skiing and snowshoeing on and off established roads and trails in lynx habitat compact snow conditions, especially in early winter, where lynx competitors gain an advantage to scarce prey resources. On the RGNF, most snowmobile use is on groomed roads and trails, except for traditional snow play areas. In conjunction with the development of the regional amendment, designated winter use areas have been mapped. For the RGNF, there are 167 miles of groomed routes and 314 miles of designated routes, of which 196 miles are within lynx habitat. There are 163,803 acres of compacted snow recreation use areas, of which 130,427 acres are within lynx habitat.

Current Forest Plan direction allows snowmobiles off Forest roads and trails, which could result in increased snow compaction as recreational demands increase. However, under the CAs, the LCAS conservation measure to allow no net-increase in snow compaction is applied at the project level and so effectively limits increases in groomed and designated over the snow trails. Individuals and families would not be restricted from using new areas or routes currently open to winter motorized use, but grooming or designation of new routes would be restricted. New authorizations or expansion of existing outfitter operations or issuance of permits would be limited to existing authorized groomed and designated routes and areas.

Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination.* Permit issuances will be reviewed in accordance with that assessment and submitted for FWS consultation.

- Travel management. Travel management on the RGNF limits motorized travel to designated roads and trails. The RGNF prohibits off-road travel except for ATVs for game retrieval during hunting seasons and snowmobiles during the winter, outside of Wilderness. Snowmobiling is normally confined to roads, trails and high country areas with low avalanche risk (FEIS pg 3-433). Winter snowmobile trail and play areas have been mapped for the RGNF.

  About 77% of the 2,960 miles of Forest Developed Roads (FDRs) are open to public travel, with the balance restricted to timber sale roads. Many of these roads have seasonal restrictions to limit resource damage. Volunteer two-track roads were created before travel restrictions were implemented and continue to be created by unauthorized cross-country travel. These unauthorized roads are generally concentrated in lower elevation, non-forested habitats (FEIS 3-434). The RGNF has 300 miles of FDRs and 186 miles of “two-tracks” that are causing resource damage or wildlife disturbance and 100 miles of those roads are to be analyzed for closure. The remaining 300-500 miles of “two-trackers” and low standard roads associated with old timber sales will be inventoried and analyzed for possible addition to the FDRs, closure to motorized travel or total obliteration (FEIS 3-437). All road management

decisions will need to be informed through the Roads Analysis Process (RAP), scheduled for completion during FY04. That process includes consideration of wildlife values and effects to wildlife habitat, and will be facilitated by mapped winter use areas.

There are 1,500 miles of inventoried Forest Development Trails (FDTs), 65% of which are open to all uses, including motorized vehicles. Roadless areas would be managed for both non-motorized (54%) and motorized (46%) recreation that is restricted to existing trails (FEIS pg 3-359). There are an estimated 3 miles of new trail construction, 20 miles of existing trail reconstruction, 6 miles of trail obliteration and 240 miles of trail maintenance (FEIS pg 3-440).

Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. However, the presence and use of roads and trails provides increased opportunities for accidental road kills as well as increased lynx vulnerability from hunters and snowmobilers. Roads and trails also may provide travelways for competitors, as there is a chance that winter motorized use will compact snow. Effects from the activities of routine road and trail maintenance have been programmatically reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect lynx or lynx habitat will not be implemented without further analysis and consultation, if necessary.

The Colorado Department of Transportation (CDOT) has initiated a multi-year road improvement project within the Wolf Creek linkage area. Within the project area, lynx mortality due to vehicle collisions has occurred and there are expected averse impacts to lynx habitat from the project. Consistent with Forest Plan direction, the RGNF is cooperating with CDOT to evaluate the project's effects to Forest resources, to identify potential mitigation and to facilitate required consultation.

- Livestock management. Rangelands on the RGNF are naturally fragmented and are characterized by narrow canyons with a riparian ecosystem and adjacent grassland communities intermingled with timberlands in the montane and subalpine zones and at lower elevations, are a mixture of grasslands, pinon-juniper and ponderosa pine. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Livestock grazing occurs in some lynx habitats, as rangelands are defined as grasslands, forb lands, shrublands, and those forested lands that support an understory of herbaceous or shrubby vegetation.

  Rangewide, under present management practices, the RGNF produces forage in excess of current levels of livestock and big game consumption, providing for plant health, vigor, and regrowth (FEIS pg 3-187). However, approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian, ponderosa pine and winter range areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188). Improved management targeted to these areas and implementation of the Forest Plan's range and riparian standards and guidelines are expected to improve rangeland conditions overall. Affected riparian areas are of specific concern to the Forest, and best

management practices for soil and water resources will be used to restore and maintain riparian areas as functional ecosystems (FEIS 3-193).

Livestock grazing that occurs within lynx habitat has the potential of impacting habitats utilized by snowshoe hare by possibly reducing the shrub component, especially within riparian zones. Improvement of snowshoe hare habitat may be limited in newly created openings from fire or timber harvest, if grazing is not managed for vegetative regeneration to achieve mid-seral or higher conditions.

Specific range management needs are addressed through Allotment Management Plans (AMPs), grazing permits and annual operating instructions (AOIs). Management will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Removal or exclusion of livestock from newly created openings due to fire or timber harvest may be required to allow rangeland recovery to occur (FEIS pgs 3-196 and 3-197).

AMPs are required to be updated periodically and are subject to NEPA and ESA review and consultation. Until an AMP is updated, AOIs incorporate both Forest Plan standards and guidelines and LCAS conservation measures to implement management strategies designed to minimize effects to lynx habitat and to achieve Forestwide rangeland objectives.

- Minerals management. Minerals management includes activities for development of leasable minerals, locatable minerals and salable minerals. These activities are predicted to be very limited in extent on the RGNF but may occur within lynx habitat.

  Forty-six percent of the RGNF land base is considered to have high oil and gas potential, but only 129 acres are expected to be disturbed through exploration and development (FEIS pg 3-310 Table 3-64). None of the Forest Plan's lease stipulations specifically address lynx needs, but development effects associated with mineral activities would be mitigated during project implementation and affected areas would be reclaimed after project completion. Roads used for oil and gas development are single-use roads, would not be used for other purposes during the activity, and most would be abandoned and reclaimed after use (FEIS pg 3-308).

  Because of the limited extent of mineral activities projected on the Forest, it is not necessary to develop a lynx-specific lease stipulation at the Forest Plan level. Leases and their proposed actions are subject to NEPA and ESA requirements and project level mitigation would be applied, consistent with Forest Plan standards and guidelines and the LCAS. Although limited in extent, these actions may result in disturbance to lynx denning in these areas because of increased activities at the development sites and their associated roads. The roads may increase snow compaction for lynx competitors to use, but no increase in motorized winter use by recreationists would occur.

  Twelve percent of the RGNF land base is considered to have high locatable mineral potential. On an average basis of administering 4 operating plans annually, the estimated extent of activities is 40 operating plans and 4 new miles of road, affecting a total of 40 acres on the Forest (FEIS pg 3-322). The Forest can regulate and control access to mineral claims, and operating plans are subject to NEPA and ESA requirements, allowing for inclusion of

appropriate mitigation at the project level, such as reclamation and protective measures for TES species. Requests for recreational mineral collection are evaluated, inclusive of TES considerations, to determine the need for an operating plan. Impacts to lynx from these activities would be localized, but still may affect lynx through site and road development, if near denning sites.

Permitting for salable minerals is discretionary. There are existing sites for Forest Service rock-crushing operations, but no new sites are anticipated. One new rock pit might be developed but would be subject to NEPA and ESA requirements. A few personal use permits are issued annually, generally for landscape rocks (FEIS pg 3-326). Impacts to lynx from these activities are considered negligible.

Cumulative Effects

The Forest Plan provides direction on maintaining the quality and quantity of wildlife habitats and natural vegetative communities that would contribute to the expansion, and eventually the maintenance, of a viable population of lynx in the southern Rocky Mountains. This direction addresses the impacts of timber, fire, recreation, travel, range and other management actions affecting lynx on the forest.

During the life of the Forest Plan, it is difficult to predict the habitat trend since events such as catastrophic fire and insect epidemics are unknown. In the absence of these events, the trend for suitable habitat quantity and quality from implementation of the Forest Plan is likely to remain stable or slightly decreased during the life of the Forest Plan, varying by acres of treatment.

Since up to 30% of the lynx habitat in each LAU is permitted to be in an unsuitable condition under LCAS and Forest Plan direction, management actions could decrease the acres of suitable habitat. Generally, this will mostly vary by the acres that may be impacted by the expected outcomes for timber, fire, recreation, travel, grazing and mineral management actions and by the specific prescriptions that are implemented. Exact acreages or percentages are unknown since management prescriptions could increase or decrease some of the lynx habitat requirements, or not enter lynx habitat.

It also is possible that some currently unsuitable habitat will move into a suitable condition as seral stages progress. This seral progression could result in changed percentages of habitat types as well, as other foraging habitat moves into winter foraging and/or denning habitat condition.

Since suitable habitat should not fall below 70% for any LAU, adequate habitat is expected to be available for an increase in lynx populations on the Forest. As lynx are wide-ranging species at low population levels naturally, the population on the Forest is dependent on actions off the Forest also.

Within the SRMGA, there are large proportions of lynx habitat on non-federal lands where development and/or forestry practices could impact the lynx. Connectivity concerns with highways and development are especially relevant to the more fragmented nature of lynx habitat in the SRMGA. All of the actions may result in some lynx habitat changing from suitable to unsuitable, possibly permanently, reducing dispersal (connectivity) habitat, and increasing the disturbance to any lynx that may be using the areas or adjacent areas.

While all of these cumulative actions/impacts may negatively impact lynx and lynx habitat, it is the intent of the Forest Plan to consider these possible non-Forest Service actions within RNGF boundaries, and manage Forest Service lands to mitigate these impacts by implementing Forest Plan direction. On the RGNF, expected cumulative effects from activities on non-federal lands generally are expected to be insignificant, as both suitable and unsuitable lynx habitat acreages on non-federal lands within most of the Forest's LAUs are <1% (USDA 2003), as shown in Table 8. There are3 LAUS with >1% suitable and/or unsuitable lynx habitat acreages, with the most in the Trout-Handkerchief LAU. Due to the effects from the Million Fire, the percentage of non-federal lynx habitat acreages and the number of anticipated projects within the Trout-Handkerchief LAU, cumulative effects analyses for this LAU are best addressed at the project-level.

Table 8. Summary of Federal and Non-Federal Land Ownership of Suitable and Unsuitable Lynx Habitat by Acres within LAUs on RGNF

LAU Name	Federal Suitable/Unsuitable Acres	Non-Federal Suitable/Unsuitable Acres	Federal/Non-Federal % of LAU	
			Suitable	Unsuitable
4 Mile to La Garita Creek	105,225 / 9,032	434/ 6	92 / <1	7 / 1
Alamosa	26,508 / 1,758	3,687 / 1	94 / 1	5 / 0
Bonanza-Cochetopa	92,020 / 5,843	2,570 / 10	94/ <1	6 / <1
Conejos Canyon	33,994 / 1,412	701 / 4	96/ <1	4 / <1
Creede	33,503 / 636	2,274 / 0	97/ 1	2 / 0
Embargo	56,334 / 9,584	1,555 / 0	86 / <1	14 / 0
Hogback	63,830 / 3,743	1,885 / 0	95 / <1	5 / 0
La Jara	54,350 / 2,535	3,068 / 28	95 / 1	4 / <1
Lagarita Wilderness	15,032 / 766	309 / 2	95 / <1	5 / <1
Pinos-Rock	52,134 / 5,714	1,510 / 0	90 / <1	10 / 0
Rito-Archuleta	36,173 / 4,356	2,075 / 37	90 / <1	8 / 2
Saguache Park	30,565 / 0	122 / 0	100 / <1	0 / 0
Sangre de Cristo North	53,985 / 0	271 / 0	100 / <1	0 / 0
Sangre de Cristo South	23,287 / 0	0 / 0	100 / 0	0 / 0
Snowshoe	38,346 / 360	1,023 / 0	99 / <1	1 / <1
Stoney Pass	44,693 / 29	250 / 0	100 / <1	0 / 0
Thirtymile	35,541 / 1,624	324 / 0	96 / <1	4 / 0
Tres Mesa	36,834 / 6.062	964 / 30	86 / <1	11 / 3
Trout-Handkerchief[1]	106,489 / 25,782	1,822 / 123	83 / 2	9 / 6
Victoria-Chama	40,253 / 766	277 / 1	98 / <1	2 / <1

[1] Estimated acres post-Million Fire (from Table 7)

Within the Wolf Creek linkage area, some non-federal activities on Forest and adjacent non-federal lands may have localized cumulative impacts of significant scope, and the Forest is working cooperatively with other agencies and private interests to minimize site-specific effects. The Colorado Department of Transportation works directly with FWS to develop project mitigations such as highway underpasses for the Highway 160 improvement construction project, but coordinates with the Forest in the analysis of effects to facilitate project consultation. The Forest also is cooperating with private developers in the preparation of the Environmental Impact Statement for the proposed Village at Wolf Creek. These activities, in conjunction with the existing Wolf Creek Ski Area, could have locally significant cumulative impacts that may best be addressed through a linkage area management plan.

Other cumulative effects may result from actions that occur on other Forests in the Southern Rocky Mountains, but the proposed Regional Forest Plan amendments will provide the same Forest Plan direction for lynx management on those Forests as on the Rio Grande National Forest. Forest Plan direction specific to lynx management proposed in the Regional Forest Plan amendments is expected to result in stable or increasing populations of lynx throughout the region, including on the RGNF.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types. The specific changes that would occur as a result of the amendment (EA Appendix A) are cross-walked to the LCAS in Table 9. Guideline 13 provides additional guidance for snag management in the firewood program.

Table 9. Crosswalk of affected LCAS conservation measures and Proposed MIS Amendment

Related LCAS Conservation Measures (abbreviated)	**Proposed Standards and Guidelines identified in the EA (Appendix A)**
RE: LYNX PRODUCTIVITY	
Timber Management	
Programmatic Planning - Objectives	
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure and patterns more similar to those that would have occurred under historical disturbance regimes.	Silviculture Guideline 13

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Programmatic Forest Plan Direction - Consider the LCAS conservation measures during project planning and analysis. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.
- Proposed Forest Plan Implementation – Measures will be taken at the individual project level to eliminate or minimize adverse effects to Canada lynx and their habitat. Cumulative changes at the LAU level will be tracked and periodically reviewed for currency and accuracy.

7. Determination of Effects

Programmatic Forest Plan Direction

Forest Plans are permissive in that they allow, but do not authorize actions to occur. Current RGNF Forest Plan direction may allow actions to occur that could adversely affect lynx. The Regional Forest Plan amendments, when finalized, will bring the Forest Plan into compliance with the BO for the national programmatic BA. This would be consistent with Forest Plan wildlife standard 10. In the interim, by requiring consideration of the information and recommendations included in the LCAS, and deferral of projects that adversely affect lynx, the CAs substantively reduce the potential for Forest Plan direction to result in adverse effects to lynx.

With incorporation of the LCAS conservation measures through the Regional Forest Plan amendments, the Forest Plan will provide fully the direction necessary to maintain the quality and quantity of lynx habitat during project implementation, and ultimately should contribute to the expansion, and eventually the maintenance, of a viable population of lynx in the Southern Rocky Mountains.

Proposed Forest Plan Implementation

Alternative 1

Proposed actions could alter suitable lynx habitat so that it may become unsuitable (up to 30 percent), and disturbance to individual lynx may occur from project implementation. Some of the proposed actions may result in permanent or long-term changes to foraging, denning or dispersal habitat, or increased snow compaction. As it is impossible to anticipate all the mitigation measures that could be applied within individual projects, Forest Plan management direction can only minimize any adverse effects. Consequently, Forest Plan actions **MAY AFFECT AND LIKELY TO ADVERSELY AFFECT** the lynx.

Mitigation at the project level can provide additional protective measures for site-specific actions so that they do not result in adverse effects. As required by the CAs, site and project specific analyses and inclusion of appropriate mitigations should result in adequate suitable, denning, foraging and dispersal habitat being maintained throughout the landscape, and disturbances to denning, foraging and dispersing lynx being minimized.

Alternative 2

Although Alterative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types, it will still require site and project specific mitigations to ensure project actions do not result in adverse effects. At the Forest Plan level, management direction can only minimize alteration of lynx habitat and disturbance to individual lynx and so the proposed action **MAY AFFECT AND LIKELY TO ADVERSELY AFFECT** the lynx.

SOUTHWESTERN WILLOW FLYCATCHER

1. General Habitat Associations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

The historical breeding range of the southwestern willow flycatcher *(Empidonax traillii extimus*) included southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico. The flycatcher's current range is similar to the historical range, but the quantity of suitable habitat within that range is much reduced from historical levels.

The flycatcher breeds in relatively dense riparian habitats in all or parts of seven southwestern states, from near sea level to over 2000 m (6100 ft). A few territories are located as high as 2600 m (8500 ft) but flycatchers are primarily found in lower elevation riparian habitats.

Southwestern willow flycatchers breed in substantially different types of riparian habitat across a large elevational and geographical area. These riparian habitats tend to be rare, widely separated, small and/or linear locales, separated by vast expanses of arid lands. Breeding patch size, configuration, and plant species composition can vary dramatically across the subspecies' range. However, certain patterns emerge and are present at most sites. Regardless of the plant species composition or height, occupied sites always have dense vegetation in the patch interior. In most cases this dense vegetation occurs within the first 3 - 4 m (10-13 ft) above ground. Canopy cover is usually very high - typically 80% or greater. These dense patches are often interspersed with small openings, open water, or shorter/sparser vegetation, creating a mosaic that is not uniformly dense. Nesting habitat patches will tend not to be very narrow, and slow-moving or still surface water and/or saturated soil will be present at or near breeding sites during wet or normal precipitation years.

E.t.extimus breeds only in dense riparian vegetation near surface water or saturated soil. Breeding sites are comprised of spatially complex habitat mosaics, often including both exotic and native vegetation. Within a site, flycatchers often use only a part of the patch, with territories frequently clumped and/or distributed near the patch edge. Patches may be a relatively dense, linear contiguous stand or an irregularly-shaped mosaic of dense vegetation with open areas. Flycatchers are generally not found breeding in narrow, linear riparian habitats where the entire patch is less than approximately 10 m (33 ft) wide. Patch sizes vary anywhere between less than one acre to over 100 acres.

Flycatchers nest in thickets of trees and shrubs ranging in height from 2m to 30 m (6 to 98 ft). Lower elevation thickets (2-4 m or 6-13 ft tall) tend to be found at higher elevation sites, with tall stature habitats at middle to lower elevation riparian forests. Nest sites typically have dense foliage from the ground level up to approximately 4 m (13ft) above the ground, although dense foliage may exist only at the shrub level, or as a low dense canopy. Nest sites typically have a dense canopy.

The diversity of nest plant species may be low (e.g., monocultures of willow or tamarisk) or comparatively high. Cover types include native vegetation (such as willow, cottonwood, ash), exotic vegetation (such as tamarisk), and mixed native/exotic vegetation. Nest plants are rooted in or overhang standing water. Occupied sites are typically located along slow-moving stream reaches; at river backwaters; in swampy abandoned channels and oxbows; marshes; and at the margins of impounded water (e.g., beaver ponds, inflows of streams into reservoirs). Where flycatchers occur along moving streams, those streams tend to be of relatively low gradient, i.e., slow-moving with few (or widely spaced) riffles or other cataracts.

2. Local Habitat Relationships

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

Throughout its range, the flycatcher's distribution follows that of its riparian habitat. In someparts of its northern range, questions of range boundaries between other willow flycatcher subspecies exist, including possible intergradations between subspecies. In southern Utah, southwestern Colorado, and perhaps northern New Mexico, there may be fairly broad clinal gradations between the southwestern willow flycatcher and the Great Basin/Rocky Mountain race *E. t. adastus*. *E. t. extimus* may be typical of lower elevations, as in northern parts of the southwestern willow flycatcher's range, clinal gradations with *E. t. adastus* may exist with increasing elevation, as well as latitude. Recent genetic work has verified *extimus* genetic stock in south-central Colorado (i.e., San Luis Valley). Breeding willow flycatchers with genetic characteristics of the southwestern subspecies occur at Alamosa National Wildlife Refuge and McIntire Springs, but flycatchers from Beaver Creek and Clear Creek did not have the southwestern subspecies genetic characteristics. Recent genetics research affirms that flycatchers in the San Luis Valley area are affiliated with *E. t. extimu*s, but uncertainties remain about the subspecies status of willow flycatchers elsewhere in extreme southwestern Colorado.

As a neotropical migrant, flycatchers spend only three to four months on their breeding grounds. Flycatchers typically arrive on breeding grounds between early May and early June, although a few individuals may establish territories in very late April. Adults that are successful in raising young may remain at breeding sites through mid-August to early September. Flycatchers breeding at higher elevation sites or more northerly areas usually begin breeding several weeks later than those in lower or southern areas. Because arrival dates vary geographically and annually, northbound migrant willow flycatchers (of all subspecies) pass through areas where *E.t. extimus* have already begun nesting. Similarly, southbound migrants (of all subspecies) in late July and August may occur where southwestern willow flycatchers are still breeding. Therefore, it is only during a short period of the breeding season (approximately 15 June through 20 July) that one can assume that a willow flycatcher seen within *E.t. extimus* range is probably of that subspecies.

Southwestern Colorado hosts the headwaters of several major drainages, including the San Juan River and the Rio Grande, which flow through relatively broad valleys and once supported extensive riparian habitats. There are also many smaller streams that were once heavily wooded. However, much of the riparian habitat in these areas has been reduced and heavily impacted. Statewide, willow flycatchers were locally common, but it is difficult to reconstruct the historical distribution and abundance of *E. t. extimu*s. Recent surveys suggest that willow flycatchers are very localized and uncommon within the probable range of *E. t. extimus* in southwestern Colorado. Within the range of *E. t. extimu*s, breeding flycatchers have been confirmed only on tributaries to the San Juan (Williams Creek Reservoir, Los Pinos River, and Piano Creek) and at Alamosa National Wildlife Area and McIntire Springs, within the Rio Grande drainage in the San Luis Valley.

In coordination with the FS, the FWS established a range in Colorado for the southwestern willow flycatcher. All willow flycatchers within that range, below 8500 ft, were to be presumed southwestern willow flycatcher (USDI 1995). RGNF lands are included within that range and approximately 31 acres along specific stream reaches on the Conjeos Peak RD were identified as meeting the definition of southwestern willow flycatcher habitat (maps on file at the SO). The FWS defined habitat as occurring under 8500 ft elevation, on streams with $\leq$ 4% gradient, and within riparian shrub vegetation at least 30 ft wide, 30 ft long, and 5 ft high (USDI 1995). This

habitat definition was refined in 2003 to include narrow (<10 m wide) but closely associated stringers of habitat at least 5 ft high as part of a complex of closely associated patches, totaling at least 0.25 acres (USDI 2003). At that time, the FWS also revised the range map, removing the 8500 ft elevational limit.

Critical habitat was designated in 1997, but in 2001, the FWS was instructed by the 10th Circuit Court of Appeals to issue a new critical habitat designation. The FWS is in the process of re-proposing critical habitat and as part of the Recovery Plan, has defined recovery units and management units. The Rio Grande Recovery Unit includes the San Luis Valley Management Unit, defined as the Rio Grande and tributaries within the San Luis Valley from Baxterville (CO) to the Colorado/New Mexico State line, including Alamosa National Wildlife Refuge and the Conejos River from Fox Creek to the Rio Grande.

3. Local Survey/Occurrence Information

As part of FS consultation with FWS, a BA for the willow flycatcher relative to grazing was completed in 1995 and amended in1997. The BA identified 18 allotments as having suitable habitat and 44 allotments as having potential habitat. Of these, 3 are on the RGNF, including the Cumbres/La Manga Stock Driveway, Lower Magote Horse Pasture, and River Springs Horse Pasture Allotments. Annual monitoring of these areas is required, but to date, no birds have found to be present. These areas were formally surveyed in 2002, and again, no birds were detected (Hawks Aloft, Inc. 2002). The survey report concluded that more than half the sites surveyed did not contain habitat suitable for the southwestern willow flycatcher. Three sites were determined to have significant amounts of habitat (Conjeos River Reach 2/Trail Gulch, Conejos River Reach 4, and Rito Hondo Reach 2) and 4 sites were determined to have small patches of marginally suitable habitat (Cat Creek Reaches 2 and 4, Deer Creek Reach 2 and Ojito Creek).

The 2002 survey was part of a San Luis Valley-wide effort initiated as a collaborative effort between the FS, FWS, BLM and CDOW. Although no birds were found on FS lands, there were breeding birds identified on FWS, CDOW and BLM lands. This collaborative effort will continue as the agencies intend to survey all possible habitats throughout the San Luis Valley.

In 1996, the FWS issued a new range map for southwestern willow flycatchers in Colorado (USDI 1996). While reaffirming the 8500 ft elevational habitat limit, the FWS requested that the Forest Service conduct inventory surveys higher than 8500 ft. The RGNF mapped possible areas of flycatcher habitat across the Forest, based on FWS habitat definitions, up to 10500 ft (map on file at the Supervisor's Office). This elevational limit is estimated as the elevation at which willow height begins to decline to less than 5 ft and is consistent with the 2003 revised range map and habitat definitions. Based on that mapping exercise, the RGNF has identified 2100 potential acres of flycatcher habitat on the Forest and will conduct surveys of those areas to determine habitat suitability and whether birds are present on Forest.

4. Risk Factors

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

The Southwestern willow flycatcher was listed as federally endangered in 1995 due to extensive loss of habitat, brood parasitism, and lack of adequate protective regulations.

The primary cause of the flycatcher's decline is loss and modification of habitat. Its riparian nesting habitat tends to be uncommon, isolated, and widely dispersed. Historically, these habitats

have always been dynamic and unstable in place and time, due to natural disturbance and regeneration events such as floods, fire, and drought. With increasing human populations and the related industrial, agricultural, and urban developments, these habitats have been modified, reduced, and destroyed by various mechanisms. Riparian ecosystems have declined from reductions in water flow, interruptions in natural hydrological events and cycles, physical modifications to streams, modification of native plant communities by invasion of exotic species, and direct removal of riparian vegetation. Wintering habitat has also been lost and modified.

The major mechanisms resulting in loss and modification of habitat involve water management and land use practices. Dams and reservoir diversions inhibit the natural cycles of flood-induced sediment deposition, floodplain hydration and flushing, and timing of seed dispersal necessary for establishment and maintenance of native riparian habitats. Upstream of dam sites, riparian habitats are inundated by reservoirs. Surface water diversions and groundwater pumping for agricultural, industrial, and municipal uses are major factors in the deterioration of southwestern willow flycatcher habitats. The principal effect of these activities is simple reduction of water in riparian ecosystems and associated subsurface water tables. Channelization and bank stabilization generally reduce the volume and width of wooded riparian habitats. In some areas riparian vegetation is removed from streams, canals, and irrigation ditches to increase watershed yield, remove impediments to streamflow, and limit water loss through evapotranspiration. Methods include mowing, cutting, root plowing, and application of herbicides. The results are that riparian habitat is eliminated or maintained at very early successional stages not suitable as breeding habitat for willow flycatchers.

Overgrazing by domestic livestock has been a significant factor in the modification and loss of riparian habitats in the arid western United States. If not properly managed, livestock grazing can significantly alter plant community structure, species composition, relative abundance of species, and alter stream channel morphology. The primary mechanism of effect is by livestock feeding in and on riparian habitats. Overutilization of riparian vegetation by livestock also can reduce the overall density of vegetation, which is a primary attribute of willow flycatcher breeding habitat. Livestock may also physically contact and destroy nests. Flycatcher nests in low-stature habitats could be vulnerable to this impact. Livestock also physically degrade nesting habitat by trampling and seeking shade and by creating trails that nest predators and people may use. Furthermore, improper livestock grazing in watershed uplands above riparian systems can cause bank destabilization, increased runoff, increased sedimentation, increased erosion, and reduced capacity of soils to hold water. Because the impact of herbivory can be highly variable both geographically and temporally, proper grazing management strategies must be developed locally.

Reductions in density and diversity of bird communities, including willow flycatchers, have been associated with recreational activities. In the warm, arid Southwest, recreation is often concentrated in riparian areas because of the shade, water, aesthetic values, and opportunities for fishing, boating, swimming, and other activities. As regional human populations grow, the magnitude and cumulative effects of these activities is considerable. Effects include reduction in vegetation through trampling, clearing, woodcutting and prevention of seedling germination due to soil compaction; bank erosion; increased incidence of fire; promoting invasion by exotic plant species; promoting increases in predators and scavengers and brood-parasitic cowbirds; and noise disturbance. Recreational development also tends to promote an increased need for foot and vehicle access, roads, pavement, trails, boating, and structures that fragment habitat.

Historically, riparian systems were driven by flood disturbance regimes. Changes in hydrological patterns have moved these systems into fire disturbance regimes. Both flood and fire periodically

cause localized habitat loss, but flooding provides a mechanism for continued development of habitat patches with suitable nesting structure. In contrast, fires cause directional change in the composition of riparian stands, as native riparian species generally are not fire evolved. Flycatcher breeding success can be impaired for several years after a fire, the extent and duration dependent upon the size and severity of the fire, rate of vegetative regrowth, and changes in vegetation structure and species composition.

The availability of relatively flat land, rich soils, high water tables, and irrigation water in southwestern river valleys has spawned wide-scale agricultural development. These areas formerly contained extensive riparian habitats. Agricultural development entails not only direct clearing of riparian vegetation, but also re-engineering floodplains (e.g., draining, protecting with levees), diverting water for irrigation, groundwater pumping, and applications of herbicides and pesticides, which may also affect the flycatcher and its habitat. Strips of riparian vegetation that develop along drainage ditches or irrigation canals also potentially provide habitat for the flycatcher. Benefits are greatest when the vegetation is left undisturbed, as opposed to being periodically cleared, and where the riparian vegetation strips are dense, abundant, and relatively near natural flood plain habitat.

Urban development results in many impacts to riparian ecosystems and southwestern willow flycatcher habitat. Urbanization in or next to flycatcher habitat provides the catalyst for a variety of related and inter-related direct and indirect effects that can cause loss and/or the inability to recover habitat.

Exotic species invasion is facilitated by these human activities. Several non-native plant species have become established in southwestern willow flycatcher riparian habitats, with varying effects on the bird. Larger concentrations and wider distribution of brown-headed cowbirds has occurred, resulting in increased vulnerability of the flycatcher to brood parasitism, which has reduced reproductive performance.

The cumulative effects of these human activities have contributed to a reduction in range and population numbers, so that there are only an estimated 1100-1200 territories rangewide. These territories are distributed in a large number of very small breeding groups, and only a small number of relatively large breeding groups. These isolated breeding groups are vulnerable to local extirpation from floods, fire, severe weather, disease, and shifts in birth/death rates and sex ratios. Also, because the flycatcher exists in small populations, there is concern over potential low genetic variation within populations, and possible inbreeding.

5. Effects Analysis

The analysis of effects is conducted in 2 parts: 1) an assessment of the sufficiency of Forest Plan direction to provide programmatic guidance (Programmatic Forest Plan Direction Analysis section) and 2) an evaluation of the potential effects of proposed management actions (Proposed Forest Plan Implementation Analysis section).

General Considerations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

Because riparian vegetation typically occurs in flood plain areas that are prone to periodic disturbance, suitable habitats will be ephemeral and their distribution dynamic in nature. Suitable habitat patches may become unsuitable through maturation or disturbance (though this may be

only temporary, and patches may cycle back into suitability). Therefore, it is not realistic to assume that any given suitable habitat patch (occupied or unoccupied) will remain continually occupied and/or suitable over the long-term. Unoccupied suitable habitat will therefore play a vital role in the recovery of the flycatcher, because it will provide suitable areas for breeding flycatchers to colonize as the population expands (numerically and geographically), and move to following loss or degradation of existing breeding sites. Many sites will likely pass through a stage of being suitable but unoccupied before they become occupied.

Territories are bordered by additional habitat that is not defended as a breeding territory, but may be important in attracting flycatchers to the site and/or in providing an environmental buffer (from wind or heat) and in providing post-nesting use and dispersal areas. Breeding site occupancy is influenced by vegetation characteristics of habitat adjacent to the actual occupied portion of a breeding site; therefore, unoccupied areas can be an important component of a breeding site.

Potential habitats that are not currently suitable will also be essential for flycatcher recovery, because they are the areas from which new suitable habitat develops as existing suitable sites are lost or degraded; in a dynamic riparian system, all suitable habitat starts as potential habitat. Furthermore, potential habitats are the areas where changes in management practices are most likely to create suitable habitat.

Not only must suitable habitat always be present for long-term survival of the flycatcher, but additional acreage of suitable habitat must develop to achieve full recovery. Therefore, habitat management for recovery of the flycatcher must include developing and/or maintaining a matrix of riparian patches - some suitable and some potential - within a watershed so that sufficient suitable habitat will be available at any given time.

Programmatic Forest Plan Direction Analysis

Subsequent to the listing of the southwestern willow flycatcher, the FWS developed a document describing activities that *may affect* the flycatcher and offsetting measures to avoid those affects as guidance to the Forest Service and BLM (USDI 1995). The Forest Plan includes 2 wildlife standards (8 and 10) for TES species and a riparian standard (3) that would generally apply to all activities and serve as direction at both the Forest Plan and project level to ensure appropriate mitigation is incorporated into individual project actions. Additional Forest Plan direction is crosswalked to activities identified by FWS that *may affect* the flycatcher in Table 10.

Table 10. Crosswalk between FWS *may affect* activities and RGNF Plan direction.

May Affect Activity	Impacts of Activity	Offsetting Measures	Forest Plan Guidance
New water diversions, structures and canals	Direct removal of vegetation, hydrological changes affecting riparian habitat	Avoid	Court decision (District Court, Water Division 3, State of Colorado, Decree Case No. 81-CW-183) Riparian Standard 2; Riparian Standard 5 – Guidelines 2 and 3; WCP Handbook
Water impoundment	Flooding of habitat, changes in hydrology	Avoid	Court decision (District Court, Water Division 3,

	and riparian vegetation		State of Colorado, Decree Case No. 81-CW-183) Riparian Standard 2; Riparian Standard 5 – Guidelines 1 and 3; WCP Handbook
Stream channelization	Reduction of habitat through direct destruction and hydrological changes	Avoid	Riparian Standard 1 – Guideline 1; Riparian Standard 3 – Guideline 3; Riparian Standard 5; Riparian Standard 6 – Guideline 3; WCP Handbook
Wetland draining	Reduction of habitat through hydrological changes	Avoid	Riparian Standard 4; WCP Handbook
Gravel or other mining	Direct removal of vegetation, changes in vegetation through hydrological changes	Avoid, unless mining is removing significant areas of non-native vegetation (90% or>) such as tamarisk and miners agree to restore with native vegetation. Must be conducted outside of breeding season.	Wilderness Standard a (see effects analysis of minerals management)
Timber sale within riparian zones	Reduction of overstory habitat beneficial for cover, destruction of other habitat by machinery	Avoid, unless safety of buildings at risk, conduct outside of breeding season.	Riparian Standard 1 – Guidelines 1, 2, 3
Timber sale outside of riparian zones	Siltation of habitats, increased potential for flooding, other hydrological changes	Assess impacts based on harvest plans, extent of area, etc.	Sediment Control Standards 2, 3 and 4
Irrigation within and outside of riparian areas	Increases in selenium, pesticide residues, heavy metals, destruction of habitat through conversion to different uses, changes in stream geomorphology due to water depletions	Avoid if any one of the impacts will cause exceedance of EPA standards or other biologically appropriate standards or will affect the bird or its habitat	On Forest, limited to 1 existing administrative site on Middle Fork Carnero Creek
Off road vehicle use outside of established ORV areas	Direct destruction of habitat, nests, eggs, and fledglings, intentional or unintentional disturbance to birds	Avoid through fencing or signing	Infrastructure – Travelways Standards 2 and 3; Wilderness Recreation Guidelines k and l
Camping in undeveloped sites	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Deter people from camping in riparian area through fencing or signing	Dispersed Recreation Standards 3 and 4; Dispersed Recreation Standard 5 – Guideline 5; Wilderness Recreation

			Standard b; Wilderness Recreation Guideline m
Boating	Destruction of habitat through takeouts used for overnight camping, lunches; disturbance of nesting birds	Avoid. If can't, ascertain impact and control by educational signing, through commercial boating permit conditions and education of commercial boaters	On Forest, activity generally limited to existing lake takeouts
Land exchange from public to private	Destruction of habitat through potential unregulated land uses	Avoid, unless a deed restriction is placed on the land which excludes all hydrologic and vegetation altering activity from occurring within 50m of riparian and wetland vegetation	Real Estate – Land Adjustments Guideline 3
Roads, hiking and biking trails, utility corridors	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Avoid. If can't, route as far away from nest territory as possible destroying least amount of habitat. Conduct outside of breeding season.	Riparian Area Standard 4 – Guidelines 1 and 2; Soil Productivity Standard 1 – Guideline 1
Permanent fill other than utility or transportation corridors	Direct destruction of habitat	Avoid	Sediment Control Standard 4 – Guideline 2; Riparian Standard 1 – Guideline 10
Livestock grazing in suitable habitat during the breeding season or inappropriate grazing any time of year	Trampling and eating of vegetation, stream hydrology changes, nest and fledgling destruction or trampling, vector for brood parasitism by brown-headed cowbirds	Allow seasonal usage; only allow light grazing that maintains or restores suitable habitat; fence in riparian area; create watering area outside of riparian zone; graze in adjacent unoccupied pasture; implement cowbird trapping	Riparian Standard 1 – Guidelines 5, 6, 7, 8, 9 Range Standard 1 Range Standard 2 – Guidelines 1 and 2 WCP Handbook Wilderness Recreational Stock Grazing Guideline a Wilderness Riparian Utilization/Trampling Guidelines a, b, c, d
Rotenone application	Elimination of aquatic insect prey	Allow outside of breeding season only	Water Purity Standard 3 WCP Handbook
Hand applied pesticide application	Elimination or reduction of insect prey	Allow outside of breeding season only, adhere to label restrictions	Water Purity Standard 3 WCP Handbook
Aerial pesticide application	Elimination or reduction of insect prey	Allow outside of breeding season only, adhere to label restrictions	Water Purity Standard 3 WCP Handbook
Aerial herbicide application	Elimination or reduction of habitat and possible reduction of insect prey	Avoid, unless are removing significant (90% or >) non-native vegetation and will	Wilderness Vegetation Management Guideline b Water Purity Standard 3 WCP Handbook

		restore with native vegetation. Must be outside of breeding season.	
Hand applied herbicide application	Elimination or reduction of habitat and possible reduction of insect prey	Avoid during breeding season, only apply to non-native vegetation	Wilderness Vegetation Management Guideline b Water Purity Standard 3 WCP Handbook

While current Forest Plan direction is not specific to the management of flycatchers and their habitat, guidance is provided in a general and permissible manner that would allow the implementation of related off-setting measures. Additionally, there is a wildlife standard (10) that directs consistency of Forest Plan guidance with new TES recovery plans and designations of critical habitat.

Implementation of off-setting measures would be determined through project and site specific analyses and the determination of need for project mitigation. The Forest's monitoring plan calls for surveying of flycatcher habitat, which would provide information at the project level as to the need for implementing off-setting measures.

Proposed Forest Plan Implementation Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect, in varying degrees, hydrological regimes and riparian habitats that may provide breeding habitat for the flycatcher. Management activities that occur on the Forest that have the potential to affect flycatchers are discussed below.

- Timber management. Timber harvest is not a major factor affecting flycatchers and their habitats. Plant composition and structure of flycatcher habitat generally does not consist of merchantable timber. Effects from this activity primarily would be from hydrological disturbance and sedimentation due to road construction and harvest activities near riparian areas.

- Fire management. Fire is an imminent threat to occupied and potential flycatcher breeding habitat. Although fires occurred to some extent in some of these habitats historically, many native riparian plants are neither fire-adapted nor fire-regenerated. Thus, fires in riparian habitats are typically catastrophic, causing immediate and drastic changes in riparian plant density and species composition.

- Recreation and travel management. Riparian areas receive disproportionately high recreation use and impacts in the Southwest can be devastating where riparian habitat tends to be more linear, narrow and dissimilar to adjacent habitats. Where there is no buffer between habitats, impacts are more significant. Facilities, roads and trails, human presence and noise disturbance can result in fragmentation and loss of habitat and displacement of wildlife.

- Grazing management. Effects of livestock grazing vary due to different grazing practices and existing habitat quality, as well as current climatological conditions (drought). Other factors, such as water management and agricultural practices and recreational use, may aggravate livestock impacts and are difficult to separate from grazing effects. Additionally, grazing has

parameters of extensiveness (how wide spread), intensiveness (grazing systems), and species use (domestic livestock and wild ungulates). The primary impacts of grazing are on habitat availability and suitability, with related, lesser impacts from nest destruction and increased brood parasitism from brown-headed cowbirds.

- Soil, watershed and minerals management. These management activities may have some effect on stream hydrology and sedimentation.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is extremely limited and to date, no breeding southwestern willow flycatchers have been documented on the Forest. Most known suitable habitat found within the San Luis Valley is generally below elevational limits of Forest riparian habitats. While GIS mapping of possible habitat on the RGNF is estimated to be 2100 acres, at this time there are about 31 acres identified as suitable or potential habitat in consultation with FWS. Expected effects from proposed management activities on the Forest are disclosed below.

- Timber management. Timber sale activities will occur primarily in higher elevation mature to late successional spruce fir and mixed conifer stands. There are standards and guidelines limiting harvest activities and associated road (re)construction within the water influence zone (WIZ) to minimize sedimentation. Firewood collection is prohibited within 100 feet of stream courses, riparian areas, wet areas, and bodies of water. Effects from these activities are expected to be minimal, as they generally do not occur within flycatcher habitat and there are Forest Plan standards and guidelines to minimize potential impacts from sedimentation.

- Fire management. The Forest Plan proposes to implement a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires. The priority habitats for treatment will be those that are fire-maintained ecosystems. As part of the update of the biological assessment for the Fire EA, a screen was developed to assist biologists in project-specific analysis of effects, and included a 50 or 200 m buffer along riparian zones as mitigation for potential and suitable flycatcher habitat, respectively. Effects from fire activities are expected to be beneficial to the extent that the risk of catastrophic fires is reduced.

- Recreation and travel management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are no developed recreation sites within identified flycatcher habitat or within the mapped areas of possible habitat, although some campgrounds are located within riparian areas. These sites are existing developments where loss of possible habitat would have already occurred. There are some minor rehabilitation and expansion projects anticipated and a few new development projects (trailheads and campgrounds) proposed (FEIS pgs 3-397 and 3-398). If undertaken, these projects would require site-specific analysis and consultation. Routine and deferred maintenance activities have been evaluated under programmatic BAs for which determinations of *no effect* to flycatchers were made.

  Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest, but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). There are riparian, sediment

control, dispersed recreation, and wilderness Forest Plan standards and guidelines that are intended to minimize impacts to riparian areas. These standards and guidelines minimize riparian disturbances by limiting road and trail construction activities in watercourses and wetlands and by monitoring and controlling access to recreational use sites, including around lakes and streams. Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination* to flycatchers.

Travel management on the RGNF limits motorized travel to designated roads and trails. Roadless areas are managed for both non-motorized (54%) and motorized (46%) recreation that is restricted to existing trails (FEIS pg 3-359). Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. All road management decisions will need to be informed through the Roads Analysis Process (RAP), scheduled for completion during FY04. That process includes consideration of wildlife values and effects to wildlife habitat.

Effects from the activities of routine road and trail maintenance have been programmatically reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect flycatchers or their habitat will not be implemented without further analysis and consultation, if necessary.

- Range management. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Riparian areas are included within grazing allotments, extending from low elevation grasslands to high elevation grasslands in the montane and subalpine zones. Approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188).

  In recognition of the sensitivity of riparian areas and the need to improve rangeland conditions, the Forest will use direction like that described in the General Technical Report INT-263, *Managing Grazing of Riparian Areas in the Intermountain Region* (Clary and Webster 1989) (FEIS pg 3-207). This direction is incorporated as Forest Plan riparian and range standards and guidelines, and provides for the phase out of continuous season-long use and includes rest or growing-season deferment and proper utilization levels to enhance vegetative composition and ecological condition of riparian and upland sites (FEIS pg 3-194).

  The Recovery Plan recognizes that the General Technical Report INT-263, in addition to other scientific literature, indicates that in some areas and depending on the type of herbaceous forage available, negative impacts on woody riparian vegetation can be avoided by not allowing stubble height of herbaceous vegetation to be reduced below 3 to 6 inches. Additional body of literature conclude cattle generally prefer grasses and forbs to woody vegetation as long as herbaceous vegetation is green, so that use of palatable grasses and sedges can occur without undesirable browsing of riparian shrubs and streambank damage. However, within the riparian zone, livestock use of browse is directly related to the availability and palatability of herbaceous vegetation and excessive grazing and browsing pressure can prevent the establishment of seedlings, result in the high-lining of riparian deciduous shrubs or trees and removal of low-level vegetation altogether.

The Recovery Plan provides recommendations for minimizing impacts to flycatcher habitats, and these recommendations will be considered in the development of Allotment Management Plans (AMPs). Specific range management needs are addressed through AMPs, grazing permits and annual operating instructions (AOIs).

AMPs are required to be updated periodically and are subject to NEPA and ESA review and consultation. Until an AMP is updated, AOIs incorporate Forest Plan riparian and range standards and guidelines that are intended to maintain or improve riparian areas. AOIs will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Sites that are seriously degraded can be assigned greater stubble heights to further limit use and achieve improvement. Degraded conditions on especially sensitive sites may require rest for a period of time to achieve desired conditions (FEIS pg 3-207).

The BA identified 3 allotments on the RGNF that have suitable or potential habitat for flycatchers, including, the Cumbres/La Manga Stock Driveway, Lower Magote Horse Pasture, and River Springs Horse Pasture Allotments. These allotments are managed consistent with the direction provided in the BA and its amendment. FWS concurrence on off-setting measures to be incorporated into the AOIs for these allotments is required annually.

Both the BA and its amendment determined that Forest Plan direction, interpreted in relation to flycatcher habitat, would meet the attributes of suitable flycatcher habitat if Forest Plan standards and guidelines are met.

- Soil, watershed and minerals management. Soil management activities are designed to improve watershed conditions and limit effects of sedimentation in stream courses. A programmatic EA for watershed improvement projects is in progress and will include a checklist at the project level to ensure species effects are minimized and/or mitigated as appropriate. Programmatic and project-level consultation for activities covered by the proposed EA will occur as necessary.

  Reserved water rights on the RGNF have been established by court order (District Court, Water Division 3, State of Colorado, Decree Case No. 81-CW-183) and no new major diversions or water impoundments will occur. There is an exiting irrigated horse pasture as part of the Carnero Guard Station administrative site, in the general vicinity of mapped possible flycatcher habitat. This will be a priority survey site to determine whether flycatcher habitat and /or birds are present in the area.

  Mineral activities, especially recreational forms, could impact or occur in riparian areas with relative effects dependent on the scale of the activity. Mineral exploration and development activities are expected to be minimal, and little to none is expected to occur in riparian areas (FEIS 3-207). However, should a mining activity be proposed near or within a riparian area, required project-specific analyses would provide the means to incorporate necessary and appropriate mitigation. Because these activities are limited in extent and generally are not expected to occur in flycatcher habitat, effects to flycatchers are expected to be minimal.

Cumulative Effects

On the RGNF, conservation practices that protect riparian areas are being incorporated in range use permits, road construction stipulations and plans for timber harvest, mining and recreation use

(FEIS pg 3-201). Stream-health surveys, in conjunction with flycatcher surveys, will help identify stream and associated riparian problems as well as areas of potential and/or suitable flycatcher habitats. Riparian condition assessments will be conducted as part of project planning to determine whether riparian sites are functioning properly, and if not, what management changes can be made to produce trends toward proper function (FEIS pg 3-204).

There are 2 large, long-term construction and/or development projects occurring within or adjacent to higher elevation riparian areas within RGNF boundaries. CDOT is conducting a multi-year road construction/improvement project of Highway 160 within the South Fork riparian corridor and the private development of a golf course along the Rio Grande River in South Fork is ongoing. The RGNF cooperated with both project proponents in their surveys of affected riparian areas in 2002, and no flycatchers were detected.

Within the San Luis Valley area, there are intensive water management practices employed for extensive agricultural and livestock use of wetland and riparian areas by private landowners as well as municipal, county, state and federal entities. Water impoundments and irrigation also are used for development and maintenance of wildlife sanctuaries and/or refuges managed by private individuals, non-profit conservation organizations, and state and federal agencies. Potential cumulative effects from these activities have been recognized, and an effort to develop a Habitat Conservation Plan (HCP) has been initiated between the FWS and interested parties, including the RGNF. Part of that effort includes conducting comprehensive surveys throughout the San Luis Valley, inclusive of the RGNF. As of 2002, those surveys have found sufficient numbers of flycatchers to meet the recovery objectives for the San Luis Valley management unit.

These cumulative actions impact flycatchers and/or their habitat in both adverse and beneficial ways. Water management activities that dewater streams and wetlands have degraded riparian areas, but there is active water management to restore and maintain riparian areas that provide flycatcher habitat. It is the intent of the Forest Plan to consider non-Forest Service actions, and manage Forest Service lands to mitigate and/or complement these actions by implementing Forest Plan direction. The RGNF continues to work with FWS in the development of flycatcher range and habitat criteria as part of the FWS re-proposal of critical habitat and in implementation of the Recovery Plan.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitat types.

A new wildlife standard (21) provides for the incorporation of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species. Other changes to Forest Plan direction that are specific to flycatchers that would occur as a result of the amendment (EA Appendix A) are cross-walked to the *may affect* activities in Table 11. Wildlife standard 22 provides that riparian and range guidelines will be implemented as standards in flycatcher habitat and dispersed recreation standards 6 and 7 limit recreational livestock in riparian areas.

Table 11. Crosswalk between FWS *may affect* activities and amended RGNF Plan direction.

May Affect Activity	Impacts of Activity	Offsetting Measures	Proposed Standards and Guidelines identified in the EA (Appendix A)
Livestock grazing in suitable habitat during the breeding season or inappropriate grazing any time of year	Trampling and eating of vegetation, stream hydrology changes, nest and fledgling destruction or trampling, vector for brood parasitism by brown-headed cowbirds	Allow seasonal usage; only allow light grazing that maintains or restores suitable habitat; fence in riparian area; create watering area outside of riparian zone; graze in adjacent unoccupied pasture; implement cowbird trapping	Wildlife Standard 22
Camping in undeveloped sites	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Deter people from camping in riparian area through fencing or signing	Dispersed Recreation Standards 6 and 7

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Programmatic Forest Plan Direction - Consider the guidance provided by the FWS (USDI 1995 and USDI 2003) in determining effects to flycatcher habitat, as defined in the guidance.

- Proposed Forest Plan Implementation – Consider the guidance provided by the FWS (USDI 1995) in developing project-specific mitigations, based on off-setting measures described in the guidance.

7. Determination of Effects

Programmatic Plan Direction

While current Forest Plan direction is not specific to the management of flycatchers and their habitat, guidance is provided in a general and permissible manner that would allow the implementation of off-setting measures described in FWS guidance (USDI 1995 and USDI 2003). Forest Plan wildlife standard 10 provides for the incorporation of TES recovery plans and designation of critical habitat as part of Forest Plan direction. Forest Plan direction, interpreted in relation to flycatcher habitat consistent with FWS guidance, would meet the attributes of suitable flycatcher habitat if riparian, sediment control, dispersed recreation, wilderness, range and wildlife standards and guidelines are met.

Proposed Plan Implementation

Alternative 1

A limited amount of potential and suitable flycatcher habitat has been identified on the RGNF and monitoring and off-setting measures have been established in consultation with FWS. The FWS concurred with the BA and its amendment determination of *may affect, is not likely to adversely affect* for grazing activities on flycatchers.

In cooperating with the FWS effort to re-propose critical habitat and implement the Recovery Plan, the Forest has mapped additional possible habitat consistent with the FWS 2003 guidance. These areas have yet to be surveyed to determine whether habitat exists and if birds are present. It is possible that flycatchers and their habitat may occur within these areas, so activities that might occur in these areas *may affect* flycatchers and their habitat. However, surveys are to be conducted of these mapped areas and any proposed projects would be reviewed for potential impacts, so that the proposed actions *are not likely to adversely affect* flycatchers and their habitat.

Given the limited known or projected possible extent of flycatcher habitat on the Forest and that there are standards and guidelines in place to minimize impacts from activities occurring within or adjacent to riparian areas, the Forest Plan actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** southwestern willow flycatchers.

Alternative 2

Although Alterative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitats, it will still require site surveys and project specific off-setting measures to ensure projects do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** southwestern willow flycatchers.

UNCOMPAHGRE FRITILLARY BUTTERFLY

1. General Habitat Associations
Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1994)

The Uncompahgre butterfly has the smallest total range of any North American butterfly species. The species is found only in southwestern Colorado and to date, only known to occur in the San Juan Mountains. Colonies are associated with patches of snow willow (*Salix nivalis*) above 12,500 ft elevation and are found on northeast-facing slopes, which are the coolest and wettest micro-habitat available. All known colonies exist as networks of snow willow patches all in close proximity, typically within the same cirque or basin.

2. Local Habitat Relationships
Note: this information is from annual field reports

On the RGNF, known habitat is limited to high elevation areas within rugged, not easily accessible terrain. Sites are generally typified by high elevation cirques with terraced mesic habitats surrounded by steep cliffs or slopes and snowfields. While not all available snow willow

habitat is occupied, planning area boundaries around known colonies and suitable habitat delineate an estimated 4250 acres of butterfly habitat on the RGNF.

The South San Juan Wilderness area is as yet unsurveyed, but does provide suitable topography for potential habitat. In cooperation with FWS, surveys will continue as the RGNF contains high priority areas for repeat or new surveys.

3. Local Survey/Occurrence Information
Note: this information is from annual field reports

At the time the recovery plan was written, the butterfly was verified at only 2 areas in the San Juan Mountains. Cooperative surveys between the FS and FWS have been conducted since then, and through the 2001 field season verified 10 known colonies, all in the San Juan Mountains. Another colony was reported found during the 2002 field season (pers. comm. Aaron Ellingson). This newest colony was found on the RGNF, making a total of 5 known colonies on the RGNF.

4. Risk Factors
Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1994)

The Uncompahgre fritillary butterfly was listed as federally endangered in 1991due to declines observed during the 1980s. Due to its sedentary nature, overcollection is considered the greatest human-caused threat to the butterfly. Other actual or potential threats include adverse climatic changes, small population size, and low genetic variability. There is a minor potential threat of trampling of larvae and loss of habitat from human and livestock use through trail and road developments and grazing.

5. Effects Analysis
Note: this information is from the 1999 field report (Ellingson 1999)

The 1999 field report identified risk factors and management recommendations specific to each known population. The primary threat continues to be from overcollection and requires the continued confidentiality of colony site locations. Management changes were not recommended for the 4 RGNF sites, but all of them may be subject to a limited extent of grazing and recreation use. Effects of these activities, as disclosed in the 1999 field report, are discussed for the 4 sites. The fifth site was found during the 2002 field season but that report has yet to be released. It is expected that a comparable analysis of effects and proposed management recommendations for the fifth site will be part of the 2002 field report.

Alternative 1

Direct and Indirect Effects

Sites 1 and 2. No effects from grazing are evident. Recreational use is not detectable and is likely very low, as defined routes and trails do not exist and use appears to be diffuse. Collection is unlikely to be a problem because of difficult access.

No management changes are recommended, but as the sites are not within a protective land designation (i.e., wilderness), management should control grazing and discourage developments

that would increase access to the sites. As long as the sites' locations remain undisclosed, intensive collection enforcement measures are not anticipated.

Site 3. While grazing is permitted, the allotment is inactive. Recreational use is undetectable; although a trail does pass through the margin of the population, impact to the site is negligible. Collection is a minimal threat due to the site's remote and rugged location.

The site is located within a wilderness area and no major management changes are recommended. Development will be limited due to its wilderness status. Grazing management should consider continued non-use or controlled limited use of the area. As long as the site's location remains undisclosed, intensive collection enforcement measures are not anticipated.

Site 4. Most of the site is inaccessible to livestock, but some portion of the area is likely grazed at times. Recreational use is undetectable. Collection is unlikely due to the remote and rugged nature of the site.

The site is located within a wilderness area and no major management changes are recommended. Development will be limited due to its wilderness status. Grazing management should consider non-use or controlled limited use of the area. As long as the site's location remains undisclosed, intensive collection enforcement measures are not anticipated.

Cumulative Effects

On the RGNF, known butterfly populations are limited to 5 locations, although the South San Juan Wilderness has yet to be surveyed. All known and potential sites are protected by Forest Plan wildlife standards (14 and 15) that are specific to the butterfly and management of its habitat. Wildlife standard 14 does not allow ground-disturbing activities and limits grazing, consistent with the analysis of effects and grazing management recommendations discussed in the 1995 BA for the Uncompahgre fritillary butterfly range permit reissuance for national forests. Wildlife standard 15 prohibits butterfly collection activities within the area of known butterfly sites and permits are required for commercial and/or scientific collection. The 1996 Forest Plan BA acknowledged some privately patented mining claims could occur in butterfly habitat, but stated the amount would be small and scattered with limited cumulative impacts. A review of mapped mineral potential on the RGNF indicates that known or potential butterfly habitat occurs within areas of no currently recognized mineral potential.

Within the known range of the butterfly, there are 11 identified populations, including the newly identified population on the RGNF. All of these populations are found on lands in the San Juan Mountains managed by the FS and BLM. These federal lands are managed similarly, as recommended by the recovery plan and annual field reports. Management emphasis for all populations is on continuing inventories and protecting the sites from their primary threat of overcollection by not disclosing known locations. For sites already publicly known, there are active management efforts to educate the public, restrict travel to established trails, and enforce non-collection requirements. Range-wide, management activities are evaluated on a site-specific basis for projects involving possible disturbance to potential habitat to evaluate the impacts and incorporate mitigation as appropriate.

The 1999 field report made a management recommendation for all known sites to formally protect the sites through special land use designations such as research natural areas or areas of critical environmental concern, unless already protected as wilderness areas. Three sites are

within wilderness areas and 2 sites are being considered for special status designation. The RGNF does not propose to designate known colony sites on the Forest as research natural areas, as threats to these colonies are considered low and protection would best be achieved by not disclosing the general locations of the colonies and by implementing current Forest Plan direction specific to butterfly conservation.

Alternative 2

Direct, Indirect and Cumulative Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are the same as described under Alternative 1. No new standards or guidelines in relation to the butterfly are proposed by the MIS amendment, so no additional analysis is warranted.

6. Mitigation Measures

- Continue surveys as recommended by the Recovery Plan and annual field reports.
- Do not issue butterfly collection permits for areas above 12,000 ft elevation.

7. Determination of Effects

Alternative 1

A limited amount of butterfly habitat has been identified on the RGNF and Forest Plan wildlife standards (14 and 15) specific to the butterfly are in place. Wildlife standard 14 is consistent with the management recommendations made in the 1995 BA, for which a determination of *no effect* was made, assuming site-specific BAs would be prepared when renewing AMPs. Wildlife standard 15 prohibits any butterfly collection within known population areas. The potential for mineral exploitation within butterfly habitat is extremely limited and would have site-specific mitigation applied if proposed. While fire is not an identified risk factor, the 1997 BA for the Forest's Prescribed Fire EA was updated in 2002 with an analysis of effects to the butterfly and the FWS concurrence with the determination of *no effect.*

Given the limited known or potential butterfly populations and habitat on the Forest, and that there is Forest Plan direction in place to minimize impacts of activities occurring within butterfly habitat, the proposed actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Uncompahgre fritillary butterfly.

Alternative 2

Because effects from the proposed amendment of adding MIS to the Forest Plan are the same as described under Alternative 1 and there are no new standards or guidelines in relation to the butterfly proposed by the MIS amendment, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Uncompahgre fritillary butterfly.

MOUNTAIN PLOVER

1. General Habitat Associations

Note: this information is from the Proposed Rule (FR 64 7587) unless otherwise cited

The mountain plover breeds in Montana, Wyoming, Colorado, New Mexico, and the Texas Panhandle east to Nebraska, and winters from central California and southern Arizona southward into Mexico. In Colorado, plovers arrive on breeding grounds by late March and begin to form flocks as early as mid-June prior to winter migration. The flocks increase in size until Mid-August, and then depart for their wintering grounds between August and October. Colorado is the primary breeding ground for the mountain plover, and more than half of the world's population nests in the state. In Colorado, major breeding areas exist at the Pawnee National Grasslands.

There are an estimated 7,000 plovers in Colorado. There are insufficient data to confirm a population trend for plovers in Colorado, but a historically recognized breeding stronghold on the Pawnee is now small or nearly absent. The plover's narrow range of habitat requirements combined with a high degree of site fidelity increases its vulnerability to impacts at traditional breeding locales.

Short vegetation, bare ground, and a flat topography are recognized as habitat-defining characteristics of plover habitat, at both breeding and wintering locales. Plovers historically nested on prairie dog towns or other areas heavily grazed by prairie herbivores. Currently, in addition to nesting on prairie dog towns, plovers show a strong affiliation for sites that are heavily grazed by domestic livestock and also attempt to breed on fallow and cultivated fields that mimic natural habitats.

Suitable breeding and wintering habitat characteristics can be provided by naturally occurring physiographic features, grazing by native mammalian herbivores or domestic livestock or some agricultural practices. Breeding activity occurs in native grasslands, rangelands and cultivated fields. Monitoring reports suggest nesting success generally may be higher on rangelands with prairie dog colonies than without. And while plovers may be attracted to agricultural fields for nesting, in Colorado nesting success is generally poor as spring tilling practices may result in the loss of nest, eggs or young. Renesting attempts are rarely as successful as first attempts and plovers likely abandon nests when crops become too tall.

In breeding season, high quality sites have high proportion with little or no vegetation, including dry shortgrass prairie, semi-desert landscapes, alkaline lake beds, and areas with disturbance. Brood-rearing areas are very flat, open, dry areas greater than 28 ha in size that have a high (> 30) percent bare ground with vegetation generally less than 5 cm tall. Plover nests are simple scrapes on the ground, lined with organic debris and typically occur in vegetation less than 10 cm (4 in) in height, with at least 30 % bare ground and a conspicuous object such as a manure pile, vegetative clump or rock nearby. The presence of taller vegetation has been reported as important to shade both chicks and adults.

2. Local Habitat Relationships

Based on the presence of active and/or inactive prairie dog colonies, about 1783acres of plover habitat have been estimated to occur on the RGNF. In cooperation with the FS and BLM, CDOW has initiated surveys for prairie dog colonies. Part of that effort has been to map known or suspected prairie dog colonies on FS and BLM lands to facilitate aerial flights to locate and confirm existing and historical sites. That mapping exercise identified 1,737 acres of active colony areas and 46 acres of inactive colony areas on the RGNF. These sites are considered to represent potential plover habitat on the Forest (map on file in the Supervisor's Office).

3. Local Survey/Occurrence Information

There are no known occurrences of the plover on the RGNF. Completion of the prairie dog colony mapping and survey effort will help the RGNF identify and prioritize where plover surveys should be conducted. Surveys will be conducted as part of any site-specific analysis for proposed activities within areas identified as potential plover habitat.

Surveys have recently been initiated on BLM lands in areas of historical and/or current sheep grazing allotments and have documented the presence of nesting birds in the San Luis Valley.

4. Risk Factors

Note: this information is from the Proposed Rule (FR 64 7587) unless otherwise cited

Conversion of grassland habitat is a primary factor in proposing the plover as threatened. These grasslands are being converted to housing developments or agricultural lands. Known breeding sites are vulnerable to residential development and current agricultural practices are in conflict with plover nesting cycles, especially in Colorado.

Plovers are impacted by grazing practices that may result in either detrimental or beneficial affects. Grazing systems that keep the density of vegetation and dry residual matter at or below tolerance limits for plovers may enhance plover habitat.

Oil, gas and mineral development impacts on plover habitats are indeterminate. Construction of drill pads and roads may create nesting habitat, but human activities at such sites may disturb and stress plovers, resulting in decreased habitat functionality and even direct mortality.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect rangelands that may provide breeding habitat for the plover. Management activities that occur on the Forest with the potential to affect plovers are identified below.

- Grazing management. Historically, plover habitat was a byproduct of nomadic grazing animals, creating a mosaic of grasses, forbs and bare ground that changed frequently in time and location. Current range management practices for domestic livestock emphasizes a uniform grass cover to minimize grassland and soil disturbances, in contrast to management needs for plover habitat that should focus on maintaining short, sparse vegetation.

- Minerals management. Oil and gas developments and surface mining, with associated roads, may act as attractive nuisances to plovers. Plovers may nest and feed near drill pads and roads and use roads as travel corridors, increasing their susceptibility to direct mortality. Related human activities in these areas increase disturbances to nesting and brooding plovers and may result in chick abandonment or other stressors.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is extremely limited and to date, no plovers have been documented on the Forest. Expected effects from proposed management activities on the Forest are disclosed below.

- Livestock management. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Rangelands on the Forest provide forage for both livestock and wildlife and provide wildlife habitat for an array of grassland and riparian species. The combination of uncontrolled livestock use and high numbers of livestock, both prior to and after the establishment of the Forest, has affected range condition and plant composition (FEIS 3-181). Approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), but improved management targeted to these areas and implementation of the Forest Plan's range standards and guidelines are expected to improve rangeland conditions overall.

  Livestock grazing may occur in potential plover habitats, defined on the RGNF as areas of rangeland containing active and inactive prairie dog colonies. These areas are limited in extent on the Forest and occur in lower elevation grassland communities. Forest Plan range standards and guidelines are based on the residue guidelines in the General Technical Report INT-263: *Managing Grazing of Riparian Areas in the Intermountain Region* (Clary and Webster 1996), and provide for stubble heights of 3-4 inches on rangelands in satisfactory condition.

  Site-specific utilization and residue guidelines are developed in AMPs, which are subject to NEPA and ESA review and consultation. Surveys for plovers within potential plover habitat would be part of the analysis and would provide a basis for consideration of management needs specific to plovers, if appropriate.

  Because of the limited extent of potential plover habitat on the RGNF and that Forest Plan direction would allow for grazing systems compatible with plover habitat needs, impacts to plovers from grazing are expected to be minimal.

- Minerals management. Minerals management includes activities for development of leasable and locatable minerals. These activities are predicted to be very limited in extent on the RGNF but could occur in potential plover habitat. However, such activities could result in disturbance to nesting plover if present, because of increased activities at the development sites and their associated roads.

  Forty-six percent of the RGNF land base is considered to have high oil and gas potential, but only 129 acres are expected to be disturbed through exploration and development (FEIS pg 3-310 Table 3-64). Proposed actions are subject to NEPA and ESA requirements and should development be proposed within or adjacent to potential plover habitat, project level mitigation would be applied consistent with Forest Plan standards and guidelines, and affected areas would be reclaimed after project completion. Roads used for oil and gas development are single-use roads, would not be used for other purposes during the activity, and most would be abandoned and reclaimed after use (FEIS pg 3-308).

Twelve percent of the RGNF land base is considered to have high locatable mineral potential. On an average basis of administering 4 operating plans annually, the estimated extent of activities is 40 operating plans and 4 new miles of road, affecting a total of 40 acres on the Forest (FEIS pg 3-322). The Forest can regulate and control access to mineral claims, and operating plans are subject to NEPA and ESA requirements, allowing for inclusion of appropriate mitigation at the project level, such as reclamation and protective measures for TES species. Requests for recreational mineral collection are evaluated, inclusive of TES considerations, to determine the need for an operating plan.

There is low probability of overlap between projected mineral exploration and development activities and potential plover habitat, as both are limited in extent on the Forest. However, should a mining activity be proposed near or within potential plover habitat, required project-specific analyses would provide the means to incorporate necessary and appropriate mitigation, so effects to plovers are expected to be minimal to none.

Cumulative Effects

Within the San Luis Valley area, most plover habitat occurs off-Forest on lower elevational rangelands. Plovers have been found on historic and/or current sheep grazing allotments on BLM lands. Primary land management practices that could affect plovers on BLM lands include grazing and the potential for minerals development. Surveys for plovers have not been conducted on private lands where both livestock grazing and agricultural production is extensive, and it is unknown whether or to what extent plovers use these private lands.

CDOW efforts to map and survey the area for prairie dog colonies will help identify the extent of potential plover habitat in the San Luis Valley area. The FS will continue to cooperate with CDOW in this effort and will manage FS lands in consideration of non-Forest Service actions, to mitigate and/or complement those actions while implementing Forest Plan direction.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of grassland habitat types.

A new wildlife standard (21) provides for the incorporation of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species.

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- During the development of AMPs, survey for plover habitat and incorporate appropriate conservation measures as necessary.

7. Determination

Alternative 1

Given the limited extent of potential habitat on the Forest and the minimal effect of activities that may occur within or adjacent to potential plover habitat, the Forest Plan actions are determined to **NOT LIKELY JEPORADIZE THE CONTINUED EXISTENCE** of mountain plovers.

Alternative 2

Although Alterative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of grassland habitats, it will still require site surveys and inclusion of appropriate conservation measures to ensure projects do not result in adverse effects. Consequently, the proposed action is determined to **NOT LIKELY JEPORADIZE THE CONTINUED EXISTENCE** of mountain plovers.

BALD EAGLE

1. General Habitat Associations

Note: this information is from the 1999 proposed rule to delist (64 FR 36454) unless otherwise cited

Historically bald eagles nested throughout North America, but the population declined dramatically during the late-1800s to the mid-1900s due to shooting, pesticide use and habitat alteration, leading to its listing in 1978. The population has recovered sufficiently in all of its recovery regions to be proposed for delisting throughout its range. This recovery is due to habitat protection and management actions as well as the reduction of organochlorine pesticides such as DDT.

Bald eagles frequent estuaries, large lakes, reservoirs, major rivers and some seacoast habitats, as fish and waterfowl are primary prey items. Bald eagles may use prairies if adequate food (carrion) is available, but are generally considered a bird of aquatic ecosystems. Bald eagles usually nest in large trees near water, but are known to nest on cliffs and (rarely) on the ground. Bald eagles tend to use the same breeding area year after year, and often the same nest, though a breeding area may contain alternate nests.

Bald eagles require large diameter trees for roosting, perching, and nesting. Breeding requires a readily available food source of moderate to large fish, large diameter trees, and minimal disturbance from humans. Both carrion and waterfowl on winter range areas have been documented as important food sources for eagles during the winter months.

2. Local Habitat Relationships

Bald eagles have been documented nesting and winter roosting near the RGNF. More commonly, bald eagles occur off-Forest in lower elevation habitats along the Rio Grande and Conejos River drainages and on the San Luis Valley floor. Both breeding and wintering bald eagles are known

to use the San Luis Valley floor. During this time, bald eagles may forage on some of the stream systems that project up onto the Forest or on areas of the Forest that have large, open bodies of water. Foraging on the Forest is expected to be fairly limited because of the small amount of available habitat, estimated to be 1,220 acres. Winter foraging on the Forest will be further limited, as most of the large bodies of water on the Forest will be frozen.

3. Local Survey/Occurrence Information

In Colorado, the bald eagle population has gradually increased since listing. Known nesting bald eagles has increased from only one pair to over 20 pairs in the last two decades (Gross 1998), although this increase may be a function of increased survey efforts as well as an actual increase in the number of pairs. In 1995, up to a 1,000 wintering bald eagles were documented in Colorado (Gross 1998).

There are very little data reported for the RGNF but there is 1 historical nest site, last known to be active in 1978. There was an active nest reported in 2002 on a private reservoir within RGNF boundaries.

There are 9 standardized routes and 4 aerial survey routes for bald eagle midwinter counts in the San Luis Valley. Portions of Forest lands are included in the aerial surveys of the Conjeos and Rio Grande Rivers. These data have been collected since 1980 and have documented winter roosts on the valley floor.

4. Risk Factors

Note: this information is from the 1999 proposed rule to delist (64 FR 36454) unless otherwise cited

This species was listed as endangered or threatened, depending on the state, in the contiguous United States in 1978. It was downlisted to threatened status in 1995 in states where it had been listed as endangered. The FWS proposed delisting in 1999 as most of the recovery goals had been met and the population continues to increase. Colorado is part of the Northern States Recovery Region were delisting goals were met in 1991.

Nesting and wintering habitats are critical to the continued survival of bald eagles, but do not appear to be limiting, given the population recovery. Bald eagle habitat on federal lands remains protected and with the knowledge of habitat management gained through the recovery process, federal actions are not expected to result in an unacceptable loss of habitat or to affect the population's stability. Recommendations for management and protection of bald eagles continue to be made in accordance with all applicable environmental laws.

Human disturbance is a continuing threat, which may increase as both numbers of bald eagles increases and human development expands into rural areas. If disturbance occurs frequently, nesting can fail. Management practices have been successfully modified to reduce human disturbances and will continue to be applied.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. Management activities that could impact riparian areas that may provide nesting, winter roosting and/or foraging habitat for the bald eagle, are identified below.

- Recreation management. Recreational use of lakes, reservoirs and rivers could impact foraging behavior through increased disturbance.

- Travel management. Development and maintenance of trail and road systems may result in impacts to fish habitat through increased sedimentation, and removal of hazard trees could include large trees and/or snags used by bald eagles for nesting, winter roosting and/or foraging.

- Vegetative management. Range, timber and fire management could alter vegetative structure, affecting nesting, winter roosting and/or foraging habitat. These activities may result in impacts to fish habitat through increased sedimentation, or loss of large trees and/or snags used by bald eagles for nesting, winter roosting and/or foraging.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is limited and there are no recent records of bald eagles nesting or roosting on Forest lands. Most suitable habitat found within the San Luis Valley is generally below elevational limits of Forest riparian habitats. Expected effects from proposed management activities on the Forest are disclosed below.

- Recreation management. There are an estimated 1,220 acres of lake habitat on the RGNF. The Rio Grande and Conjeos Rivers and associated drainages are found within the boundaries of the RGNF, and portions of these systems are on Forest lands. There are some developed recreational sites that occur within potential bald eagle foraging habitat. The major recreational activity at these sites is fishing, including the associated use of boat ramps, take-out points and campgrounds.

  Bald eagles that may be using these areas likely would be accustomed to existing levels of disturbance. Actions that may occur in addition to existing uses may result in bald eagles being temporarily displaced during the disturbances, but individuals likely would resume normal foraging behavior after cessation of such disturbances. Should bald eagle nest or winter roost sites be identified on the Forest, a no-disturbance buffer around these sites would be established and a management plan would be developed in coordination with FWS.

  Routine and deferred recreational site maintenance activities have been evaluated under programmatic BAs for which determinations of *no effect* to bald eagles were made. Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination* to bald eagles.

- Travel management. Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. However, the construction, reconstruction and maintenance of roads and trails along streams, lakes and reservoirs may impact fish habitat through increased sedimentation, which could limit foraging opportunities for bald eagles. Additionally, development and

Forest Plan standards and guidelines are in place to minimize the effects of (re)construction of roads and trails in riparian areas. Routine road and trail maintenance activities have been programmatically reviewed and a checklist has been developed to ensure specific actions that may affect bald eagles are appropriately mitigated or do not occur.

- Vegetative management. Activities associated with range, timber and fire management in riparian areas may impact nesting, winter roosting or foraging habitat for bald eagles. Grazing may alter stream structure and function, possibly reducing the quality of fish habitat. Timber harvest may require the (re)construction of roads and skid trails that could increase runoff and stream sedimentation, possibly reducing the quality of fish habitat. Additionally, timber harvest could result in the removal of large trees and/or snags that may be used by bald eagles for nesting, winter roosting and/or foraging. Potential impacts from fire activities are similar to those from timber harvest, as roads may be required for access and/or fuel breaks and individual nest, winter roost or foraging trees could be impacted during a burn.

  Forest Plan standards and guidelines are in place to minimize the effects of (re)construction of roads and trails in riparian areas. Additional Forest Plan standards and guidelines are in place for watershed and riparian area protection that are intended to improve and maintain proper functioning condition of streams, and consequently the forage base for bald eagles. There are Forest Plan standards for wildlife that protect raptor nesting habitat and reduce breeding disturbances, and the Fire EA provides for protection of raptors through pre-burn surveys and mitigation to protect trees and/or snags being used by raptors.

Cumulative Effects

On the RGNF, conservation practices that protect riparian areas are being incorporated in recreation, travel and vegetative management activities. Stream-health surveys will help identify stream and associated riparian problems. Riparian condition assessments will be conducted as part of project planning to determine whether riparian sites are functioning properly, and if not, what management changes can be made to produce trends toward proper function (FEIS pg 3-204). Across the Forest, these actions should maintain and improve stream health, and consequently fish habitat in those areas that may be used by foraging bald eagles.

Within the San Luis Valley area, there are large extents of bald eagle habitat along the Rio Grande and Conjeos Rivers and their associated stream systems as well as on the valley floor, where there are extensive natural and managed wetland areas that support wintering and breeding bald eagles. These areas are used for livestock and agricultural purposes but also for development and maintenance of wildlife sanctuaries and/or refuges managed by private individuals, non-profit conservation organizations, and state and federal agencies. While rural development is occurring, there are ongoing cooperative efforts between private landowners, non-profit organizations and municipal, county, state and federal agencies to maintain and improve wetlands and their management throughout the San Luis Valley.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitat types.

The direct benefit that would occur as a result of the amendment would be to add wildlife standard 21 (EA Appendix A), which provides for the consideration of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species.

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Wildlife Standard 9 - If a bald eagle traditional winter roost or nest site is discovered, a management plan will be written to ensure that the necessary habitat components are maintained. In addition, a no-disturbance buffer will be established around the location.

7. Determination

Alternative 1

Forest Plan direction includes wildlife standards for raptors (5) and bald eagles (9) that prohibit activities that may disturb nesting or winter roosting bald eagles. Other Forest Plan standards and guidelines provide guidance for activities within riparian areas that are intended to improve or maintain proper functioning condition of streams.

Given the limited extent of bald eagle habitat and its probable use on the Forest, and Forest Plan guidance to protect both bald eagles and their habitat, the Forest Plan actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** bald eagles.

Alternative 2

Although Alterative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitats, it will still require project review and possible mitigation to ensure activities do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** bald eagles.

MEXICAN SPOTTED OWL

1. General Habitat Associations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) and Facts about the Mexican Spotted Owl (USDA Forest Service 1993) unless otherwise cited

Mexican spotted owls range from northern Colorado and central Utah, south through Arizona, New Mexico, and west Texas, to the central Mexican Plateau. Spotted owls do not occur uniformly throughout their range, but rather in disjunct localities that correspond to isolated mountain systems and canyons.

Spotted owls use a variety of habitats, but are typically associated with dense multi-canopied stands of mature mixed-conifer and ponderosa pine-gambel oak forests. Habitat use patterns vary throughout the range and owls may use a wider variety of forest conditions for foraging than used for nesting or roosting.

Spotted owls nest and roost primarily in closed-canopy forests or rocky canyons. Forests used for roosting and nesting often contain mature or old-growth stands with complex structures characterized by multiple canopies, dense canopy cover, high tree basal area, and an abundance of snags and dead and down logs. Spotted owls will use canyon habitats that provide nesting sites in shallow caves and ledges. Canyons vary from having a high degree of forest structure to little or no tree cover present, but all have a common characteristic of steep to vertical rock walls that supplement or replace vegetated structural characteristics used in forested habitats.

Foraging habitat is enhanced by the presence of rock, grass, forbs, shrubs and/or hardwoods that may increase the variety and/or quantity of prey species. Foraging may occur in either stands of nesting and roosting habitat or in other stand types that may be single or multi-canopied, with more open canopy and more diverse species composition. Still, high-use foraging areas contain more big logs, higher canopy closure and greater densities and basal areas of both trees and snags than random sites.

Nests consist of tree cavities, old stick built nests from other species, debris platforms and cliff ledges. All known Mexican spotted owl pairs in Colorado use canyon habitats for nesting. Nests are located on ledges and large trees and ledges are used as roosts. Spotted owls have a high nest site affinity, breeding in the same area for several years. However, spotted owls breed sporadically and do not nest every year.

Spotted owls begin roosting together in early March, with nest site selection occurring shortly after pair formation. Egg-laying occurs in early April and hatching in early May, with owlets leaving the nest by early to mid-June. Begging behavior declines in late August but may continue until dispersal occurs, about mid September to early October, when spotted owls become solitary.

2. Local Habitat Relationships

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

The RGNF falls within the Southern Rocky Mountains – Colorado Recovery Unit (SRM-CO RU). Spotted owls are found primarily in canyons in this recovery unit and appear to occupy 2 disparate canyon habitat types. The first is sheer, slick-rock canyons containing widely scattered patches of mature Douglas-fir in or near canyon bottoms or high on canyon walls in short, hanging canyons. The second consists of steep canyons containing exposed bedrock cliffs either close to the canyon floor or, more typically, several tiers of exposed rock at various heights on the canyon walls. Mature Douglas-fir, white-fir and ponderosa pine dominate canyon bottoms and both north and east facing slopes. Ponderosa pine grows on the more xeric south and west facing slopes, with pinyon-juniper growing on the mesa tops.

Critical habitat has been designated twice for the Mexican spotted owl, both times set aside by court order. Neither the first critical habitat designation in 1995, nor the second in 2001 included RGNF lands.

On the RGNF, mixed conifer and ponderosa pine forest types occur, but generally at higher elevations, thus limiting suitable habitat. As the elevation increases, suitable forested habitat on the RGNF quickly gives way to spruce fir forest types. Potential suitable habitat on the RGNF is estimated at 194,010 acres, based on acres of late-successional structural classes in mixed conifer and ponderosa pine forest types. This estimate is considered high, as not all of these acres will be within or adjacent to canyon habitats generally used by spotted owls in the SRM-CO RU.

3. Local Survey/Occurrence Information

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

Eighteen historical records of spotted owls exist within the SRM-CO RU, most along the Colorado Front Range, extending northward to Ft. Collins. Two additional observations, 1each from the Rio Grande and San Juan National Forests, plus 1 from the Southern Ute Reservation were reported during 1989 surveys. Historical spotted owl locations in this recovery unit occurred in steep canyons. Northern aspects of these canyons contain mixed-conifer forest, while southern aspects contain ponderosa pine and pinyon-juniper.

Surveys conducted on the RGNF from 1990-1994 did not locate spotted owls on the Forest (FEIS Appendix H). Future surveys for the spotted owl will be conducted consistent with new FWS protocols when finalized, and priority will be given to the Alamosa Canyon where the 1989 RGNF observation was reported. Surveys also will be conducted on a project-specific basis where activities might occur in potential habitat.

4. Risk Factors

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

The Mexican spotted owl was listed as endangered in 1993 primarily because of past and projected timber management activities and the threat of catastrophic fire. Past silvicultural practices, especially even-aged timber harvest and its expected continued use have resulted in forest stand structures generally not favored by spotted owls. Fuel accumulations and forests overstocked with trees have increased the risk of catastrophic fire throughout spotted owl habitat.

Potential threats in order of severity for the SRM-CO RU are catastrophic fire, recreation, urbanization, timber harvest, and road construction. Less severe threats include land exchange, oil and gas leasing, mineral development, and grazing. Singly, these factors may have low impact, but high synergistic consequences.

The potential threats for the SRM-CO RU would be most applicable to the Colorado Front Range, where historic records and current distribution of spotted owls in this RU are found. Types and levels of management activities on the RGNF would be more comparable to the Southern Rock Mountains – New Mexico Recovery Unit (SRM-NM RU). In the SRM-NM RU, wildfire and timber harvest are the primary threats, with lesser, localized effects from unregulated firewood collection, grazing (particularly in riparian areas), and recreational development.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect spotted owl habitat. Management activities that occur on the Forest which have the potential to affect spotted owls are discussed below.

- Timber management. Even-aged harvest tends to simplify stand structure and remove a disproportionate share of large trees; these stand structures are not used to any great extent by spotted owls. Uneven-aged harvest promotes continuous regeneration and creates a balance of size and age classes, resulting in a mosaic within a stand. These stand structures may be achieved by single or group tree selection, although group tree selection provides more silvicultural management flexibility to provide the structural features and openings favorable for spotted owl nesting, roosting and foraging habitats, as long as large trees are retained.
- Fire management. Characteristics of spotted owl nest and roost sites place them at high-fire risk. Prescriptions to reduce risks of stand-replacing fires should incorporate treatments to produce or maintain key structural features of spotted owl and prey habitat and protect existing nest and roost sites.
- Recreation management. Recreational activities may affect spotted owls by the loss of habitat due to development or expansion of recreational facilities or due to increased disturbances within nesting, roosting or foraging sites. The degree of effect is related to the location, intensity, frequency and duration of the disturbance.
- Range management. Grazing practices may influence spotted owl habitat through altered prey availability, altered susceptibility to fire, degradation of riparian communities, and impaired ability of plant communities to develop into spotted owl habitat. Riparian habitat is especially important in canyon-bottom situations at middle and lower elevations where little other typical nesting or roosting habitat may be available.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is not extensive and to date, no resident or breeding spotted owls have been documented on the Forest. Most potential habitat would be found within or adjacent to canyon habitat types, areas where Forest management activities generally would not occur. Expected effects from proposed management activities on the Forest are disclosed below.

- Timber management. While most (94%) of the Forest's timber harvest will occur in spruce-fir, some will occur in mixed conifer (4%) and ponderosa pine (2%). The FEIS analysis of predicted habitat change in response to timber management was updated with the *Expanded Habitat Effects Display Report (2003).* This report predicted a change in the late successional forested LTAs 3 (White Fir and Douglas Fir) and 5 (Ponderosa Pine and Douglas Fir) as $\leq$1% in the first decade and $\leq$ 4% by the fifth decade (Table 12).

  Table 12. Extent of projected timber harvest within late successional forested LTAs on the RGNF.

LTA (acres)	Projected decrease in Structure Class 5 by LTA and budget level							
	Experienced Budget				Full Budget			
	Decade 1		Decade 5		Decade 1		Decade 5	
	Acres	% Change	Acres	% Change	Acres	% Change	Acres	% Change
3 (93,000)	-72	-0.08%	-1149	-1.24%	-363	-0.39%	-3632	-3.91%
5 (101,010)	-5	-0.00%	-75	-0.03%	-33	-0.01%	-325	-0.13%

Additional harvest through salvage sales for control of insects and disease may occur and firewood and post/pole sales will be by-products of timber harvest (FEIS page 3-171). Levels of these additional harvest activities are projected to be less than in the past, but as disease and bug infestations continue to escalate, more salvage sales than predicted are possible. Salvage harvest activities would be site-specific and target affected trees, limiting the size and scope of individual proposed harvests. Firewood collection is allowed across the Forest, as well as at slash removal sites, but is limited to within 300 feet of a road and not allowed within 100 feet of stream courses, riparian areas, wet areas, and bodies of water. Mechanical treatments to decrease fuel loads and reduce the risk of catastrophic fires also are expected to occur.

Even-aged harvest prescriptions are not allowed within spotted owl habitats (Forest Plan wildlife standard 15). Harvest prescriptions will include uneven-aged and two-aged silvicultural systems, sanitation/salvage and limited thinning, with an emphasis on shelterwood and group selection harvests. Firewood removal and prescribed fire are used to treat the slash (FEIS Appendix K). Much of the treatments will have short-term (20 to 100 years) impacts and would result in patchy distributions of created openings, varying in size and stage of vegetative regeneration. These treatments will have a variety of impacts on spotted owl habitat, some of which would improve foraging habitat, some of which would have negative short-term impacts so that suitable habitat will become unsuitable for a relatively short period of time, and some would have no impact since spotted owl habitat would not be entered.

Based on implementation of the Forest Plan to date, the experienced budget level portrays a more realistic projection of expected changes to late successional forested habitats. Should this remain consistent throughout the life of the Forest Plan, the very limited timber harvest projected for LTAs 3 and 5 would be expected to have a minimal impact on spotted owl habitat, given its association with canyon sites and the prescriptive nature of Forest Plan wildlife standards.

- Fire management. The Forest Plan calls for the development and implementation of a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires (FEIS pg 3-226). The fire management program emphasizes natural fuel management rather than activity fuel management, as it is anticipated that activity fuels created from timber harvest will be greatly reduced (FEIS pg 3-236). The priority habitats for treatment will be those that are fire-maintained ecosystems (FEIS pg 3-229) and include lower elevation mixed conifer and ponderosa pine, with some grasslands. The estimated acres of fuels treatments (1200-3000 acres average per year) were based on the ponderosa pine cover

type, as it is most dependent on fire and has been dramatically affected by fire exclusion (FEIS pg 3-235).

Prescribed and wild fire will occur in spotted owl habitat specifically to reduce the risk of catastrophic fire (Forest Plan wildlife standard 17). Small-scale natural fires and prescribed burns are expected to reduce fuel loadings and create small openings and thinned stands that will reduce the risk of catastrophic fire. Spotted owl foraging habitat should be improved or maintained by increasing or perpetuating horizontal diversity, canopy gaps, snags and downed logs, understory shrubs, grasses and forbs. Depending on fire intervals, areas could be burned earlier or more frequently than desirable, but since intense burns would not be implemented, the risk of catastrophic fires would decrease and most nesting, roosting and foraging habitat would persist or be improved.

An Environmental Assessment for the prescribed fire program (Fire EA) on the Rio Grande and San Juan National Forests was completed in 1997 and the BA was updated and consulted on in 2002. As part of that BA, a screen was developed to assist biologists in project-specific analysis of effects to spotted owls and to provide direction on incorporating mitigation measures as specified by Forest Plan wildlife standards (5 and 18) and the Fire EA. Individual projects may still require consultation.

Effects of activities from the fire management program are expected to improve or maintain spotted owl habitat over time by reducing the risk of catastrophic fires under Forest Plan and Fire EA guidance for implementation.

- Recreation management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are no developed recreation sites within identified spotted owl habitat, although there are a few new development projects (trailheads and campgrounds) proposed (FEIS pgs 3-397 and 3-398). If undertaken, these projects would require site-specific analysis and consultation.

  Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). Incidental encounters between spotted owls and recreationsits are expected to be relatively insignificant due to the limited extent of potential habitat on the Forest and the average use of areas on the Forest other than potential spotted owl habitat. Dispersed recreation activities under outfitter and guide permits have the potential to concentrate and intensify recreational impacts due to increased area use, frequency and duration by greater numbers of people at any given time. Generally, use is of existing trails and recurrent campsites, where spotted owls, if present, likely would be accustomed to these disturbance levels. Outfitter and guide activities have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, not likely to adversely affect* determination to spotted owls.

  Effects from the activities of routine trail maintenance have been programmatically reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect spotted owls or their habitat will not be implemented without further analysis and consultation, if necessary.

- Range management. Rangelands on the RGNF are naturally fragmented and are characterized by narrow canyons with a riparian ecosystem and adjacent grassland communities intermingled with timberlands in the montane and subalpine zones and at lower elevations, are a mixture of grasslands, pinon-juniper and ponderosa pine. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Livestock grazing may occur in potential spotted owl habitat, as rangelands are defined as grasslands, forb lands, shrublands, and those forested lands that support an understory of herbaceous or shrubby vegetation.

  Rangewide, under present management practices, the RGNF produces forage in excess of current levels of livestock and big game consumption, providing for plant health, vigor, and regrowth (FEIS pg 3-187). However, approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian, ponderosa pine and winter range areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188). Improved management targeted to these areas and implementation of Forest Plan range and riparian standards and guidelines are expected to improve rangeland conditions overall. Riparian areas are of specific concern to the Forest, and best management practices for soil and water resources will be used to restore and maintain riparian areas as functional ecosystems (FEIS 3-193).

  Specific range management needs are addressed through Allotment Management Plans (AMPs), grazing permits and annual operating instructions (AOIs). Management will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Removal or exclusion of livestock from newly created openings due to fire or timber harvest may be required to allow rangeland recovery to occur (FEIS pgs 3-196 and 3-197).

  Because of the limited extent of potential spotted owl habitat on the RGNF and that Forest Plan direction is intended to improve and maintain rangeland and related riparian conditions, impacts to spotted owls from grazing are expected to be minimal.

Cumulative Effects

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

In the SRM – CO RU, spotted owl habitat use is more of deep, rocky canyons than of forested habitat types. Consequently, habitat is naturally fragmented and discontinuous and management is best directed at preserving and enhancing these existing habitats rather than trying to develop more habitat over the landscape. Generally, habitat trends for these canyon habitat types are considered stable, as they are in relatively inaccessible areas that are not greatly influenced by management activities such as timber, grazing or recreation. Additionally, fire may not be as serious in canyon systems, as the open structure of steep-slope woodlands associated with canyons is not conducive to conflagration. However, adjacent dense mixed conifer and ponderosa pine forests may present extreme fire hazards as fires initiated in these forests may continue into

forested canyon habitats and catastrophic fire is considered the primary threat to the spotted owl in the SRM-CO RU.

Federal lands, primarily FS and BLM, encompass 55% of the SRM-CO RU and a limited number of owl sites have been found on these lands, mostly along the Colorado Front Range. Land use practices on federal lands include timber, grazing, recreation and mineral management, along with associated facility and road development. Both the FS and BLM continue to conduct surveys and have established Protected Activity Centers (PACs) to facilitate project-specific analyses and development of appropriate mitigations.

Similar land use practices occur on non-federal lands and extensive urbanization continues along the Colorado Front Range. While much of this urban development occurs at elevations lower than those occupied by spotted owls, it may synergistically contribute to potential effects on spotted owl habitat, such as increased fire risks or increased recreational use of public lands.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer habitat types.

The direct benefits that would occur as a result of the amendment would be to add silviculture guideline 13 and wildlife standard 21 (EA Appendix A). These standards provide additional guidance for snag management in the firewood program and for minimizing management impacts to avian species through consideration of conservation measures and principals of local bird conservation plans (NABCI).

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Conduct surveys consistent with FWS protocols, with priority given to the Alamosa Canyon.

7. Determination

Alternative 1

Forest Plan guidance is not inconsistent with Recovery Plan management recommendations and includes specific wildlife standards (15, 16, 17 and 18) for managing potential Mexican spotted owl habitat and nesting activity, including direction for timber management, fire management, and limiting disturbances. Additional Forest Plan standards and guidelines provide for the improvement and maintenance of rangeland and riparian conditions.

Given the limited extent of potential spotted owl habitat on the Forest, and that there is Forest Plan direction in place to minimize impacts of activities occurring within spotted owl habitat, the proposed actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Mexican spotted owl.

Alternative 2

Although Alterative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional mixed conifer and ponderosa pine habitat types, it will still require site and project specific surveys and mitigations to ensure project actions do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Mexican spotted owl.

IV. Determination Summary for All Species

Species List	Determination	Rationale	Mitigation
Uncomphagre fritillary butterfly (e) *Boloria acrocnema*	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Canada lynx (t) *Lynx canadensis*	LAA	Insufficient Forest Plan Direction	YES
Southwestern Willow Flycatcher (e) *Empidonax trailii extimus*	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Mexican spotted owl (t) *Strix occidentalis lucida*	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Bald eagle (t) *Haliaeetus leucocephalus*	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Mountain plover (p) *Charadrius montanus*	NLJ	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES

NE - No Effect
NLAA - May Effect, Not Likely to Adversely Affect
LAA - May Effect, Likely to Adversely Affect
NLJ – Not Likely To Jeopardize the Continued Existence

Prepared by and date: Laurel Kagan Wiley, Wildlife Program Manager 04/17/03

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BIOLOGICAL EVALUATION

I. Species Evaluated

The Forest Plan BE addressed the effects of the alternatives for the sensitive species known or suspected to occur on the RGNF. This analysis will review the currency and sufficiency of the Forest Plan BE, and update it with new information for these species. This analysis also will include the review of effects for a new candidate species, the Gunnison sage-grouse. Table 1 lists the candidate species reviewed in this portion of the BE.

Table 1. List of Endangered, Threatened and Proposed species known or suspected on the RGNF.

Species	Basic Habitat Description
Boreal Toad *Bufo boreas boreas*	Spruce/fir near water and alpine meadows
Gunnison Sage-grouse *Centrocercus minimus*	Lek sites are characterized by low vegetation with sparse shrubs often surrounded by big sagebrush dominated plant communities below 9200' elevation. Brood rearing habitat is characterized by riparian vegetation of intermittent and perennial streams, springs, seeps and meadows within upland vegetation communities

II. Habitat Overview

This evaluation will be based on the Landtype Associations (LTAs) originally described in the Forest Plan FEIS (FEIS pg. 3-41 to 3-70). LTAs are broad ecological units that are expressed by similar plant communities and ecological potential. LTAs have a spatial resolution of hundreds to thousands of acres in size, making them especially useful and appropriate at Forest Plan scale analysis. Thirteen LTAs were described for the RGNF and used in the original BE for the 1996 Revised Forest Plan (Appendix F).

The BE identifies 129,400 acres of riparian area habitat suitable for the boreal toad. Habitat for the Gunnison sage-grouse is adjacent to but not known to occur on RGNF lands.

III. Analysis of Effects

BOREAL TOAD

1. General Habitat Associations

The boreal toad ranges throughout much of western North America from southeast Alaska to northern Baja California and east through the Rocky Mountain states to northern New Mexico. It is absent from the arid Southwest. The boreal toad occurs throughout the mountainous portion of Colorado, with the exception of the Sangre de Cristo Range, Wet Mountains, and Pikes Peak region. It is most common between 8,500-11,000 feet, and has only rarely been found as low as 7,000 feet (Hammerson 1999). Recent information by the Colorado Division of Wildlife (CDOW) indicates that it occurs almost exclusively above 8,000 feet and can be found at elevations up to at least 12,000 feet (CDOW web page, http://wildlife.state.co.us/species_profiles/boreal.asp).

The distribution of the boreal toad is restricted to areas with suitable breeding habitat in lodgepole pine, spruce-fir forests and alpine meadows. Breeding habitat includes lakes, marshes, ponds, and bogs with a sunny exposure and quiet, swallow water. These may include the edges of large and small lakes, beaver ponds, glacial kettle ponds, roadside ditches and human excavations, and small puddles (Hammerson 1999). Rarely are boreal toads known to lay eggs in streams. Boreal toads emerge from their hibernation sites during the snow and ice melt and generally begin breeding in late May or early June. At higher elevations, breeding may occur as late as July. Male boreal toads do not call like most other amphibians to attract a mate, but may exert a soft chirping call when in contact with other males. Attraction of a mate involves waiting in the water near the shoreline for a female to swim by (Livo 2002). There is also some recent evidence that females may not breed every year (Jones 2003).

Breeding and external fertilization of the eggs may take several days. The eggs are usually deposited in relatively warm exposed water not more than six inches deep (Hammerson 1986). A typical clutch size involves an average of about 5,200 eggs, although more than 10,000 eggs have been reported (Hammerson 1999). The eggs are deposited in long strands in detritus or aquatic vegetation. Egg and tadpole development is temperature dependent, and hatching to metamorphosis may take up to 75 days (Loeffler 2001). Reproductive efforts often fail at high elevations due to lack of time to metamorphose before the onset of winter (Campbell 1976).

Once hatched, tadpoles gather in the warm shallow water of the shoreline during the day and into deeper water during the night. Metamorphosis of tadpoles into toadlets usually occurs in late July to mid-August (Livo 2002). Once metamorphosed, the distribution and movement of young toads is restricted by available moist habitat; thus, they are often found in wetlands adjacent to the breeding site (Hammerson 1999). Adult toads, however, may move up to several miles to reside in marshes, meadows or forested areas. Recent telemetry data indicates that adult toads may spend up to 90% of their time in upland montane forests and rocky areas, with an affinity for locations that contain seeps and springs (Jones 2003). Several authors indicate that female toads move farther from breeding sites, and in a more linear fashion, than do males (Hammerson 1999, Jones 2003). Males appear to maintain a home range within 300 meters (984 ft.) of breeding sites and exhibit high site fidelity (Loeffler 2001).

Boreal toads appear to be most active at temperatures between 12 and 20 degrees C. (54-68 degrees F.), although activity has also been observed in temperatures as low as –2 degrees C. (28 degrees F.) on rare occasions (Hammerson 1999). When inactive, they hide beneath rocks or logs or within rodent burrows, but unlike other Colorado toads, cannot burrow deeply into the soil. When cooler temperatures arrive in late August or early September they begin to return to their hibernation sites, with most in complete hibernation by early October. Hibernacula often involve underground chambers that are associated with springs and seeps, or rodent burrows that are deep enough to prevent freezing with soil moistures high enough to prevent desiccation. Areas adjacent to streams also function as important hibernacula chambers, with the continuous flow of underground water assisting in temperature regulation (Loeffler 2001).

Boreal toads will feed both day and night on a wide variety of invertebrates such as ants, snails, carabid beetles, spiders, and mosquitoes. The primary natural predators of their tadpoles include the western terrestrial garter snake, the larvae of the predacious diving beetle (Dytiscus Spp.) and the tiger salamander. As adults, their predators also include the western terrestrial garter snake and the tiger salamander, as well as various bird species such as common ravens and spotted sandpiper. Mortality on adults, however, is very low and the most significant losses occur during the larval and juvenile stages (Campbell 1970). Recent discovery of the chytrid fungus

(Batrachochytrium dendrobatidis) in amphibian populations in Australia and Central America has been attributed to population declines of amphibian species in those locations (http://wildlife.state.co.us/species_profiles/boreal.asp). Samples taken from 43 sites in Colorado during 2000-2001 indicate that approximately 9% of 213 boreal toads also tested chytrid positive (Livo 2002). The recent discovery of chytrid fungus in leopard frogs at the Blanca wetlands indicates that the fungus also occurs locally and could be spread to other locations (Lucero 2002). When healthy, boreal toads may attain a maximum age of at least nine years (Campbell 1970).

2. Local Habitat Relationships

Typical breeding habitat for boreal toads both locally and in Colorado includes lake margins, marshes, and beaver ponds within streams (Campbell 1976). Beaver ponds with clear water, a silt/mud substrate, shallows, and emergent grasses were described as typical sites during state-wide surveys in 2002. Based on available site records, boreal toads have occurred locally in beaver ponds, marshy flats, alpine lakes, stream margins (usually associated with old beaver complexes), and puddles created by vehicle tire tracks.

Local boreal toad populations have been found at elevations that vary from about 8,400 feet (Lake Humphreys) to 11,600 feet (Trout Lake). Boreal toads at the Trout Lake site exist (or existed) in a high alpine lake system where most individuals remained in or near the water (Campbell 1976). Although boreal toads in this location did not travel more than 20 meters (66 ft.) from the lakeshore, they remained in moist plant communities dominated by willow (87%), sedges (93%), and marsh marigold (37%) when they did so. Other current and/or historic local sites have been characterized as having shallow standing water, south facing aspects with direct sunlight, few predatory species (i.e. introduced fish), and conifer stands (spruce-fir) within 328 feet (Hunsung and Alves 1997). The importance of beaver dams to breeding sites has also been documented locally (Metzger 1996). One local breeding site located in 1996 occurred in water that had collected in wheel ruts. Emergent vegetation (primarily sedge/rush species) and bare silt substrates were thought to be important to the use of this site (Metzger 1996). Local surveys conducted in 2001 found toads using old road ruts created by tire tracks, side-water ponds, and a road cut-bank (Gomez 2001). Spruce-fir, willow and aspen were the dominant forest vegetation types in these areas, with distances that varied from 30 to 150 meters (98 to 492 ft.) from the locations where they were found.

3. Local Survey/Occurrence Information:

Boreal toads were previously considered common in the most of the mountain ranges in Colorado including the San Juan Range (Campbell 1970, Corn et al. 1997). Existing information indicates that there are at least 15 locations on the Forest where the boreal toad occurs or occurred historically. The names and dates of occurrence at these locations are as follows: On the Conejos Peak RD boreal toads have been located at Cumbres Pass (1913, 1956, 1979), the South Fork Trailhead (1959), and Elk Creek (no date provided). The 1996 BE also mentions Trujillo Meadows and the Alamosa River Canyon as historic sites but no information could be found on these locations. On the Divide RD toads have been located at Regan Lake (1965), Trout Lake (1971, 1972), West Trout Creek (1996, 2002), Trout Creek (1996), Red Mountain Creek (1991), Love Lake/Middle Creek (1992, 2001), Jumper Lake (1994), Cliff Creek/Jumper Creek (1996, 1997, 1998, 2001), Lake Humphreys/Goose Creek (1998), Workman Creek (date unk.), and Boots (Roaring Fork) Pond (2002). Other sites adjacent to the Divide District include the Rio Grande River at the Wetherill Ranch and Williams Lake, the latter of which is approximately one mile south of Trout Lake on the San Juan National Forest. The dates for both of these areas are

not indicated (Husung and Alves 1998). On the Saguache RD boreal toads have been located at Miners Creek (1995, 1998).

On-going surveys of historic sites suggest that there has been a dramatic decrease in local boreal toad populations over time and that it is currently rare and perhaps in danger of extirpation on the Forest (Fetkavich 1994, Husung and Alves 1997, 1998). Currently, the only locations where stable breeding populations seem to occur is around the Cliff Creek/Jumper Creek site and the Trout Creek system on the Divide District (Husung and Alves 1998, Livo 2002). These locations are in close proximity to each other and to several historic sites and may represent the only primary boreal toad breeding areas remaining on the Forest. The available survey reports also include a rating system for potential reintroduction sites, several of which are available on the Forest (Fetkavich 1994, Husung and Alves 1997, 1998).

3. Risk Factors

The primary reasons for the decline of the boreal toad are unknown. However, the recent discovery of the chytrid fungus in one population in Colorado has been attributed to their decline in that location and is the primary hypothesis concerning the recent decline of the boreal toad elsewhere (Loeffler et al. 2001). In general, all activities that may alter water quality and aquatic habitats may also influence boreal toads (Loeffler et al. 2001).

The following Forest management activities most likely have the greatest potential to influence local boreal toad habitat and populations:

- Timber Management Activities: Potential effects from timber harvest activities on boreal toads includes direct crushing of individuals from equipment, soil compaction (alteration of burrows), alteration of tree root systems (hibernacula), alteration of movement zones, and general influences on soil moisture and hydrology (Loeffler et al. 2001).

- Travel Management (Roads): The primary direct effect of roads on boreal toads involves the crushing of individuals from vehicle use. Roads can also create barriers to water flow and to the movement of toads across the landscape. The indirect effects of roads on landscape hydrology can influence wetlands and riparian vegetation (Loeffler et al. 2001). Roads within riparian zones can also lead to conflicts with beaver, which if removed can disrupt key habitat processes related to beaver ponds (Loeffler et al. 2001).

- Recreation: Primary influences from recreational activities can include direct trampling (eggs and toadlets). Many indirect effects can also occur that influence riparian vegetation and water quality. Potential activities that could influence boreal toad populations and/or habitat include off-road vehicle use, trail construction and use, camping in riparian areas, and activities related to fisheries management such as in-stream channel work, poisoning, and stocking of fish in areas that historically did not support them (Loeffler et al. 2001).

- Livestock Grazing: Potential direct effects can include trampling. Potential indirect effects can include reduced egg and tadpole survival from changes in water chemistry and/or riparian vegetation related to grazing. Overall grazing influences can lead to changes in riparian vegetation and hydrology (Loeffler et al. 2001).

- Water Management: Potential activities that may influence boreal toad habitat and/or populations include water diversions, water impoundments, and other factors that influence wetlands (Loeffler et al. 2001).

- Prescribed Fire Activities: Prescribed fire activities most likely do not overlap in elevation with boreal toad habitat on the Forest. If they do, however, the Conservation Strategy notes that that one of the primary influences involves the burning of small diameter (7-10") ground fuels and slash piles that toads may use as refugia sites. Positive influences can occur if fire stimulates the growth of the shrub component used in upland sites (Loeffler et al. 2001).

5. Effects Analysis

Alternative 1

Direct/Indirect Effects

The boreal toad was evaluated under the "Riparian Group" category in the 1996 BE. This group also includes the tiger salamander, leopard frog, Rio Grande cutthroat trout, and white-faced ibis (FEIS Appendix F, pg. F-20). All species within this group were noted as having approximately 129,400 acres of potential habitat on the Forest, which reflects an estimate of the total acres of known riparian area. These acres are based on the total amount of stream miles on the Forest and the estimated amount of riparian habitat associated with these and other wetland areas (FEIS pg. 3-200). Although the Forest also contains an estimated 1,220 acres of lakes, these are not included in the potential habitat acres for the boreal toad. Thus, a more precise estimate of potential boreal toad habitat may only include high elevation, low gradient stream channel types, intermittent water bodies, and certain types of lake systems. This type of update is unavailable at this time.

The 1996 BE indicates that the boreal toad was only known to be extant on the Divide Ranger District. The potential effects of Alternative G on the boreal toad are discussed in the broad context of the "Riparian Group". These effects reference the conclusions of the Riparian section of the FEIS (3-198 to 3-209), and project improved habitat conditions under all alternatives due to the existing protection measures and riparian management practices (Appendix F; pg. F-20/21). The 1996 BE notes that the risk of potential impacts to riparian habitats (and thus, boreal toads) is increased in those alternatives that allow more resource use, but that this use does not make any alternative unacceptable. Alternative G is rated as a moderate risk to watershed health, with a rating exactly midway between all the other FEIS alternatives (FEIS pg. 3-209).

A considerable amount of new information concerning the boreal toad has become available since the 1996 BE. For instance, a state Recovery Plan was completed in 1997 and outlined specific objectives, management actions, research needs, and other items intended to halt the decline of the boreal toad (Goettl et al. 1997). The Recovery Plan resulted in an interagency Conservation Plan and Agreement that was finalized and approved in February 2001 (Loeffler et al. 2001). Forest Service Region 2 stated its intent and commitment to implementing the Conservation Plan through the formal signing of a Conservation Agreement on March 29, 2001. This commitment is attached as an appendix to the Conservation Plan and also applies to the Rio Grande National Forest. The Forest Plan contains a specific standard that provides direction to incorporate new information from Conservation Agreements and other accepted documents, as appropriate, into the management direction for the Forest (Wildlife Standard #10; pg III-23).

Forest Plan Alternative G contains specific standards and guidelines that apply to the protection, maintenance, and enhancement of riparian areas. There are also specific standards and guidelines that deal with water quality, sediment control, soils, and activities that may influence them. As noted previously, the FEIS projects that Alternative G will result in moderate influences on water quality and riparian systems and protect and improve all attributes important to riparian health. For the most part, the FEIS standards and guidelines appear to be consistent with the management recommendations in the Conservation Plan and Agreement. Any potential differences will be offered as mitigation measures in this BE.

Alternative 2

Direct/Indirect Effects

It is anticipated that Alternative 2 will result in additional habitat conservation efforts for the boreal toad due to the inclusion of three new standards and guidelines that should assist in the protection of riparian areas. These standards will be added to the existing Forest Plan standards and guidelines as follows:

- Replace the existing Watershed Guideline #9 (Section 2 – Watershed – Riparian Areas; pg. III-5) with the following:

  Maintain the extent of stable banks in each stream reach at 80% or more of reference conditions. Consider the degree of livestock trampling on stream banks when determining the timing of livestock moves between units. As a general rule, stream banks can receive a maximum of 20–25% alteration while continuing to maintain their health and integrity, as long as the alteration will recover in one season.

- Add a new Standard #6 to the Dispersed Recreation Section (Section 5 – Social Resources - Dispersed Recreation; pg. III-28):

  Within riparian areas, the tethering of livestock is prohibited.

- Add a new Standard #7 to the Dispersed Recreation Section (Section 5 – Social Resources - Dispersed Recreation; pg. III-28):

  Recreational livestock are prohibited within 100 feet of lakeshores and stream banks, except during watering and through travel, unless exceptions are justified by terrain.

Cumulative Effects (Alternative 1 and 2)

The potential cumulative effects of Alternative 1 (Forest Plan Alternative G) are presented on page 3-139 of the Species Viability section of the FEIS. The FEIS concludes that the risk of negatively affecting species viability from any of the Forest Plan alternatives is minimal. For the most part, however, this section of the FEIS analysis deals primarily with forested systems and does not discuss the "Riparian Group" of sensitive species. Thus, the primary rationale concerning the cumulative effects determination for the boreal toad appears to be based on the cumulative effects analysis for riparian areas (FEIS pg. 3-209), aquatic systems (FEIS pg. 3-278) and, to a lesser degree, a portion of the wildlife section (FEIS pg. 3-246 to 3-247).

In reviewing the 1996 FEIS and its cumulative effects analysis, it appears that the scope of projected impacts on the boreal toad are based primarily on the protective assumptions of the

standards and guidelines and the projection that riparian habitat problems will be mitigated and corrected when discovered at the site-specific level. In most instances, the current standards and guidelines should be adequate for protecting most riparian habitat attributes important to the boreal toad. The proposed new additions in Alternative 2 would also slightly strengthen these in some potential habitats used by the boreal toad. Based on new information concerning their movements and use of upland sites, however, it is unlikely that generalized riparian standards and guidelines will alleviate all potential negative influences and fully protect all of the important life history aspects of the boreal toad. Also, the current Forest breeding population appears to be restricted to one or two small drainage systems where the effects of certain management activities may be amplified on the remaining individuals. These and other uncertainties concerning the boreal toad are reflected in its recent designation as a candidate species for listing under the Endangered Species Act (Federal Register, Vol. 67, No. 114, 2002).

The boreal toad has significantly declined through portions of its range in Colorado, Utah, and Wyoming. Colorado currently has four known metapopulations of toads and a few smaller outlying populations, one of which is the on the RGNF. Thus, a once common species is now reduced to about 50 known breeding localities in Colorado (Jones 2003). In Wyoming, the boreal toad currently exists as one breeding colony in one county. In New Mexico, the boreal toad may be extirpated or reduced to one small breeding population. These declines are not thought to be strongly associated with habitat conditions, but rather to a larger issue that may be an early indicator of other types of environmental degradation at a global scale (Jones 2003).

Interagency efforts are currently underway to discover why the boreal toad is declining and to take actions to reverse them. A captive-breeding program has also been established locally that can be used to reintroduce boreal toads back into suitable former habitat areas. The state Recovery Plan and the interagency Conservation Plan and Agreement are both expected to minimize any potential cumulative effects that could potentially originate on the Forest.

6. Mitigation Measures

Current mitigations (i.e., standards and guidelines) included in the Forest Plan appear to be adequate for protecting the populations and habitats of the boreal toad under their historic distribution. Given the significant decline in their populations, however, special management attention may be warranted in areas that still retain existing and high-potential breeding habitat. The following recommendations from the Boreal Toad Conservation Plan and Agreement are therefore offered here to ensure adequate consideration at the project level in existing and high-potential breeding areas. The location of these areas can be located within the Colorado Division of Wildlife survey reports (Husung and Alves 1997, 1998).

- Recreation: Campsites in the vicinity of occupied breeding ponds should be closed seasonally, if necessary, to protect breeding adults, egg masses, tadpoles and/or toadlets as desired. Specific closure dates will be determined.
- Recreation: In locations of unrestricted camping, fencing and signs should be used to seasonally restrict camping in areas adjacent to breeding sites if necessary. In suitable but unoccupied boreal toad breeding habitat, camping in unrestricted areas should be directed at least 100 ft. (34 m) from riparian areas.
- Recreation: Newly constructed trails should avoid directing people to occupied breeding sites. Prior to collecting site-specific (how and where human disturbance is affecting toads and their breeding site) a 100 ft. (34 m) buffer should be placed between new trails and occupied breeding sites. Such buffering distances may need to be modified as adults and juveniles move further from the breeding site onto upland sites.

- Recreation: Historically fish-less waters that are currently boreal toad breeding habitat or are designated as essential habitat should not be stocked with fish.
- Livestock Grazing: Maintain vegetative cover requirements necessary to meet the recovery needs of the boreal toad; locate and protect toad movement corridors from impacts of livestock grazing.
- Livestock Grazing: If grazing is contributing to improperly functioning riparian-wetland areas, a total rest period should be implemented.
- Livestock Grazing: To maintain proper functioning riparian areas, limit utilization of woody plants to no more than 15-20% and **herbaceous plants to no more than 30% of the current season's growth.** Note: the highlighted portion of this recommendation directly conflicts with Watershed Guideline #8 (pg. III-5), which allows up to 40-45% utilization of the herbaceous plant cover.
- Livestock Grazing: Limit interaction between livestock and boreal toad during the critical period (May – July). In known occupied breeding sites, minimize concentrations of livestock in breeding habitat throughout the breeding season. If livestock are retained on breeding habitat, initiate monitoring studies to determine effects on toads.
- Timber and Fire Management: Restrict the location or change the timing of vehicle use of skid trails and haul routes that cross boreal toad habitat. Consider the level of risk based on the number of toads, and timing and location of activity.
- Timber and Fire Management: Boreal toads are known to disperse considerable distances (2.5 miles) from breeding to upland forest sites. The most protective measure that can be applied would be to eliminate all timber treatment activities within 2.5 miles of known breeding sites. The least protective measure is to protect the immediate riparian area from disturbance.
- Timber and Fire Management: In known occupied boreal toad breeding sites, design burning prescriptions to protect habitats and forest stands adjacent to and within 2.5 miles of the site. Direct loss of toads can be mitigated by restricting burning to late fall through early spring when the toads are inactive, or by establishing a maximum rate of spread, which would allow toads to escape the flames.

7. Determination of Effects

Alternative 1

The 1996 BE determined that all Forest Plan alternatives (including Alternative G) "may adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing or a loss of species viability rangewide." The rationale for this determination was that none of the environmental consequences [in the FEIS] revealed any major impacts to potential habitat, and that the proposed standards and guidelines, plus the requirement to conduct project-specific BEs, would provide additional protection to potential habitat.

A considerable amount of new information concerning the boreal toad has become available since the 1996 BE was conducted. This includes information concerning local occupancy, use and potential reintroduction sites (Husung and Alves 1997 and 1998, Gomez 2001), genetics (Goebel 2000), and cytrid fungus (Jones 2000). In addition, a formal Recovery Plan has also been completed (Goettl et al. 1997) and an interagency Conservation Plan and Agreement has been signed (Loeffler et al. 2001). This latter document formalizes the commitment of the Forest to the conservation and recovery of the boreal toad and is expected to help protect its remaining and potential habitats and minimize potential impacts.

There are some subtle differences between the recommendations in the Conservation Plan and Agreement and the existing Forest Plan standards and guidelines as they pertain to the protection of riparian habitats. For instance, there are differences concerning the amount of forbs and grass-like plants that can be reduced if grazing occurs within breeding habitat areas. However, Alternative 1 (Forest Plan Alternative G) also includes standards and guidelines that direct the Forest to incorporate new information from Conservation Agreements and other accepted documents into the Forest Plan and to make adjustments, as needed, to comply with them (Wildlife Standard 10 and #6, Forest Plan pg. III-23). It is therefore expected that any adjustments that may appropriate due to the Conservation Agreement will occur on the ground, as needed, to conserve and recover the boreal toad.

New information contained within the Conservation Plan and Agreement should help to minimize the potential influences of management activities on the boreal toad. However, Forest activities will be managed and not necessarily eliminated from all existing and potential habitat areas. It is therefore possible that some activities could still potentially impact individuals and/or certain attributes of the habitat. Thus, although Alternative 1 will incorporate the Conservation Plan and Agreement through existing standards and guidelines it appears that the original 1996 BE determination remains appropriate. It is therefore concluded that Alternative G "**is not likely to jeopardize the continued existence of the boreal toad, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**"

Alternative 2

As noted in the Effects Analysis, the MIS amendment is expected to offer indirect benefits to the boreal toad due to the addition of three new standards and guidelines that deal with potential influences on riparian zones. Two of these are intended to reduce the impact of stock at high alpine lake systems and most likely have the greatest potential benefit to the boreal toad. As in Alternative 1, Alternative 2 also incorporates the conservation efforts of the Boreal Toad Conservation Plan and Agreement into the overall management direction of the Forest Plan. Thus, in relationship to Alternative 1, it is determined that Alternative 2 will have a "beneficial impact" on the boreal toad. Since all potential influences cannot be alleviated however, it is therefore concluded that Alternative G "**is not likely to jeopardize the continued existence of the boreal toad, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**"

GUNNISON SAGE-GROUSE

1. General Habitat Associations

The Gunnison sage-grouse is a newly-classified species that differs from the greater sage-grouse in physical characteristics, behavior, and genetics (Young et al. 2000). The Gunnison sage-grouse is suspected to have occurred historically in suitable habitats in Arizona, Oklahoma, New Mexico and southwestern to south-central Colorado, including the San Luis Valley (Rogers 1964, Young 2003). In Colorado, it had a discontinuous distribution and was closely associated with sagebrush communities below 3000 meters (approximately 9,800 ft.) Presently, the Gunnison sage-grouse occurs in eight isolated populations in southwest Colorado and southeast Utah with a total estimated spring breeding population of less than 4,000 individuals (Young 2003). The largest population occurs in the Gunnison Basin of Colorado (Gunnison and Saguache Counties)

and involves approximately 2,500 individuals. Many of the remaining breeding populations are small and contain less than 150 individuals, with several that have disappeared since 1980 (Young 2003). The Gunnison sage-grouse was recognized as a distinct species in July 2000 (American Ornithologists Union 2000). It was petitioned for listing under the Endangered Species Act during the same timeframe, and designated as a candidate species for listing by the U.S. Fish and Wildlife Service in December 2000 (Federal Register Vol. 65, No. 250).

All sage grouse populations, including the Gunnison's, are closely associated with sagebrush (Artemisia spp.) for their life history needs. This relationship is the strongest with varieties of big sagebrush (Artemisia tridentata spp.). Use of different sagebrush habitats occurs between seasons although this pattern generally involves dense stands of mature sagebrush for nesting and wintering sites, open areas for breeding displays (leks), and semi-open grassy riparian areas for rearing and/or foraging habitat for young chicks. Sage grouse prefer extensive open sage areas with few if any trees (Connelly et al. 2000). For both migratory and non-migratory populations, lek attendance, nesting, and early brood rearing occurs in breeding habitats. These habitats involve sagebrush-dominated rangelands with a healthy herbaceous understory and are critical to the survival of sage grouse populations (Connelly et al. 2000).

Gunnison sage-grouse breed from about mid-March through mid-May (Young 2003). During this time, males appear at established leks or form them opportunistically at sites within or adjacent to suitable nesting habitat (Connelly et al. 2000). The leks function as breeding display sites for the males, and typically occur in old lakebeds, low sagebrush flats and ridgetops, plowed fields, or other open areas surrounded by sagebrush. Sage-grouse males perform elaborate breeding displays at the lek site in order to attract receptive females. Male Gunnison sage-grouse differ from the greater sage-grouse by displaying less times per minute, creating different sounds, and using their air sacs more often (Young 2003). Typically, only 10-15% of the males on a lek are selected by a female for breeding, and usually one or two males receive 80-90% of the copulations. This contributes to a very low genetic variation within a population, such as those evident in the Gunnison Basin (Oyler-McCance 1999).

Most sage grouse nests occur under dense sagebrush that may vary from about 1.1 to 6.2 km (0.8 – 3.8 mi.) from the lek depending upon whether the population is migratory or non-migratory (Connelly et al. 2000). Sage grouse nests are usually placed under the tallest sagebrush available, and generally occur beneath shrubs in stands that have greater canopy closures and ground cover (Wakkinen et al. 1992, Sveum et al. 1998). In North Park, Colorado, sagebrush heights at nest sites averaged approximately 21 inches (Peterson 1980 *in* Connelly et al. 2000). Grass height and cover is also an important component of sage grouse nest sites, with most successful nests having a greater cover component of residual grass cover (DeLong et al. 1995). For the Gunnison sage-grouse, suitable nesting habitat has been characterized as big sagebrush stands within two miles of leks that have at canopy closure of at least 20% and an average height of 16 inches (Gunnison Sage Grouse Conservation Plan 1997). Grass cover at nests should also be at least 30% with forbs comprising at least 10% of the total cover.

Not all female sage grouse nest each year, which may be related to differences in habitat conditions that affect the nutritional status of pre-laying hens (Barnett and Crawford 1994). The average clutch size of sage grouse may vary between 6.0 to 9.5 eggs for first nesting attempts (Connelly et al. 2000). The ability of sage grouse to renest differs by region, and may vary between 20 to 80% of the first nest attempts (Connelly et al. 2000). Incubation by the female may last for 25 to 27 days, with the brood fledged within 7 to 10 days (Ehrlich et al. 1988). Early brood-rearing areas are usually relatively close to the nest site and often involve upland springs,

riparian areas, or other similar habitats that contain a high species richness of plants and insects. Insects, especially ants and beetles, are an important component of early brood-rearing habitat and provide a critical source of protein for chicks (Drut et al. 1994). Brood-rearing habitat for Gunnison sage-grouse has been defined as riparian plant communities associated with intermittent and perennial streams, springs, seeps, and meadows that are within upland areas or along the edge of agricultural hay meadows (Gunnison sage-grouse Conservation Plan 1997).

As sagebrush habitats dessicate, grouse usually move to more mesic sites during the early summer (Connelly et al. 1988). Thus, sage grouse broods may occupy a variety of habitat types during the summer including sagebrush, meadows, small burns, farmland, and other areas that provide good forb cover (Connelly et al. 2000). Migratory grouse populations abandon their summer range and slowly meander to the winter range from late August to December, with most departing by early October (Connelly et al. 1988). Gunnison sage-grouse are basically non-migratory, and therefore use similar brood-rearing habitat throughout the summer and fall (Gunnison sage-grouse Conservation Plan 1997).

The characteristics of winter habitats for sage grouse are relatively similar throughout most of the species' range (Connelly et al. 2000). During winter, sage grouse feed almost exclusively on the leaves of sagebrush. Thus, both diet and winter cover needs prompt them to select sagebrush stands with greater canopy closures and taller shrubs, where they will primarily remain until the next nesting season. Winter habitat areas available to Gunnison sage-grouse are largely determined by snow depth. In some cases, sage grouse in Colorado may be restricted to less than 10% of the sagebrush habitat because of variation in topography and snow depth (Beck 1977, Hupp and Braun 1989). Thus, drainages are important areas for Gunnison sage-grouse during winters of deep snow because of the availability of tall, vigorous, big sagebrush (Gunnison sage grouse Conservation Plan 1997). Other areas used by Gunnison sage-grouse during the winter include mesas and ridge tops, and flat, low sites of less than 5% slope. Recommended sagebrush canopy closures for Gunnison sage-grouse vary depending upon the type of winter area involved. Thus, in drainages, big sagebrush should average at least 20 inches in height and have a canopy closure of at least 30%. Sagebrush characteristics in other winter areas may vary to as low as 15% and 12 inches high depending upon slope and aspect. Gunnison sage-grouse winter habitat will also require scattered areas of big sagebrush with high canopy closures (30-40%) that will function as feeding areas (Gunnison sage-grouse Conservation Plan 1997).

The Gunnison Sage-Grouse Working Group has identified a list of 42 factors grouped into three major categories that have contributed in some way to the long-term decline of the species. These three categories involve habitat quality, habitat loss and fragmentation, and physical disturbance. The primary factors associated with habitat quality include livestock grazing and other activities that have altered grass, forbs, soils, water tables, and sagebrush cover. Fragmentation and habitat loss has been caused by land conversions, developments, and other human factors. Physical disturbance has been caused by hunting, predators, off-highway vehicles, bird watchers, and other factors. In June 2000, the Colorado Division of Wildlife closed the hunting season on Gunnison sage-grouse. Currently, the Working Group is challenged with implementing the Gunnison sage-grouse Conservation Plan (1997) to reduce or eliminate many of these factors and assure that the species population remains viable.

2. Local Habitat Relationships

The one remaining local population of Gunnison sage-grouse was reintroduced to the San Luis Valley from the Gunnison Basin population. Thus, their specific habitat relationships and

seasonal requirements are expected to be similar to those described for the population as a whole and closely related to the stands of big sagebrush that occur more frequently in the north end of the valley.

The habitat available to the local Gunnison sage-grouse population is suspected to occur primarily on the south side of Poncha Pass. It is bordered on the east and west by the Rio Grande National Forest boundary and encompasses approximately 17,280 acres (Garcia 2002). Ownerships within this area include approximately 11,520 acres (67%) of BLM land, 5,120 acres (30%) of private land, and 640 acres (3%) belonging to the Colorado State Land Board. The area currently used by sage grouse involves approximately 10,000 acres at the far north end of the valley on the east side of Highway 285. The elevation in this area varies from about 8,020 feet to 9,020 feet and contains a shrub community that is dominated by mountain bug sagebrush (Artemisia tridentata vaseyana), black sagebrush (Artemisia nova), and Gambel Oak (Quercus gambellii). Currently, the sage grouse use the valley draws and foothills and do not occur on adjacent Forest land due to higher elevation changes and slopes that limit adequate big sagebrush growth (Garcia 2002).

3. Local Survey/Occurrence Information

Historically, the Gunnison sage-grouse occupied suitable habitats in several portions of the San Luis Valley (Rogers 1964). By the 1950's, however, all sage grouse in the valley were thought to be extirpated. In 1971 and 1972, the Colorado Division of Wildlife (CDOW) and BLM reintroduced a total of 30 to 32 birds in the Poncha Pass area from the larger population in the Gunnison Basin (Gionfriddo 2002). By the mid-1980's, there may have been more than 100 birds present in the area (Gionfriddo 2002).

Lek searches in the Poncha Pass area were initiated in 1991 and resulted in the discovery of two leks sites; however, monitoring has been sporadic since that time (Gionfriddo 2002). In 1992 an effort to simplify hunting restrictions inadvertently opened up the Poncha Pass area to sage grouse hunting. Information collected afterwards indicates that a harvest of up to 30 sage grouse resulted from this mistake. Intensified local lek searches were initiated in 1997. In 1999 the CDOW and the BLM began a joint project to study the Gunnison sage-grouse at Poncha Pass. Only one lek was found (with 5 males) in 1999, and 4 of those 5 males are known to have died (Gionfriddo 2002). An apparent sharp decline in sage grouse numbers in the Poncha Pass area has been observed since 1992, with surveys in 1999 indicating that the population is critically low and in danger of disappearing (Gionfriddo 2002).

During the spring of 2000, 24 sage grouse (17 males and 7 females) were trapped in the Gunnison Basin and released in the Poncha Pass area (Nehring 2000 *in* Gionfriddo 2002). Of the 11 birds equipped with radio telemetry collars, 5 are known to have died and one female has disappeared. In addition, 2 of the 6 known live birds remaining from the 1970's have either died or disappeared. Current estimates place the Poncha Pass population at about 15 to 25 individual birds (Nehring 2000 *in* Gionfriddo 2002).

The minimum spring population goal for the Poncha Pass area involves at least 81 birds and two established leks, with at least 10 males at each lek (Gionfriddo 2002). It is estimated that the maximum sustainable population under optimum conditions might be 180 sage grouse (Gionfriddo 2002). Additional reintroductions to meet these goals are planned for 2003 and are occurring at this time.

4. Risk Factors

The primary risk factors associated with Gunnison sage-grouse involve those activities that manipulate sagebrush quantity and quality, and cause habitat loss and disturbances. As mentioned previously, the Gunnison Sage Grouse Working Group has identified 42 factors in three major categories that have in some way contributed to the long-term decline of the sage grouse. Thus, it is likely that at least some of these factors contributed to the extirpation of the species from the valley and/or may still contribute to difficulties in the successful reintroduction of a viable, self-sustaining population. It is unlikely that many of these factors apply to Forest since the Gunnison sage-grouse apparently does not have much, if any, suitable habitat on National Forest Systems land.

5. Effects Analysis

Alternative 1

Direct/Indirect Effects

The Gunnison sage-grouse was not evaluated in the 1996 BE or BA since it was not a R2 Forest Service sensitive species nor listed or proposed for listing at that time. Thus, there is no analysis or standard and guideline currently in the Forest Plan that pertains specifically to sage grouse. However, all Forest alternatives (including Alternative G) do contain a standard that directs the Forest to conduct an analysis when any newly discovered threatened, endangered, proposed, or sensitive species habitat is discovered, and to make adjustments if needed (Wildlife Standard 6, Forest Plan pg. III-23). Other standards that now apply to the sage grouse include those directing adequate residual cover retention for ground-nesting birds (Wildlife Standard 3 and 4, Forest Plan pg. III-22), minimizing disturbances to listed or sensitive species (Wildlife Standard 7 and 8, Forest Plan pg. III-23), and evaluation and adoption of newly created recovery plans, conservation strategies, etc., for listed and sensitive species (Wildlife Standard 10, Forest Plan pg. III-23). Thus, there is adequate direction in the Forest Plan to adopt the Gunnison sage-grouse Conservation Plan and/or make any changes in management, if needed, to protect and enhance the habitats of the Gunnison sage-grouse.

The current interagency sage grouse project at Poncha Pass is active and involves monitoring of the local sage grouse population using radio telemetry (Garcia 2002). Based on information collected thus far it appears unlikely that the grouse will require much, if any, of the Forest land base to meet their life history requirements and become reestablished in the San Luis Valley. Although potential effects from some adjacent Forest actions cannot be entirely discounted, it appears unlikely that they would have much influence on the overall habitat needs of the local grouse population. It also appears likely that the sage grouse may eventually be listed under the Endangered Species Act. As such, any adjacent action the Forest proposes will be evaluated in a site-specific BE, with concurrence of the effects required from the FWS.

Alternative 2

Direct/Indirect Effects

Alternative 2 is not expected to result in any specific differences regarding the conservation and management of Gunnison sage-grouse from those mentioned for Alternative 1. All standards and

guidelines that automatically apply to the sage grouse under Alternative 1 will also apply to the sage grouse under Alternative 2. However, there is one new proposed standard and guideline in Alternative 2 that also applies to the Gunnison sage-grouse. This standard is stated as follows:

> Consider the effects of proposed management activities (forest and rangeland management, prescribed and wildland fire use, recreation, etc.) on resident and migratory birds. Incorporate conservation measures and principles, as appropriate, from local bird conservation plans (NABCI) and/or other references into project designs so that potential adverse effects are minimized.

This standard is not expected to result in any significant additional benefits for the Gunnison sage-grouse since it is unlikely that the Forest contains much habitat to contribute to its recovery. Should the sage-grouse ever be found to use a portion of the Forest, however, the proposed new standard does promote a stronger tie between the Forest Plan and the needs of the grouse since it is designated as a priority species for sagebrush shrubland habitat in the Southern Rocky Mountains Physiographic Area in the Colorado Land Bird Conservation Plan (Beidleman 2000).

Cumulative Effects (Alternative 1 and 2)

The potential cumulative effects of Alternative 1 (Forest Plan Alternative G) are presented on page 3-139 of the Species Viability section of the FEIS. This analysis concludes that the risk to species viability from any of the Forest Plan alternatives is minimal. The rationale for this conclusion is related to the degree of projected impacts, habitat connectivity, amount of undeveloped area on and outside the Forest, and the amount and distribution of late successional habitat on and outside the Forest. Although this analysis applies to sagelands and other non-forest habitats, it did not specifically address the Gunnison sage-grouse since the species was not included on any special status list at the time.

As mentioned previously, the Gunnison sage-grouse Conservation Plan (1997) lists 42 factors that have cumulatively contributed to the long-term decline of the sage grouse. Although speculative, it is probable that at least some of these factors may be associated with past activities on the Forest and have also contributed to the decline of the sage grouse in the San Luis Valley. From an overall habitat perspective, however, it is unlikely that the Forest historically contributed much, if any, direct habitat benefits to the sage grouse since it is primarily a valley floor dwelling species. Due to lack of habitat, it also appears unlikely that the Forest will be able to contribute much to its recovery in the future. However, the Forest does contribute indirectly to sage grouse habitat since most stream systems that they frequent have a water source that originates on Forest land. There are also unimproved road systems and trails on the Forest that may indirectly influence habitat quality. From a cumulative perspective, much of the water source is secure since all of the adjacent National Forest Systems land is designated as either Backcountry or Wilderness. Thus, access roads may one the primary influences that the Forest can control for the benefit of sage grouse in this particular area. The current projection in the Forest Plan is that no new roads will be constructed, and that closures will occur where defined and needed due to resource conditions (FEIS pg. 3-432 to 435). Road closures and/or other projects that minimize disturbance can therefore be implemented if noted as a need while implementing the Poncha Pass Sage Grouse Plan. Thus, it is expected that there will be minimal, if any, cumulative effects on Gunnison sage-grouse from activities that originate on the Forest.

6. Mitigation Measures

No specific mitigation measures are offered for the Gunnison sage-grouse since the Forest contains little, if any, potential habitat and is not expected to significantly contribute to its overall viability. However, the Forest should remain fully aware of the goals and objectives in the Gunnison sage-grouse Conservation Plan (1997) and coordinate with the local Working Group as needed.

7. Determination of Effects

Alternative 1

The 1996 BE determined that all Forest Plan alternatives (including Alternative G) "may adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing or a loss of species viability rangewide." The rationale for this determination was that none of the environmental consequences [in the FEIS] revealed any major impacts to potential habitat, and that the proposed standards and guidelines, plus the requirement to conduct project-specific BEs, would provide additional protection measures when conducting activities in potential habitat.

The Gunnison sage-grouse was not included on the sensitive species list nor designated as a threatened, endangered or proposed species when the 1996 BE was conducted. The reason for this is, at that time, it was still considered a part of the greater sage-grouse population that occurs in the northwest portion of the state. Thus, significant changes and new information have become available concerning the Gunnison sage-grouse since that time. For instance, the Gunnison sage-grouse has been declared a new species and significantly imperiled all in a very short time frame (Young 2003). Currently, it is also proposed for listing under the Endangered Species Act.

Suitable habitat for the Gunnison sage-grouse does not occur, or occurs very minimally, on lands administered by the Rio Grande National Forest. Although speculative, it is possible that individuals from the local sage grouse population do or will eventually use fringes of Forest land at least seasonally. On a whole, however, the Forest will most likely have little influence on the recovery of the Gunnison sage-grouse in the San Luis Valley.

After reviewing the current status of the Gunnison sage-grouse, the environmental baseline for the Forest, and the direct, indirect, and cumulative effects of the FEIS, it is concluded that Alternative G "**is not likely to jeopardize the continued existence of the Gunnison sage-grouse, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**"

Alternative 2

As noted in the Effects Analysis, the MIS amendment offers a closer tie to the Colorado Land Bird Conservation Plan due to the inclusion of the new wildlife standard. Although this could strengthen and/or clarify some management objectives for the Gunnison sage-grouse, the Forest does not contribute significantly enough to the life history needs of the species for differences to be detected between alternatives. It is therefore determined that Alternative 2 will not significantly differ from Alternative 1, and "**is not likely to jeopardize the continued existence of the Gunnison sage-grouse, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**"

IV. Determination Summary for All Species

Species List	Determination	Rationale	Mitigation
Boreal Toad *Bufo boreas boreas*	NLJ	Sufficient Forest Plan Direction and Conservation Plan and Agreement	Yes
Gunnison Sage-grouse *Centrocercus minimus*	NLJ	None, or very limited habitat on Forest	No

NLJ – Not Likely To Jeopardize the Continued Existence

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ATTACHMENTS

From the Forest Plan

- Forestwide Desired Conditions
- Forestwide Objectives
- Forestwide Standards and Guidelines

From the Wilderness Amendment

- Forestwide Standards and Guidelines

From the MIS Amendment (Appendix A)

- Changes to MIS-related Standards and Guidelines
- Changes to MIS Monitoring and Evaluation Strategy

Chapter IV

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Chapter IV

Management-Area Prescriptions

INTRODUCTION

Management Areas (MAs) are defined as parts of the Forest that are managed for a particular emphasis or theme. Management Areas are called Prescriptions or Management-Area Prescriptions in this Plan. Each Management Area has a Prescription that outlines the setting, the Desired Conditions, and the Standards and Guidelines that apply to it (in addition to the Forestwide Standards and Guidelines). The Prescriptions have been broken into eight major categories based on a continuum from least evidence of disturbance to most. This approach was developed in conjunction with Regions 1 and 4 of the Forest Service.

Each category description is followed by a chart that shows the Prescription numbers that fall within that category. The chart has a list of "Activities Allowed," which include timber harvest, motorized recreation, grazing, mineral development, and oil and gas leasing. This chart is not intended as a substitute for the actual Standards and Guidelines found within each Prescription. It is intended to be used as a quick reference, for the reader to see what activities are generally allowed within the category. For example, an activity may just say "limited," which means there is some type of restriction on the activity. The reader would need to look at the Standards and Guidelines to see what that restriction is.

For this revision, linear, point, and small MAs were combined into other MAs, or will be handled through Standards and Guidelines. This includes campgrounds and picnic grounds (developed recreation sites), utility corridors, and riparian areas. MAs devoted to a particular wildlife species were consolidated into "special" wildlife areas. Also new for this revision effort are Prescriptions for Scenic Byways and Special Interest Areas (SIAs).

There has been a lot of discussion on how to handle old-growth areas. The determination has been made, with input from Regional Office and Forest biologists, ecologists, and planners, that drawing lines around small old-growth patches and calling them Management Areas is not productive, as these areas are too small to be managed for long-term retention. These areas will be managed as parts of larger MAs.

The Management-Area Prescriptions described in this chapter are those used in the Selected Alternative (G), which will be implemented over the next 10 - 15 years.

PRESCRIPTION CATEGORY 1

Category 1 includes Wilderness Areas and the various Prescriptions used within them, and the Wild component of the Wild and Scenic River system.

Ecological processes such as fire, insects, and disease are essentially allowed to operate relatively free from the influence of humans. Diversity resulting from natural succession and disturbances predominates, and non-native vegetation is rare. Users must be self-reliant and should expect little contact with other people. Few, if any, man-made facilities are present. With rare exceptions, travel is nonmotorized. Typical area designations are Wilderness and Wild Rivers.

Table IV - 1. Activities Allowed in Category 1.

RX No.	PRESCRIPTION NAME	ACTIVITIES ALLOWED				
		Timber Harvest[1]	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
1.11	Wilderness - Pristine	No	No	Limited	No	Legally Unavailable
1.12	Wilderness - Primitive	No	No	Yes	No	Legally Unavailable
1.13	Wilderness - Semi-Primitive	No	No	Yes	No	Legally Unavailable
1.5	Eligible Wild Rivers	No	No	Yes	No	Depends on location

[1] Refers to planned commercial harvest only (i.e., cutting on suitable and scheduled lands). Some cutting may occur in these areas for purposes other than commodity outputs, like wildlife habitat improvement or opening up a vista.

Management-Area Prescription 1.11
WILDERNESS -- PRISTINE

THEME: Pristine Wilderness Areas are managed to protect and perpetuate their natural ecological processes and conditions. Natural ecological processes and conditions are not measurably affected by human use.

SETTING: These areas feature pristine environmental conditions. Natural processes and conditions have not been, and will not be, measurably affected by human use. A range of ecological types exists. The opportunity exists for a high degree of solitude, risk, and challenge. Self-reliance is the norm.

DESIRED CONDITIONS: Natural succession occurs in all existing vegetative species, and is influenced by natural processes and disturbances. The structure, composition, function, and spatial distribution of vegetative types are the result of natural-successional processes. Vegetation is mostly mature-to-late-successional, unless regenerated by natural processes such as fire, insects, or disease. Plant species are native and indigenous to the immediate area, with exotic plants being extremely rare. Evidence of the effects of fire, insects, or disease may be present. Forage for wildlife and livestock is available in meadows and natural openings, although availability may be limited due to topography and the short growing season. Fire is reestablished as a natural ecological force. Human influence on vegetation is minimal.

Visibility is generally unimpaired. There could be periodic smoke from natural fire. Human influences on aquatic life and riparian areas are unnoticeable. The composition, structure, and function of aquatic ecosystems are undisturbed by human use. Stocking is used as a tool to enhance TES species, and acts to enhance recreation. Wilderness managers work with the Colorado Division of Wildlife (CDOW) on stocking of non-indigenous species.

Wildlife species are buffered from human influence. No additional non-indigenous species have been introduced. Human influence on physical features such as soil and geologic materials is unnoticeable.

These areas are managed for solitude; visitors are expected to use primitive skills often, in an environment which offers a high degree of risk and challenge. Success or failure is directly dependent on the ability, knowledge, and initiative of the visitor. Contact with other users or FS Wilderness personnel is infrequent. Encounters with large groups are rare, and infrequent with small groups or individuals. There is no lasting evidence of commercial activities; these areas are used primarily as pass-through travel zones for commercial groups. There is no lasting evidence of camping activity or human impacts on Wilderness conditions. An element of discovery is maintained. There are no interpretive signs, markers, or posts, just historical cairns. Evidence of cultural and historic sites may exist, but is not signed. Structures or facilities may be present only as necessary for resource protection, when less obtrusive measures have been unsuccessful.

Constructed trails are absent. User-created trails or game trails may exist, but are not maintained or designated on maps or trail guides. Travel is primarily cross-country.

Livestock grazing is appropriate and authorized within this Management Prescription, except where delineated.

Past mining activity may be evident but is rare.

STANDARDS:

1. Existing trails are primitive and maintained to minimize resource damage. The following actions will be taken where needed: reduce evidence of trails, eliminate duplicate routes, and remove trails from maps where repeated travel over the same route is to be discouraged.

2. New signs should not be installed and existing ones should be removed as funding allows.

3. Do not permit base camps for outfitter-guides.

4. Timber harvest is prohibited.

5. These areas are legally unavailable for oil and gas leasing.

6. These areas are legally withdrawn from locatable-mineral entry.

7. The Scenic Integrity Objective is Very High. The ROS class is Primitive.

GUIDELINES:

1. Campsites should be maintained in Frissel-Cole Class 1 or 2.

2. Consider management options regarding the status of allotments during the environmental-assessment and Allotment Management Plan (AMP) process.

Management-Area Prescription 1.12
WILDERNESS -- PRIMITIVE

THEME: Areas designated as Primitive Wilderness are managed to protect natural ecological conditions and provide a high degree of solitude. The area's natural processes and ecological conditions are not manipulated by human influences.

SETTING: These areas of Wilderness feature natural ecological conditions and processes that are not manipulated by human influences, and offer a degree of solitude. A range of ecological types exists. Human uses may have localized or limited effects in a few areas.

DESIRED CONDITIONS: Natural succession occurs in all existing vegetative species and is influenced by natural processes and disturbances. The structure, composition, function, and spatial distribution of vegetative types result from natural-successional processes. Plant species are predominately native and indigenous to the immediate area. There are no increases in non-indigenous species composition from an *established* baseline. Fire is reestablished as a natural ecological force. Human influence on vegetation is minimal.

Visibility is generally unimpaired. There could be periodic smoke from natural fire. Human influence on aquatic life and riparian areas and processes is not noticeable in most areas. The composition, structure, and function of aquatic ecosystems are undisturbed by human use. Stocking is used as a tool to enhance native species. Wildlife species are buffered from human influence. No additional non-indigenous species have been introduced. Human influence on physical features such as soils and geologic materials is unnoticeable in most areas.

These areas are managed for a primitive and unconfined recreation experience, with a high degree of solitude. There is little contact with individuals or groups when traveling cross-country. When on trails, encounters with large groups are infrequent, with some encounters with small groups or individuals. Campsites are dispersed, with minimal sight and sound effects from adjacent campsites. There is evidence of established campsites. Established commercial base camps may exist. Permits for day-use activities are limited for high-use areas. There are signs at trail intersections to indicate trail routes, but no destination signs or mileage markers. Management-information and administrative signs are used when necessary for resource protection. Evidence of cultural and historic sites may exist, but is not interpreted on the ground. Structures and facilities exist for resource protection and administration of the Wilderness.

Trail systems are maintained to minimize damage or loss of the trail tread. Cross-country travel occurs. User-established trails are evident. Bridges may be present, when needed for resource protection or user safety.

Livestock grazing is appropriate and authorized within this Management Area.

STANDARDS:

1. Signs are restricted to trail intersections. Bridges and other reminders of management control are limited to those needed for resource protection.

2. Eligible or listed historic structures are managed to be compatible with the Wilderness setting.

3. The following actions should be taken where needed and as funding allows: reduce evidence of trails, eliminate duplicate routes, and remove trails from maps where repeated travel over the same route is to be discouraged.

4. Timber harvest is prohibited.

5. These areas are legally unavailable for oil and gas leasing.

6. These areas are legally withdrawn from locatable-mineral entry.

7. The Scenic Integrity Objective is Very High. The ROS class is Primitive.

GUIDELINES:

1. Campsites should be maintained as funding allows in at least Frissel-Cole Class 2 or 3.

2. Bridges may be necessary for user safety, but are not built solely for user convenience. Native materials are used to construct bridges.

3. Consider management options regarding the status of allotments during the EA and AMP processes.

Management-Area Prescription 1.13
WILDERNESS -- SEMI-PRIMITIVE

THEME: These areas are managed for natural processes and ecological conditions not manipulated by human influences, and provide access to Primitive and Pristine areas (see above). A moderate to low degree of solitude is more difficult/elusive to achieve.

SETTING: These areas are adjacent to primary access points, such as developed trailheads or heavily used recreation areas. Encounters with other users are frequent. These areas lend themselves to day-use activities and pass-through travel by overnight groups.

DESIRED CONDITION: The long-term intent is to mitigate impacts that are inconsistent with the Wilderness Act.

The structure, composition, function, and spatial distribution of vegetative types are influenced and sustained by natural processes. Plant species are predominately native and indigenous to the immediate area. There are no increases in non-indigenous species from the *present* baseline. Fire is reestablished as a natural ecological force. Human influence on vegetation is minimal.

Visibility is generally unimpaired. Periodically there could be smoke from natural fire. Human influence on aquatic life and riparian areas and processes is minimal in most areas. The composition, structure, and function of aquatic ecosystems are minimally disturbed by human influence. Stocking is used as a tool to enhance T&E species.

Wildlife species are buffered from human influences. No additional non-indigenous species have been introduced. Human influence on physical features such as soil and geologic materials is minimal.

Contact with other users or FS Wilderness personnel is frequent. Encounters with large and small groups are likely. Campsites are limited and may be designated. There is evidence of established campsites. Sites may be visible or audible from adjacent sites.

There are no established commercial base camps. Permits for day-use activities are limited to high-use areas. These areas are primarily used as pass-through travel zones for commercial groups. There are signs at trail intersections to indicate trail routes. Boundary signs, trailhead signs, and other information are appropriate to educate and inform Wilderness users. Evidence of cultural and historic sites may exist, but is not interpreted on the ground. There are structures and facilities for resource protection and administration of Wilderness.

Travel is primarily along trails. Trail systems are predominately maintained. Bridges may be present when needed for resource protection, or where no safe opportunity exists to cross a stream during periods of normal water flow.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: 1. NRHP-eligible or listed historic structures are managed to be compatible with the Wilderness setting.

2. The following actions should be taken where needed and as funding allows: reduce evidence of trails, eliminate duplicate routes, and

remove trails from maps where repeated travel over the same route is to be discouraged.

3. Timber harvest is prohibited.

4. These areas are legally unavailable for oil and gas leasing.

5. These areas are legally withdrawn from locatable-mineral entry.

6. The Scenic Integrity Objective is Very High. The ROS class is Primitive.

GUIDELINES: 1. Consider management options regarding the status of allotments during the EA and AMP processes.

2. Campsites should be maintained as funding allows in at least Frissel-Cole Class 3.

3. Trail signing is used for dispersing users throughout the area.

4. Bridges may be necessary for user safety, but are not built just for user convenience. Native materials are used to construct necessary bridges.

Management-Area Prescription 1.5
ELIGIBLE WILD RIVERS

THEME: Wild Rivers and adjacent areas are managed to protect and perpetuate eligible river segments.

SETTING: These areas have been identified as being eligible for Wild River designation due to the presence of one or more"outstandingly remarkable" features, including scenic, recreational, geologic, wildlife, or fisheries values. The actual width of the area may vary in order to protect the outstanding values, but is at least one-quarter mile on either side of the stream.

The eligible Wild Rivers are: North Fork Conejos River, Middle Fork Conejos River, El Rito Azul, Tothe Creek, Hansen Creek, and Saguache Creek.

DESIRED CONDITIONS: The landscape is predominantly natural appearing. Vegetative composition and structure are influenced by biological processes and

conditions. Because of the proximity to streams, there is a greater than average diversity of plant and animal species.

Livestock grazing is appropriate and authorized within this Management Prescription.

Road construction is not allowed.

The amount of management activity allowed depends on the projected future designation: Wild. Each stream's outstanding features are protected until such time as a suitability study is completed and final recommendation regarding Wild and Scenic River designation is made.

STANDARDS: These Standards will not affect existing impoundments. Eligibility was based on conditions which include those imposed by existing impoundments.

1. When significant action may threaten the river values, a suitability study will be initiated to determine recommendation for the National Wild and Scenic River System.

2. Management actions, proposed new uses or new facilities on National Forest System lands will not be allowed if they alter the Wild and Scenic characteristics of the land and physical resources, or affect the eligibility, classification, or potential suitability of the area.

3. Timber harvest is prohibited.

4. Cutting of trees is allowed only if needed to meet other management objectives (i.e., trail clearing or fire control).

5. To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the study river cannot be modified by new structures that were not part of conditions when eligibility was determined.

6. Current water-use and stream-protection agreements made through negotiation with local water users would continue. (See the *Wild and Scenic Rivers Act* P.L. 90-542, as amended SEC. 10. (e), SEC. 12. (b), and SEC. 13. (b) for additional information.)

7. No roads or overland motorized travel are allowed within one-quarter mile of the river.

8. These areas are either legally withdrawn (if in Wilderness) or scheduled for withdrawal (if outside Wilderness).

9. These areas are either legally unavailable (if in Wilderness) or administratively unavailable (if outside wilderness) for oil and gas leasing.

10. The Scenic Integrity Objective is Very High. The ROS class is Primitive.

PRESCRIPTION CATEGORY 2

These areas are intended to conserve representative (or particularly rare and narrowly distributed) ecological settings or components. They help protect ecosystems or ecosystem components that may have important functions, ensuring the overall sustainability of larger landscapes.

Human influences on ecological processes are limited as much as possible, but are sometimes evident. Types of human use vary, but generally are not intensive. Travel is generally nonmotorized. They help play an important role under an adaptive-management philosophy by serving as a "natural" reference for areas that are intensively managed for a particular objective. These areas are formally designated Research Natural Areas(RNAs).

Table IV - 2. Activities Allowed in Category 2.

RX NO.	PRESCRIPTION NAME	ACTIVITIES ALLOWED				
		Timber Harvest	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
2.2	Research Natural Areas	No	No	By Exception	No	NSO *

* "NSO" means these areas are available and authorized for oil and gas leasing with a No Surface Occupancy Stipulation.

Management-Area Prescription 2.2
RESEARCH NATURAL AREAS

THEME: The management emphasis is on protecting or enhancing unique or exemplary ecosystems designated for non-manipulative research, monitoring, education, and/or maintenance of biodiversity.

SETTING: This Prescription applies to established RNAs.

DESIRED CONDITIONS: RNAs preserve representative areas that typify important forest, shrubland, grassland, alpine, aquatic, geological, or other natural environments; and/or areas that have special or unique characteristics of scientific importance.

RNAs contribute to the preservation and maintenance of key elements of biological diversity at the genetic, species, population, community, and landscape levels.

Use these locations as baseline areas for measuring ecological changes, and as control areas for evaluation and monitoring.

Develop comprehensive management plans for RNAs as needed.

Control populations of exotic (non-native) plant and animal species, where feasible.

STANDARDS:

1. Timber harvest is prohibited. RNAs will not be included in the Suitable timber land base. Logging and wood-gathering activities are not permitted.

2. An RNA will be withdrawn from locatable-mineral entry when necessary to protect the values for which the RNA was established.

3. Current levels of horseback riding, hunting, fishing, camping, and related low-impact uses by the public are allowed to continue. Increases in recreational use will be restricted if they threaten or interfere with the objectives or purposes for which the RNA is established. Prohibit motorized and mechanized use, except when necessary for research or educational access.

4. Buildings and developed recreation sites are not allowed, unless there are exceptional circumstances (such as historic sites eligible for or listed in the National Register) which do not threaten the values for which the RNA was established.

5. Allow outbreaks of native insects and diseases to proceed without intervention, unless they are a substantial threat to important

resources outside of the RNA. Use control methods for insect and disease outbreaks which minimize disturbance.

6. Allow habitat manipulation only for the protection of Threatened, Endangered, and Sensitive species, or where it is necessary to perpetuate or restore natural conditions.

7. Permit special uses only when they do not conflict with the values for which the RNA was established. Require approval of proposals for non-manipulative research by the Rocky Mountain Station Director (or representative) and the District Ranger.

8. Prohibit livestock grazing.

   Exception: Recreational livestock grazing is allowed where this use does not threaten the values for which the RNA was established.

   Exception: The Hot Creek RNA is a part of the larger Hot Creek Allotment, which is under a valid grazing permit. The current grazing permittees have agreed to continue to avoid grazing the area inside the RNA boundary.

9. Allow trails that prior to RNA establishment to be used for recreation and scientific or educational access, except when they are a threat to the values for which the RNA was established. The construction of new trails is prohibited unless necessary to correct resource damage occurring from existing trails.

10. Activities will meet the inventoried Scenic Integrity Objective. The ROS class is Semi-Primitive Nonmotorized.

GUIDELINES:

1. These lands are available and authorized for oil and gas leasing with a No Surface Occupancy Stipulation.

2. Existing outfitter-guide permitted use is allowed to continue within RNAs, subject to the normal permit processes that apply to all National Forest System lands. Permits for new use might not be issued in the future.

3. Close or obliterate existing roads, except where they provide necessary access for scientific or educational purposes.

4. Allow prescribed natural fires to burn.

5. Control human-caused fires that are a substantial threat to developments outside the boundaries of the Research Natural Area, and all fires where excessive fuel build-up due to past fire suppression threatens the RNA.
6. Use fire suppression techniques which minimize disturbance.

7. Where feasible, use natural barriers to confine or contain fire.

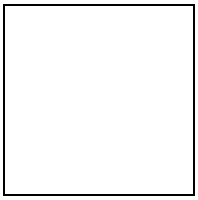
8. Use management-ignited prescribed fire when necessary to restore a natural fire regime or reduce unnatural fuel loadings.

PRESCRIPTION CATEGORY 3

Ecological values are in balance with human occupancy, and consideration is given to both. Resource management activities may occur, but natural ecological processes and resulting patterns normally predominate. Although these areas are characterized by predominately natural-appearing landscapes, an array of management tools may be used to restore or maintain relatively natural patterns of ecological process. This results in some evidence of human activities. Users expect to experience some isolation from the sights and sounds of people, in a setting that offers some challenge and risk. Restrictions on motorized travel may vary from area to area, or season to season.

Table IV - 3. Activities Allowed in Category 3.

RX NO.	PRESCRIPTION NAME	ACTIVITIES ALLOWED				
		Timber Harvest	**Motorized Recreation**	**Grazing**	**Locatable Minerals**	**Oil & Gas Leasing***
3.1	Special Interest Areas Emphasis on Use or Interpretation	No	Yes	Yes	Limited	NSO
3.3	Backcountry	No	Limited	Yes	Yes	NSO/ Closed
3.4	Designated and Eligible Scenic Rivers	Yes	Yes	Yes	Yes	CSU



* These lands are available and authorized for oil and gas leasing with STD(Standard), NSO(No Surface Occupancy, or CSU(Controlled Surface Use) Stipulations.

Management-Area Prescription 3.1
SPECIAL INTEREST AREA
USE AND INTERPRETATION EMPHASIS

THEME: Special Interest Areas (SIAs) are managed to protect or enhance their unique characteristics. Typically, SIAs contain unique botanical, geological, historical, scenic, or cultural values. The management emphasis may be on developing and interpreting these areas for public education and recreation.

SETTING: This Prescription will be applied to unique natural areas.

DESIRED CONDITIONS: Management emphasis is to protect the values which made these areas unique.

Where appropriate, develop and interpret the area for public education and recreation.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS:

1. Timber Harvest is prohibited.
2. Activities will meet the Adopted Scenic Integrity Objective. The ROS class is Semi-Primitive Motorized.

GUIDELINES:

1. These lands are available and authorized for oil and gas leasing with a No Surface Occupancy Stipulation.
2. Withdraw these areas from locatable-mineral entry as necessary to protect the resources for which the SIA was designated.
3. Develop facilities to meet management objectives.
4. Allow vegetation treatment only to maintain or enhance the areas' unique values.
5. Allow livestock grazing if it does not conflict with the values for which the SIA was designated.
6. Authorize scientific or educational activities that are compatible with the SIA's values, with a special-use permit.
7. Allow uses emphasizing education and recreation, where the use does not conflict with the values for which the SIA was established.

Management-Area Prescription 3.3
BACKCOUNTRY

THEME: These areas are managed to maintain plant and animal habitats that are shaped primarily through natural processes, and to provide backcountry experiences to the public in areas where there is little evidence of human activities.

SETTING: These areas are generally undeveloped parts of the Forest that are 5,000 acres or larger, in a variety of settings at different elevations.

DESIRED CONDITIONS: The landscape is predominantly natural appearing and relatively undisturbed by humans. Natural processes within the context of the range of natural variability (insects, disease, fire) are generally allowed to occur with minimal human intervention. Prescribed natural fire plans should be developed and Confine/Contain strategies and minimal-impact suppression techniques emphasized on wildfires. Management-ignited fires may be used to mimic natural disturbance regimes.

There is a high probability of experiencing solitude. There is the opportunity for a high degree of self-reliance, challenge, and risk. Facilities are minimal and exist primarily for site protection. Improvements to enhance recreation use, such as signs, may be present, but are rustic in style. Trailheads providing access to these areas are outside the area and offer information and directional signing. Cross-country motorized travel is limited to snow machines in the winter (where restrictions do not apply).

Trails provide a full range of challenging recreation opportunities. These include biking, horseback riding, mountain biking, and motorized travel on designated trails. Hunting and fishing opportunities are available for those seeking a more remote experience. No road building occurs within the area, and new trail construction is rare.

The Desired Condition for the allocation of miles of motorized or non-motorized travelways is that the classification of trails (motorized or non-motorized) identified in the Forest Plan will not substantially change over the planning period. While individual travelways might change from non-motorized to motorized or vice versa, the ROS will stay Semi-Primitive.

Generally, non-recreational special uses such as electronic sites and utility corridors are excluded from Backcountry areas.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: 1. Timber harvest is prohibited.

2. These areas are available for locatable-mineral entry.

3. Areas with high potential are available for oil and gas leasing, with the NSO Stipulations. All other areas are administratively unavailable.

4. ATV game retrieval off designated trails is prohibited.

5. Travel restrictions are posted at trailheads.

6. The inventoried Scenic Integrity Objective will be achieved. The ROS classes are Semi-Primitive Non-Motorized, and Semi-Primitive Motorized.

7. Motorized travel is limited to designated roads and trails.

GUIDELINES: 1. Roads, unless designated for vehicular access, are incorporated into the trail system or rehabilitated.

2. Restrictions on snowmobile use are posted at trailheads.

3. Motorized equipment is allowed for fire management, range management, and trail construction and maintenance.

Management-Area Prescription 3.4
DESIGNATED AND ELIGIBLE SCENIC RIVERS

THEME: Scenic River corridors are managed to protect and perpetuate river segments that are either eligible for Scenic River designation, or are already so designated.

SETTING: On the RGNF, no rivers have yet been designated as Wild or Scenic Rivers. These areas have been identified as being eligible for designation, however due to the presence of one or more "outstandingly remarkable" features, which may include scenic, recreational, geologic, wildlife, or fisheries values. The actual width of the area may vary in order to protect the outstanding values, but is at least 1/4 mile on either side of the stream.

The eligible Scenic Rivers are Archuleta Creek, West Fork Rio Chama, East Fork Rio Chama, Lower Rio de los Pinos, Portion of Medano Creek, Little Medano Creek, Portion of South Fork Rio Grande, Rio Grande (Box Canyon), and West Bellows.

DESIRED CONDITIONS: The landscape is predominantly natural appearing. Vegetative composition and structure are influenced by biological processes and conditions. Because of the proximity to streams, there is a greater than average diversity of plant and animal species.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: These Standards will not affect existing impoundments. Eligibility was based on conditions that include those imposed by existing impoundments.

1. When significant action may threaten the river values, a suitability study will be initiated to determine recommendation for the National Wild and Scenic River System.

5. These lands are not part of the Suitable or Scheduled timber base.

2. Management actions, proposed new uses, or new facilities on National Forest System lands are not allowed if they alter the Scenic characteristics of the land and physical resources, or affect the eligibility, classification, or potential suitability of the area.

3. To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the study river cannot be modified by new structures that were not part of conditions when eligibility was determined.

5. Current water-use and stream-protection agreements made through negotiation with local water users will continue. (See the *Wild and Scenic Rivers Act* P.L. 90-542m as amended SEC. 10. (e), SEC. 12. (b), and SEC. 13 (b) for additional information.)

6. Activities will meet the adopted Scenic Integrity Objective. The ROS is Semi-Primitive Motorized.

GUIDELINES: 1. These lands are available and authorized for oil and gas leasing, with a Controlled Surface Use Stipulation.

2. Locatable-mineral activities are allowed, but should minimize surface disturbance, sedimentation, and pollution, and maintain the visual character.

3. Silvicultural practices are allowed within the river corridor, provided such practices do not cause substantial adverse effects on the river or the corridor landscape.

4. Motorized travel is restricted to designated roads.

PRESCRIPTION CATEGORY 4

Ecological values are managed to be compatible with recreation use, but are maintained well within the levels necessary to maintain overall ecological systems. Resource use for other values is not emphasized and has little impact on ecological structure, function, or composition. Sights and sounds of people are expected, and may even be desired. Motorized transportation is common.

Table IV- 4. Activities Allowed in Category 4.

RX NO.	RX NAME	Activities Allowed				
		Timber Harvest	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
4.21	Scenic Byways or Railroads	Yes	Yes	Yes	Yes	CSU
4.3	Dispersed Recreation	Yes	Yes	Yes	Yes	CSU
4.4	Designated and Eligible Recreation Rivers	Yes	Yes	Yes	Yes	CSU

Management-Area Prescription 4.21
SCENIC BYWAYS AND SCENIC RAILROADS

THEME: These areas are managed to protect or preserve the scenic and recreation values and uses within designated Scenic Byways and Scenic Railroad Corridors, while managing the multiple-use values of the landscape.

SETTING: These areas are found where outstanding scenic features draw attention and use. This Prescription will be applied to the Silver Thread and Los Caminos Antiguos Scenic Byways, and the Cumbres and Toltec Scenic Railroad.

DESIRED CONDITIONS: The landscape features high-quality scenery, while allowing multiple-use management such as timber harvest, wildlife management, recreation activities, and mineral extraction. Many of these uses and their interactions are interpreted for the visitor. Facilities may be developed to enhance opportunities for viewing scenery and wildlife. Because scenic quality is emphasized, all activities and interactions maintain the scenic beauty for which the area is designated.

Opportunities for solitude are limited. There are frequent contacts with other visitors, due to the associated travel corridor. Developments such as roads, recreation facilities, and range improvements are evident, but appear to be in harmony with the natural environment. There may be recreation facilities such as scenic overlooks, interpretive signing, and rest areas. Developed campgrounds may exist, but they should be situated off the main travelway. Trailheads are easily accessible, but are also off the main travelway.

The road system is well signed, with a maintained-gravel or paved surface. The area has access for motorized-recreation activities outside the main travelway. Nonmotorized activities such as hiking, biking, and horseback riding are generally available on trails and roads.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS:
1. These areas are included in the Suitable timber base.
2. Activities will meet the adopted Scenic Integrity Objective. The ROS class is Modified Roaded.

GUIDELINES:
1. Fires are controlled using minimal-impact suppression techniques.
2. Vegetative treatments may be used to enhance or maintain viewing opportunities.

3. These lands are available and authorized for oil and gas leasing, with a Controlled Surface Use Stipulation.

Management-Area Prescription 4.3
DISPERSED AND DEVELOPED RECREATION

THEME: These areas are managed with emphasis on a wide range of recreation settings and opportunities within various landscapes.

SETTING: This Prescription is applied mostly along road corridors (travel routes) where both undeveloped- and developed-recreation opportunities may be found and managed as an integrated resource. These areas have relatively easy access to a water feature or other natural attraction where activities may occur year-round. Because of the amount and type of use, these areas will offer a more social recreation experience. Visitor contacts are frequent.

DESIRED CONDITIONS: Vegetation composition and structure are managed to meet the recreation objectives for the area, maintain vegetation cover for wildlife, and protect soil stability. Fuels will be managed commensurate with the risk of human-caused ignitions. Insects and disease will be managed to maintain the recreation resource.

Summer homes, resorts, and youth camps are present and managed to provide unique recreation opportunities. In developed recreation sites, such as campgrounds and picnic grounds, facilities will be maintained or upgraded to meet customers needs. In dispersed areas, management actions will maintain the natural characteristics which make the area popular.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: 1. These areas are included in the Suitable timber base.

2. Developed sites will be withdrawn from locatable-mineral entry.

3. Activities meet the adopted Scenic Integrity Objective. The ROS class is Modified.

4. Vegetation treatment must maintain or enhance recreation opportunities (such as creating vistas), or contribute to user safety.

5. Fenced recreation sites are not suitable rangeland and are not grazed.

GUIDELINES: 1. High-use recreation sites are hardened and/or additional restrictions enforced to protect sensitive natural resources, as funds allow.

2. Timing of vegetation manipulation should be scheduled to minimize recreation conflicts.

3. Activity fuels (slash) created due to vegetative manipulation are treated commensurate with the increased risk of human-caused ignitions.

4. These lands are available and authorized for oil and gas leasing, with a Controlled Surface Use Stipulation.

Management-Area Prescription 4.4
ELIGIBLE RECREATION RIVERS

THEME: Recreation Rivers are managed to protect and perpetuate designated or eligible Recreation River segments.

SETTING: These areas have been identified as being eligible for Recreation River designation due to the presence of one or more "outstandingly remarkable" features that include scenic, recreational, geologic, wildlife, or fisheries values. The actual width of the area may vary in order to protect the outstanding values, but is at least 1/4 mile on either side of the stream. Existing diversion structures, rip-raps, or flood-control structures may be present, but the stream corridor must remain natural in appearance and the structures must be maintained.

The eligible Recreation Rivers are Medano Creek, South Fork Rio Grande, Lower Rio Grande River, and Conejos River.

DESIRED CONDITIONS: The landscape is predominantly natural appearing. Vegetative composition and structure are influenced by biological processes and conditions. Because of the proximity to streams, there is a greater than average diversity of plant and animal species.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: These Standards will not affect existing impoundments. Eligibility was based on conditions which include those imposed by existing impoundments.

1. When significant action may threaten the river resources, a suitability study will be initiated to determine recommendation for the National Wild and Scenic River System.

2. These lands are not part of the Suitable or Scheduled timber base.

3. Management actions, proposed new uses, or new facilities on National Forest System lands are not allowed if they alter the Recreation characteristics of the land and physical resources, or affect the eligibility, classification, or potential suitability of the area.

4. To the extent the Forest Service is authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the study river cannot be modified by new structures that were not part of conditions when eligibility was determined.

5. Current water-use and stream-protection agreements made through negotiation with local water users continue. (See the *Wild and Scenic River Act* P.L. 90-542, as amended SEC. 10. (e), SEC. 12. (b), and SEC. 13 (b) for additional information.)

6. Activities meet the adopted Scenic Integrity Objective. The ROS class is Modified.

GUIDELINES: 1. These lands are available and authorized for oil and gas leasing, with a Controlled Surface Use Stipulation.

2. Locatable-mineral activities are allowed, but should minimize surface disturbance, sedimentation, and pollution, and maintain the scenic character.

3. Silvicultural practices are allowed within the river corridor, provided such practices do not have substantial adverse effects on the river or the river-corridor landscape.

PRESCRIPTION CATEGORY 5

These Forest areas are managed for a mix of forest products, forage, and wildlife habitat, while protecting scenery and offering recreation opportunities. Ecological sustainability will be protected, while emphasizing selected biological structures and compositions which consider the range of natural variability. These lands often display high levels of investment, use, and activity; density of facilities; and evidence of vegetative treatment. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common.

Table IV - 5. Activities Allowed in Category 5.

RX. NO.	PRESCRIPTION NAME	ACTIVITIES ALLOWED				
		Timber Harvest	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
5.11	General Forest and Intermingled Rangelands	Yes	Yes	Yes	Yes	STD+
5.13	Forest Products	Yes	Yes	Yes	Yes	STD+
5.41	Deer and Elk Winter Range	Yes	Yes	Yes	Yes	TL
5.42	Special Wildlife Areas -- Bighorn Sheep	Yes	Yes	Yes	Yes	NSO

Management-Area Prescription 5.11
GENERAL FOREST AND INTERMINGLED RANGELANDS

THEME: The intent of this Prescription is to allow a variety of management options, such as livestock grazing, wildlife habitat, dispersed recreation, exploration and/or development of minerals and energy resources, and timber harvest. Management emphasis is on a balance of resource uses.

SETTING: These areas are characterized by forest and grassland communities, and managed with a multiple-use emphasis to achieve a variety of goals. When timber harvest is employed to achieve management goals, a full range of silvicultural prescriptions may be employed; however, uneven-aged-management systems are more likely to occur. In areas where timber harvest is planned, rotation periods will be longer and entries less frequent than in 5.13 (Forest Products) areas. Timber management activities focus on what is retained in the stand, not on wood production. The area has a well-developed transportation system. Visitors can expect to see managed but natural-appearing stands of trees. Recently cut areas will show tree stumps, slash, skid trails, and soil disturbance.

Wildfires are suppressed and insect and disease populations are maintained at endemic levels, to protect commercial forest products.

DESIRED CONDITIONS: Management actions ensure that there is sufficient habitat for wildlife dispersion between undeveloped areas of the Forest.

Management allows the perpetuation of natural-landscape diversity (composition, structure, and function). This includes consideration within a spatial context (what species, what kind of stand structure, and what kind of landscape patterns are natural, by ecosystem) and a temporal context (which seral stages and how many are natural, by ecosystem).

In areas of the Forest where past management has reduced resource effectiveness, watersheds, scenic resources, and wildlife habitat are restored.

Appropriate settings are offered that are suitable for a broad range of recreation opportunities. Recreation facilities are improved based on user demand.

There are adequate old-growth components in forested stands. Mature stands are identified for future old growth.

Opportunities exist for mineral- and energy-resources exploration and development exist.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS: 1. These areas are included in the Suitable timber base.

2. Activities meet the adopted Scenic Integrity Objective. The ROS class is Modified Roaded.

GUIDELINES: 1. Use landscape spatial analysis in timber sale design and layout to assist in selecting which existing and future old-growth stands are retained, maintaining habitat composition and structure, and providing habitat connectivity. Spatial analysis allows a project area to be compared with reference areas, and considers a variety of attributes (e.g., composition, structure, patch-size distribution, etc.). The intent is to use the reference areas as baseline information to guide project design. The project interdisciplinary team will suggest how quickly or closely to approximate reference areas. The analysis and resulting decision will document the rationale for choosing to deviate from reference conditions.

   For timber sales in the Englemann Spruce on Mountain Slopes Landtype Association (LTA 1), a landscape spatial-analysis approach is described in Erhard et al. (1996). To keep within the parameters of the approach, the Analysis Area should contain at least 15,000 acres or more of LTA 1. We recommend that the area boundaries follow watersheds and remain fixed for the duration of the Plan. For those projects in the other forested LTAs, the reference conditions will have to be inferred from the literature, experts, and local knowledge. Comparisons should be made within the same ecological LTA.

2. Fire management emphasizes Contain and Control suppression strategies.

3. These lands are available and authorized for lease under standard lease terms and may include Stipulations for alpine areas, steep slopes, and areas with high or moderate potential for mass movement.

4. Grazing of domestic livestock should be coordinated with timber management activities to ensure adequate regeneration and prevent impacts on range improvements and natural barriers.

5. Forest insect or disease infestations are evaluated against the potential for loss of commercial forest resources, with management emphasis on protecting the commercial resources.

6. Game retrieval is authorized using ATVs from noon to 5:00 pm (1200 - 1700)

each day, unless soil and water damage will occur.

Management-Area Prescription 5.13
FOREST PRODUCTS

THEME: The intent of this Prescription is to allow a full range of activities, with an emphasis on the production of commercial wood products. Numerous open roads offer commercial access and roaded recreational opportunities, while restricted roads offer nonmotorized-recreation opportunities.

SETTING: This Prescription is applied in areas where the potential to grow timber is high, and where the harvest of commercial timber is intended. Operations are focused on wood production. The intent is to maintain suitable forested areas with commercially valuable species at ages, densities, and sizes that allow growth rates and stand health conducive to providing a sustained yield of forest products. The area has a well-developed transportation system. Wildfires are suppressed and insect and disease populations are maintained at endemic levels, to protect commercial forest products.

Forest visitors can expect to see managed stands of trees in a natural or near-natural forest setting. Stands will have evidence of management, including tree stumps, slash, skid trails, and soil disturbance.

DESIRED CONDITIONS: Management emphasis is on wood production, while allowing for other uses.

Timber management is accomplished in a manner that allows the perpetuation of natural-landscape diversity (composition, structure, and function). This includes consideration within a spatial context (what species, what kind of stand structure, and what kind of landscape patterns are natural, by ecosystem) and a temporal context (which seral stages and how many are natural, by ecosystem).

Management actions ensure that there is adequate habitat for wildlife dispersion between undeveloped areas of the forest.

There is adequate old growth in forested stands. Mature stands are identified for future old growth.

Opportunities exist for mineral- and energy-resources exploration and development exist.

Livestock grazing is appropriate and authorized within this Management Prescription.

GUIDELINES: 1. Use landscape spatial analysis in timber sale design and layout to assist in selecting which existing and future old-growth stands are retained, maintaining habitat composition and structure, and providing habitat connectivity. Spatial analysis allows a project area to be compared with reference areas, and considers a variety

of attributes (e.g., composition, structure, patch-size distribution, etc.). The intent is to use the reference areas as baseline information to guide project design. The project interdisciplinary team will suggest how quickly or closely to approximate reference areas. The analysis and resulting decision will document the rationale for choosing to deviate from reference conditions.

For timber sales in the Englemann Spruce on Mountain Slopes Landtype Association (LTA 1), a landscape spatial-analysis approach is described in Erhard et al. (1996). To keep within the parameters of the approach, the Analysis Area should contain at least 15,000 acres or more of LTA 1. We recommend that the area boundaries follow watersheds and remain fixed for the duration of the Plan. For projects in the other forested LTAs, the reference conditions will have to be inferred from the literature, experts, and local knowledge. Comparisons should be made within the same ecological LTA.

2. Grazing of domestic livestock should be coordinated with timber management activities, to ensure adequate regeneration and prevent impacts on range improvements and natural barriers.

3. These lands are available and authorized for lease under standard lease terms, and may include Stipulations for alpine areas, steep slopes, and areas with moderate or high potential for mass movement.

4. Forest insect or disease infestations are evaluated against the potential for loss of commercial forest resources, with management emphasis on protecting the commercial resources.

5. Fire management emphasizes Contain and Control suppression strategies.

6. Reduction of fire hazards, through fuel treatment, should be done when it is economically justified and consistent with other resource uses and needs.

7. Game retrieval is authorized using ATVs from noon till 5:00pm (1200 - 1700) each day, unless soil and water damage will occur.

Management-Area Prescription 5.41
DEER AND ELK WINTER RANGE

THEME: These areas are managed to supply adequate amounts of quality forage, cover, and solitude for deer, elk, and other species while on winter range.

SETTING: These areas consist of both forested and non-forested habitats, generally in the lower-elevation fringes of the Forest.

DESIRED CONDITIONS: Vegetation will be managed to sustain healthy plant communities with a variety of plants for food and cover.

In winter, manage human activities so that deer and elk can effectively use the area.

Habitat management goals are developed in coordination with the states and owners of intermingled privately owned land, to minimize resource conflicts on and off National Forest System lands and offer recreation opportunities.

Where possible, livestock-grazing systems should be developed in cooperation with state and federal agencies and private landowners, so that all lands can be considered in developing vegetation-management objectives for an area.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS:

1. Motorized travel, including snowmobiles, is restricted to designated roads and trails, except for ATV big-game retrieval.

2. These areas are included in the Suitable timber base, with resource constraints.

3. Activities meet the adopted Scenic Integrity Objective. The ROS class is Roaded Modified.

GUIDELINES:

1. These lands are available and authorized for oil and gas leasing, with a Timing Limitation Stipulation.

2. Operating and reclamation plans for locatable minerals should mitigate impacts on deer and elk winter range.

3. Livestock-grazing strategies are implemented to achieve goals for deer and elk.

6. Existing recreation facilities should be closed during the season when deer and elk are present in concentrated numbers.

4. New roads passing through this area should avoid important forage and cover locations.

Management-Area Prescription 5.42
SPECIAL WILDLIFE AREAS -- BIGHORN SHEEP

SETTING: These areas are characterized by rocky slopes, cliffs, and open grasslands, with scattered stands of trees. Timber cutting may be used to enhance or maintain bighorn habitat.

THEME: These areas are habitat for established bighorn sheep herds on the Forest. Emphasis is on the maintenance and improvement of the habitat on which bighorn sheep depend, to assure their viability.

DESIRED CONDITIONS: Herd objectives will be established in cooperation with the Colorado Division of Wildlife.

Maintain a buffer between domestic sheep and bighorn sheep, to prevent interaction.

Include interpretive information in established viewing areas.

Develop plans for the use of prescribed natural fire (PNF) and management-ignited fire (MIF) in support of habitat improvement.

Livestock grazing is appropriate and authorized within this Management Prescription.

STANDARDS:

1. Domestic sheep allotments that become vacant within the identified buffer shall not be reissued for domestic sheep use, but may be issued for cattle use.

2. No new travel routes shall be constructed across any lambing grounds.

3. These lands are not part of the Suitable timber base.

4. Activities meet the adopted Scenic Integrity Objective. The ROS class is Roaded Modified.

GUIDELINES:

1. Operating plans for locatable minerals specify minimal impacts on bighorn sheep.

2. These lands are available and authorized for oil and gas leasing, with a No Surface Occupancy Stipulation.

3. Domestic sheep allotments within the buffers are moved to vacant allotments outside the buffers, as opportunities arise.

4. Grazing strategies should be implemented that include achievement of objectives for bighorn sheep herds.

5. Recreation activities that disturb bighorn sheep should be discouraged or prohibited.

PRESCRIPTION CATEGORY 6

These areas are primarily nonforested ecosystems that are managed to meet a variety of ecological and human needs. Ecological conditions will be maintained while emphasizing selected biological (grasses and other vegetation) structures and compositions which consider the range of natural variability. These lands often display high levels of investment, use, and activity; density of facilities; and evidence of vegetative manipulation. Users expect to see other people and evidence of human activities. Facilities supporting the various resource uses are common. Motorized transportation is common.

Table IV - 6. Activities Allowed in Category 6.

RX NO.	PRESCRIPTION NAME	ACTIVITIES ALLOWED				
		Timber Harvest	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
6.6	Grassland Resource Production	Yes	Yes	Yes	Yes	STD+

Management-Area -- 6.6
GRASSLAND RESOURCE PRODUCTION

THEME: These areas are managed to produce forage for livestock. This Prescription features management of vegetation associated with grassland ecosystems to achieve and maintain the desired vegetation condition for livestock, wildlife, and/or recreational stock.

SETTING: These areas are characterized by a mix of grassland and forest ecosystems that feature large open meadows and other grasslands, intermixed with stands of aspen and/or conifers.

Visitors can expect to see livestock and associated range improvements.

DESIRED CONDITIONS: The plant communities may be managed in a range of successional stages, to achieve biological diversity of plant and animal species.

STANDARDS:

1. Activities will meet the adopted Scenic Condition Objective. The ROS class is Modified Roaded.

2. These lands are not included in the Suitable timber base.

GUIDELINES:

1. These lands are available and authorized for lease under standard lease terms, and may include Stipulations for alpine areas, steep slopes, and areas with moderate or high potential for mass movement.

2. Game retrieval is authorized using ATVs from noon to 5:00pm (1200 - 1700) each day, unless soil and water damage will occur.

PRESCRIPTION CATEGORY 8

Ecological condition, including processes, is likely to be permanently altered by human activities, beyond the level needed to maintain natural-appearing landscapes and ecological processes. These areas are generally small. Ecological values are protected where they affect the health and welfare of humans. Human activities are generally commercial in nature, directly or indirectly providing jobs and income. Motorized transportation is common.

Table IV - 8. Activities Allowed in Category 8.

RX. NO.	PRESCRIPTION NAME	ALLOWABLE ACTIVITIES				
		Timber Harvest	Motorized Recreation	Grazing	Locatable Minerals	Oil & Gas Leasing
8.22	Ski-Based Resorts (Existing and Inventoried)	Yes	Permission Needed	No	No	NSO

Management-Area Prescription 8.22
SKI-BASED RESORTS: EXISTING/POTENTIAL

THEME: These areas are managed for their existing or potential use as ski-based resort sites.

SETTING: This Prescription is applied to the mountainous area composing the existing Wolf Creek Ski Area, and those lands identified for potential expansion. Associated facilities such as trails, lifts, and lodges are included. This is an area of concentrated use. Visitors can expect to see facilities associated with the ski area.

DESIRED CONDITIONS: Four-season recreation resort use, and other winter sports activities such as snowmobile centers and Nordic ski centers, are encouraged and integrated with other Management Objectives.

Insects and disease will be managed to protect the recreation resource and to ensure public safety.

Implementation of this Prescription will maintain the possibility of winter-sports expansion. Any resource management activities within this area will be designed and implemented to maintain or enhance the existing resources.

Development within this area will not occur until a master development plan has been submitted, alternatives and resource impacts have been analyzed, and a decision has been issued.

STANDARDS:

1. These lands are not part of the Suitable timber base.
2. These areas are withdrawn from locatable-mineral entry.
3. Resort management plans are developed that include action items for vegetation management.
4. Facilities are designed and constructed to be accessible to people with disabilities and blend with the area's natural background features. Lines and forms indicating past activities and geometric shapes associated with ski trail and lift development, are "softened" as opportunities become available.
5. Activities meet the adopted Scenic Integrity Objective. The ROS class is Roaded Natural.
6. Grazing is prohibited.

GUIDELINES:

1. Year-round recreation activities should be considered as part of the master development plan. Some may be nontraditional uses on

National Forest System lands, but these uses will be in the public interest, if allowed.

2. These lands are available and authorized for oil and gas leasing, with a No Surface Occupancy Stipulation.

3. All fires are suppressed.

4. Game retrieval using ATVs is authorized between noon to 5:00 pm (1200 - 1700) each day, unless soil and water damage will occur.

Chapter V

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Chapter V

Monitoring and Evaluation Strategy

INTRODUCTION

This chapter describes the program and process that will be used to determine, on an annual basis, if the Forest Plan is still sufficient to guide the management of the Forest. Monitoring is the key to adaptive management (the ability to change as new information or technology is developed) and is the necessary feedback mechanism for improved resource management. Monitoring and evaluation are used to determine if an amendment or revision of the Forest Plan is needed.

Monitoring and evaluation give the public and Forest managers timely information on how well the Forest is achieving the Desired Conditions. Monitoring and evaluation must also be conducted in a manner that is efficient, practical, and affordable. They should not duplicate existing data-collection efforts. The Rio Grande National Forest (RGNF) will allocate a portion of its annual budget to accomplish monitoring and evaluation of the Forest Plan.

The Forest Interdisciplinary Team developed criteria for the RGNF monitoring-and-evaluation (M&E) program. The criteria are based on national policies, Regional monitoring-program emphasis items, and Interdisciplinary Team concepts, as well as legal and other policy requirements. The criteria include:

* The M&E approach must evaluate:
    1) The Goals, Objectives, and Desired Conditions identified in the Forest Plan.
    2) The Forest management direction.
    3) Land suitability.
    4) The Management-Area Prescriptions, as well as the Forestwide and Management-Are-specific Standards and Guidelines.
    5) The Monitoring Plan.
    6) Congressional recommendations.

* The M&E approach shall be responsive to national policies, including direction to protect ecosystems; restore deteriorated ecosystems; provide benefits within the capabilities of ecosystems; and promote organizational effectiveness.

* It should be responsive to the concerns and suggestions of the research branch of the Forest Service.

* It should emphasize “outcomes” instead of “outputs.” An output is a production statistic, whereas outcomes address the condition and status of ecosystems and their sustainability after management activities.

* It shall be affordable, efficient, and practical.

* It shall meet the legal requirements for M&E.

* The annual M&E report shall be readable and understandable.

* It should be flexible, to allow for changing philosophy and methodologies in assessing resource impacts.

* M&E should be interdisciplinary and be the cornerstone of adaptive management.

PUBLIC RESPONSES TO THE DRAFT PLAN

During the period between the publication of the Draft Environmental Impact Statement and the Final, the Forest Interdisciplinary Team read through thousands of public comments on the Draft Plan and EIS. Many were directed at the Monitoring section in Chapter 5 of the Plan. The comments expressed a number of concerns, including the following:

* The two tables in the Draft Plan were difficult to understand and interpret.

* Frequency, precision, reliability, and accuracy are items required by regulation that are appealable, and cannot be included in a nonappealable section of the Forest Plan (such as Appendices).

* The RGNF must make a firmer commitment to budget (for monitoring).

* The Monitoring Plan should show legal requirements, costs, and examples of how the process would work.

* The Plan was not specific enough in describing monitoring techniques.

* The Plan did not monitor Standards and Guidelines.

The ID Team decided to rewrite the Monitoring Chapter to respond to the concerns raised by the public. The monitoring approach described in this chapter is based on many of those concerns.

THE SIX FOREST PLAN DECISIONS

The monitoring program must evaluate the six decisions made in a Forest Plan. These are:

1) The Goals, Objectives, and Desired Conditions identified in the Forest Plan.

2) The Forest management direction.

3) Land suitability.
4) The Management-Area Prescriptions, as well as the Forestwide and Management-Area-specific Standards and Guidelines.

5) The Monitoring Plan.

6) Congressional recommendations.

The monitoring plan is based on the evaluation of these six items.

MONITORING OBJECTIVES AND THE LINK TO DESIRED CONDITIONS, GOALS, AND FORESTWIDE OBJECTIVES

The purpose of the monitoring program is to establish a basis for periodic determination and evaluation of the effects of management practices (36 CFR 219.11 (d)). Desired Conditions (Forest Plan, Chapter 1) describe the conditions that the Plan is designed to achieve on the entire Forest. These broad statements are goals that the Forest will strive for over time.

Forestwide Objectives (Forest Plan, Chapter 2) are more specific statements, and describe results or conditions the Forest Service intends to achieve on the ground. Objectives are closely tied to Desired Conditions.

Monitoring Objectives (Forest Plan, Chapter 5) are statements developed from the Forestwide Objectives, and show what will be monitored and evaluated as part of the monitoring program. This linkage is important in meeting the intent of 36 CFR 219.12 (k), which says that "....implementation shall be monitored on a sample basis to determine how well objectives have been met..."

THE LEGAL REQUIREMENTS FOR MONITORING AND EVALUATION

The determination of what is legally required monitoring was made by the Forest Interdisciplinary Planning Team, with assistance from the Regional Forester's Staff in Golden. While no specific set of guidelines has been developed Regionally or nationally, the Forest Service believes that it is important to make prudent judgements about what it considers to be legally required monitoring. The following discussion explains how the IDT approached this process, and the assumptions and interpretations the team made.

Some direction is very clear concerning monitoring of the Forest Plan. In other instances, monitoring is implied, but not directly stated. The Planning regulations in 36 CFR 219.12 (k) clearly describe both broad and specific items that must, by law, be monitored and evaluated. The broad statement says that "on a sample basis...determine how well objectives have been met and how closely management standards and guidelines have been applied ." This requires that each resource area monitor and evaluate Objectives, and Standards and Guidelines. Clear and direct monitoring requirements are described in 36 CFR 219.12 (k), which addresses management prescriptions (such as timber) and other requirements.

The IDT searched through the planning regulations for key words like "monitor" and "evaluate" in order to determine other legally required monitoring items. The context of those words then determined if M&E was legally required.

Planning regulations in 36 CFR 219.27 describe management requirements. The regulations state that "These requirements guide the development ....monitoring and evaluation of Forest Plans." The RGNF's interpretation of the regulation is that the items listed subsequently under this heading could qualify as legal requirements. The Forest IDT then reviewed this section and determined which items suggested M&E, and included those as legally required.

Other laws were reviewed, in addition to Planning regulations. If other laws specifically direct or suggest M&E, then the IDT cited the applicable law and included those items as legally required M&E.

The fact that planning regulations mention a topic does not automatically mean that the topic must be a monitoring requirement. For example, 36 CFR 219.13, Resource Integration Requirement, describes the minimum requirements for integrating various resources into the Forest planning process. Unless monitoring is specifically mentioned, as in 36 CFR 219.19 (6), the monitoring of these items was determined by the IDT to be not legally required.

One very important distinction needs to be understood. That is, activities like contract administration, permit administration, inspection, enforcement, inventories, and surveys are not always considered monitoring of the Forest Plan, though at times they could overlap with monitoring efforts. These activities are considered part of routine administration, and do not respond to how well the Plan is working. As an example, hard rock mineral regulations direct inspection and compliance with the operating plan. This is not the same as Forest Plan monitoring, which by our interpretation would be the effectiveness evaluation of how well the Goals, Objectives, and Standards and Guidelines are being met. These routine administrative activities will continue to be carried out on the Forest and are generally funded by program, but may not be considered "legally required monitoring."

The following sections describe the important monitoring items that the Forest selected in meeting the intent of laws and management. The list differentiates between legally required monitoring and other important monitoring responsibilities.

Biodiversity

Providing habitat necessary to maintain viable populations is required by 36 CFR 219.27 and 36 CFR 219.19 (6). To determine if the Forest Plan is meeting this objective, we have chosen to monitor those species and/or habitats about which there are some questions as to their potential viability. These are species found on the Threatened and Endangered list, the Regional Sensitive species list, and the Colorado Natural Heritage Program's list of species of special concern and significant plant communities.

There are two different scales of monitoring detailed. The "fine-filter" scale will focus on particular plant and wildlife species that generally occupy distinct habitats that cannot be accurately monitored at the landscape level. (The exception to this involves monitoring the birds and small mammals within the spruce/fir forest.) This is part of a Regional effort to conduct work in each of the major cover types within the Region. Every Forest will eventually be assigned a cover type.

The rest of the fine-filter work is specific to the known location(s) of the particular plant or animal. The intent of the fine-filter work is to track the species' population trends over time. Ripley milkvetch will be monitored for the first five years, and then a decision will be made whether monitoring should continue and/or whether an amendment of the Forest Plan is needed.

In general, the wildlife and ecology monitoring will be coordinated with the Colorado Division of Wildlife, as well as other state and federal Agencies.

The "coarse-filter" scale focuses on tracking the changes in gross habitat conditions (e.g., cover type, structural changes) and if there have been any changes in the condition of the site location(s). The cost of the work is a mixture of Forest Service and cooperator funding.

The fine-filter work involves primarily field work and somewhat intensive efforts to gather the necessary data to be able to judge population trends. The coarse-filter work uses methods that are able to look at the landscape scale (e.g. aerial photos, GIS, satellite imagery).

Providing for and maintaining the diversity of plant and animal communities is required by 36 CFR 219.27. To ensure that the Forest is meeting this objective, we have chosen four attributes to monitor. These four were selected because they capture the key components of vegetative diversity. Two of them involve tracking changes in the amount, quantity, and pattern of the vegetation that may appear over the life of the Plan. This will be accomplished using similar landscape-scale tools as described for the coarse-filter work. The third attribute is a validation of the reference-work and landscape-scale tools. The final attribute is a progress report on how well we are gathering the data on the Forest's old-growth inventory/reconnaissance. The costs displayed are mainly Forest Service funds.

We are required by 36 CFR 219.12 (k) to complete an overall evaluation of Forest Plan Objectives and Standards and Guidelines. To accomplish this, the IDT determined that monitoring 20 % of the Forest's projects, annually, would give us the information needed to make an informed evaluation. The costs of this monitoring are for a series of field visits to the projects.

Air Quality

Maintaining air quality at a level that is adequate for protection and use of National Forest System resources is required by 36 CFR 219.27 (a) (12). The regulation and its context suggest that monitoring of air quality is required. "Air-quality-related values" are protected in Class I Wilderness Areas, which is also required by the *Clean Air Act*. The State of Colorado allows for the same level of protection in Class II Wilderness. The *Monitoring Air Resources in the Rocky Mountain Region* (USDA, 1993) identifies monitoring priorities based on potential threats. Visibility is the highest priority. Lake chemistry is second and terrestrial organisms, like lichens, is last.

To accomplish air-quality monitoring, a number of techniques are available. Visibility data are available from the National Park Service, which monitors visibility at the Great Sand Dunes National Monument. The cost of coordination has been identified. Synoptic surveys in all four Wilderness Areas have identified the lakes most sensitive to changes in acidity, and they have been selected for long-term trend monitoring. Regional protocols, and the Forest air-quality monitoring plan, direct us to monitor those lakes three times per summer. The costs needed to collect samples, analyze them, and record data are shown in the Monitoring Table section. Monitoring of terrestrial air-quality-related values would probably occur only if a major polluting facility were proposed that could adversely affect them. The cost of such a study is shown (in the Monitoring Table, page V-19) as a unit, should such monitoring become necessary.

Timber

Restocking of final-harvest areas (i.e., clearcuts, shelterwood overstory removals, group/single-tree selection cuts) is required by 36 CFR 219.12 (k) and implied in 219.27 (c). Normally, first-year surveys are on-site inspections, while third- and fifth-year surveys are statistically valid plot-inventory exams. These surveys are conducted by both forestry technicians and silviculturists.

As required by 36 CFR 219.12 (k), all Forest lands are to be examined at least once every ten years in order to determine if Unsuitable lands have become Suitable or vice-versa. It is also the intent of the RGNF to assess, through project-related field investigations, whether lands identified as Suitable do, in fact, meet suitability criteria. Various personnel will be responsible for this ongoing need, including silviculturists, sale preparation foresters, timber sale administrators, and soil scientists. Significant changes in tentatively suitable timberland acreages will prompt the Forest to perform new suitability and ASQ analysis.

36 CFR 219.12 (k) (5) (iv) requires the Forest to monitor levels of destructive insects and disease organisms following management activities. 36 CFR 219.27 (a) (3) and (7) direct the Forest to use preventive means for resource protection from insects and disease. Normally, Forest personnel trained in identifying insect/disease problems regularly monitor forest conditions before, during, and after management activities or natural disturbances. When timber-resource risk is in question, Regional insect and disease specialists are requested for help in assessment.

The monitoring of created openings ties to various legal requirements, including 36 CFR 219.12(k)(5)(iii), evaluation of maximum-size limits; and 36 CFR 219.27(d) (2), with subparts (I), (ii), and (iii), together dealing with maximum-size limits, and exceptions to those limits, for even-aged harvest areas. It also ties with Forestwide Standards and Guidelines dealing with (1) objectives for retaining uncut forest between openings, (2) thresholds when created openings have regenerated to the degree that they are no longer considered openings, (3) the avoidance of excess edge creation, and (4) biodiversity and Management-Area Prescription Standards and Guidelines that tie management activities to reference-area conditions and ranges of natural variability. In order to meet these requirements, various forms of measurement are available, including hand-held lasers, GPS units, and aerial photos.

The monitoring of silvicultural objectives is not specifically mentioned or implied by the regulations, though items such as regeneration, restocking levels, openings, and other items are. The Forest IDT has included this item as an important assessment of projects involving timber stand manipulation. Forest personnel can accomplish this objective prior to, during, and after harvesting.

Fire and Fuels Management

Monitoring of the Fire and Fuels Management program is not required by the regulations, but is considered important to the RGNF. Regarding resource protection, however, 36 CFR 219.27(a)(2) states: “Consistent with the relative resource values involved, minimize serious or long-lasting hazards from flood, wind, erosion, wildfire, or other natural physical forces, unless specifically excepted, as in Wilderness.” In order to address this requirement, a determination of “relative resource values” must be made. This is done in consultation with the various resource specialists (IDT), technicians, and program leaders. Then the “serious or long-lasting hazard” potential from wildfire must be determined, and is done through ocular or eyeball estimates, fuel transects, on-site inspections, and/or surveys. This will be done by Ranger District or Forest Fire/Fuels personnel.

Additionally, the Fire Program is monitored yearly through the National Fire Management Analysis System. This economic-analysis program addresses the "relative resource value" determination through a relatively complex cost/benefit evaluation of the fire suppression program for the Forest.

Range

The monitoring of suitable rangelands for condition and trend is not required directly by regulations, though we consider it very important. Per the Rocky Mountain Region's *Rangeland Management and Training Guide* (RAMTG), inventory information will yield baseline data to determine Desired Conditions of rangelands. These data can then be used in determining restoration and carrying-capacity efforts on individual allotments. Inventory will be conducted on each allotment once every 15 years, and monitoring of selected transects will be conducted per direction in the RAMTG.

Range-suitability monitoring is not required by regulation, though we deem this information important to carrying out Forest Goals and Objectives. While range suitability has been addressed in the Forest Plan, any management decision which would change Management Prescription allocation should be analyzed as to range suitability. Site-specific determinations of range suitability will be made during the development of the EA and AMP for each allotment.

Range utilization is an important monitoring item, to determine whether present grazing strategies are meeting Forest and AMP Standards and Guidelines. Monitoring will look at key areas of the rangeland resource. Those allotments where capacity determinations are in question may require a more in-depth inventory.

The costs cover the expense of range conservationists doing these monitoring activities prior to and after AMP implementation, and preparing reports for the project file and Monitoring and Evaluation Report. These reports include data entry into GIS systems. These costs also include evaluation of Standards and Guidelines.

Noxious Weeds

Noxious-weed monitoring is not required by regulations; however, monitoring procedures will evaluate control methods and find noxious-weed infestations on the Forest. This level of monitoring will enable us to complete an inventory and evaluate control methods, by species, within the life of the Forest Plan. Costs are projected for an individual to accomplish this monitoring, prepare reports, and enter data into GIS systems.

Watersheds, Including Soil, Water, and Riparian and Aquatic Ecosystems

Water-resource monitoring is also suggested as a legal requirement in regulation 36 CFR 219.27 Item (a) (1), which states, "Conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land." Items (2) and (4) contain specific references to protecting streams, streambanks, shorelines, and wetlands, and minimizing erosion and flood hazards.

The Forest selected a number of monitoring tools. Monitoring of watershed disturbances would identify disturbances from past, present, and proposed activities; relate severity of disturbances to an

equivalent roaded area; compare total disturbance to a concern level, to measure relative risk; vary the concern level, based on watershed sensitivity; and consider amount of disturbance in close proximity to stream channels. These are Level I watershed assessments, and are based on existing information and experienced field people. They direct attention to specific streams that are at risk, for more detailed monitoring. Time needed to collect data and analyze them is expressed as a cost, and includes Ranger District time to compile data.

Monitoring and evaluation of stream health, water quality, and riparian conditions are suggested by 36 CFR 219.27(a). These Level III watershed assessments are completed on at least one stream and riparian area per Analysis Area for each land-disturbing EA. They identify stream and riparian condition before projects begin, to verify robust conditions or require additional protection measures, as part of project implementation. They evaluate the function of aquatic and riparian systems, and the sensitivity of areas to proposed impacts. The parameters measured depend on evaluation needs for the particular stream and project being assessed, but can include channel features, stream biology, vegetation, and chemistry. Comparisons are made with reference streams. The costs needed to complete this work cover work done primarily by a hydrologist or fisheries biologist, or individuals directed by them. Costs are based on 2.5 days per site to find appropriate stream reaches for monitoring, collect data, compare with reference streams, and record results.

Monitoring of streams within watersheds that have been identified as “at risk” is needed to follow up on results from Level I assessments. These will be referred to as Level II assessments. We estimated that two such streams will need monitoring per year. This will again be accomplished by comparisons to reference streams. The time needed per stream is estimated at 2.5 days.

In addition, long-term assessments are identified in the Monitoring Plan for six streams (two streams per year), to evaluate improvement over time of streams that have been damaged by past management. These will verify whether current management is restoring damaged stream and riparian systems. Time needed for a team of specialists (soils, water, ecology, and fisheries) to evaluate these streams every third year is identified. The methods used will include those outlined in the range analysis handbook for vegetation, standard soil-analysis tools, and stream-health metrics (measurements) identified above. Methods will include the assessment of proper functioning condition of riparian areas.

The protection of soil productivity is a Monitoring Objective that is legally required by 36 CFR 219.12 (k)(2), which states that "Monitoring requirements shall provide for documentation of the measured prescriptions and effects including significant changes in productivity of the land." This requires the Forest to make an evaluation of soils, since soils are fundamental resources for land productivity. Regulation 36 CFR 219.27 item (a)(1) states, "Conserve soil and water resources and not allow significant or permanent impairment of the productivity of the land." This also suggests monitoring of soils as a legal requirement.

The RGNF has selected a number of different soil-monitoring measurement tools. We may use one or all of them to respond to the monitoring objective. The most scientific measurements involve collecting core soil samples and doing laboratory analysis. This monitors soil quality using techniques as described in technical papers such as Hazard and Geist, or other appropriate methods. Analysis leads to quantifiable soil results. Because of the high cost of doing this, we would do these only periodically, such as every third year during the Plan. Erosion modeling helps predict erosion from management activities. It uses state-of-the-art computer models and is helpful in predicting conditions where erosion might become excessive. Ocular estimates, transects, investigations, and professional

judgement are techniques that are fairly low-cost and very good at monitoring and protecting soil productivity. These would be done on all of the ground-disturbing projects where high soil-erosion or mass-movement hazards exist. The costs for achieving the objectives are primarily estimates for salaries, lab analysis, and some vehicle expenses.

Minerals

Minerals regulations require considerable inspection and enforcement by the Forest Service, which we will responsibly carry out. Inspection and enforcement are not the same as Forest Plan monitoring, however, though there could be some small overlap. With that in mind, we reviewed the regulations to see if there are specific or suggested monitoring requirements in them.

Only one regulation suggests that we are legally required to monitor mineral activities. The verification process is a feedback mechanism in the Leasing Reform Act regulations (36 CFR Subpart E, 228.102, (e) (1)(2) and (3)) which determines if the Forest Plan is still valid and whether oil and gas operations could be allowed somewhere on a proposed lease tract. The verification process is also a monitoring process, to determine if the conditions in the Forest Plan are still valid and whether oil and gas operations could be allowed somewhere on a proposed lease tract.

For locatable minerals, monitoring is not specifically required or suggested, but remains an important item that the Forest should conduct. It should be noted that we still would uphold our responsibility to do inspection and enforcement of operation plans, to assure the conditions of the plans are met. The Forest considers inspection and enforcement as routine administration of contracts, permits, and plans, but not necessarily as monitoring.

Unroaded Areas

The evaluation of the Forest's identified unroaded areas is not legally required. Monitoring of representative backcountry areas will, however, assess resource-management activities (motorized/nonmotorized trail use, levels and type of use, recreation settings). Also, it will evaluate conflicts, identify areas of concentrated use, and measure other resource impacts, to determine if significant effects on the area's natural character or values are occurring; and will evaluate the Forest Plan's Management Area Prescription Objectives and Standards and Guidelines. Different representative backcountry areas will be monitored each year. The Forest's recreation specialist and core team (includes Ranger District recreation personnel, range conservationists, and biologist; and the Forest soil scientist, hydrologist, and ecologist) will be responsible for the monitoring of these representative backcountry areas. Cost includes salary of personnel, travel, and preparing reports.

Wild and Scenic Rivers

The monitoring of eligible Wild and Scenic Rivers is not legally required. It is important, however, to assess resource-management activities that occur within the river corridor, and future proposed activities, in order to protect the values associated with the eligible rivers.

Monitoring of a river corridor will assess resource-management activities (recreation uses, range conditions, riparian areas, and fisheries) to determine if significant effects on the river corridor's natural character or ecological processes are occurring. Also, it will evaluate the Forest Plan's Management Area Prescription Objectives and Standards and Guidelines. One river corridor will be

monitored every three years. The Forest's recreation specialist and core team (includes Ranger District recreation personnel, range conservationist, and biologist; and the Forest's hydrologist and fishery biologist) will be responsible for the monitoring of the selected river corridor. Costs include salary for personnel, travel, and preparing reports.

Wilderness

Regulation 36 CFR 293.2 directs that management of Wilderness "...preserve and protect its Wilderness character." We believe this suggests that monitoring be done in designated Wilderness. Wilderness Implementation Schedules for each Wilderness Area have been written and approved. Wilderness funds will be used for coordination purposes; monitoring of recreation uses; and needs assessment, capacities, and Guidelines. Monitoring of Wilderness items will be the responsibility of the Wilderness coordinators and Wilderness rangers. Costs include salary for personnel, travel, and preparing reports.

Special Interest Areas

Monitoring is not legally required, though the Forest considers it important. To accomplish this, the Forest would conduct on-site inspections of designated Special Interest Areas every five years, to determine if protection measures and interpretation efforts are adequate. Costs reflect on-site visits; follow-up costs are on-site visits and follow-up GIS work.

Research Natural Areas

Monitoring RNAs is not legally required in the regulations, though the Forest considers it important. Monitoring would be done once every five years on each RNA, which would give us the information needed to make an informed evaluation. The costs cover visits to each RNA.

Heritage Resources

After reviewing the pertinent laws, we determined that the monitoring of heritage resource sites is not specifically required by law. The Forest is dedicated to protection of these important resources, however, and would monitor those heritage resources specifically identified for protection during a project. The heritage-resource sites identified for protection (in the initial inventory report sent to the Colorado Historic Preservation Officer for review) have the potential to be impacted by a Forest Service project. Monitoring will be done by an archaeologist or Ranger District personnel physically inspecting the site. Costs incurred include the daily salary of the individuals and travel expenses to the area.

Monitoring of consultations with American Indian nations, concerning areas of cultural importance, is not legally required. In order to assure that the Forest is faithful in considering the importance and protection of sites of cultural importance to American Indians, however, required consultations will be monitored. A representative sample of environmental-analysis reports and other decision documents will be inspected each year, to determine if required consultations were completed. Some projects of limited scope, such as a toilet relocation in a campground or trail maintenance activities, may not require a formal consultation, and will not be reviewed. Monitoring will be done by an archaeologist or Ranger District personnel. Costs are the daily salary and travel expenses of the person conducting the monitoring.

Developed Recreation

The monitoring of developed recreation sites is not legally required. The Forest will continue to do routine inspection and maintenance, however, to assure the protection and safety of these facilities. Routine administration of these sites is not considered Forest Plan monitoring.

It is important to assess visitor expectations, and trends; manage developed sites consistent with the natural setting; and have quality and safe facilities. Monitoring will include:

* Customer surveys to determine visitor expectations, use trends, demographics, and visitor satisfaction with facilities and service.

* Inventories of Forest campground occupancy rates and use.

* Evaluation of our standards for developed sites, dispersed areas, trails, and permit administration.

* Documented campground hazard inspections and corrective action when needed.

Ski areas will be monitored for compliance with their approved Master Plan, permit clauses, and approved summer and winter operating plans. Holders of special-use permits will be monitored for compliance with permit clauses and approved operating plans. Monitoring will be done annually with the exception of the customer survey, which will be every five years. Costs of these monitoring items include salary for personnel, travel, and preparing reports.

Dispersed Recreation

The monitoring of dispersed-recreation opportunities is not legally required. It is important to inventory and evaluate trail conditions in order to allocate trail dollars effectively for trail maintenance and reconstruction work. It is also important to monitor our capacity-study determination; to assess our Forestwide needs and baseline capacity information; and determine if adjustments of calculations, allocations, and service days are needed. The trails inventory will be the responsibility of our Forest trails specialists, in conjunction with Ranger District trails coordinators. The capacity-determination monitoring will be the responsibility of the Forest recreation specialist and core team (includes Ranger District recreation personnel and outfitter-guide administrators). Costs of these monitoring items include salary for personnel, travel, and preparing reports.

The effects of use by specific types of vehicles off roads on National Forest System lands will be monitored (36 CFR 295.5). Monitoring of our ATV game-retrieval areas and snowmobile-use areas will be assessed to determine if significant resource impacts are occurring, and to evaluate public safety, adequacy of signing, and research needs. The Forest's recreation specialist and core team (includes Ranger District recreation personnel, and biologist; and Forest's travel management coordinator, soil scientist, hydrologist, and ecologist) will monitor selected areas. Costs include salary for personnel, travel, and preparing reports.

Scenic Resources

The monitoring of scenic resources is not a legal requirement, but monitoring-and-evaluation efforts will help the Forest landscape architect and the public determine the amount and duration of changes of the existing landscape character, and will help us to determine if the landscape’s appearance is progressing toward the desired goal.

Scenic Integrity Objectives will be measured by determining the amount of disturbance after project implementation. Photographs, on-site inspections, and aerial photographs will be used to help determine if Scenic Integrity Objectives have been met after project implementation. There is a two-year natural-rehabilitation period for all activities affecting scenic resources. Activities are expected to come into compliance with mapped Scenic Integrity Objectives within this period. After the two-year period, the landscape architect will monitor remaining disturbance levels, using on-site inspections and "before” and “after” photographs, to determine if Scenic Integrity Objectives have been met.
In addition, visitor feelings, values, expectations, desires, preferences, and acceptable levels of quality will help determine appropriate changes in the Scenic Integrity Objectives. Visitors are the primary source of information when helping to determine the level of importance (or unimportance) of

National Forest scenery. This will be determined through visitor surveys, observations, interviews, and public participation from a cross-section of Forest visitors that will include all activities that take place on the RGNF.

The costs of Scenic Resource Monitoring include the amount of time the Forest landscape architect will spend in the field taking photographs; doing on-site inspections; entering data; performing computer analysis; preparing evaluation reports; and conducting visitor interviews, surveys, and observations.

General Infrastructure

This section includes dams, facilities, drinking-water sources, road and trail bridges, and Forest Development Roads. All of these items are inspected and maintained on regular schedules that comply with Forest Service policies and/or state and federal regulations. For the purpose of Forest Plan monitoring, we have concluded that a portion of the inspection and maintenance is considered Forest Plan monitoring and evaluation.

Dams - The inspection of the Forest's jurisdictional dams is required by the State of Colorado. The State Engineer conducts these safety and maintenance inspections on a 1-to-3-year rotation cycle, depending on the hazard classification of the dam. Forest Service engineers accompany the State inspectors and are also responsible for coordinating and overseeing repairs of dams that fall under Forest Service control or permit. Forest Engineers conduct inspections of the non-jurisdictional low-hazard dams on the Forest on a five-year rotation, and schedule/perform any required repair work accordingly. Inspection reports will be maintained on file, and annual findings summarized in the monitoring report.

Facilities - The monitoring of facilities is not legally required by regulations. However, Forest Service Manual direction requires us to inspect RGNF structures for health, safety, and maintenance annually, which we intend to accomplish. These inspections are conducted by the Forest facilities engineer, in conjunction with Ranger District personnel. Repair and upgrade projects are then planned from these inspections. Inspection reports will be maintained on file; findings will be summarized in the annual monitoring report.

Drinking Water - The Safe Drinking Water Act (SDWA) requires suppliers of public drinking water to monitor and test supply systems in accordance with the procedures set forth in the Act, to ensure users are supplied with clean, safe drinking water. The Forest will continue to comply with these frequency, reporting, and follow-up requirements.

Forest Engineers will manage this testing, which is normally contracted through local state-certified testing laboratories. Results will be forwarded to the State Department of Health, as required. They will also be maintained on file on the Forest and summarized in the annual monitoring report. Positive test results will be handled immediately, in accordance with the SDWA.
The Forest will also conduct periodic Sanitary Survey Inspections of its potable-water systems, to determine needs for maintenance and improvements. These inspection reports will also be maintained on file.

Road Bridges - The Federal Highway Administration (FHWA) requires that all bridges under the jurisdiction of the Highway Transportation Safety Act be inspected for safety, maintenance, and load rating every two years, in accordance with national Bridge Inspection Standards. Inspections must be conducted by certified inspectors and critical deficiencies handled immediately, or the bridge must be closed. Maintenance requirements are programmed and budgeted for follow-up work. The Forest will continue to comply with this inspection requirement, with contracted inspections or internal certified engineering inspectors. Inspection reports will be filed with the FHWA, with copies maintained on file on the Forest. Findings will also be summarized in the annual monitoring report.

Trail Bridges - Monitoring trail bridges is not legally required, though Forest Service Manual policy suggests the Forest's trail bridges be inspected for safety and maintenance on a four-year-rotation basis. Inspections will be done by Forest Engineering personnel. Inspection reports will be maintained on file and will be summarized in the annual monitoring report.

Forest Development Roads - Monitoring of Forest Development Roads is not specifically required by regulations. However, Forest Service Manual and Handbook direction suggests monitoring and evaluation of Forest Development Roads for safety and maintenance, to ensure compliance with the Transportation Safety Act, and to protect the investment in these travelways. This includes monitoring construction, reconstruction, obliteration, use patterns, service and maintenance levels, travelway surfaces, signage, drainage, and resource impacts from roads.

The Forest road maintenance manager, in conjunction with Ranger District personnel, will conduct this monitoring. The requirements of the Transportation Safety Act and the Manual of Uniform Traffic Control Devices will be used to assist in this effort. Inspection frequencies vary, depending on maintenance levels and use. Inspection reports, in the form of Road Management Objective Worksheets and maintenance worksheets, will be maintained on file, and the general condition and findings will be reported in the annual monitoring report.

Travel Management

Monitoring of travel management is not legally required. Monitoring of off-road travel is required, however, and is a portion of overall travel management administration. That portion has already been described, in the Dispersed Recreation section. The Forest will monitor and evaluate the Travel Management Plan for compliance with the Forest Plan, to ensure the general infrastructure is meeting the needs of Forest users for access and multiple-use management. This will be done through user surveys and contacts, on-the-ground inspections, and employee observations. This will be completed by the Forest travel management coordinator, in conjunction with Ranger District personnel. Findings and recommendations will be summarized in the annual M&E Report.

Road-Construction Closures

Monitoring and evaluation of closures of roads used for timber sales and oil and gas exploration for compliance with the Forest Plan and individual project EAs is not a legal requirement, though very important. This will be completed by timber sale administrators and the oil and gas coordinator, in conjunction with Forest engineers. Costs cover field visits and reports.

Health and Safety

This monitoring objective focuses on meeting the intent of National Health and Safety Codes and Occupational Safety and Health Administration guidelines. While it is the Forest's policy to meet the intent of safe work practices, there is no legal requirement for monitoring of those items. The Forest will meet the intent of those laws and regulations through normal inspection and maintenance of public facilities.

Research and Information Needs

There is no legal requirement to monitor progress on research and information needs. The Forest believes it is prudent to track these items, however, for public information. Monitoring this item would be included in the Annual Monitoring Operation Plan (AMOP), and is optional.

ANNUAL MONITORING OPERATION PLAN AND THE ANNUAL MONITORING AND EVALUATION REPORT

Annual monitoring work is most efficiently accomplished if an Annual Monitoring Operation Plan(AMOP) is developed. The AMOP details the monitoring work expected to be completed in the upcoming year. The AMOP is developed by the IDT and approved by the Forest Supervisor. It describes reasons, methods, locations, responsible persons, and estimated costs. The Forest will then allocate part of the annual budget to assure that the AMOP is accomplished.

An Annual Monitoring and Evaluation Report (M&E Report) will be prepared by the Forest Interdisciplinary Team. This report will contain recommendations to the Forest Supervisor regarding the effects and outcomes of Forest Plan implementation. This information is available to the public, Forest Service Research Division, other government agencies, and individuals.

The M&E Report will summarize data and make evaluations in response to the Six Management Decisions. If responses support the existing Forest Plan, then no changes are needed and the Plan will continue to direct management. If there are inconsistencies, then appropriate amendment or revisions may be necessary.

Research and Information Needs Assessment

The Forest has identified a number of research or information needs where additional information would be useful in conducting the Monitoring and Evaluation program. These topics are summarized below.

* Range conditions baseline data.
* Improvement of the data on composition, structure, and processes for Landtype Associations.
* Old-Growth Inventory based on Region 2 (Mehl, 1992) criteria.
* Habitat relationships.
* More accurate road inventory.
* Constituent survey information.
* Update of Scenery Management System as new information becomes available; for example, new roads and trails.
* Riparian classification and mapping.
* Ethnographic studies to help determine where and what type of American Indian traditional cultural properties exist on the Forest.
* Additional data on the flora and fauna on the Forest.
* Recreation impacts on wildlife.
* Nutrient-cycling information specific to our area.

The Forest IDT believes it is important to the public that we track these items over the life of the Plan. We have added a Monitoring Objective for that purpose.

Features and Assumptions of the Monitoring Table

A number of respondents to the Draft Plan expressed the need for an example of how the monitoring process would work. Here is a brief one:

Step 1: The IDT identifies monitoring priorities and develops the Annual Monitoring Operation Plan. This would include, as a minimum, legally required monitoring items, as well as any important additional items. The IDT develops a proposal of monitoring objectives, tools, costs, and needs. As an example, one monitoring need might be to monitor Ripley milkvetch, with an estimated annual cost of about $2,500 (shown as 2.5 (A)).

Step 2: The Forest Management reviews the numerous proposed monitoring items and allocates funds as appropriate. The IDT or specialists conduct monitoring. In our example, the Ripley milkvetch monitoring is approved and funded.

Step 3: The monitoring is implemented and completed, and results are summarized in the Annual M&E Report. The Report also evaluates the Six Planning Decisions.

Costs of Completing the Legally Required Monitoring Program

The estimated annual costs of the legally required monitoring program range from about $200,000 to $220,000, comprising about 3.5 % of the Forest's budget ($5,666M). This cost assumes all the tools

listed under a required Monitoring Objective would be used in a given year. The costs are only estimates, and efficiencies may create monitoring opportunities.

A fully budgeted monitoring program, whereby both legally required and non-required objectives are monitored, would cost about $397M, or 7.0 % of the budget. The year-to- year monitoring program costs would vary, depending on monitoring issues, expected budgets, and Forest priorities.

Monitoring Table

This table outlines the Forestwide Desired Conditions, Monitoring Objectives, and specific monitoring methods that would be conducted at specified frequencies. The monitoring Methods would determine whether Desired Conditions are being achieved and whether the Six Forest Plan Decisions are still appropriate or in need of amendment. The table begins with an Objective for a particular resource. Below that are the various monitoring tools that could be used in addressing that Objective.

The Monitoring Objective may include a Code of Federal Regulations citation, such as (36 CFR 219.12 (k)), or other citation. This means that the Monitoring Objective is required by regulation or law. Any of the tools listed below that Objective may be used singly or in combination to respond to the legal requirement. If there is no legal citation, then the Monitoring Objective is not legally required and would be done only when the annual Operation Plan includes it.

“Tools/Method ” describes how measurement would be made. “Precision Class” describes the general precision, accuracy, and reliability that apply to the tools/method. “Frequency” describes how often the particular tool would be used to measure resource conditions. “Report Method” describes in what form the monitoring would be reported. “Responsible Person/Group” is the one responsible for incorporating the information into the necessary reports. “Estimated Annual Cost” are shown as "annual cost"(A) in thousands of dollars. All monitoring, legally required or not, is estimated at the minimum level.

The next column shows “Which of the 6 decisions are addressed” by this monitoring method. The Six Plan Evaluations are:

1) Are the Goals, Objectives, and Desired Conditions of the Plan still appropriate?
2) Evaluate whether Forest Direction is still appropriate.
3) Evaluate land suitability.
4) Evaluate whether Management Area Prescriptions allocations and Standards and Guidelines are still appropriate.
5) Evaluate the monitoring approach.
6) Evaluate whether there need to be recommendations to Congress.

Table V -1. Monitoring

DESIRED-CONDITION CATEGORY, MONITORING-OBJECTIVE STATEMENT, AND CFR CITATION IF LEGALLY REQUIRED

Tool/ Method	Class	Precision	Frequency Method	Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Desired Condition for Biodiversity								
Objective: Viability - Monitor the change in occurrence of selected native species (Fine Filter). 36 CFR 219.27 and .19 (6)								
a) Ripley milkvetch Plots/transects		A		Annually for first 5 yrs.	M&E Report	Ecologist	2.5 (A)	1,2,4,5
b) Rio Grande cutthroat (RGC) stream stocking		A		10% of RGC 327H streams annually.	M&E Report	Fish Biologist/DOW	1.5 (A)	1,2,4,5
c) Boreal toad Ocular surveys		B		All known and historic sites	M&E Report	Wildlife Biologist/ DOW	4.5 (A)	1,2,4,5
d) Peregrine falcon Ocular surveys of nests		A		All known nests annually.	M&E Report	Wildlife Biologist/ DOW	1.2 (A)	1,2,4, 5
e) SW willow Flycatcher Transects		A		10% of SWFC habitat annually	M&E Report	Wildlife Biologist/ DOW	1.5 (A)	1,2,4, 5
f) Black swift ocular surveys of nests		A		All known nests every 3 years	M&E Report	Wildlife Biologist/ DOW	1.5 (A)	1,2,4
g) Bats ocular visit of roosts		A		All known roosts every 5 years	M&E Report	Wildlife Biologist/ DOW	1.5 (A)	1,2,4
h) Birds associated with Spruce/Fir Forests. Point counts, nest search, mist netting		A		Annually	M&E Report	Wildlife Biologist/ DOW	30.5 (A)	1,2,4
Objective: Viability -- monitor the change in selected species habitat (Coarse Filter). 36 CFR 219.27)								
a) Plants listed in EIS (Sensitive Plants, Special Concern Plants, and Significant Plant Communities section) other than Ripley milkvetch. Photo interp/site visits/ GIS/satellite imagery		B		All occurrences every 10 years	M&E Report	Ecologist	0.2 (A)	1,2,4,5
b) Snag-dependent species. Aerial mapping of current insect, disease, and fire events.		B	3 years	Once every	M&E Report	Wildlife Biologist	3.3 (A)	1,2,4

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
c) Animals listed in EIS (Threatened, Endangered, and Sensitive Animals/ Viability section) except those species addressed above and those which can be covered under the Riparian/Wetland Objective.	B	Once every 10 years	M&E Report	Wildlife Biologist	0.5 (A)	1,2,4
Objective: Diversity -- monitor change in composition, structure, and pattern for each Landtype Association. (36 CFR 219.27)						
Photo Interp./GIS/ Satellite imagery/ spatial analysis	B	Once every 10 years.	M&E Report	Ecologist/Wildlife Biologist	0.5 (A)	1,2,4
Objective: Diversity -- validate the vegetative composition and structure of LTA 1 reference landscapes. (36 CFR 219.27)						
Photo Interp./GIS/ Satellite imagery/ site visit.	B	Once every 10 years.	M&E Report	Ecologist/Wildlife Biologist	0.7 (A)	1,2,4,5
Objective: Diversity -- Monitor changes in CNHP Significant Plant Communities listed in EIS (Sensitive Plants, Special Concern plants, and Significant Plant Communities section). (36 CFR 219.27)						
Photo Interp./ site visits/GIS/ satellite imagery	B	Once every 10 years.	M&E Report	Ecologist	0.2 (A)	1,2,4,5
Objective: Diversity -- Monitor the progress of old-growth (Mehl, 1992) inventory/reconnaissance on the Forest.						
Ocular/Plots/GIS/ Satellite imagery	B	Annually	M&E Report	Ecologist/Wildlife Biologist/Forester	1.0 (A)	1,2,4
Objective: Evaluate biodiversity and wildlife related to: a) Forestwide Goals, Objectives, and Standards & Guidelines, b) Management-Area Prescription Objectives, Desired Conditions, and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k).						
Ocular/Plats/ Transects	B	20% of projects annually	M&E Report	Ecologist/Wildlife Biologist	10.0 (A)	1,2,4,5
DESIRED CONDITIONS FOR AIR QUALITY						
Objective: Monitor and evaluate visibility, lake chemistry, and terrestrial systems as described in the Forest Air Monitoring Plan. (36 CFR 219.27 (a)).						
Photographic documentation of visibility	B	Coordinate with NPS every year	M&E Report	Hydrologist	1.0 (A)	1,2,4
Chemistry of most sensitive Wilderness lakes	A	3 times/year at each of 8 lakes	M&E Report	Hydrologist	11.0 (A)	1,2,4
Tool/	**Precision**	**Frequency**	**Report**	**Responsible**	**Estimated**	**Which of 6**

Method Class	Method	Method	Person/Group	Annual Cost	Decisions are (A) $M	Addressed
Health of terrestrial systems such as lichen communities	B/A	Projects that could alter terrestrial AQRVs	EA and M&E Report	Hydrologist	1.5 (A)	1,2,4
Objective: Monitor and evaluate implementation and effectiveness of burn plan conditions to protect air quality. (36 CFR 219.27 (a))						
Visual verification of smoke dispersal	B	20% of burn projects/year	M&E Report	District Project Leader	0.5 (A)	1,2,4
Objective: Assess Air Resources-related: a) Goals/Objectives/Desired Conditions; b) Forestwide Standards and Guidelines; c) Management-Area Prescription allocations, and Standards and Guidelines, and d) monitoring approaches. (CFR 219.12)						
Comparative evaluations	B	Annually	M&E Report	TCE Team	0.5 (A)	1,2,3,4,5
DESIRED CONDITIONS - TIMBER						
Objective: Monitor and evaluate restocking of harvest areas. (36 CFR 219.12)						
Stocking surveys	A	1st/3rd/ 5th year after final harvest	Silvicultural Report	Silviculturist	8.5 (A)	1,2,3,4
Objective: Assess timber suitability. (36 CFR 219.12; 219.27)						
Standard suitability-determination methods, planning (Forestwide) level.	A	Year 10 of 10-year plan.	M&E Report	Analyst/ Silviculturist	2.0 (A)	1,2,3,4
On-site inspections, inventory growth/ yield exams, soil sampling	B	On going	Project/M&E Report	Silviculturist/ Forester/TSA/ Soil Scientist	1.0 (A)	1,2,3,4
Objective: Assess insect and disease infestations relative to endemic levels. (CFR 219.12)						
On-site inspections, with surveys.	B/A	On going	Inspection/Risk assessment reports	Silviculturist/Prep/ Admi. Foresters & R2 I/D Specialists	9.0 (A)	1,2,4
Objective: Monitor the size of harvest openings. (CFR 219.27)						
Traverses, A stocking surveys, and site inspections	By project	Project Reports	Silviculturist/Prep	2.0 (A) Forester		1,2,3,4
Objective: Assess implementation of silvicultural objectives during pre-sale, harvesting, and post-sale periods.						
On-site inspections, photo points, density measurements	B	By Project	Cutting Unit cards inspection/ M&E Report/Photos	Silviculturist/ Prep Forester, ID Team	8.0 (A)	1,2,3,4

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Objective: Assess output performance of timber sale program quantity components as compared with projected outputs (CFR 219.12)						
Comparative evaluations	A	Annually	M&E Report Staff	Analyst/Timber	3.0 (A)	1,2,4
Objective: Assess Timber-related: a) Goals/Objectives/Desired Conditions, b) Forestwide Standards and Guidelines, c) Management-Area Prescription allocations and Standards and Guidelines, and d) monitoring approaches. (CFR 219.12)						
Comparative evaluations	B	Annually	M&E Report	TCE Team	2.0 (A)	1,2,3,4,5
DESIRED CONDITIONS FOR FIRE AND FUELS MANAGEMENT						
Objective: Assess Fire and Fuels Management Program related to: a) Forestwide Standards & Guidelines, Objectives, and Desired Conditions; b) Management-Area Prescription Objectives, and Standards & Guidelines; and c) monitoring approaches.						
Ocular/transects on-site inspections and surveys	B	Annually	M&E Report Fire Mgt. Action Plan	FMO/Ecologist Silviculturist	1.0(A)	1,2,4,5
DESIRED CONDITIONS FOR RANGE						
Objective: Evaluate range program related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k)).						
Comparative evaluations	B	Annually	M&E Report	Range Team	0.5 (A)	1,2,3,4,5
Objective: Monitor and evaluate the rangeland seral stage to ensure the Desired Conditions.						
Evaluate suitable acres for desired conditions per *R2 Rangeland Analysis & Management Training Guide* (RAMTAG).	A	Approximately 35,000 acres per year	M&E Report	Range Conservationist	16.0 (A)	1,2,4,5
Monitor Desired Condition transects for trend.	A	per R2 (RAMTAG)	M7E Report	Range Conservationist	12.0 (A)	1,2,4,5
Objective: Assess the suitability of rangelands.						
Evaluate suitability of Forest Plan Rangelands	A	Annually	M&E Report	Range Conservationist	0.2 (A)	3,4

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Evaluate suitability of rangelands at AMP level	A	By AMP	M&E Report	Range Conservationist	0.4 (A)	3,4
Objective: Monitor utilization of rangelands.						
Monitor utilization of suitable acres per RAMTG	A	Annually	M&E Report	Range Conservationist	20.0 (A)	1,2,4
DESIRED CONDITIONS FOR NOXIOUS WEEDS						
Objective: Evaluate noxious weeds related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions, and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k)).						
Comparative Evaluations	B	Annually	M&E Report	Range Conservationist	0.5 (A)	1,2,3,4,5
Objective: Assess the extent of infestation and control methods of noxious weeds.						
Monitor noxious-weed infestations and control methods by using on-the-ground surveys.	B	Annually	M&E Report	Range Conservationist	5.0 (A)	1,2,4
DESIRED CONDITION FOR AQUATIC RESOURCES						
Objective: Monitor and evaluate disturbances watershed by watershed, to ensure watershed health is protected. (36 CFR 219.27)						
Total & connected disturbance, past, present, & foreseeable future actions, watershed by water-shed, compared to concern levels Level I assessment.	B	Each surface-disturbing project	EA and M&E Report	Hydrologist	10.0 (A)	1,2,4
Objective: Monitor and evaluate stream and riparian health and associated habitat by comparing impacts to reference areas (36 CFR 219.27a)						
Stream Health: Physical, chemical, and biological metrics compared to reference streams. Includes riparian/ floodplain function and condition. Level III assessment	A	1 stream for each EA	EA and M&E Report	Hydrologist/Fish Biologist	8.0 (A)	1.2.4

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Long-term recovery of damaged streams (priority given to watersheds of concern). Metrics mentioned above used. Mostly Level III assessment.	A 2 Streams Rec 2 streams Tim	2 streams Rng every 3rd year	M&E Report	Hydrologist/Fish Biologist	3.5 (A)	1,2,4
Monitor streams within identified watersheds of concern to see if streams have been damaged. Level II assessments.	A/B	at least 2 per year	M&E Report	Hydrologist/Fish Biologist	1/1 (A)	1,2,4
Objective: Assess Aquatic Resources-related: a) Goals/Objectives/Desired Conditions, b) Forestwide Standards and Guidelines, c) Management-Area Prescription allocations and Standards and Guidelines, and d) monitoring approaches. (CFR 219.12)						
Comparative evaluations; implementation *Watershed Conservation Practices Handbook*	B	Annually	M&E Report	Hydrologist/Soil Scientist	6.5 (A)	1,2,3,4,5
DESIRED CONDITIONS FOR SOILS						
Objective: To assure that land productivity is maintained or improved, monitor and evaluate soil disturbances in activity areas. (36 CFR 219.12 (k) and .27 (A) (1)						
Monitor soil-quality standards using techniques such as Hazard/ Geist or other method.	A	One study every 3 years	M&E Report Tech. Report	Soil Scientist	4.0 (A)	1,2,3,4,5
Use state-of-art erosion model to predict erosion or to analyze projects after completion.	A	On projects where high Erosion Hazard exists or if soils are key issue.	Project file/ M&E Report	Soil Scientist	4.0 (A)	1,2,3,4,5
Ocular estimates, pace transects, on-site investigations, professional judgement Monitor fertility and organic-matter relationships	B	On Projects where high erosion hazard or mass-move-. ment potential exist or soils are key issue	Project files, M&E Report	Soil Scientist	10.0 (A)	1,2,3,4,5
Mass-movement evaluation. Monitor existing problem areas and also potential problem areas	B	On projects where mass-movement potential is moderate to high	Project file, M&E Report	Soil Scientist/ Geotechnical Engineer	1.5 (A)	1,2,5

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Objective: Monitor and evaluate reclamation and revegetation efforts.						
On-site inspections and/or random transects, District project records. Also, erosion models.	B	At least 2 projects per year	M&E Report	Soil Scientist Hydrologist	2.0 (A)	1,2,5
Objective: Evaluate soil productivity related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area allocations and monitoring methods. (36 CFR 219.12 (k))						
Based on project results, field reviews data analysis, and modeling results	B	On projects where soils issues were raised.	M&E Report	Soil Scientist	1.5 (A)	1,2,3,4,5
DESIRED CONDITIONS FOR MINERALS						
Objective: Monitor and evaluate oil and gas activities so that resource effects do not exceed those predicted in the RFD and EIS by more than 10 %.						
Compare annual and cumulative oil and gas activity to assure that oil and gas effects do not exceed those described in EIS by more than 10%	B	Annually	M&E Report	Minerals Specialist	0.5 (A)	1,2
Objective: Verify that specific areas proposed for lease are compatible with Forest Plan Stipulations and that environmental effects have been adequately described in the EIS. Assess whether occupancy could be allowed somewhere on the lease tract proposal. (36 CFR 228.1.2 (e) 1,2,3						
Use the verification form to assure that lease Stipulations are appropriately attached to leases.	B	Each Lease	Each Lease, M&E Report	Minerals Specialist and IDT	7.0 (A)	1,2,3
Objective: Evaluate minerals program related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions, and Standards & Guidelines; and c) Management-Area allocations and monitoring methods. (36 CFR 219.12 (k)						
On-site inspections of mineral activities, reports, field visits, Report Summary	B	By project	Project file & Communication M&E Report	Minerals Specialist and IDT	2.0 (A)	1,2,3,4,5,6

Tool/ Method	Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
DESIRED CONDITION FOR UNROADED AREAS							
Objective: To ensure the unroaded areas' natural characteristics and resource values are protected, monitor and evaluate resource activities within selected backcountry areas.							
Monitor resource-management activities within two representative backcountry areas.		B	Annually	M&E Report	Forest Recreation Staff, Specialist and Core team	8.0 (A)	1,2,4
Objective: Evaluate backcountry areas related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions, and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Comparative evaluations		B	Annually	M&E Report	Forest Recreation Specialist and Core Team	1.5 (A)	1,2,4,5
DESIRED CONDITIONS FOR WILD AND SCENIC RIVERS							
Objective; To protect the eligible Wild and Scenic River values, evaluate resource activities within a selected river corridor.							
Monitor resource-management activities within one river corridor		B	Every 3 years or when project is proposed	M&E Report	Forest Recreation Specialist and Core Team	6.0 per study or 2.0 (A)	1,2,4,6
Objective: Evaluate eligible Wild and Scenic River corridors related to: a) Forestwide Goals, Objectives and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions, and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Comparative evaluations		B	Every 3 years	M&E Report	Forest Recreation Specialist and Core Team.	0.3 (A)	1,2,4,5
DESIRED CONDITIONS FOR WILDERNESS							
Objective: To preserve and protect values for which Wilderness was created, monitor and evaluate visitor-use levels and other Wilderness resources. (36 CFR 293.2)							
Coordinate and schedule for implementation those Priority 1 recreation items outlined in the WIS.		B	Annually	Wilderness Report	District Wilderness Coordinators & Rangers	9.0(A) /Wilderness	1,2,4

Tool/ Method	Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Objective: Evaluate Wilderness related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Comparative evaluations		B	Annually	M&E Report	District Wilderness Coordinators & Rangers	1.0 (A)	1,2,4,5
DESIRED CONDITIONS FOR SPECIAL INTEREST AREAS							
Objective: Protection measures and interpretive efforts will be assessed.							
Ocular surveys/ Plots/Transects		B	Once every 5 years on all SIA's	M&E Report	Ecologist/ Archeologist/ District	0.3 (A)	1,2,4,5
Objective: Evaluate special interest areas related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management- Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Summarize reports or information from Districts		B	Once every 5 years	M&E Report	Forest Archeologist	0.3 (A)	1,2,3,5
DESIRED CONDITIONS FOR NATURAL AREAS							
Objectives: Evaluate RNAs related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Ocular/Plots/ Transects/GIS		B	Once every 5 years on all RNAs	M&E Report	Ecologist	0.4 (A)	1,2,4,5
DESIRED CONDITIONS FOR HERITAGE RESOURCES							
Objective: Monitor and evaluate projects to assure heritage resources have been appropriately protected.							
On-site inspection of each National Register-eligible heritage resource identified for protection from project activities (as identified in the report to State Historic Preservation Officer)		B	By qualifying project	M&E Report	Archeologist or District	6.0 (A)	1,2,5

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Objective: Monitor and evaluate consultations with American Indians concerning areas of cultural importance.						
Assess proposed management activities to determine if American Indian consultation was accomplished.	B	By project	Annual Report	Archeologist or District	1.0 (A)	1,2
Objective: Heritage Resources related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management-Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))						
Summarize Reports	B	Annually	M&E Report	Archeologist	0.5 (A)	1,2,5
DESIRED CONDITIONS FOR DEVELOPED RECREATION						
Objective: Assess developed sites for: a) visitor expectations, trends, and customer satisfaction; and b) quality and safe facilities.						
A. Developed sites conduct customer survey	B	Every 5 years	Customer Survey report	Forest & Ranger District personnel	15.0/survey or 1.5 (A)	1,2,4
Hazard inspections	B	Annually	Site Record M&E Report	I&D specialist District Recreation timber personnel	2.5 (A)	1,2,4
B. Ski Area Monitor ski area summer and winter activities	B	Annually	Compliance Report	District Winter Sports Personnel & Forest Specialist	10.0 (A)	1,2,4
C. Special-Use Permits. Monitor 30% of Special-Use Permits	B	Annually	Compliance Report	Forest & Ranger District Recreation personnel	10.0 (A)	1,2,4
Objective: Assess developed-site actual use compared with projected outputs in the Plan. (36 CFR 219.12 (k) (1)).						
Monitor developed-site rates and use.	B	Annually	MM Evaluation Report	Forest & Ranger District Recreation Personnel	1.5 (A)	1,2,4,5
Objective: Evaluate developed sites related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management- Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))						
Evaluate Meaningful Measure Recreation component Standards	B	Annually	MM Evaluation Report	Forest & Ranger District Recreation Personnel	1.0 (A)	1,2,4,5

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Comparative Evaluation	B	Annually	M&E Report	Forest & Ranger District Recreation Personnel	1.0 (A)	1,2,4,5

DESIRED CONDITIONS FOR DISPERSED RECREATION

Objective: Evaluate the traditional and nontraditional recreational opportunities consistent with Needs Assessment and Management-Area Objectives.

A. Trails Schedule trail-log inventory on 10-15% of Forest trails using GPS.	A	Annually	Update GIS & trail inventory	Forest Trails Specialists & District Trail Coordinators	25.0 (A)	1,2,4
B. Capacity Allocation. Monitor 2-3 representative watersheds	B	Annually for 5-years then every 2 years	Capacity Study	Forest Recreation Specialist & Core Team	7.0 (A)	1,2,4

Objective: Monitor effects of off-road-vehicle use off forest roads and trails. (36 CFR 295.5)

Monitor selected ATV game-retrieval and snowmobile areas	B	Annually	M&E Report	Forest Recreation Specialist & Core Team	8.0 (A)	1,2,4

Objective: Evaluate dispersed recreation areas related to: **a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management- Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))**

Comparative evaluation	B	Annually	M&E Report	Forest Recreation Specialist	1.5 (A)	1,2,4,5

DESIRED CONDITION FOR SCENIC RESOURCES

Objective: To determine if Scenic Integrity Objectives have been met during project implementation: Assess changes in Scenic Integrity with respect to ROS classes.

On-site scenic inspections and/ or photo-point monitoring	B	2nd year after timber harvesting, and/or by project	As needed	Landscape Architect	17.0 (A)	1,2,4

Objective: To determine if Scenic Integrity Objectives have been met based on visitors'/users' desires and expectations: Assess Constituent Survey information.

Constituent surveys, visitor observations, Constituent interviews, & public participation	B	Annually	Constituent Survey Report Summary	Landscape Architect	13.0 (A)	1,2,4

Tool/ Method	Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Objective: Evaluate scenic resources related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management- Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))							
Summarize Report		B	Annually	M& E Report	Landscape Architect	0.5 (A)	1,2,3,5

DESIRED CONDITIONS FOR INFRASTRUCTURE

Objective: Assess dams, bridges, facilities, drinking water, roads, travel management, and planned road closures for compliance with state and federal laws and requirements and Forest Plan and Forest Service Manual/Handbook direction. (Safe Drinking Water Act, Highway Transportation Safety Act.)

Dams - State Engineer and Forest Engineer inspect for safety and maintenance.	A	High-hazard annually. Medium-hazard every 3 years. Low-hazard every 5 years.	Inspection Reports M&E Report	Engineering	2.0 (A)	1,2
Facilities - Forest Facilities Engineers safety and maintenance inspections	A	Annually	Inspection Reports M&E Reports	Engineering	6.0 (A)	1,2
Drinking Water Test IAW Safe Drinking Water Act (SDWA) Inspect for health and safety	A	Varies-as required by SDWA.	Test Reports Pos Results handled per SDWA M&E Report	Engineering	3.0 (A)	1,2,5
Road Bridges- Inspect for safety and maintenance as required by Federal Highway Administration (FHWA)	A	50% of all road bridges Annually	Inspection Engineering Reports M&E Report	8.0 (A)	1,2	
Trail Bridges - Inspect for safety and maintenance	A	25% per Year	Inspection Reports M&E Report	Engineering	1.0 (A)	1,2
Forest Development Roads - inspect for safety and maintenance. IAW FSM/FSH direction.	A/B	Per FSM and FSH.	Engineering Study Reports. Road Management Objective Worksheets. M&E Report	Engineering	8.0 (A)	1,2

Tool/ Method Class	Precision Method	Frequency Method	Report Person/Group	Responsible Annual Cost	Estimated Decisions are (A) $M	Which of 6 Addressed
Travel Management - Monitor compliance with travel management plan. User surveys and on-the-ground inspections.	B	Annually	Summarized in in annual M&E Report	Recreation/ Engineering	5.0 (A)	1,2,4
Road Closures - Assess planned road closures through on-site inspections.	B	Annually/at close of projects	M&E Report	Sale Administration Engineering	1.0 (A)	1,2,4
Objective: Evaluate Infrastructure related to: a) Forestwide Goals, Objectives, and Standards & Guidelines; b) Management- Area Prescription Objectives, Desired Conditions and Standards & Guidelines; and c) Management-Area Prescription allocations and monitoring methods. (36 CFR 219.12 (k))						
Summarize inspection	B	Annually	M&E Report	Engineering	0.5 (A)	1,2,4,5
DESIRED CONDITIONS FOR HEALTH AND SAFETY						
Objective: Monitor and evaluate Forest activities with respect to National Health and Safety Codes and Occupational Safety and Health Administration guidelines.						
Review and monitor guidelines on public safety and health	B	Annually	Annual Report	Forest Planning Team Leader and Rangers	1.0 (A)	1,2
DESIRED CONDITIONS FOR RESEARCH AND INFORMATION NEEDS ASSESSMENTS						
Objective: Determine progress on various items identified in that section of the Plan.						
Evaluate and assess progress	B	Annually	M&E Report	Forest Planning Team Leader	0.5 (A)	1,5

FOREST PLAN
APPENDICES

APPENDIX A
National Goals Relevant to Land and Resource Management
(based on FSM Objective Statements)

AIR QUALITY - FSM 2580.2

1. Protect air quality related values within Class 1 areas, as described in 42 U.S.C.7475 (d)(2)(B) and (c) and section 2580.5.
2. Control and minimize air pollutant impact from land management activities.
3. Cooperate with air regulatory authorities to prevent significant adverse effects of air pollutants and atmospheric deposition on forest and rangeland resources.

FISH AND WILDLIFE - FSM 2602

1. Maintain ecosystem diversity and productivity by:
    a. Recovering threatened or endangered species.
    b. Maintaining at least viable populations of all native and desired non-native wildlife, fish, and plants in habitats distributed throughout their geographic range on NFS lands.
    c. Producing habitat capability levels to meet sustained yield objectives relative to demand for featured management indicator species identified in RPA and Forest Plans.
2. Provide diverse opportunities for esthetics, consumption, and scientific uses of wildlife, fish, and sensitive plant resources in accordance with National, Regional, state and local demands.

Threatened and Endangered Species - FSM 2670.21

Manage NFS habitats and activities for threatened and endangered species to achieve recovery objectives so that special protection measures provided under the ESA are no longer necessary.

Sensitive Species - FSM 2670.22

1. Develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions.
2. Maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on NFS lands.
3. Develop and implement management objectives for populations and/or habitat of sensitive species.

Animal Damage Management - FSM 2650.2

To protect resources and permitted livestock from animal damage on NFS lands and to protect human health and safety.

FIRE MANAGEMENT - FSM 5102

To protect, maintain, and enhance the production and quality of national forest resources through fire protection and use of prescribed fire.

Fire Suppression - FSM 5130.2

To suppress wildfires at minimum cost consistent with land and resource management objectives and fire management direction as stated in fire management action plans.

Prescribed Fire - FSM 5140.2

To use prescribed fires, from either management ignitions or natural ignitions, in a safe, carefully controlled, cost-effective manner as a means of achieving management objectives defined in the Forest Plan.

Fuel Management - FSM 5150.2

To identify, develop, and maintain fuel profiles that contribute to the most cost-efficient fire protection and use program in support of land and resource management direction in the forest plan.

SOIL RESOURCE IMPROVEMENT - FSM 2553.02

1. To improve soil quality to selected levels for specific purposes by mechanical treatment, chemical, or other soil additives, irrigation, or vegetative manipulation.
2. To habilitate soils that are in unsatisfactory condition.

WATERSHED MANAGEMENT - FSM 2502

1. To protect and, where appropriate, enhance soil productivity, water quality and quantity, and timing of waterflows.
2. To maintain favorable conditions of streamflow and continuous production of resources from NFS watersheds.

Watershed Protection and Management - FSM 2520.2

To protect National Forest watersheds by implementing practices designed to retain soil stability, improve or maintain site productivity, secure favorable conditions of water flow, and preserve or enhance aquatic values.

Watershed Improvement - FSM 2522.02

1. Restore hydrologic balance of degraded watershed areas by stabilizing soil, controlling surface run-off and erosion, reducing flood potential, and improving long-term soil productivity.
2. Improve soil and water quality.

Riparian Areas - FSM 2526.02

1. To protect, manage, and improve riparian areas while implementing land and resource management activities.

2. To manage riparian areas in the context of the environment in which they are located, recognizing their values.

Floodplain Management Wetland Protection - FSM 2527.02

1. To reduce risk of flood loss.
2. To minimize impacts of floods on human safety, health, and welfare.
3. To minimize destruction, loss, and degradation of wetlands.

Burned Area Emergency Rehabilitation - FSM 2523.02

To provide for immediate rehabilitation of watersheds following wildfire to help stabilize soil, control water, sediment, and debris movement.

Water Quality Management - FSM 2532.02

To protect and, when needed, improve the physical, chemical, biological, and aesthetic quality of the water resource consistent with the purposes of the National Forests and National Water quality goals.

1. To provide water of a quality suitable for the beneficial uses identified in the land and resource management planning process.
2. To ensure safe drinking water subject to public use on National Forests, whether the source is a natural or developed water supply. [When state standards do not exist, observe EPA water quality criteria.]

RANGE MANAGEMENT - FSM 2202.1

To manage range vegetation to protect basic soil and water resources, provide for ecological diversity, improve or maintain environmental quality, and meet public needs for interrelated resource uses.

Wild Free-Roaming Horses and Burros - FSM 2260.2

To maintain wild free-roaming horse and burro populations in a thriving ecological balance in the areas they inhabit on National Forests.

TIMBER MANAGEMENT - FSM 2402

1. Provide a continuous supply of National Forest timber for the use and necessities of the citizens on the United States.
2. To provide, as far as feasible, an even flow of National Forest timber in order to facilitate the stabilization of communities and opportunities for employment.

Timber Management - FSM 2402

To cultivate and maintain tree stands in the manner that promotes and achieves a diverse pattern of vegetation that best meets the needs of people now and in the future.

Manage and provide for regeneration of tree stands.

Maintain a diversity of forest vegetation types and resources consistent with the Forest Plan.

Commercial Timber Sales - FSM 2430.2

1. To provide an orderly program of timber sales from each National Forest in accordance with the forest plan or approved interim plans.

2. To offer for sale the ASQ and other sales specified in Forest plans, subject to financing levels or other modification during their implementation.
3. To coordinate the timber sales program with planning, management, and use of other Forest resources.
4. To provide a continuous flow of raw material to local forest industries.

Harvest Cutting - FSM 2471.02
To manage timber and other forest resources for protection, enhancement, and sustained yield of those resources through the sale or permitted use of forest products with the long-term intent to regenerate the stand.

Silvicultural Practices - FSM 2470.2
To prescribe, implement, and monitor silvicultural practices that develop forest stand conditions which meet land management objectives designated in Regional guides and forest plans.

Reforestation - FSM 2470.02
1. To maintain all forest lands within the NFS in appropriate forest cover.
2. Improve the quality and yield of new timber stands.
3. Achieve desired time and stocking level goals in a cost-efficient manner.

Other Forest Products - FSM 2560.02
To provide free firewood and other wood for personal use in order to aid in the protection and silvicultural improvements of the National Forest when these needs cannot be met through the use of charge permits.

TSI - FSM 2476.02
Maintain or increase the growth rate, health, species composition, and/or improve the quality of stands for timber or other resource uses according to direction in the forest plan.

Salvage Sales - FSM 2435.02
To manage the use of salvage sale funds to provide for the rapid optimum practical use of wood material damaged through natural event, such as insects, windstorms, wildfires, hurricanes, and tornados.

MINERALS AND GEOLOGY - FSM 2802

1. Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources within the National Forest System in order to maintain a viable, healthy minerals industry and to promote self-sufficiency in those mineral and energy resources necessary for economic growth and the national defense.
2. Ensure that exploration, development, an production of mineral and energy resources are conducted in an environmentally sound manner and that these activities are integrated with the planning and management of other national forest resources.
3. Ensure that lands disturbed by mineral and energy activities are reclaimed for other productive uses.

Minerals Reservations Outstanding Mineral Rights - FSM 2830.2
To administer mineral reservations and outstanding mineral rights consistent with the rights reserved or outstanding and the acquired rights of the United States in a manner that minimizes damage to National Forest System resources.

Mineral Materials - FSM 2850.2
To meet the demand for mineral materials consistent with the management of other surface resources.

Reclamation - FSM 2840.2
1. Minimize the environmental impacts resulting form such activities.
2. Ensure that disturbed lands are returned to a use that is consistent with long-term forest land and resource management plans.

MUNICIPAL SUPPLY WATERSHEDS - FSM 2542.02

To manage National Forest system lands for multiple-use by balancing present and future resource use with domestic water supply needs.

SPECIAL USES - FSM 2702

To Authorize the use of National Forest System lands by Federal, State, and local agencies, as well as private industry and individuals, in accordance with governing laws and regulations to best serve the interest of the public and the United States.

Special-Use Authorization - FSM 2710.2
To issue appropriate special-use authorizations according to the law, regulations, and policy for occupancy and use of land in a manner consistent with the purpose of the National Forest System and forest plans.

Special-Use Administration - FSM 2721.02
To issue and to administer special-use permits for recreation uses that serve the public, promote public health and safety, and protect the environment.

Federal Power Act Projects - FSM 2770.2
To ensure hydroelectric production where it is compatible with National Forest purposes. To ensure that planning, construction, and operation of hydroelectric projects are performed in such a manner to protect or effectively utilize National Forest System land and resources.

Withdrawals - FSM 2761.02
1. Protect the United States' improvements and other unique values that are subject to disposition or destruction under the public land laws.
2. Provide a consistent and efficient withdrawal program that meets land and resource management objectives.
3. Ensure cooperation and coordination with the Secretary of the Interior and the Bureau of Land Management.
4. Encourage mineral activity where mineral extraction is the best use of the site.

Special-Uses Management - FSM 2730.2

1. Provide rights-of-way for the public road system, including the federal-aid system, when such roads cross National Forest System lands or interest in lands.
2. Accommodate the access needs of the protection, development, and utilization of lands and resources owned by private interests or administered by public agencies when the planned forest development road system and public road system do not meet those needs adequately.
3. Protect and enhance the quality of air, water, soil, and natural beauty of Forest Service-administered lands in the granting of any right-of-way.
4. Cooperate with intermingled and adjacent landowners in developing roads that serve the needs of both parties through the exchange of rights-of-way.
5. Provide access across National Forest System land to private land that is adequate to secure the owners thereof of reasonable use and enjoyment of their land without unnecessarily reducing the management options of the Forest Service or damaging National Forest lands or resources.

RURAL DEVELOPMENT - FSM 3602

1. To utilize Forest Service Programs and authorities to provide more jobs and income opportunities, to improve rural living conditions, to enrich the cultural life of rural America, and to maintain and protect the environment and natural resources of rural areas.
2. Participation in the Rural Conservation and Development Program (RC&D) is to improve the ability of state and local units of government and local sponsors to accelerate the conservation, development, and use of forest resources with the aim of improving the social, economic, and environmental conditions in an authorized RC&D area.

Rural Development - FSM 3610.2

1. To protect and manage the natural resources including scenic, wilderness, and other special values of forest and range environments in rural areas.
2. To promote research to expand the technological base for forestry and the use of forest products and to lend support for rural housing goals.
3. To encourage the development and transfer of technological improvements to protect and improve the quality of the rural environment, and to extend the supplies of natural resources.
4. To maintain or increase the forest land base, improve its productivity, and improve forest land-ownership patterns.
5. To promote orderly development and wise use of forest resources consistent with sound stewardship to develop and increase rural employment and income with the aim of improving or stabilizing rural social and economic conditions.
6. To expand public understanding of environmental conservation and natural resource planning, protection, and management and how stewardship is related to these activities.
7. To provide information and analysis for determining forest resource potentials and opportunities to enhance rural development.

Resource Conservation and Development Program - FSM 3620.2

1. To help provide the people of the area with employment and other economic opportunities through the orderly development, improvement, conservation, and utilization of forest land related resources in the RC&D areas.
2. To provide State and local leadership with the opportunity to coordinate and use the facilities and techniques available under current agricultural programs and any applicable new programs as may be instituted to aid in planning and carrying out a balanced program of development, conservation, and protection of natural resources to meet local, State, and national needs.
3. To develop a level of State and local leadership that can assume independent programs in forest and related resource management and achieve State and local forestry and related resource goals and objectives.

RANGE -- NATIONAL FORESTS - FSM 2202.1

1. To manage range vegetation to protect basic soil and water resources, provide for ecological diversity, improve or maintain environmental quality, and meet public needs for interrelated resource use.
2. To integrate management of range vegetation with other resource programs to achieve multiple use objectives contained in Forest land and resource management plans.
3. To provide for livestock forage, wildlife food and habitat, outdoor recreation, and other resource values dependent on range vegetation.
4. To contribute to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood.

RANGE -- NATIONAL GRASSLANDS - FSM 2202.2

1. To promote the development of grassland agriculture and sustained yield management of the soil, water, forage, fish and wildlife, recreation, and timber resources.
2. To demonstrate sound and practical principles of land use to favorably influence nearby areas and economies.

Range Improvement Investment - FSM 2246.02

Invest in cost-effective range improvements to achieve objectives established in forest land and resource management plans and allotment management plans.

Maintenance of Improvements - FSM 2244.02

To maintain in operable condition all range improvements on the National Forest System and other lands controlled by the Forest Service.

Structural Range Improvement - FSM 2242.02

Install structural range improvements to obtain proper livestock management and to meet objectives contained in forest land and resource management plans and allotment management plans.

Range Improvements - FSM 2240.2

1. Without impairing land productivity or water quality, implement and maintain range improvements to the extent benefits are commensurate with cost and demand for livestock forage.
2. Provide information and advice through range technical information system and Vegetative Rehabilitation and Equipment Workshop to enhance restoration, improvement, and quality of ranges.

Grazing and Livestock Use Permit System - FSM 2230.2

To administer the grazing permit system consistent with range resource management objectives found in forest land management plans, and to best serve the public's long-term economic and social needs.

RECREATION - FSM 2302

1. To provide nonurbanized outdoor recreation opportunities in natural appearing forest and rangeland settings.

2. To protect the long-term public interest by maintaining and enhancing open space options, public accessibility, and cultural, visual, and natural resource values.
3. To promote public transportation and/or access to National Forest recreation opportunities.
4. To shift land ownership patterns as necessary to place urbanized recreation settings into other ownerships to create more public open space and/or natural resource recreation values.

Visual Quality - FSM 2380.2

To manage all National Forest System lands to attain the highest possible visual quality commensurate with other appropriate public uses, costs, and benefits.

Interpretive Services/Visitor Information - FSM 2390

1. To assist those visitors in the National Forest, research projects, and State and Private Forestry locations in gaining a greater appreciation of the role of conservation in the development of the Nation's heritage and culture. (2390.2)
2. To promote visitor understanding of the Forest Service, the National Forest System, Forestry Research, and State and Private Forestry programs.
3. To inform visitors of recreation opportunities and facilities on the National Forests. (2390.2)
4. To help visitors know and experience the natural environment.
5. To implement an interpretive program that helps solve management problems and aids in the development of public understanding of Forest Service management. (2390.2)
6. To expand the number of interpretive associations which contribute to public understanding of Forest Service practices, support interpretive services objectives, increase public awareness, and aid in management of National Forest resources. (2390.2)
7. To increase visitor understanding of natural and cultural history principles and their relation to land management techniques. (2390.2)

Trail, River, and Similar Recreation Opportunities - FSM 2350.2

1. Provide recreation opportunities for users of the general forest, water, and cave resources.
2. Provide opportunities for a variety of recreation pursuits with emphasis on activities that are in harmony with the natural environment and consistent with the recreation role of the National Forest.
3. Mitigate adverse impacts of users on the natural resources, cultural and historical resources, and on other users.

Forest Development Trails - FSM 2353.02

1. Provide trail-related recreation opportunities that serve public needs and meet land management and recreation policy objectives.
2. Provide trail recreation opportunities that emphasize the natural setting of the National Forest and are consistent with land capability.
3. Provide trail access for National Forest management and protection.

Off-Road Vehicle Management - FSM 2355.02
Provide off-road vehicle recreation opportunities that are in concert with the environmental setting, minimize off-road vehicle effects on the land and resources, promote public safety, and control conflicts with other uses of National Forest System lands.

Cave Management - FSM 2356.02
Provide cave related recreational, cultural, educational, and scientific study opportunities that serve public need. Balance surface resource management and cave use with the protection of cave values.

Public Managed Recreation Opportunities - FSM 2330.2
1. To maximize opportunities for visitors to know and experience nature while engaging in outdoor recreation.
2. To develop and manage sites consistent with the available natural resources to provide a safe, healthful, esthetic, nonurban atmosphere.
3. To provide a maximum contrast with urbanization at National Forest sites.

Privately Provided Recreation Opportunities - FSM 2340.2
To provide, under special-use authorization, sufficient, suitable facilities and service that supplement or complement those provided by the private sector, State, and local government on private land and the Forest Service on National Forest land to meet public needs, as determined through land and resource management planning.

To facilitate the use, enjoyment, understanding, and appreciation of the National Forest and its natural resources.

Group Use By Institutions or other Entities - FSM 2345.02
To allow group recreation opportunities, facilities, and service at camps on National Forest land when suitable private lands are not available.

Concession Uses Involving Privately Developed Facilities - FSM 2343.02
To provide a diversity of recreation activities that emphasize the forest setting and rustic, natural resource-based recreation opportunities.

NATIONAL WILD AND SCENIC RIVERS SYSTEM - FSM 2354.02
Provide river and similar water recreation opportunities to meet the public needs in ways that are appropriate to the National Forest recreation role and are within the capabilities of the resource base. Protect the free-flowing conditions of designated wild and scenic rivers and preserve and enhance the values for which they were established.

RESEARCH NATURAL AREAS - FSM 4063.02
1. Preserve a wide spectrum of representative areas that typify important forest, shrubland, grassland, alpine, aquatic, geological, and similar natural situations that have special or unique characteristics of scientific interest and importance that, in combination form a national network of ecological areas for research, education, and maintenance of biological diversity.
2. Preserve and maintain genetic diversity.

3. Protect against serious environmental disruption.
4. Serve as reference areas for the study of success.
5. Provide on-site and extension education activities.
6. Serve as baseline areas for measuring long-term ecological changes.
7. Serve as control areas for comparing results from manipulative research.
8. Monitor effects of resource management techniques and practices.

SPECIAL INTEREST AREAS - FSM 2360.3

To protect and where appropriate, foster public use and enjoyment of areas with scenic, historical, geological, botanical, zoological, palentological, or other special characteristics. To classify areas that possess unusual recreation and scientific values so that these special values are available for public study, use, or enjoyment.

NATIONAL WILDERNESS PRESERVATION SYSTEM - FSM 2320.2

1. Maintain and perpetuate the enduring resource of wilderness as one of the multiple uses of National Forest System land.
2. Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces.
3. Minimize the impact of those kinds of uses and activities generally prohibited by the Wilderness Act, but specifically excepted by the Act or subsequent legislation.
4. Protect and perpetuate wilderness character and public values including, but not limited to, opportunities for scientific study, education, solitude, physical and mental challenges and stimulation, inspiration, and primitive recreation experiences.

Wildlife and Fish Management in Wilderness - FSM 2323.31

1. Provide an environment where the forces of natural selection and survival rather than human actions determine which and what numbers of wildlife species will exist.
2. Consistent with objective #1, protect wildlife and fish indigenous to the area from human caused conditions that could lead to Federal designation as threatened or endangered.
3. Provide protection for known populations and aid recovery in areas of previous habitation, of federally listed threatened or endangered species and their habitats.

Air Resource - FSM 2323.61

1. Protect air quality and related values, including visibility, on wilderness land designated Class 1 by the Clean Air Act as amended in 1977 (FSM 2120).
2. Protect air quality in wilderness areas no qualifying as Class 1 under the same objectives as those for other National Forest System lands. (FSM 2120)

Motorized Equipment - FSM 2326.02

1. To accomplish management activities with nonmotorized equipment and nonmechanical transport of supplies and personnel.
2. Exclude the sight, sound, and other tangible evidence of motorized equipment or mechanical transport within wilderness except where they are needed and justified.

Research - FSM 2324.21

To provide appropriate opportunities for scientific studies that are dependent on a wilderness environment.

Fire Management - FSM 2324.21

1. Permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness.

2. Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.

Structures and Improvements - FSM 2324.31

To limit structures and improvements for administrative purposes or under special-use permit to those actually needed for management, protection, and use of the wilderness for the purpose for which the wilderness was established.

Recreation - FSM 2323.11

1. Provide consistent with management of the area as wilderness, opportunities for public use, enjoyment, and understanding of the wilderness, through experiences that depend on a wilderness setting.
2. Provide outstanding opportunities for solitude or primitive and unconfined type of recreation.

Forest Cover - FSM 2323.51

Manage forest cover to retain the primeval character of the environment and to allow natural ecological processes to operate freely.

Soil and Water - FSM 2323.41

Maintain satisfactory natural watershed condition within wilderness.

Range - FSM 2323.21

Manage wilderness range in a manner that utilizes the forage resource in accordance with established wilderness objectives.

Insects and Disease - FSM 2324.11

1. To allow indigenous insect and plant diseases to play, as nearly as possible, their natural ecological role within wilderness.
2. To protect the scientific value of observing the effect of insects and disease on ecosystems and identifying genetically resistant plant species.
3. To control insect and plant disease epidemics that threaten adjacent lands or resources.

Mineral - FSM 2323.72

1. To preserve the wilderness environment whileproviding activities for the purpose of gathering information about mineral resources.
2. To ensure that mineral exploration and development operations are conducted in accordance with valid existing rights for federally owned, locatable, and leasable minerals (FSM 2810 and FSM 2820) and for nonfederally owned minerals (FSM 2830) preserving the wilderness resource to the extent possible.
3. To ensure the restoration of lands disturbed during exploration and development activities as nearly as practicable promptly upon abandonment of operations.

CULTURAL RESOURCES - FSM 2361.02

1. Complete an inventory of cultural resources on all National Forest System land by 1985 sufficient to provide a data base for land management planning.
2. Complete an inventory of all cultural resources on National Forest System land by 1990.
3. Until these inventories are complete, exercise caution to ensure cultural resources are not damaged, destroyed or transferred by meeting the coordination requirements outlined in FSM 2361.3.
4. As part of the decision-making process, document inventory and evaluation procedures to ensure adequate participation by cultural resource professionals.
5. Perform inventories at appropriate levels prior to initiating project actions.

Scenic and Historic Trials - FSM 2353.41

To develop and administer National Scenic or National Historic Trails to ensure retention of the outdoor recreation experience for which the trail was established and continued production of maximum benefits from the land.

National Registry of National Landmarks - FSM 2373.02

To cooperate with the U.S. Department of Interior National Park Service to:

1. Encourage the preservation of sites illustrating the geological and ecological character of the United States.
2. Enhance the scientific and educational value of sites thus preserved.
3. Foster a greater concern in the conservation of the Nation's natural heritage.

LAND OWNERSHIP ADJUSTMENT - FSM 5402

1. Achieve the optimum landownership pattern to provide for resource use to meet the needs of the people now and in the future.
2. Settle land title claims equitably and promptly.
3. Provide resource administrators readily accessible and understandable title information affecting the status and use of lands and resources they administer.

Land Purchases and Donations - FSM 5420.2

1. Enhance the multiple use and sustained yield of the goods and services from the National Forest System.
2. Protect and improve the quality of renewable resources.
3. Protect and preserve important historic, cultural, and natural aspects of the national heritage.
4. Provide for access, use, and enjoyment of the forest resources by the public.
5. Improve administrative efficiency and effectiveness of the National Forest System.

Land Exchange - FSM 5430.2

To implement land management and resource planning directives to attain an optimum National Forest System landownership pattern that provides for resource uses that best meet the present and future needs of the people.

Partial Interest Acquisition - FSM 5440.2

1. Provide for acquisition of only those interests in land necessary to meet planned program objectives.
2. Provide for continuance of private land uses which are consistent with planned program objectives.

National Forest System Modification - FSM 5450.2

1. The objectives of National Forest System modifications are to:
    a. Obtain National Forest status for all appropriate land within the National Forest System.
    b. Modify existing National Forest System unit boundaries as needed to provide logical exterior boundaries.
    c. Establish purchase units as needed to meet program objectives.
    d. Establish National Forest or other boundaries as needed to facilitate management and administration.
2. The objectives of land transfer are to:

a. Improve management efficiency of Federal lands.
b. Improve service to the public.
c. Result in net benefits to the Government, to the public, or both.

Right-of-Way Acquisition - FSM 5460.2

1. To acquire, across non-National Forest land, road and trail rights-of-way that are adequate for the protection, administration, and utilization of the National Forests. Where compatible with National Forest needs, the rights-of-way should also accommodate the utilization and development of resources in other ownerships upon which communities within or adjacent to the National Forest depend.
2. To acquire such rights-of-way in time to meet road and trail construction and resource development program schedules.
3. To acquire all interests to permit use of road and trails to meet the multiple use and sustained valid objectives of the National Forests.

Reservations and Outstanding Rights - FSM 5470.2

To accomplish real property adjustments free of encumbrances that would detract from present or future uses of National Forest System land or that would needlessly restrict private land use and impose an unwarranted management obligation on the Forest Service.

Condemnation - FSM 5480.2

To acquire real property by condemnation when all other methods of acquisition fail and the property or interest is required for the protection, administration, or utilization of National Forest System lands.

LAND SURVEYING - FSM 7151.02

Provide legal land surveys and related service to locate, mark, post, and maintain land corners, property corners, and property lines between National Forest System land and other ownerships for the protection and management of National Forest System lands and resources.

LANDLINE LOCATION PROGRAM - FSM 7152.02

Provide the land manager and public with visible and legally defendable administrative and property boundary lines on the ground, and to accurately depict the location of landownership lines on administrative maps produced by the Forest Service.

SOLID WASTE MANAGEMENT - FSM 2130.2

Program objectives are to design, operate, and maintain all solid waste systems under Forest Service jurisdiction in such a manner so as to meet all Federal, State, and local requirements; promote public health and safety; protect Forest resource and environmental qualities; and complement and support the total land-use management process.

POTABLE WATER SUPPLY - FSM 7420.2

Protect the health of the public and Forest Service personnel. Accomplishing this objective requires that water provided by the Forest Service for human consumption at any administrative site or public use are must be both safe and protected.

MANAGEMENT OF WASTEWATER COLLECTION SYSTEMS AND TREATMENT WORKS - FSM 7430.2

1. To avoid creating health hazards or nuisance conditions.
2. To restore and maintain the chemical, physical, and biological quality of water resources.

FOREST HIGHWAYS - FSM 7440.2

The objective of this program is to plan, design, construct, operate, and maintain wastewater disposal facilities and other effluent-disposal activities to ensure that discharge and/or infiltration of pollutants do not create health hazards or nuisance conditions, or alter the quality or characteristics of either ground water or surface water beyond applicable Federal and/or State water-quality and effluent-discharge standards.

Where no standards exist, the quality of characteristics of surface and ground water shall:
1. Be maintained as near to their existing conditions as measurable.
2. Not be degraded to adversely affect either present or projected beneficial uses (FSH 7409.11 Ch. 20).
3. Not be allowed to degrade the quality of subsequent ground or surface receiving waters beyond the standards when such have been established.

TRANSPORTATION SYSTEM - FSM 7702

1. To plan, develop, and operate a network of transportation facilities and transportation modes that provide user safety, convenience, and efficiency of operations.
2. To provide access to National Forest System lands to accomplish management direction and protection objectives that is coordinated with National and State-wide transportation needs.
3. To minimize the total transportation present value cost including user, maintenance, construction, restoration, realignment, and betterment costs.

TRANSPORTATION PLANNING - FSM 7710.2

1. To efficiently provide facilities that will achieves forest management direction and that are appropriate for this intended use.
2. To direct the orderly development and management of the transportation system and to ensure the documentation of decisions affecting the system.

Highway Safety Program - FSM 7733.02

Reduce traffic accidents, deaths, injuries and the resulting property damage.

Effluents - FSM 7740

To assist the FHWA with the administration of the forest highway program to plan and develop access roads to:
1. Enhance the value of National Forest System resources.
2. Protect, develop, and use the National Forest System and its renewable resources.
3. Enhance economic development at the local, Regional, and national levels.
4. Serve local needs and communities dependent on the National Forest System activities.
5. Provide for economy of operation and maintenance and the safety of the users.
6. Provide safe and adequate rural highway connections; connecting the National Forest System with major highway systems.

Development - FSM 7720.2
To locate, survey, design, and construct transportation facilities in accordance with FSM 7702.

Roads
Locate, design, and construct facilities that provide the stability and durability appropriate for their intended service life and uses.

PESTICIDE MANAGEMENT - FSM 2150.2

To ensure the proper use of pesticides.

SIGN AND POSTER PROGRAM - FSM 7160.2

1. Support accomplishment of management area direction contained in the Forest plan for the administration, protection, management, and use of NFS lands.
2. Provide information for the safety, enjoyment and convenience of National Forest and Grassland visitors, users, cooperators, and employees.
3. Provide information about geographic and historical features, and the use, management, and research activities on the National Forests and Grasslands.
4. Identify NF and Grassland facilities and land.

ENERGY MANAGEMENT - FSM 2170.2

The objectives of energy management are to:

1. Conserve energy in the conduct of Forest Service programs and in the operation of Forest Service programs and in the operation of Forest Service facilities, and to improve efficiency in the production and use of wood products.
2. Minimize undesirable consequences associated with development of renewable and nonrenewable energy sources extracted from forest lands.
3. Facilitate recovery of fuels from forest lands and implement programs to support production and use of alternative fuels.
4. Provide leadership and support for environmentally acceptable and scientifically sound development, production, and use of all energy resources from lands.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
764 Horizon Drive, Building B
Grand Junction, Colorado 81506-3946

IN REPLY REFER TO:
ES/GJ-6-CO-03-F-012
MS 65412 GJ

September 16, 2003

Peter L. Clark, Forest Supervisor
Rio Grande National Forest
1803 West Highway 160
Monte Vista, Colorado 81144

Dear Mr. Clark:

This document transmits the Fish and Wildlife Service's (Service) final biological opinion based on our review of the proposed Forest Plan Amendment to the Revised Land and Resource Management Plan for the Rio Grande National Forest located in Saguache, Hinsdale, Mineral, Rio Grande, and Conejos counties, Colorado, and its effects on the threatened Canada lynx (*Lynx canadensis*), bald eagle (*Haliaeetus leucocephalus),* Mexican spotted owl (*Strix occidentalis lucida),* Uncompahgre fritillary butterfly (*Boloria acrocnema),* and the endangered southwestern willow flycatcher (*Empidonax traillii extimus).* Your April 21, 2003, letter requesting consultation on the effects of the proposed Plan Amendment on the above listed species was received in our office on April 23, 2003. This biological opinion was prepared in accordance with section 7 of the Endangered Species Act (16 U.S.C. 1531 *et seq.*).

The Service concurs with your "may affect, not likely to adversely affect" determinations for the threatened bald eagle, Mexican spotted owl, Uncompahgre fritillary butterfly, and the endangered southwestern willow flycatcher.

In your biological assessment, you made a "not likely to jeopardize the continued existence" determination for the proposed mountain plover (*Charadrius montanus*). On September 9, 2003, the Service published a final rule, which determined that the action of listing the mountain plover as threatened, pursuant to the Endangered Species Act of 1973, as amended (Act), is not warranted, and we consequently withdrew our proposed rule and our proposed special rule. We made this determination because threats to the species as identified in the proposed rule are not as significant as earlier believed, and current available data do not indicate that the threats to the species and its habitat, as analyzed under the five listing factors described in section 4(a)(1) of the Act, are likely to endanger the species in the foreseeable future throughout all or a significant portion of its range. Therefore the mountain plover will not be further addressed in this document.

As you may already know, the District Court for the District of Columbia issued an order on December 26, 2002, that enjoins the Service from issuing any written concurrence[s] that actions

proposed by any Federal agencies "may affect, but are not likely to adversely affect" the threatened Canada lynx. Until further notice, all consultations concerning effects to the Canada lynx must be conducted in accordance with the direction of the Court. Specifically, any actions subject to consultation that may affect the Canada lynx require formal consultation as described in 50 CFR 402.14 and preparation of a biological opinion that addresses how the proposed action is expected to affect the Canada lynx in order to complete the procedural requirements of section 7 of the Endangered Species Act.

This biological opinion is based primarily on our review of your April 21, 2003, biological assessment (BA) regarding the effects of the proposed action on the Canada lynx. A complete administrative record of this consultation is on file at this office.

Consultation History

Biological assessment for the Rio Grande National Forest Revised Land and Resource Management Plan (1996) and Service concurrence of "may affect, not likely to adversely affect" to all species (November 6, 1996).

Biological assessment for the Prescribed Fire Plan EA (1997) and Service concurrence of "no effect" to the southwestern willow flycatcher and of "may affect, not likely to adversely affect" to the Mexican spotted owl (January 19, 1997).

Updated biological assessment for the Prescribed Fire Plan EA (2002) and Service concurrence of "no effect" to the Uncompahgre fritillary butterfly and of "may affect, not likely to adversely affect" Canada lynx (September 19, 2002). As part of that BA, a screen was developed to assist biologists in project-specific analysis of effects to lynx, to track cumulative changes by Lynx Analysis Unit (LAU), and to provide direction on incorporating mitigation measures. Individual projects may still require consultation.

Biological assessment of programmatic outfitter and guide special user permit renewals on the Rio Grande National Forest (2002) and Service concurrence of "may affect, not likely to adversely affect" all species (September 4, 2002).

Biological assessment for Developed Site - Deferred Maintenance Projects on the Rio Grande National Forest (2002) determination of "no effect" to all species except Canada lynx, which was screened for programmatic concurrence of "may affect, not likely to adversely affect" (September 9, 2002).

Biological assessment for Forest Developed Recreation Site Maintenance Activities on the Rio Grande National Forest (2002) determination of "no effect" to all species except Canada lynx, which was screened for programmatic concurrence of "may affect, not likely to adversely affect" (September 9, 2002).

Biological assessment for Programmatic - Minor Recreation Special Use Permit Issuances on the Rio Grande National Forest (2002) and Service concurrence of "no effect" to Uncompahgre fritillary butterfly and of "may affect, not likely to adversely affect" to all other species (September 23, 2002).

Biological assessment for Trail Maintenance Activities on the Rio Grande National Forest (2002) and the Service concurrence of "no effect" to Canada lynx and of "may affect, not likely to adversely affect" all other species (October 11, 2002).

Programmatic biological assessment/biological evaluation for Small Sales and other Forest Products on the Rio Grande National Forest (2001) determination of "no effect" to all species except Canada lynx, which was screened for programmatic concurrence of "may affect, not likely to adversely affect" (July 25, 2001).

Canada Lynx

Biological assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada lynx (1999) and the Service's biological opinion of "may affect, likely to adversely affect" (October 25, 2000).

Canada Lynx Consultation Agreement in Colorado between the U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (May 30, 2000).

Reauthorization of Canada Lynx Consultation Agreement in Colorado between the U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (June 4, 2001).

Southwestern Willow Flycatcher

Biological assessment for the Southwestern Willow Flycatcher - Need for Evaluating Grazing Allotment Operating Plans (1995) and Service concurrence of "may affect, not likely to adversely affect" (September 15, 1995).

1997 Addendum to the 1995 biological assessment and Service concurrence of "may affect, not likely to adversely affect" (July 17, 1997).

Uncompahgre Fritillary Butterfly

Biological assessment for the Uncompahgre Fritillary Butterfly Range Permit Reissuance with a determination of "no effect" (July 7, 1995).

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

Background

Regional Forester Elizabeth Estill signed the Record of Decision for the Revised Rio Grande National Forest Land and Resource Management Plan (Forest Plan) on November 7, 1996. The Rio Grande National Forest received several appeals of the Forest Plan and its accompanying Final Environmental Impact Statement (FEIS), one of which was from Colorado Environmental Coalition (CEC) *et al.* On January 19, 2001, the Chief of the Forest Service rendered a decision on CEC's appeal. On March 29, 2001, the Deputy Under Secretary for the Department of

Agriculture's Natural Resources and Environment, completed a discretionary review of the Chief's decision on the appeal. The Deputy Under Secretary affirmed in part and reversed in part the Chief's decision on the appeal and provided a new set of instructions to complete the Forest Plan. These included instructions to add to the record the scientific literature citations used to determine habitat needs, distribution, and trends of sensitive species and management indicator species. The current update of the Forest Plan's biological assessment and biological evaluation (BE) will, in part, address these instructions.

The BA and BE for the Forest Plan were completed and signed on October 18, 1996 (FEIS Appendices page F1-F23). The BA determined that any of the Forest Plan alternatives "may affect, are not likely to adversely affect" any of the listed species. The BE determined that any of the Forest Plan alternatives "may adversely impact individuals, but are not likely to result in a loss of viability in the Forest Planning Area, nor cause a trend to Federal listing or a loss of species viability range-wide." Subsequent to the adoption of the Forest Plan, the status of some of the species changed. The Canada lynx was listed as threatened, the Gunnison sage grouse has been proposed as a candidate species, and the peregrine falcon has been delisted.

The Service listed the lynx as threatened, effective April 24, 2000 (65 FR 16051). The Service concluded the chief threat to the lynx in the contiguous United States was the lack of guidance to conserve the species in Federal land management plans. Formal consultation, as required by the Endangered Species Act (ESA), was completed on October 25, 2000, when the Service issued its biological opinion (BO) on the Programmatic Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Use Plans on Canada Lynx (Hickenbottom et al. 1999). In the BO, the Service concluded that Forest Plans as implemented in conjunction with the Conservation Agreement (U.S. Forest Service and U.S. Fish and Wildlife Service, Feb. 7, 2000) are not likely to jeopardize the continued existence of the lynx. The Service's no jeopardy conclusion for National Forest System lands is based upon continued implementation of the Conservation Agreement (CA) until such time that Forest Plans are amended or revised to consider the needs of lynx.

The Service, in response to the December 26, 2002, memorandum opinion and order of the United States District Court for the District of Columbia, in the case of *Defender of Wildlife v. Norton (Civil Action No. 00-2996 (GK))* and pursuant to the Endangered Species Act of 1973, as amended, provides a clarification to the finding we made in support of the final rule that listed Canada lynx as threatened (68 FR 40076). As a result of our reanalysis of the basis for the final rule, which was directed by the Court, we found that the lynx is not endangered throughout a significant portion of its range. The finding did not affect the status of the lynx as set forth in 50 CFR 17.11; the lynx continues to be listed as threatened as a distinct population segment.

The Service proposed the Gunnison sage grouse as a candidate species on December 29, 2000 (65 FR 82310). Under the August 30, 2000 *Memorandum Of Agreement Endangered Species Act Section 7 Programmatic Consultations and Coordination among Bureau of Land Management, Forest Service, National Marine Fisheries Service and Fish and Wildlife Service* (MOA), the Forest Service agreed to confer with the Service on the review of effects of programmatic actions on candidate species. This MOA outlines guidance and procedures for section 7 consultations as well as consideration of candidate species conservation in Forest Plans and other programmatic level proposals prepared by the Bureau of Land Management (BLM)

and Forest Service. The scope of this MOA includes Land and Resource Management Forest Plans prepared by the Forest Service pursuant to the National Forest Management Act of 1976 [16 U.S.C. 1601-1614] and Resource Management Forest Plans and Management Framework Forest Plans prepared by the BLM pursuant to the Federal Land Policy and Management Act of 1976 [43 U.S.C. 1701-1784].

The peregrine falcon was delisted August 25, 1999 (64 FR 46541). The Service proposed a monitoring plan on July 31, 2001 (66 FR 39523) and extended the comment period on September 27, 2001 (66 FR 49395). A draft post-delisting monitoring plan was made available in November 2002 for State and cooperator review and a draft cooperator use copy was made available in March 2003, pending final signature. The plan fulfills the final process of species recovery, as outlined in section 4(g)(1) of the ESA, which requires that the Service "...implement a system in cooperation with the States to monitor effectively for not less than five years the status of all species which have recovered to the point at which the measures provided pursuant to this Act."

All of this new information has been incorporated into an update of the Forest Plan's BA and BE, in response to the Deputy Under Secretary's instruction that the Forest Plan modify the existing viability analysis to correct the following identified deficiencies:

> Management indicator species (MIS) were not identified, which does not meet the plain language requirements of 36 CFR 219.19.
>
> Inadequate analysis was conducted relating to species referred to in the FEIS (pages F 20-23) as the "Riparian Group" and the "Nonforested Group."
>
> No map of rangeland for which livestock grazing permits has been issued.
>
> Habitat effects were displayed for only 10 years following adoption of the Revised Forest Plan.
>
> Cursory references were made to the scientific literature regarding habitat needs, distribution, and population trends of sensitive species.

Specifically, the Deputy Under Secretary instructed the Forest to make the following corrections:

> Select appropriate MIS per 36 CFR 219.19 and display the environmental effects of Forest Plan alternatives on such species.
>
> Expand the display of environmental effects of Forest Plan alternatives on Riparian Group and Non-forested Group species to be commensurate with the display in the FEIS of effects on other Groups.
>
> Display habitat effects for a longer time period, to be determined by the Forest based on consideration of rotation age and rate of change in Forest Plant communities due to succession or management activities. As part of the coarse-filter and fine-filter analyses contained in the FEIS, habitat/vegetation types should be forecast into the future to

ensure the persistence of these ecosystems. In addition, the disclosure of effects should include a better display of where management activities are permitted by habitat/vegetation type and management prescription.

Add direction to the monitoring in the Forest Plan if MIS are selected that the Revised Forest Plan does not already require to be monitored.

Add to the record the scientific literature citations used to determine habitat needs, distribution, and trends of sensitive species and MIS.

The Forest intends to meet the first, fourth and fifth items of direction through the formal selection of appropriate MIS as proposed in the Environmental Assessment (EA). The EA proposes to: 1) adopt MIS to assist the Rio Grande National Forest in analyzing and evaluating species viability; 2) incorporate the MIS into the Forest Plan and amend standards and guidelines as appropriate; 3) initiate additional monitoring and evaluation requirements related to the MIS to be used in evaluating species viability; and 4) add to the record the scientific literature citations used in the preparation of the MIS species assessments and evaluation documents, and in the update of the BA and BE.

Additional reports were completed in conjunction with the EA in order to address the remaining items of direction and provide precursory information for both the BA and BE. These reports include the following:

Expanded Habitat Effects Display Report (January 2003). This report expands the effects display of projected management activities on all affected habitats through a five-decade period.

Migratory Bird Supplemental Information Report (November 2002). This report evaluates the effects of the Forest Plan on migratory birds, as directed by Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds).

MIS Effects Display Across Alternatives (March 2003). This report evaluates and displays the effects of all Forest Plan alternatives on the selected MIS using the expanded timeframes of the Habitat Effects Display Report.

Expanded Environmental Effects Display Report (in progress). This report will evaluate and display the effects of all Forest Plan alternatives on Forest sensitive species in riparian and non-forested habitats.

This biological opinion will focus primarily on the implementation of the Rio Grande National Forest Revised Land and Resource Management Plan (1996) and the interrelated action of implementing the Conservation Agreement (February 7, 2000).

The proposed management action considered in this opinion is the continued implementation of the revised 1996 Forest Plan with the amended MIS (alternative 2) as detailed above. The analysis of this action will examine the effects of amending MIS into the Forest Plan, adding standards and guidelines, and incorporating changes to the monitoring plan. The action area

includes the lynx habitat within the Rio Grande National Forest, adjacent habitat on other Federal ownerships especially Bureau of Land Management administered lands, and the 4 landscape linkages associated with the Forest.

The proposed action does not include conservation measures specific to lynx beyond the commitments of the CA. The Service is currently engaged in consultation with Region 2 of the Forest Service to amend Forest Plans within Colorado to include specific conservation measures for lynx.

Proposed actions in the Forest Plan may impact the primary needs of lynx and their habitat use. Expected effects specific to these actions are discussed below.

Timber Management

The FEIS predicted an annual harvest level of 11 MMBF/yr, but actual harvest levels have been closer to 7-8 MMBF/yr (EA Appendix B Table B-1). The preponderance of harvest (94 percent) is expected to occur in Land Type Associations (LTAs) 1 and 13 (EA Appendix B Table B-2) and most of that harvest would be in structure class 5 (late successional forest). Depending on harvest method, there would be concomitant increases in earlier structural classes (Table 6) in the BA. The predominant harvest method would be shelterwood cuts or group selection, resulting in an increase in structure class's early successional vegetation and mature forest, with varying size areas and stages of vegetative regeneration.

In addition to harvest of LTAs 1 and 13 (Engelmann spruce), minor amounts of harvesting would occur in LTA 2 (Aspen), LTA 3 (White Fir and Douglas Fir), and LTA 5 (Ponderosa Pine and Douglas Fir). The FEIS analysis of predicted habitat change in response to timber management was updated with the *Expanded Habitat Effects Display Report (Forest Service, 2003).* This report predicted a change in the late successional forested LTAs as $\leq$1 percent in the first decade and up to 14 percent by the fifth decade (Table 7, BA).

Additional harvest through limited thinning, mostly in lodgepole pine stands, or salvage sales for control of insects and disease may occur and firewood and post/pole sales will be by-products of timber harvest (FEIS page 3-171). Levels of these additional harvest activities are projected to be less than in the past, but as disease and bug infestations continue to escalate, more salvage sales than predicted are possible. Salvage harvest activities would be site-specific and target affected trees, limiting the size and scope of individual proposed harvests. Firewood collection is allowed across the Forest, as well as at slash removal sites, but is limited to within 300 feet of a road and not allowed within 100 feet of stream courses, riparian areas, wet areas, and bodies of water.

Harvest prescriptions include even-aged, uneven-aged and two-aged silvicultural systems, sanitation/salvage and limited thinning, with an emphasis on shelterwood and group selection harvests. Firewood removal and prescribed fire are used to treat the slash (FEIS Appendix K). These treatments will have a variety of impacts on lynx habitat, some of which will improve denning, dispersal and foraging habitat, some of which will have negative short-term impacts so that suitable habitat will become unsuitable for a relatively short period of time, and some will

have no impact since lynx habitat will not be entered. Many of the treatments will have short-term (20 to 100 years) impacts. Expected changes would include reduction in late successional forests and their snag components, primarily in spruce fir, with a light to moderate accumulation of coarse woody debris throughout harvested areas (FEIS 3-172). There would be patchy distributions of created openings, varying in size and stage of vegetative regeneration. Individual harvest prescriptions will require analyses at both the landscape and LAU levels to maintain habitat effectiveness (connectivity) and to ensure effects to lynx are minimized.

Timber management activities also include the construction and reconstruction of roads, which is expected to be minimal. Considering past budget experience, the Rio Grande National Forest projects 10 miles of new roads and 17 miles of reconstruction could occur, but not within roadless areas. Under a full budget, which is an unlikely scenario, 28 miles of new roads and 40 miles of reconstruction could occur, and within roadless areas (FEIS pages 3-361 and 3-439).

Fire Management

The Forest Plan calls for the development and implementation of a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires (FEIS page 3-226). The fire management program emphasizes natural fuel management rather than activity fuel management, as it is anticipated that activity fuels created from timber harvest will be greatly reduced (FEIS page 3-236). The priority habitats for treatment will be those that are fire-maintained ecosystems (FEIS page 3-229) and include lower elevation mixed conifer and ponderosa pine, with some grasslands. The estimated acres of fuels treatments (1,200-3,000 acres average per year) were based on the ponderosa pine cover type, as it is most dependent on fire and has been dramatically affected by fire exclusion (FEIS page 3-235).

Recreation Management

The Rio Grande National Forest manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are 820 acres of developed recreation sites, and 51 summer homes, 3 resorts, 1 youth camp, 2 public use forest guard stations and 1 ski area on the Rio Grande National Forest (FEIS page 3-389). Dispersed recreation (motorized and non-motorized) accounts for 65 percent of forest recreation use and is widely distributed across the Forest, but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pages 3-389 and 3-414). Recreation use on the Forest is estimated to increase about 2-3 percent annually. This estimate is based on campground use records, various sample surveys taken to derive dispersed use throughout the Forest and skier visits received from Wolf Creek Ski Area, as displayed in the FEIS for Years 1990-1995 (pages 3-393-396).

Travel Management

Travel management on the Rio Grande National Forest limits motorized travel to designated roads and trails. The Rio Grande National Forest prohibits off-road travel except for ATVs for game retrieval during hunting seasons and snowmobiles during the winter, outside of wilderness. Snowmobiling is normally confined to roads, trails and high country areas with low avalanche risk (FEIS page 3-433). Winter snowmobile trail and play areas have been mapped for the Rio Grande National Forest. All road management decisions will need to be informed through the

Roads Analysis Process (RAP), scheduled for completion during fiscal year 2004. That process includes consideration of wildlife values and effects to wildlife habitat, and will be facilitated by mapped winter use areas.

Livestock Management

Rangelands on the Rio Grande National Forest are naturally fragmented and are characterized by narrow canyons with a riparian ecosystem and adjacent grassland communities intermingled with timberlands in the montane and subalpine zones and at lower elevations, are a mixture of grasslands, pinyon-juniper and ponderosa pine. There are 577,000 acres on the Rio Grande National Forest identified as suitable for livestock grazing (FEIS page 3-189 Table 3-46). Livestock grazing occurs in some lynx habitats, as rangelands are defined as grasslands, forb lands, shrublands, and those forested lands that support an understory of herbaceous or shrubby vegetation. Allotment Management Plans (AMPs) require periodic updating and are subject to National Environmental Policy Act (NEPA) and Endangered Species Act review and consultation. Until an AMP is updated, annual operating instructions (AOIs) incorporate both Forest Plan standards and guidelines and Lynx Conservation Assessment and Strategy (LCAS) conservation measures to implement management strategies designed to minimize effects to lynx habitat and to achieve Forestwide rangeland objectives.

Minerals Management

Minerals management includes activities for development of leasable minerals, locatable minerals and salable minerals. These activities are predicted to be very limited in extent on the Rio Grande National Forest but may occur within lynx habitat.

This BO tiers to the October 25, 2000, BO, issued by the Service, where analysis is provided, in general, regarding the effects of implementation of current Forest Plans and implementation of the CA. At that time the Rio Grande National Forest Revised Land and Resource Management Plan (1996) had been completed, but as detailed above, new information regarding MIS is being amended to the Forest Plan.

STATUS OF THE SPECIES /CRITICAL HABITAT DESCRIPTION

Species/Critical Habitat Description

The lynx is a medium-sized cat with long legs; large, well-furred paws; long tufts on the ears; and a short, black-tipped tail (McCord and Cardoza 1982). The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back, and grayish-white or buff-white fur on the belly, legs and feet. Summer pelage of the lynx is more reddish to gray-brown (Koehler and Aubry 1994). Adult males average 10 kilograms (22 pounds) in weight and 85 centimeters (33.5 inches) in length (head to tail), and females average 8.5 kilograms (19 pounds) and 82 centimeters (32 inches) (Quinn and Parker 1987). The lynx's long legs and large feet make it highly adapted for hunting in deep snow.

Classification of the Canada lynx (also called the North American lynx) has been subject to revision. In accordance with Wilson and Reeder (1993), the lynx in North America is *Lynx*

canadensis. Previously the Latin name *L. lynx canadensis* was used for lynx (Jones *et al.* 1992; S. Williams, Texas Tech University, pers. comm. 1994). Other scientific names still in use include *Felis lynx* or *F. lynx canadensis* (Jones *et al.* 1986; Tumlison 1987).

In 1998, the lynx was proposed for listing as a threatened species under the Act (63 FR, July 8, 1998). The lynx in the contiguous United States was listed as threatened effective April 23, 2000 (65 FR 16052, March 24, 2000). The Service identified one distinct population segment in the lower 48 states. No critical habitat has been designated for the threatened population of Canada lynx in the contiguous United States. As explained in the final rule (65 FR 16052, March 24, 2000), designation of critical habitat would be prudent, but has been deferred until other higher priority work can be completed within the Service's current budget.

Life History

Home range and dispersal - Lynx home range size varies by the animal's gender, abundance of prey, season and the density of lynx populations (Hatler 1988; Koehler 1990; Poole 1994; Slough and Mowat 1996; Aubry *et al.* 2000; Mowat *et al.* 2000). Documented home ranges vary from 8 to 800 square kilometers (3 to 300 square miles) (Saunders 1963; Brand *et al.* 1976; Mech 1980; Parker *et al.* 1983; Koehler and Aubry 1994; Apps 2000; Mowat *et al.* 2000; Squires and Laurion 2000). Preliminary research supports the hypothesis that lynx home ranges at the southern extent of the species' range are generally large compared to those in the core of the range in Canada (Koehler and Aubry 1994; Apps 2000; Squires and Laurion 2000).

Lynx are capable of dispersing extremely long distances (Mech 1977; Washington Department of Wildlife 1993); for example, a male was documented traveling 616 kilometers (370 miles) (Brainerd 1985). Lynx disperse primarily when snowshoe hare (*Lepus americanus*) populations decline (Ward and Krebs 1985; Koehler and Aubry 1994; O'Donoghue *et al.* 1997; Poole 1997). Subadult lynx disperse even when prey is abundant (Poole 1997), presumably as an innate response to establish home ranges.

During the early 1960s and 1970s, there were numerous occurrences of lynx documented in atypical habitat, such as in North Dakota. In those years, harvest returns indicated unprecedented cyclic lynx highs for the 20th century in Canada (Adams 1963; Harger 1965; Mech 1973; Gunderson 1978; Thiel 1987; McKelvey *et al.* 2000b). Many of these unusual observations were probably dispersing animals that either were lost from the population or later returned to suitable habitat.

Diet - Snowshoe hares (*Lepus americanus*) are the primary prey of lynx, comprising 35-97 percent of the diet throughout the range of the lynx (Koehler and Aubry 1994). Other prey species include red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus*, *Dendragopus* spp., *Lagopus* spp.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii*, *S. richardsonii*), porcupine (*Erethrizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus* spp.), voles (*Microtus* spp.), shrews (*Sorex* spp.), fish, and ungulates as carrion or occasionally as prey (Saunders 1963; Van Zyll de Jong 1966; Nellis *et al.* 1972; Brand *et al.* 1976; Brand and Keith 1979; Koehler 1990; Staples 1995; O'Donoghue *et al.* 1998).

During the cycle when hares become scarce, the proportion and importance of other prey species, especially red squirrel, increases in the diet (Brand *et al.* 1976; O'Donoghue *et al.* 1998; Apps 2000; Mowat *et al.* 2000). However, Koehler (1990) suggested that a diet of red squirrels alone might not be adequate to ensure lynx reproduction and survival of kittens.

Most research has focused on the winter diet. Summer diets are poorly understood throughout the range of lynx. Mowat *et al.* (2000) reported through their review of the literature that summer diets have less snowshoe hare and more alternate prey species, possibly because of a greater availability of other species.

There has been little research on lynx diet specific to the southern portion of its range except in Washington (Koehler *et al.* 1979; Koehler 1990). Southern populations of lynx may prey on a wider diversity of species than northern populations because of lower average hare densities and differences in small mammal communities. In areas characterized by patchy distribution of lynx habitat, lynx may prey opportunistically on other species that occur in adjacent habitats, potentially including white-tailed jackrabbit (*Lepus townsendii*), black-tailed jackrabbit (*Lepus californicus*), sage-grouse (*Centrocercus urophasianus*), and Columbian sharp-tailed grouse *(Tympanuchus phasianellus*) (Quinn and Parker 1987; Lewis and Wenger 1998).

In northern regions, when hare densities decline, the lower quality diet causes sudden decreases in the productivity of adult female lynx and decreased survival of kittens, which causes the numbers of breeding lynx to level off or decrease (Nellis *et al.* 1972; Brand *et al.* 1976; Brand and Keith 1979; Poole 1994; Slough and Mowat 1996; O'Donoghue *et al.* 1997). Relative densities of snowshoe hares at southern latitudes are generally lower than those in the north, and differing interpretations of the population dynamics of southern populations of snowshoe hare have been proposed (Hodges 2000b).

Snowshoe hares have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982). Primary forest types that support snowshoe hare are *Abies lasiocarpa* (subalpine fir), *Picea engelmannii* (Engelmann spruce), *Pseudotsuga menziesii* (Douglas-fir), and *Pinus contorta* (lodgepole pine) in the western United States, and spruce/fir, pine, and deciduous forests in the eastern United States (Hodges 2000b). Within these habitat types, snowshoe hares prefer stands of conifers with shrub understories that provide forage, cover to escape predators, and protection during extreme weather (Wolfe *et al.* 1982; Monthey 1986; Koehler and Aubrey 1994). Hares' use of habitat is correlated with understory cover (Hodges 2000a). Early successional forest stages generally have greater understory structure than do mature forests and therefore support higher hare densities (Hodges 2000a, b). However, mature forests can also provide snowshoe hare habitat as openings are created in the canopy when trees succumb to disease, fire, wind, ice, or insects, and the understory develops (Buskirk *et al.* 2000b).

Lynx seem to prefer to move through continuous forest, using the highest terrain available such as ridges and saddles (Koehler 1990; Staples 1995). Cover is important to lynx when searching for food (Brand *et al.* 1976) but lynx often hunt along edges (Mowat *et al.* 2000). Kesterson (1988) and Staples (1995) reported that lynx hunted along the edges of mature stands within a burned forest matrix and Major (1989) found that lynx hunted along the edge of dense riparian willow stands. Lynx have been observed (via snow tracking) to avoid large openings (Koehler 1990; Staples 1995) during daily movements within the home range.

Den site selection - Lynx use large woody debris, such as downed logs, root wads and windfalls, to provide denning sites with security and thermal cover for kittens (McCord and Cardoza 1982; Koehler 1990; Koehler and Brittell 1990; Mowat *et al.* 2000; Squires and Laurion 2000). During the first few months of life, kittens are left alone at these sites when the female lynx hunts. Downed logs and overhead cover provide protection of kittens from predators, such as owls, hawks and other carnivores during this period.

The age of the forest stand does not seem as important for denning habitat as the amount of downed, woody debris available (Mowat *et al.* 2000). Den sites may be located within older regenerating stands (>20 years since disturbance) or in mature conifer or mixed conifer-deciduous (typically spruce/fir or spruce/birch) forests. In Washington, lynx used lodgepole pine, *Picea* spp. (spruce), and *Abies lasiocarpa* (subalpine fir) forests older than 200 years with an abundance of downed woody debris for denning (Koehler 1990). A den site in Wyoming was located in a mature subalpine fir/lodgepole pine forest with abundant downed logs and a high amount of horizontal cover (Squires and Laurion 2000). A lynx den site found in Maine in 1999 was located in a forest stand in *Picea rubra* (red spruce) cover type that was logged in 1930 and again in the 1980s and is regenerating into hardwoods (Organ 1999). The site had a dense understory and an abundance of dead and downed wood.

Denning habitat must be in or near foraging habitat to be functional. The hunting range of females is restricted at the time of parturition, and their need to feed kittens requires an abundance of prey. Lynx, like other carnivores, frequently move their kittens until they are old enough to hunt with their mother. Multiple nursery sites are needed that provide kittens with overhead cover and protection from predators and the elements. Downed logs and overhead cover must also be available throughout the home range to provide security when lynx kittens are old enough to travel (Bailey 1974).

Recruitment - Breeding occurs through March and April in the north (Quinn and Parker 1987). Kittens are born in May to June in south-central Yukon (Slough and Mowat 1996). The male lynx does not help with rearing young (Eisenberg 1986). Slough and Mowat (1996) reported yearling females giving birth during periods when hares were abundant; male lynx may be incapable of breeding during their first year (McCord and Cardoza 1982).

In northern study areas during the low phase of the hare cycle, few, if any, live kittens are born and few yearling females conceive (Brand and Keith 1979; Poole 1994; Slough and Mowat 1996). However, Mowat *et al.* (2000) suggested that in the far north, some lynx recruitment occurs when hares are scarce and this may be important in lynx population maintenance during hare lows. During periods of hare abundance in the northern taiga, litter size of adult females averages 4-5 kittens (Mowat *et al.* 1996).

Koehler (1990) suggested that the low number of kittens produced in north-central Washington was comparable to northern populations during periods of low snowshoe hare abundance. In his study area, 2 radio-collared females had litters of 3 and 4 kittens in 1986 and 1 kitten in 1987 (the actual litter size of 1 of the females in 1987 was not determined) (Koehler 1990). Of the known-size litters in Washington, 1 kitten survived the first winter.

In Montana, Squires and Laurion (2000) reported that 1 marked female produced 2 kittens in 1998.

In 1999, 2 of 3 females produced litters of 2 kittens each. In Wyoming (Squires and Laurion 2000), 1 female produced 4 kittens in 1998, but snow tracking indicated that the kittens were not with the female in November and were presumed dead. The same female produced 2 kittens in 1999.

Mortality - Reported causes of lynx mortality vary between studies. The most commonly reported causes include starvation of kittens (Quinn and Parker 1987; Koehler 1990), and human-caused mortality, mostly fur trapping (Ward and Krebs 1985; Bailey *et al.* 1986).

Significant lynx mortality due to starvation has been demonstrated in cyclic populations of the northern taiga, during the first two years of hare scarcity (Poole 1994; Slough and Mowat 1996). Various studies have shown that, during periods of low snowshoe hare numbers, starvation can account for up to two-thirds of all natural lynx deaths. Trapping mortality may be additive rather than compensatory during the low period of the snowshoe hare cycle (Brand and Keith 1979). Hunger-related stress, which induces dispersal, may increase the exposure of lynx to other forms of mortality such as trapping and highway collisions (Brand and Keith 1979; Carbon and Patriquin 1983; Ward and Krebs 1985; Bailey *et al.* 1986).

Paved roads have been a mortality factor in lynx translocation efforts within historical lynx range. In New York, 18 translocated lynx were killed on highways (Brocke *et al.* 1990). It has been suggested by Brocke *et al.* (1990) that translocated animals may be more vulnerable to highway mortality than resident lynx. Six lynx were killed on 2- and 4-lane Colorado highways following their release as part of a reintroduction effort (CDOW 2003).

Other than translocated animals, there have been documented occurrences of highway mortality of lynx in Wisconsin (Theil 1987), Minnesota (DonCarlos 1994; J. Cochrane, USFWS, pers. comm. 2003), and Montana (G. Joslin, Montana Department of Fish, Wildlife and Parks, pers. comm. 2003).

Predation on lynx by mountain lion (*Felis concolor*), coyote (*Canis latrans*), wolverine (*Gulo gulo*), gray wolf (*Canis lupus*), fisher (*Martes pennanti*) and other lynx has been confirmed (Berrie 1974; Koehler *et al.* 1979; Poole 1994; Slough and Mowat 1996; O'Donoghue *et al.* 1997; Apps 2000; Vashon *et al.* 2003; Squires and Laurion 2000). Squires and Laurion (2000) reported 2 of 6 mortalities of radio-collared lynx in Montana were due to mountain lion predation. Observations of such events are rare, and the significance of predation on lynx populations is unknown.

Interspecific relationships with other carnivores - Buskirk *et al.* (2000a) described the two major competition impacts to lynx as exploitation (competition for food) and interference (avoidance). Of several predators examined (birds of prey, coyote, gray wolf, mountain lion, bobcat (*Lynx rufus*), and wolverine), coyotes were deemed to most likely pose local or regionally important exploitation impacts to lynx, and coyotes and bobcats were deemed to possibly impart important interference competition effects on lynx. Mountain lions were described as

interference competitors, possibly impacting lynx during summer and in areas lacking deep snow in winter, or when high elevation snow packs develop crust in the spring.
Exploitation competition may contribute to lynx starvation and reduced recruitment. During periods of low snowshoe hare numbers, starvation accounted for up to two-thirds of all natural lynx deaths in the Northwest Territories of Canada (Poole 1994). Major predators of snowshoe hare include lynx, northern goshawk (*Accipiter gentilis*), great horned owl (*Bubo virginianus*), bobcat, coyote, red fox (*Vulpes vulpes*), fisher, and mountain lion. In southern portions of snowshoe hare range, predators may limit hare populations to lower densities than in the taiga (Dolbeer and Clark 1975; Wolff 1980; Koehler and Aubry 1994).

Based on only anecdotal evidence, Parker *et al.* (1983) discussed competition between bobcats and lynx on Cape Breton Island. Lynx were found to be common over much of the island prior to bobcat colonization. Concurrent with the colonization of the island by bobcats, lynx densities declined and their presence on the island became restricted to the highlands, the one area where bobcats did not become established.

Population Dynamics

In Canada and Alaska, lynx populations undergo extreme fluctuations in response to snowshoe hare population cycles, enlarging or dispersing from their home ranges and ceasing the recruitment of young into the population after hare populations decline (Mowat *et al.* 2000). In the southern portion of the range in the contiguous United States, lynx populations appear to be naturally limited by the availability of snowshoe hares, as suggested by large home range size, high kitten mortality due to starvation, and greater reliance on alternate prey. These characteristics appear to be similar to those exhibited by lynx populations in the taiga during the low phase of the population cycle (Quinn and Parker 1987, Koehler 1990, Aubry *et al.* 2000). This is likely due to the inherently patchy distribution of lynx and hare habitat in the contiguous United States and corresponding lower densities of hares.

A lack of accurate data limits our understanding of lynx population dynamics in the contiguous United States and precludes drawing definitive conclusions about lynx population trends. Formal surveys designed specifically to detect lynx have rarely been conducted. Many reports of lynx (e.g., visual observations, snow tracks) have been collected incidentally to other activities, but cannot be used to infer population trends. Long-term trapping data have been used to estimate population trends for various species. However, trapping returns are strongly influenced by trapper effort, which varies between years, and therefore may not accurately reflect population trends. Another important problem is that trapping records of many States did not differentiate between bobcats and lynx, referring to both as “lynxcats.” Overall, the available data are too incomplete to infer much beyond simple occurrence and distribution of lynx in the contiguous United States (McKelvey *et al.* 2000b)

Lynx populations in the contiguous United States occur at the southern periphery of a metapopulation whose core is located in the northern boreal forest of central Canada (McCord and Cardoza 1982; Quinn and Parker 1987; McKelvey *et al.* 2000a). Lynx population dynamics may emanate from the core to the periphery, as evidenced by a lagged correlation of lynx trap records and observations (McKelvey *et al.* 2000b; Mowat *et al.* 2000). In the Great Lakes Geographic Area, population dynamics in recent decades appear to be strongly driven by

immigration from Canada (McKelvey *et al.* 2000b). In other areas and time periods, however, it is not known to what extent the correlation is due to immigration from Canada, population responses to the same factors controlling northern populations, or a combination of the two.

We suspect that some areas in the contiguous United States naturally act as sources of lynx (recruitment is greater than mortality) that are able to disperse and potentially colonize other patches (McKelvey *et al.* 2000a). Other areas may function as sinks, where lynx mortality is greater than recruitment and lynx are lost from the overall population. Sink habitats are most likely those places on the periphery of the southern boreal forest where habitat becomes more fragmented and more distant from larger lynx populations. Fluctuations in prey populations may cause some habitat patches to change from being sinks to sources, and vice versa. The ability of naturally dynamic habitat to support lynx populations may change as the habitat undergoes natural succession following natural or manmade disturbances (i.e., fire, clearcutting).

Status and Distribution

The lynx in the contiguous United States was listed as threatened effective April 23, 2000 (65 FR 16052, March 24, 2000). At least one of five listing factors must be met for listing under the ESA. These factors include: present or threatened destruction of habitat or range, over-utilization, disease or predation, inadequacy of existing regulatory mechanisms or other natural or human-made causes. The sole factor for listing the Canada lynx as threatened was inadequacy of existing regulatory mechanisms, specifically the lack of Forest Land and Resource Management Plans guidance to address the needs of lynx.

The following discussion of the status and distribution of lynx is largely excerpted from the Service's final rule (65 FR 16052, March 24, 2000). The historical and present range of the lynx north of the contiguous United States includes Alaska and that part of Canada that extends from the Yukon and Northwest Territories south across the United States border and east to New Brunswick and Nova Scotia. In the contiguous United States, lynx historically occurred in the Cascades Range of Washington and Oregon; the Rocky Mountain Range in Montana, Wyoming, Idaho, eastern Washington, eastern Oregon, northern Utah, and Colorado; the western Great Lakes Region; and the northeastern United States region from Maine southwest to New York (McCord and Cardoza 1982; Quinn and Parker 1987).

The distribution of lynx in North America is closely associated with the distribution of North American boreal forest (Agee 2000). In Canada and Alaska, lynx inhabit the classic boreal forest ecosystem known as the taiga (McCord and Cardoza 1982; Quinn and Parker 1987; Agee 2000; McKelvey *et al.* 2000b). The range of lynx extends south from the classic boreal forest zone into the subalpine forest of the western United States, and the boreal/hardwood forest ecotone in the eastern United States (Agee 2000; McKelvey *et al.* 2000b). Forests with boreal features (Agee 2000) extend south into the contiguous United States along the Cascade and Rocky Mountain Ranges in the west, the western Great Lakes Region, and along the Appalachian Mountain Range of the northeastern United States. Within these general forest types, lynx are most likely to persist in areas that receive deep snow, to which the lynx is highly adapted (Ruggiero *et al.* 2000). Lynx are rare or absent from the wet coastal forests of Alaska and Canada (Mowat *et al.* 2000).

At its southern margins in the contiguous United States, forests with boreal features, or southern boreal forests, become naturally fragmented as they transition into other vegetation types. Southern boreal forest habitat patches are small relative to the extensive northern boreal forest of Canada and Alaska, which constitutes the majority of lynx range. Many southern boreal forest habitat patches within the contiguous United States cannot support resident populations of lynx and their primary prey species.

The complexities of lynx life-history and population dynamics, combined with a general lack of reliable population data for the contiguous United States, make it difficult to ascertain the past or present population status of lynx in the contiguous United States. It is impossible to determine with certainty whether reports of lynx in many States were: 1) animals dispersing from northern populations that were effectively lost because they did not join or establish resident populations, 2) animals that were a part of a resident population that persisted for many generations, or 3) a mixture of both resident and dispersing animals.

The final rule (65 FR 16052, March 24, 2000) determining threatened status for the lynx in the contiguous United States summarized lynx status and distribution across four regions that are separated from each other by ecological barriers consisting of unsuitable lynx habitat. These distinct regions are the Northeast, the Great Lakes, the Northern Rocky Mountains/Cascades, and the Southern Rocky Mountains. While these regions are ecologically unique and discrete, the lynx is associated with southern boreal forest in each and, with the exception of the Southern Rocky Mountain Region; each area is geographically connected to the much larger population of lynx in Canada.

Northeast Region (Maine, New Hampshire, Vermont, New York) - Based on an analysis of cover types and elevation zones containing most of the lynx occurrences, McKelvey *et al.* (2000b) determined that, at the broad scale, most lynx occurrence records in the Northeast were found within the "Mixed Forest-Coniferous Forest-Tundra" cover type at elevations ranging from 250-750 meters (820-2,460 feet). This habitat type in the northeast United States occurs along the northern Appalachian Mountain range from southeastern Quebec, western New Brunswick, and western Maine, south through northern New Hampshire. This habitat type becomes naturally more fragmented and begins to diminish to the south and west, with a disjunct segment running north-south through Vermont, a patch of habitat in the Adirondacks of northern New York, and with a few more distant and isolated patches in Pennsylvania (McKelvey *et al.* 2000b).

As it did historically, the boreal forest of the Northeast continues to exist primarily in Maine where habitat is currently optimal and a resident, breeding population of lynx continues to exist. Maine's lynx population is currently much larger than we knew at the time of the final listing rule in 2000 and habitat is directly connected to substantive lynx populations and habitat in southeastern Quebec and New Brunswick. The potential exists for lynx to occur in New Hampshire because of its direct connectivity with Maine. Lynx in Vermont have always existed solely as dispersers. Lynx occurring in New York since 1900 have been dispersers. Detailed information on the status and distribution of lynx in this region is found in the Final Rule (65 FR 16052; March 24, 2000) and the Clarification of the Final Rule (68 FR 40076; July 3, 2003).

Great Lakes Region (Minnesota, Wisconsin, Michigan) - The majority of lynx occurrence records in the Great Lakes Region are associated with the "mixed deciduous-coniferous forest" type (McKelvey *et al.* 2000b). Within this general forest type, the highest frequency of lynx occurrences were in the *Acer saccharum* (sugar maple), *Tilia* spp. (basswood), *Pinus banksiana* (jack pine), *P. strobus* (white pine), and *P. resinosa* (red pine) forest types (McKelvey *et al.* 2000b). These types are found primarily in northeastern Minnesota, northern Wisconsin, and the western portion of Michigan's upper peninsula.

We conclude that northeastern Minnesota has historically supported and currently supports a resident lynx population, based on the number of lynx records, evidence of reproduction, and the presence of boreal forest contiguous with occupied habitat in Ontario. We conclude records of lynx in Wisconsin and Michigan constitute dispersing animals, rather than individuals from resident populations, based on the lack of evidence of reproduction, lack of connectivity with suitable habitat, and limited amount of habitat. Detailed information on the status and distribution of lynx in this region is found in the Final Rule (65 FR 16052; March 24, 2000) and the Clarification of the Final Rule (68 FR 40076; July 3, 2003).

Northern Rocky Mountains/Cascades Region (Washington, Oregon, Idaho, Wyoming, Utah, Montana) - In this region, the majority of lynx occurrences are associated at a broad scale with the "Rocky Mountain Conifer Forest"; within this type, most of the occurrences are in moist Douglas-fir and western spruce/fir forests (McKelvey *et al.* 2000b). Most of the lynx occurrences are in the 1,500-2,000 meters (4,920-6,560 feet) elevation class (McKelvey *et al.* 2000b). These habitats are found in the Rocky Mountains of Montana, Idaho, eastern Washington, and Utah, the Wallowa Mountains and Blue Mountains of southeast Washington and northeastern Oregon, and the Cascade Mountains in Washington and Oregon. The majority of verified lynx occurrences in the United States and the confirmed presence of resident populations are from this region. The boreal forest of Washington, Montana, and Idaho is contiguous with that in adjacent British Columbia and Alberta, Canada.

We conclude that the Northern Rocky Mountains/Cascades Region continues to support resident lynx populations in north central, and northeastern Washington, western Montana and likely northern Idaho based on current evidence of reproduction in Washington and Montana and the presence of habitat able to support resident populations. We conclude that lynx have always occurred as dispersers in Oregon and Utah because habitat capable of supporting lynx is limited and there are relatively few historic records of lynx in these states. In northern Wyoming it appears habitat is less suitable to support resident populations and, therefore, we conclude animals in this area are most likely dispersers. Detailed information on the status and distribution of lynx in this region is found in the Final Rule (65 FR 16052; March 24, 2000) and the Clarification of the Final Rule (68 FR 40076; July 3, 2003).

Southern Rocky Mountains Region (Colorado, SE Wyoming) - Colorado represents the extreme southern edge of the range of the lynx. The southern boreal forest of Colorado and southeastern Wyoming is isolated from boreal forest in Utah and northwestern Wyoming by the Green River Valley and the Wyoming basin (Findley and Anderson 1956). These areas likely reduce opportunities for immigration from the Northern Rocky Mountains/Cascades Region and Canada (Halfpenny *et al.* 1982; Koehler and Aubry 1994).

A majority of the lynx occurrence records in Colorado and southeastern Wyoming are associated with the "Rocky Mountain Conifer Forest" type. The occurrences in the Southern Rockies were generally at higher elevations (1,250 to over 3,750 meters (4,100-12,300 feet)) than were all other occurrences in the West (McKelvey *et al.* 2000b).

There are relatively few historic lynx records from this region (McKelvey *et al.* 2000b). We are uncertain whether the Southern Rockies supported a small resident population historically or whether such records were of dispersers that arrived during extremely high population cycles. If these historic records represent resident populations rather than dispersing animals that emigrated from the Northern Rocky Mountains, Cascades or Canada, then we believe a viable native resident lynx population no longer exists in the Southern Rocky Mountains. Although habitats in the Southern Rockies are far from source populations and more isolated, it is still possible that dispersers could arrive in the Southern Rocky Mountains during extreme highs in the population cycle. Detailed information on the status and distribution of lynx in this region is found in the Final Rule (65 FR 16052; March 24, 2000) and the Clarification of the Final Rule (68 FR 40076; July 3, 2003).

Reports from other locations - Lynx have been documented in habitats that are unable to support them long-term. Such occurrences are associated with cyclic population highs when lynx tend to disperse long distances. These unpredictable and temporary occurrences are not included within either the historic or current range of lynx because they are well outside of lynx habitat (65 FR 16052, March 24, 2000; 68 FR 40076, July 3, 2003). This includes records from Nevada, North Dakota, South Dakota, Iowa, Nebraska, Indiana, Ohio, and Virginia (Hall and Kelson 1959; Burt 1954; Gunderson 1978; Mech 1980; McKelvey *et al.* 2000b; Johnson 1994; Jones 1994; South Dakota Natural Heritage Program 1994; Jobman 1997; Smithsonian Institute 1998).

Status In the Southern Rockies - Canada lynx occur primarily in spruce-fir and lodgepole pine forests, at elevations between 8,000 and 12,000 feet (Ruggiero et al. 1999). *Populus tremuloide*s (Quaking aspen) stands and forest edges, as well as open grass meadows and forest ecotones, may also support high numbers of hares and Canada lynx. On a landscape scale, Canada lynx habitat includes a mosaic of early seral stages that support snowshoe hare populations and late seral stages of dense old growth forest that provide ideal denning and security habitat. Connectivity between Canada lynx populations is critical: Dispersal corridors should be several miles wide with only narrow gaps. Large tracts of continuous coniferous forest are the most desirable for Canada lynx travel and dispersal (Tanimoto 1998).

Records of lynx occurrence are available from throughout most of the Southern Rocky Mountains. The last specimens of lynx taken in the Southern Rockies were from the late 1960s and early 1970s. In 1969, three lynx specimens were taken in adjacent counties in the central core of the Southern Rockies. One was shot along the Fryingpan River in Pitkin County, another on Vail Mountain (Eagle County), and a third was trapped south of Leadville in Lake County (G. Byrne, pers. comm. 1999). In 1971, the State of Colorado closed the season on lynx, making it illegal to take this species. Since then, only a few specimens have been obtained. In 1972, a lynx was trapped on Guanella Pass and another caught in a snow slide east of Bakerville, Colorado, both in Clear Creek County. During the 1973-74 winter, a pair of lynx was illegally trapped within Vail Ski Area boundaries (Thompson and Halfpenny 1989). No lynx specimens are available since those last illegal takes.

Despite the resulting lack of recent specimens, strong evidence of lynx persistence continued to surface. A Statewide lynx verification program conducted from 1978-80 by the Colorado Division of Wildlife (CDOW) concluded that viable, low-density lynx populations persisted in Eagle, Pitkin, Lake, and Clear Creek counties. Because Summit County is sandwiched between three of those counties, it is likely that lynx existed there as well. In addition, the program provided evidence of lynx occurrence in Grand and Park counties. Lack of evidence from other portions of the State was as likely a consequence of survey effort as lack of lynx.

Thompson and Halfpenny (1989) confirmed lynx in the vicinity of Vail Ski Area during the winter of 1988-89 as part of studies conducted by Vail Associates for the Category III expansion. They state in their report, "there is no question that lynx exist at Vail Ski Area and in the surrounding mountains." Follow-up work by the CDOW in 1990 and 1991 lead to the discovery of additional lynx tracks in the area. In 1991, Thompson and Halfpenny also confirmed two sets of lynx tracks at a proposed ski area site south of Wolf Creek Pass in the eastern San Juan Mountains (Andrews 1992; Thompson, pers. comm.). They believed the pair was probably a female and its kitten.

Occasional credible sighting reports and track evidence continue to be received from various parts of the State, providing additional evidence that native lynx likely still persist in low numbers in the Southern Rockies. Since the 1991 track discoveries near Vail and in the San Juans, the CDOW has recorded seven lynx sightings or track locations between 1992 and 1998 that they rate as probable lynx. Three of those were by CDOW biologists. Carney (1993) reported lynx tracks from the east side of the Gore Range in Summit County. Tom Beck, a carnivore researcher with CDOW, found a set of lynx tracks in the Dolores River drainage in the west San Juans, Montezuma County in 1993. A CDOW Area Wildlife Manager observed a lynx in the southern Sangre de Cristos of Costilla County, also in 1993. Two sightings and one set of tracks were reported from Eagle County and another set of tracks was located in Larimer County north of Rocky Mountain National Park.

In 1997, photographs were taken of tracks believed to be those of lynx in the Tennessee Creek drainage on the border of Lake and Eagle counties. This is an area where possible lynx tracks were located just a few years earlier. Among the most recent credible sighting reports include one from Boreas Pass on the border of Summit and Park Counties in 1995, another from the Vail vicinity in January 1998, one from a Forest Service biologist in July 1998 on the Flattops in northwestern Colorado, and from a Park Ranger in Rocky Mountain National Park (Larimer County) in December 1998. During the 1998-99 winter, CDOW trackers following radio-collared lynx just transplanted into the San Juan Mountains, located a several-day-old lynx trail they believed may be that of a native lynx (Byrne and Shenk, pers. comm.). This location was in the same general area where Thompson and Halfpenny located lynx tracks in 1991.

Lynx were confirmed in Eagle County as late as 1991, and in Summit County (Gore Range) as late as 1993. Evidence has continued to indicate lynx occupancy of the central and, possibly, northern mountains through the 1990s. This evidence includes a sighting by a Forest Service biologist in July 1998 in the Flattops in northwestern Colorado, and tracks in Larimer County north of Rocky Mountain National Park. The CDOW found evidence of lynx in Eagle County and in Grand County. Radio tracking in 2000 of lynx trans-located to Colorado indicated that a few individuals spent time in the Gore Range. In July 2001, CDOW reported a collared lynx in

the Flattops Wilderness Area (Shenk, pers. comm. 2002). It is conceivable that native lynx may yet occupy the high mountain landscapes in Colorado.

The Canada lynx has been classified by the State of Colorado as a State endangered species since 1976. In 2000, the Service classified the lynx as a federally threatened species. Since 1978, there have been 14 investigations into naturally occurring lynx presence in Colorado conducted by the CDOW and other private and public conservation groups. Definitive evidence has not been found to document the presence of lynx from these studies though tracks attributed to lynx were found on a number of occasions.

The CDOW initiated a Canada lynx recovery program in February 1999. The program augmented any existing population with transplants from Canada and Alaska, with the intent of reestablishing viable, self-sustaining populations in primary blocks of suitable habitat throughout the Southern Rocky Mountains. Ninety-six lynx were released into the San Juan Mountains during the winter/spring periods of 1999 and 2000 by the CDOW. In 2003, 33 additional lynx were released into south-central Colorado as part of the State's recovery program. Additional lynx are to be released to further the goal of establishing a viable lynx population in Colorado. In May and June of 2003, the State of Colorado confirmed the birth of 16 lynx kittens. Evidence of reproduction, and multiple individuals within each litter suggests that there is an adequate local supply of prey. Some of the lynx initially released by the CDOW appear to have established home ranges, as demonstrated by radio telemetry (Tanya Shenk, CDOW, 2003, pers comm.). Many of the released lynx have displayed fidelity to areas away from the release areas suggesting that they have sought these areas out, and sufficient prey exists to support them. After the first year of the program, there was evidence suggesting that there was insufficient prey availability in the Southern Rockies. Diet analysis conducted by the CDOW showed that only 67 percent of the diet consisted on snowshoe hare. At this time however, 89 percent of the diet of the released lynx population consists of snowshoe hare (Shenk, CDOW, 2003, pers comm.). This suggests that after release, lynx were seeking out areas within the ecosystem that supported high numbers of prey, and, in the mean time relied on other prey to sustain them. Most of these lynx are currently known to occupy the San Juan Mountains. A number of lynx have made and continue to make exploratory movements throughout the Southern Rockies. Several animals have taken up residence for extended periods in the central and northern mountains. Currently, lynx may exist in most major portions of the Southern Rockies Ecosystem.

Most lynx that are currently being monitored continue to use terrain within the core research area: New Mexico north to Gunnison, west as far as Taylor Mesa and east to Monarch Pass. There are some lynx north of Gunnison up to the I-70 corridor and in the Taylor Park area.

The State is currently tracking 62 of the 84 lynx still possibly alive. No signals have been detected for 20 of the lynx since at least May 24, 2002. One of these missing lynx is the lynx hit by a truck in New Mexico, thus only 19 are truly missing. A number of these lynx are now missing because their collar batteries have died and we can no longer pickup radio signals. Some of the missing lynx may still have functioning collars but are outside the research area. Expanded flights outside the research area during the summer and fall months may yield locating these missing lynx. Two of the lynx released in 2000 have probably slipped their collars. One of the male lynx released in 2003 has died from unknown circumstances.

ENVIRONMENTAL BASELINE

The environmental baseline is defined as the past and present impacts on the Canada lynx of all Federal, state or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of State or private actions that are contemporaneous with the consultation in process.

The action area considered in this opinion includes the Rio Grande National Forest and the LAU's within that geographic boundary, adjacent Federal lands where lynx habitat occurs contiguous with the Rio Grande National Forest (LAUs from adjacent Forest Service and Bureau of Land Management units), as well as four landscape linkages: Poncha Pass, Cochetopa Hills/North Pass, Slumgullion Pass, and Wolf Creek Pass.

The inclusion of these areas within the action area is due to: mapped habitat areas on the Rio Grande National Forest, and recommended conservation measures in the LCAS, including but not limited to, maintenance of movement corridors within and between LAU's, and the maintenance of landscape linkages that facilitate movement across areas of non-habitat that link large blocks of contiguous habitat.

The BA described LTAs as broad ecological units expressed as similar forest plant communities and ecological potential. LTAs have a spatial resolution of hundreds to thousands of acres in size, making them generally useful and appropriate for Forest Plan scale analysis. However, except for the Canada lynx, species addressed in this biological assessment have such specialized habitat needs, that their habitats are limited in extent on the Forest and do not lend themselves to that scale of analysis. Still, use of the LTAs may provide a context for the amount of available habitat and the relative amount of risk associated with management activities on the Rio Grande National Forest. Table 2 in the BA documents the LTAs for lynx as spruce/fir, willow sedge mixed conifer, and aspen. These LTAs comprise 1,083,953 acres of suitable habitat for lynx, out of a total of 1,852,000 acres on the Rio Grande National Forest.

Table 3 in the BA provides a summary of the LAUs, types and acres of lynx habitat on the Forest. There are an estimated 1,083,953 acres of lynx habitat, based on habitat criteria provided by the LCAS. Lynx habitat is found throughout the Forest in almost all of the LTAs, but is primarily concentrated within subalpine, forested, and riparian LTAs.

Various threats were identified by the Service in the final rule (2000) to list Canada lynx as potentially affecting lynx populations, including competition, habitat loss and fragmentation, and the inadequacy of existing regulatory mechanisms to protect the species, specifically the lack of guidance for the conservation of lynx in Forest Plans and BLM Land Use Plans. A cooperative team from the Forest Service and BLM prepared a national programmatic BA of the potential effects resulting from these Plans within the 16 states where lynx were listed. The national programmatic BA made a determination that the Plans "may affect and are likely to adversely affect the lynx."

Within the Southern Rocky Mountain Geographic Area, which includes the Rio Grande National Forest, the national programmatic BA found adverse effects based on 11 of the 15 evaluation

criteria used to analyze the programmatic effects of plans on the lynx. The finding of adverse effect was primarily based on plans providing weak direction regarding the evaluation criteria. Findings specific to the Rio Grande National Forest Forest Plan are similar in that regard and are shown in Table 1.

Table 1. Summary of how Rio Grande National Forest Forest Plan direction meets evaluation criteria.

EVALUATION CRITERIA	HOW RIO GRANDE NATIONAL FOREST MEETS CRITERIA
Denning Habitat (Forest Plan contains either specific or incidental direction that results in providing denning habitat)	Marginally
Foraging Habitat (Forest Plan contains either specific or incidental direction that results in providing foraging habitat)	Marginally
Habitat Conversions (Forest Plan prohibits habitat conversions that would reduce habitat suitability for lynx)	Does not meet
Thinning (Forest Plan provides direction for integrating lynx habitat needs in stand thinning projects)	Marginally
Fire Management (Forest Plan incorporates fire management direction that helps maintain or improve lynx habitat).	Fully
Landscape Patterns (Forest Plan direction either directly or indirectly results in landscape vegetation patterns that maintain or improve lynx habitat suitability)	Marginally
Forest Roads (Forest Plan contains direction pertaining to roads that helps promote lynx conservation)	Marginally
Developed Recreation (Forest Plan contains direction that mitigates the effects of developed recreation on lynx and lynx habitat)	Does not meet
Non-winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of non-winter dispersed recreation on lynx and lynx habitat)	Substantially
Winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of winter dispersed recreation on lynx and lynx habitat)	Substantially
Minerals (Forest Plan contains direction that mitigates the effects of minerals and energy development on lynx and lynx habitat)	Does not meet
Connectivity (Forest Plan contains direction that mitigates potential barriers to lynx movement and maintains habitat connectivity. Riparian management and other connectivity issues are considered)	Marginally
Land Adjustments (Forest Plan contains direction that maintains or improves lynx habitat during land tenure adjustments)	Marginally
Coordination (Forest Plan contains specific direction for coordinating issues that may affect lynx with nearby units and other agencies)	Marginally
Monitoring (Forest Plan contains direction for monitoring lynx and snowshoe hare or their habitats)	Does not meet

After completion of the national programmatic BA, the lynx was listed and in 2000, the Service issued a BO based on the BA, the then draft Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000). During the consultation, the Service evaluated the effects of the plans in consideration of the LCAS, the Canada Lynx Conservation Agreements (U.S. Forest Service and U.S. Fish and Wildlife Service 2000) and the Lynx Science Report, "Ecology and Conservation of the Lynx in the United States (Ruggiero et al. 2000). The BO found a no jeopardy conclusion based upon implementation of the Conservation Agreements until such time as the plans were amended or revised to consider the needs of lynx. The Service further concluded that continued

implementation of the plans, in conjunction with the CAs, might result in some level of adverse effects to lynx, as plans are permissive in that they allow, but do not authorize, actions to occur that may adversely affect lynx. However, the BO included an assessment of effects if the plans were amended or revised with the conservation measures in the LCAS and determined that such amendments or revisions would likely sufficiently minimize the potential for adverse effects and the effects of any take that might occur at the programmatic scale.

The LCAS developed conservation measures designed to minimize potential risk factors that may influence lynx or lynx habitat. Identified risk factors include:

> Factors affecting lynx productivity- (timber management, wildland fire management, recreation, forest/backcountry roads and trails, livestock grazing, and other human developments).
>
> Factors affecting lynx mortality- (trapping, predator control, incidental or illegal shooting, and competition and predation as influenced by human activities).
>
> Factors affecting lynx movement- (highways, railroads and utility corridors, land ownership patterns, and ski areas and large resorts).
>
> Other large-scale risk factors- (fragmentation and degradation of lynx refugia, lynx movement and dispersal across shrub-steppe habitats, and habitat degradation by non-native invasive plant species).

The national programmatic BA evaluated what plans permit or prohibit, assessing the language or direction of the plans rather than the realized effects of their implementation. The BA in general, found there was a lack of protective direction to address all 15 evaluation criteria and specifically that the Rio Grande National Forest did not meet 4 of the criteria, marginally met 8, substantially met 2, and fully met 1 (Table 1).

The CA commits the Forest Service to actions that will be taken to reduce or eliminate adverse effects or risks to the lynx and its habitat. Specifically, the Forest Service agrees that Forest Plans should include measures necessary to conserve lynx and that these measures will consider the Science Report, the LCAS and the Service's final listing decision (65 FR 16052). These conservation measures are to be incorporated during Forest Plan revision or amendment. In conformance with the CAs, Forests have identified and mapped lynx habitat, lynx analysis units and lynx linkage areas.

In the Southern Rocky Mountain Geographic Area, the Forest Service has a process underway to amend the affected Forest Plans. However, this regional amendment process has not yet been completed. Absent programmatic forest planning to conserve lynx, assessment of land management effects to lynx and development of appropriate conservation strategies are left to project-specific analyses without consideration for larger landscape patterns. Overall, Rio Grande National Forest Forest Plan direction marginally provides for lynx and lynx habitat and will require the regional amendment to fully meet the LCAS, as clarified by the Lynx Steering Committee (USDA 2002). Table 2 provides a specific comparison of Rio Grande National Forest Forest Plan direction to conservation measures identified in the LCAS.

Table 2. Crosswalk between the LCAS and Rio Grande National Forest Forest Plan direction.

LCAS Conservation Measures (abbreviated)	**Rio Grande National Forest Forest Plan Direction**
RE: All Programs	
Programmatic Planning Objectives	
1. Design vegetation management strategies that are consistent with historical succession and disturbance regimes.	Forestwide Desired Conditions for Biological Diversity
Programmatic Planning Standards	
1. Conservation measures will generally apply only to the lynx habitat on federal lands within LAUs.	Forest Plan direction applies to all Forest Service lands.
2. Lynx habitat will be mapped.	Mapping completed.
3. To facilitate project Forest Planning, delineate LAUs.	Completed as part of mapping.
4. To be effective for the intended purposes of planning and monitoring, LAU boundaries will not be adjusted.	LAU boundaries are fixed.
5. Limit disturbance within each LAU as follows: if no more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning Guidelines	
1. The size of LAUs should generally be 6.500-10,000ha (16,000-25,000 acres or 25-50 square miles) in contiguous habitat.	Completed as part of mapping.
2. LAUs with only insignificant amounts of lynx habitat may be discarded.	Completed as part of mapping.
3. After LAUs are identified, their spatial arrangement should be evaluated.	Completed as part of mapping.
Project Planning – Standards	
1. Within each LAU, map lynx habitat.	Completed as part of mapping.
2. Within a LAU, maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Maintain habitat connectivity within and between LAUs.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objective 2.4
RE: LYNX PRODUCTIVITY	
Timber Management	
Programmatic Planning - Objectives	
1. Evaluate historical conditions and landscape patterns to determine historical vegetation mosaics across landscapes through time.	To be completed by regional historic range of variability analyses.
2. Maintain suitable acres and juxtaposition of lynx habitat through time.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.3, 2.7 and 2.8
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure and patterns more similar to those that would have occurred under historical disturbance regimes.	Biodiversity Standard 3; Guidelines 1 and 2 Silviculture Standard 3; Guidelines 6 and 11
Project Planning - Objectives	
1. Design regeneration harvest, planting, and thinning to develop characteristics suitable for lynx and snowshoe hare habitat.	Silviculture Guideline 11 Wildlife Standard 16
2. Design projects to retain/enhance existing habitat	Biodiversity Standard 1 and 3; Guidelines 1 and 2

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
condition for important alternative prey.	Wildlife Standard 16
PROJECT PLANNING - STANDARDS	
1. Management actions (e.g., timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to unsuitable condition within a 10-year period.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
2. Following a disturbance such as blowdown, fires, insects/pathogens mortality that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres. Exceptions to this include: 1) areas such as developed campgrounds; 2) LAUs where denning habitat has been mapped and field validated (not simply modeled or estimated), and denning habitat comprises more than 10% of lynx habitat within a LAU; in these cases, salvage harvest may occur, provided that at least the minimum amount is maintained in a well-distributed pattern.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. In lynx habitat, pre-commercial thinning will be allowed only when stands no longer provide snowshoe hare habitat	No Forest Plan Guidance
4. In aspen stands within lynx habitat, apply harvest prescriptions that favor regeneration of aspen.	Forestwide Objective 2.8 Biodiversity Guidelines 2 and 3
Project Planning - Guidelines	
1. Plan regeneration harvest in lynx habitat where little or no habitat for snowshoe hares is currently available, to recruit a high density of confers, hardwoods, and shrubs preferred by hares.	Forestwide Objective 3.3
2. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc).	Silviculture Standard 2; Guideline 11
Wildland Fire Management	
Programmatic Planning Objectives	
1. Restore fire as an ecological process.	Forestwide Desired Conditions for Fire Forestwide Objectives 2.9 and 2.10
2. Revise or develop fire management plans to integrate lynx habitat management objectives.	No Forest Plan Guidance
3. Consider use of mechanical pre-treatment and management ignitions if needed to restore fire as an ecological process.	Forestwide Objective 2.10
4. Adjust management practices where needed to produce forest composition, structure, and patterns more similar to those that would have occurred under historical succession and disturbance regimes.	Forestwide Objective 2.2
5. Design vegetation and fire management activities to retain or restore denning habitat on landscapes with the highest probability of escaping stand-replacing fire events.	No Forest Plan Guidance
Project Planning - Objectives	
1. Use fire as a tool to maintain or restore lynx habitat.	Forestwide Objective 2.9

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
	Fire Guideline 2
2. When managing wildland fire, minimize creation of permanent travel ways that could facilitate increased access by competitors.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
Project Planning Standards	
1. In the event of a large wildfire, conduct a post-disturbance assessment prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.	Forest Service Handbook, Rocky Mountain Region – Forest Planning procedures.
2. Design burn prescriptions to regenerate or create snowshoe hare habitat.	No Forest Plan Guidance
Project Planning - Guidelines	
1. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare.	No Forest Plan Guidance
2. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.	No Forest Plan Guidance
3. Consider the need for pre-treatment of fuels before conducting management ignitions.	Forestwide Objective 2.10
4. Avoid construction of permanent firebreaks on ridges or saddles in lynx habitat.	CONFLICTS Sediment Control Standard 1 – Guideline 1
5. Minimize construction of temporary roads and machine fire lines to the extent possible during fire suppression activities.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
6. Design burn prescriptions and, where feasible, conduct fire suppression action in a manner that maintains adequate lynx denning habitat (10% of lynx habitat per LAU).	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Recreation Management	
Programmatic Planning - Objectives	
1. Plan for and manage recreational activities to protect the integrity of lynx habitat, considering as a minimum the following: a) Minimize snow compaction in lynx habitat. b) Concentrate recreational activities within existing developed areas, rather than developing new recreational areas in lynx habitat c) On Federal lands, ensure that development or expansion of developed recreation sites or ski areas and adjacent lands address landscape connectivity and lynx habitat needs.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
2. Map and monitor the location and intensity of snow compacting activities.	Concentrated winter use areas are mapped.
Programmatic Planning – Guidelines	
1. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are	No Forest Plan Guidance

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
minimized or discouraged	
2. Limit or discourage activities that result in snow compaction in areas where it is shown to compromise lynx habitat.	Dispersed Recreation Standards 3 and 4
Project Planning – Standards	
Developed Recreation	
1. In lynx habitat, ensure that federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreation developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
2. Design trails, roads, and lift termini to direct winter use away from diurnal security habitat.	No Forest Plan Guidance
Dispersed Recreation	
1. To protect the integrity of lynx habitat, evaluate (as new information becomes available) and amend as needed, winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat.	Special use permit authorizations have been consulted with the Service (September 2002).
Project Planning – Guidelines	
Developed Recreation	
1. Identify and protect potential security habitats in around proposed developments or expansions.	No Forest Plan Guidance
2. When designing ski area expansions, provide adequately sized coniferous inter-trail islands, including the retention of coarse woody material, to maintain snowshoe hare habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Evaluate, and adjust as necessary, ski operations in expanded or newly developed areas to provide nocturnal foraging opportunities for lynx in a manner consistent with operational needs.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Forest Backcountry Roads and Trails	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions	No Forest Plan Guidance
Programmatic Planning- Standards	
1. On Federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning - Guidelines	
1. Determine where high total road densities (greater than 2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.	A road analysis plan will be completed in FY04 to inform road management decisions.
2. Minimize roadside brushing in order to provide snowshoe hare habitat.	No Forest Plan Guidance
3. Locate trails and roads away from forested stringers.	No Forest Plan Guidance
4. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.	No Forest Plan Guidance
5. Minimize building of roads directly on ridge tops or areas identified as important for lynx habitat	**CONFLICTS** with Sediment Control Standard 1 - Guideline 1

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
connectivity.	
Livestock Grazing	
Programmatic Planning - Objectives	
1. In lynx habitat and adjacent shrub-steppe habitats, manage grazing to maintain the composition and structure of native Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2, 2.3, 2.5 and 2.7
Project Planning - Objectives	
1. Manage livestock grazing within riparian areas and willow carrs in lynx habitat to provide conditions for lynx and lynx prey.	Range Guideline 2
2. Maintain or move towards native composition and structure of herbaceous and shrub Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2 and 2.7
3. Ensure that ungulate grazing does not impede the development of snowshoe hare habitat in natural or created openings within lynx habitat.	No Forest Plan Guidance (see effects analysis of range management)
Project Planning - Standards	
1. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components.	No Forest Plan Guidance (see effects analysis of range management)
2. Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones	Range Standard 2 and Guideline 1
3. Within the elevational ranges that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to maintain or achieve mid-seral or higher condition.	Forestwide Desired Condition for Range
4. Within lynx habitat, mange livestock grazing in riparian areas and willow carrs to maintain or achieve mid-seral or later condition to provide cover and forage for lynx prey species.	Range Guideline 2; Riparian Standard 1 -Guidelines 1, 7 and 8
Other Human Developments: Oil & Gas Leasing, Mines, Reservoirs, Agriculture	
Programmatic Planning - Objectives	
1. Design developments to minimize impacts on lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Programmatic t Planning - Guidelines	
1. Map oil and gas production and transmission facilities, mining activities and facilities, dams, and agricultural lands on public lands and adjacent private lands, in order to address cumulative effects.	Addressed through project-level NEPA analysis.
Project Planning - Standards	
1. On projects where over-snow access is required, restrict use to designated routes.	Forestwide Objective 3.3
Project Planning – Guidelines	
1. If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.	Forest Plan Lease Stipulations do not address lynx. Projects proposed under a lease are subject to NEPA and ESA requirements.
2. Minimize snow compaction when authorizing and monitoring developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Develop a reclamation plan (e.g., road reclamation	Mineral and Energy Resources – General Standard 1

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.	
4. Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.	No Forest Plan Guidance (see effects analysis of minerals management)
RE: MORTALITY RISK FACTORS	
Trapping	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during regulated and unregulated trapping activity, and ensure retention of an adequate prey base.	State regulated.
Programmatic Planning – Guidelines	
1. Federal agencies should work cooperatively with States and Tribes to reduce incidental take of lynx related to trapping.	State regulated.
Predator Control	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during predator control activities, and ensure retention of adequate prey base.	Responsibility of APHIS, consultation underway. APHIS is not responsible for retention of prey base.
Programmatic Planning - Standards	
1. Predator control activities, including trapping or poisoning on domestic livestock allotments on Federal lands within lynx habitat, will be conducted by Wildlife Services personnel in accordance with Service recommendations established through a formal section 7 consultation process.	Responsibility of APHIS, consultation underway
Shooting	
Programmatic Planning - Objectives	
1. Reduce lynx mortalities related to mistaken identification or illegal shooting	State regulated
Programmatic Planning – Guidelines	
1. Initiate interagency information and education efforts throughout the range of lynx in the contiguous states.	State regulated
2. Federal agencies should work cooperatively with States and Tribes to ensure that important lynx prey are conserved.	State regulated
Competition and Predation – Human Activities	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On Federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Highways	
Programmatic Planning - Objectives	
1. Reduce the potential for lynx mortality related to highways.	No Forest Plan Guidance. The Rio Grande National Forest is coordinating with

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
	CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
Programmatic Planning - Standards	
1. Within lynx habitat, identify key linkage areas and potential highway crossing areas	Linkage areas are identified.
Programmatic Planning – Guidelines	
1. Where needed, develop measures such as wildlife fencing and associated underpasses to reduce mortality risk.	No Forest Plan Guidance. The Rio Grande National Forest is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
RE: Movement and Dispersal	
Programmatic Planning - Objectives	
1. Maintain and, where necessary and feasible, restore habitat connectivity across forested landscapes.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. Identify key linkage areas that may be important in providing landscape connectivity within and between geographic areas, across all ownerships.	Linkage areas are identified.
2. Develop and implement a plan to protect key linkage areas on Federal lands from activities that would create barriers to movement.	Linkage area plans are to be developed in consultation with FWS.
3. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability.	Forestwide Desired Condition for Range
Programmatic Planning – Guidelines	
1. Where feasible, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey, within identified key linkage areas.	Forestwide Desired Conditions for Biodiversity and Forestwide Objectives 2.2 and 2.3
Highways	
Programmatic Planning - Objectives	
1. Ensure that connectivity is maintained across highway rights-of-ways.	Linkage areas have been identified on the Rio Grande National Forest in consideration of risks associated with highways.
Programmatic Planning - Standards	
1. Federal land management agencies will work cooperatively with the Federal Highway Administration and State Departments of Transportation to address the following with lynx geographic areas: a) Identify land corridors necessary to maintain connectivity of lynx habitat b) Map the location of "key linkage areas" where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).	Forestwide Objective 7.4 Linkage areas are identified.
Programmatic Planning – Guidelines	
1. On public lands, management practices will be compatible with providing habitat connectivity.	Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4

LCAS Conservation Measures (abbreviated)	Rio Grande National Forest Forest Plan Direction
Project Planning – Standards	
1. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx and other wildlife.	Linkage areas are identified. The Rio Grande National Forest is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
2. Within the range of lynx, complete a biological assessment of all proposed highway projects of federal lands. A land management agency biologist will review and coordinate with highway departments on development of the biological assessment.	Forestwide Objective 7.4 The Rio Grande National Forest is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
Project Planning - Guidelines	
1. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded.	No Forest Plan Guidance
Land Ownership	
Programmatic Planning - Objectives	
1. Retain lands in key linkage areas in public ownership.	Real Estate-Land Adjustments Guideline 3
Programmatic Planning - Standards	
1. Identify key linkage areas by management jurisdiction(s) in management plans and prescriptions.	Linkage areas are identified.
Programmatic Planning – Guidelines	
1. In land adjustment programs, identify key linkage areas.	Linkage areas are identified.
Project Planning – Standards	
1. Develop and implement specific management prescriptions to protect/enhance key linkage areas.	Linkage area Forest Plans are to be developed in consultation with FWS.
2. Evaluate proposed land exchanges, land sales, and special use permits for effect on key linkage areas.	No Forest Plan Guidance.
Ski Areas/Large Resorts	
Programmatic Planning - Objectives	
1. When conducting landscape level planning of Federal lands, allocate land uses such that landscape connectivity is maintained.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Programmatic Planning - Standards	
1. Within identified key linkage areas, provide for landscape connectivity.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Project Planning – Standards	
1. When planning new or expanding recreation developments, ensure that connectivity within linkage areas are maintained.	Linkage areas are identified. Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Project Planning – Guidelines	
1. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.	Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4

While current Forest Plan direction is not specific to the management of lynx and lynx habitat, guidance is provided in a general and permissible manner that would allow the implementation of the related LCAS conservation measures. Forest Plan wildlife standard (10) directs

consistency of Forest Plan guidance, with threatened and endangered species conservation agreements, and provides for the amendment of the Forest Plan to incorporate new direction.

Appendix B of the Forest Service environmental assessment for the Forest Plan revision amendment provides a summary description of activities, and their extent, on the Rio Grande National Forest. Major activities on the Rio Grande National Forest that may impact lynx and their habitat include timber management, fire management, recreation management, livestock management, and travel management. While limited in scope on the Rio Grande National Forest, minerals management activities also may affect lynx. These activities may have specific consequences related to risk factors associated with lynx productivity, mortality and movement, as discussed below.

Timber Management - The FEIS predicted an annual harvest level of 11 MMBF/yr, but actual harvest levels have been closer to 7-8 MMBF/yr (EA Appendix B Table B-1). The preponderance of harvest (94 percent) is expected to occur in LTAs 1 and 13 (EA Appendix B Table B-2) and most of that harvest would be in structure class 5 (late successional forest). Depending on harvest method, there would be concomitant increases in earlier structural classes (Table 6 of the BA). The predominant harvest method would be shelterwood cuts or group selection, resulting in an increase in structure class's early successional vegetation and mature forest, with varying size areas and stages of vegetative regeneration.

Recreation Management - The Wolf Creek Ski Area is permitted for 1,196 acres, of which 900 acres are fully developed (FEIS page. 3-389). The 1986 Term Special Use Permit was renewed in 1997 with a stipulation that additional construction beyond maintenance of existing improvements would not be authorized without amending the Master Development Plan (MDP). The MDP was updated in 1998 and projects are individually reviewed and consulted as they are proposed for implementation. The ski area falls within the Trout/Handkerchief LAU.

Snowmobiling, cross-country skiing and snowshoeing on and off established roads and trails in lynx habitat result in compacted snow conditions, especially in early winter, where lynx competitors gain an advantage to scarce prey resources. On the Rio Grande National Forest, most snowmobile use is on groomed roads and trails, except for traditional snow play areas. In conjunction with the development of the regional amendment, designated winter use areas have been mapped. Currently, there are 167 miles of groomed routes and 314 miles of designated routes on the Rio Grande National Forest, of which 196 miles are within lynx habitat. Currently, there are 163,803 acres of compacted snow recreation use areas, of which 130,427 acres are within lynx habitat.

Travel Management - Approximately 77 percent of the 2,960 miles of Forest Developed Roads (FDRs) are open to public travel, with the balance restricted to timber sale roads. Many of these roads have seasonal restrictions to limit resource damage. Volunteer two-track roads were created before travel restrictions were implemented and continue to be created by unauthorized cross-country travel. These unauthorized roads are generally concentrated in lower elevation, non-forested habitats (FEIS 3-434).

The Rio Grande National Forest has 300 miles of FDRs and 186 miles of "two-tracks" that are causing resource damage or wildlife disturbance and 100 miles of those roads are to be analyzed

for closure. The remaining 300-500 miles of "two-trackers" and low standard roads associated with old timber sales will be inventoried and analyzed for possible addition to the FDRs, closure to motorized travel or total obliteration (FEIS 3-437).

There are 1,500 miles of inventoried Forest Development Trails (FDTs), 65 percent of which are open to all uses, including motorized vehicles. Roadless areas would be managed for both non-motorized (54 percent) and motorized (46 percent) recreation that is restricted to existing trails (FEIS page 3-359). There are an estimated 3 miles of new trail construction, 20 miles of existing trail reconstruction, 6 miles of trail obliteration and 240 miles of trail maintenance (FEIS page 3-440).

Grazing Management – Range-wide, under present management practices, the Rio Grande National Forest produces forage in excess of current levels of livestock and big game consumption, providing for plant health, vigor, and regrowth (FEIS page 3-187). However, approximately 32 percent of suitable rangelands are in unsatisfactory condition (FEIS page 3-189 Table 3-46), a circumstance exacerbated in some riparian, ponderosa pine and winter range areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS page 3-188).

Minerals Management - Minerals management includes activities for development of leasable minerals, locatable minerals and salable minerals. These activities are predicted to be very limited in extent, but may occur within lynx habitat The Rio Grande National Forest anticipates that a total of 219 acres of habitat may be affected by minerals management from hard rock mining (40 acres), oil and gas exploration and development (129 acres), oil and gas prospecting (40 acres), and salable minerals 10 acres). Forty-six percent of the Rio Grande National Forest land base is considered to have high oil and gas potential, but only 129 acres are anticipated to be disturbed through exploration and development (FEIS page 3-310 Table 3-64). Permitting for salable minerals is discretionary. There are existing sites for Forest Service rock-crushing operations, but no new rock-crushing sites are anticipated.

The Colorado Department of Transportation (CDOT) has initiated a multi-year road improvement project within the Wolf Creek linkage area. Within the project area, lynx mortality due to vehicle collisions has occurred and adverse impacts are expected to lynx habitat from the project. Consistent with Forest Plan direction, the Rio Grande National Forest is cooperating with CDOT to evaluate the project's effects to Forest resources, to identify potential mitigation and to facilitate required consultation.

EFFECTS OF THE ACTION

Direct and Indirect Effects

Timber Management - Timber management activities are expected to result in positive, negative, or neutral effects to prey species, and therefore lynx, depending on the manner in which the vegetation is treated. In general, the Service anticipates that most vegetation management activities will have some initial negative effect to lynx, through reduction in habitat quality or removal of vegetation, which will result in lower prey population densities. These actions will result in relatively short-term negative effects, but may result in longer-term positive effects to

lynx. Reduction of large diameter woody debris may affect the survival of lynx kittens and availability of lynx prey. Pre-commercial thinning may reduce the quality and quantity of snowshoe hare foraging habitat and escape cover. Harvest treatments can affect the spatial arrangement of foraging and denning habitat, affecting reproductive success. Road construction may result in increased habitat fragmentation (impeding lynx dispersal), increased human access (disturbing lynx), and increased snow compaction (increasing inter-specific competition).

Under either past budget experience, or full budget projections regarding timber management related road building, additional roads would increase disturbance from harvest activities and subsequent recreational use, such as hunting and snowmobiling. Snow compaction may occur, possibly increasing inter-specific competition from other predators. Road (re) construction would be considered as part of any proposed harvest prescription and would be evaluated, mitigated and consulted at the project level.

Based on implementation of the Forest Plan to date, the experienced budget level portrays a more realistic projection of expected changes to late successional forested habitats. Should this remain consistent throughout the life of the Forest Plan, timber harvest is projected to have a relatively modest influence on the overall ecological composition, structure and processes characteristic of the affected LTAs, and therefore lynx and their habitat.

Wildfire Management - Prescribed fire and wildfire may occur in lynx habitat. Anticipated impacts on lynx habitat from prescribed fire could be reduction in denning habitat by removal of dead and down woody material, and a temporary reduction in snowshoe hare habitat. Prescribed fire in some areas may promote regeneration of prey species habitat, although depending on fire intervals, habitat may be burned earlier or more frequently than desirable to achieve winter foraging habitat condition. Since intense burns would not be implemented, most of the woody vegetation and coarse woody debris would remain and continue to provide denning and winter foraging habitat. Fire exclusion may alter the natural mosaic of forest successional stages necessary for maintaining snowshoe hare habitat. Creation of fuel breaks on ridges eliminates cover and may discourage lynx use.

Wildfires would have more extensive impacts to lynx habitat than prescribed fires since they would probably be stand-replacing fires, and occur mostly in spruce-fir and lodgepole pine forests. Impacts to most lynx habitat components would result, most likely converting suitable lynx habitat to an unsuitable condition, eliminating denning habitat for an extended period of time by the reduction of dead and down woody material, and eliminating prey habitat (especially snowshoe hare and red squirrel) in the short to long term. The 2002 “Million Fire” burned approximately 10,000 acres within the Trout-Handkerchief LAU and an estimated 3,500 acres of lynx habitat was converted to unsuitable (Table 7, BA). These estimates need to be ground-truthed, but are not expected to change substantially.

While it remains below the 30 percent cap defined by the LCAS, the estimate of effects to the Trout- Handkerchief LAU makes it the highest percentage of currently unsuitable acres of lynx habitat on the Forest. Moderate to heavily burned areas will not provide habitat for lynx or its prey species until vegetative regeneration begins to establish foraging habitat.

Mechanical treatments to decrease fuel loads and reduce the risk of catastrophic fires also are expected to occur. Anticipated effects will depend on the treatment. Course woody debris removal reduces cover for small mammals, as well as possible denning sites for lynx. Removal of vegetation will result in the reduction of horizontal cover and forage for snowshoe hares. Thinning activities result in reduced horizontal cover, and foraging habitat for snowshoe hares as well as alternative prey. As with other fuels management actions, the effects of mechanical treatments will depend on specific action taken, but will generally result in lower quality habitat conditions for lynx.

Recreation Management - Recreational developments may have minor impacts on lynx habitat and habitat use. These developments are usually small, existing inclusions within lynx habitat, so actual impacts to habitat are limited. Recreational use and routine maintenance of these developments may disturb any lynx using the surrounding areas, but this disturbance would generally be minimal. Human presence in denning habitat during May through August may result in increased lynx disturbance. In winter, human use of forest roads and trails can increase snow compaction. High-intensity recreational use areas, such as ski areas, may provide a level of disturbance that effectively precludes lynx use (at least temporarily) of otherwise suitable habitat.

Snowmobiling, cross-country skiing, and snowshoeing results in compacted snow conditions within lynx habitats. Current Forest Plan direction allows snowmobiles off Forest roads and trails, which could result in increased snow compaction as recreational demands increase. However, under the CA, and following the LCAS conservation measure, to allow no net-increase in snow compaction, increases in groomed and designated over the snow trails are effectively limited. Individuals and families would not be restricted from using new areas or routes currently open to winter motorized use, but grooming or designation of new routes would be restricted. New authorizations or expansion of existing outfitter operations or issuance of permits would be limited to existing authorized groomed and designated routes and areas. Under the CA, the Service does not anticipate increases in compacted snow conditions resulting from requests for grooming or designation of new routes.

Travel Management - Motorized and non-motorized access increases human presence, which may be detrimental to lynx (disturbance; hunting and trapping vulnerability). Snow compaction may provide increased access for lynx predators and /or competitors. Highways, especially within linkage areas, can impede lynx movements and may result in direct mortalities due to vehicular collisions. On the Rio Grande National Forest, a significant highway upgrade construction project is in progress on Highway 160, within the Wolf Creek Pass linkage area. Project effects to lynx as a result of this action were evaluated through consultation with CDOT.

Overall, the BA predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. The BA did not quantify either new road construction, road closure, obliteration, or rehabilitation. Without some specificity with regard to net changes in roads, it is difficult to assess the net effect of overall action anticipated by the Rio Grande National Forest. New road construction will likely have negative effects described above, and although existing road closures or obliteration may result in some benefit to lynx, those effects cannot be determined at this time. The assumption that there will be a net reduction in overall miles of roads is projected over the remaining life of the

plan. Actions resulting in new roads, and/or road obliteration may not occur concurrently at the project level. Therefore we must assume that both positive and negative effects to lynx are likely to occur over the life of the plan. The presence and use of roads and trails provides increased opportunities for accidental road kills as well as increased lynx vulnerability to snowmobile collision. Roads and trails also may provide travelways for competitors, as there is a chance that winter motorized use will compact snow. Road closure may reduce some level of effect, and obliteration may result in the return of native plant communities, however there may be significant time lag for vegetation to return to a natural state.

Grazing Management - Improved management targeted to these areas and implementation of the Forest Plan's range and riparian standards and guidelines are expected to improve rangeland conditions overall. Affected riparian areas are of specific concern to the Forest, and best management practices for soil and water resources will be used to restore and maintain riparian areas as functional ecosystems (FEIS 3-193). Grazing may impact microsites such as high elevation riparian meadows and willow communities, thus reducing snowshoe hare habitat.

Livestock grazing that occurs within lynx habitat has the potential of impacting habitats utilized by snowshoe hare by possibly reducing the shrub component, especially within riparian zones. Improvement of snowshoe hare habitat may be limited in newly created openings from fire or timber harvest, if grazing is not managed for vegetative regeneration to achieve mid-seral or higher conditions.

Specific range management needs are addressed through AMPs, grazing permits and AOIs. Management will apply combinations of requirements for stubble height, stream bank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Removal or exclusion of livestock from newly created openings due to fire or timber harvest may be required to allow rangeland recovery to occur (FEIS pages 3-196 and 3-197).

Minerals Management - Oil and gas developments and surface mining can degrade habitat and increase human disturbances within a lynx home range. Leases and their proposed actions are subject to NEPA and ESA requirements and project level mitigation would be applied, consistent with Forest Plan standards and guidelines and the LCAS. The Rio Grande National Forest has anticipated that 219 acres of habitat may be disturbed by these actions. However, the Forest did not predict acreages of lynx habitat that could be affected. These actions may result in disturbance to lynx denning in these areas because of increased activities at the development sites and their associated roads. Snow on the roads may become compacted, allowing lynx competitors into lynx habitats. No increases in motorized winter use by recreationists are anticipated. None of the Forest Plan's lease stipulations specifically address lynx needs, but development effects associated with mineral activities would be mitigated during project implementation and affected areas would be reclaimed after project completion. Roads used for oil and gas development are single-use roads, would not be used for other purposes during the activity, and most would be abandoned and reclaimed after use (FEIS page 3-308).

Twelve percent of the Rio Grande National Forest land base is considered to have high locatable mineral potential. On an average basis of administering 4 operating plans annually, the estimated extent of activities is 40 operating plans and 4 new miles of road, affecting a total of 40 acres (included in 219 acre total) on the Forest (FEIS page 3-322). The Forest can regulate

and control access to mineral claims, and operating plans are subject to NEPA and ESA requirements, allowing for inclusion of appropriate mitigation at the project level, such as reclamation and protective measures for threatened and endangered species (TES). Requests for recreational mineral collection are evaluated, inclusive of TES considerations, to determine the need for an operating plan. Impacts to lynx from these activities would be localized, but still may negatively affect lynx through site and road development, if near denning sites.

One new rock quarry could be developed and would be subject to NEPA and ESA requirements. Since no proposal currently exists, specific details related to size, scale, and scope of such an action couldn't be determined at this time. A few personal use permits are issued annually, generally for landscape rocks (FEIS page 3-326). Impacts to lynx from these activities are considered negligible, since habitat disturbance would not likely occur.

Management Indicator Species - Any incremental changes of effect to lynx would be derived from the proposed additional standards and guidelines and the revised monitoring plan. The specific changes that would occur as a result of the amendment (EA Appendix A) are cross-walked to the LCAS in Table 9 of the BA. The changes are expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types.

Although the proposed action provides more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types, it will still require site and project specific measures to ensure project actions do not result in adverse effects to lynx, or that the impacts of adverse effects are minimized.

Effects of Interrelated or Interdependent Actions

The Service recognizes that future actions permitted under the Forest Plan are interrelated and/or interdependent to the proposed action (amendment). Since specific individual actions have not been identified at this time, their effects cannot be determined. There are actions related to Rio Grande National Forest activities on adjacent Federal jurisdictions, as well as both State and private actions, that may impact lynx habitats where management boundaries overlap LAUs, or linkage areas associated with the Rio Grande National Forest. These actions may have management implications for the Rio Grande National Forest due to conservation standards and guidelines of the LCAS (Ruediger et al. 2000).

CUMULATIVE EFFECTS

Cumulative effects are the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Within the Southern Rocky Mountain Geographic Area (SRMGA), there are large proportions of lynx habitat on non-federal lands where development and/or forestry practices could impact the lynx. Connectivity concerns with highways and development are especially relevant to the more fragmented nature of lynx habitat in the SRMGA. All of the actions may result in some lynx habitat changing from suitable to unsuitable, possibly permanently, reducing dispersal (connectivity) habitat, and increasing the disturbance to any lynx that may be using the areas or adjacent areas.

A private ski village development is proposed in the immediate vicinity of the Wolf Creek Ski Area and access to the private land is across Forest Service lands. A review of the Wolf Creek Ski Area special use permit and its supporting documentation was conducted in 2002 and the report (USDA 2002) recommended the development of a programmatic environmental baseline for a cumulative analysis of effects for both ski facilities. Such an environmental baseline could be developed through NEPA review of the proposed private facility or in conjunction with the development of a Wolf Creek linkage area management plan.

While all of these cumulative actions/impacts may negatively impact lynx and lynx habitat, it is the intent of the Forest Plan to consider these possible non-Forest Service actions within Rio Grande National Forest boundaries, and manage Forest Service lands to mitigate these impacts by implementing Forest Plan direction. Within the boundaries of the Rio Grande National Forest, expected cumulative effects from activities on non-federal lands generally are expected to be insignificant, as total lynx habitat acreages on non-federal lands within most of the Forest's LAUs is <1 percent, as shown in Table 8 in the BA. There are 3 of the LAUs with >1 percent of the total lynx habitat being non-federal. Project specific, cumulative effects analyses will be addressed at the project-level.

Within the Wolf Creek linkage area, some non-federal activities on Forest and adjacent non-federal lands may have localized cumulative impacts of significant scope, and the Forest is working cooperatively with other agencies and private interests to minimize site-specific effects. The Colorado Department of Transportation works directly with the Service to develop project mitigations such as highway underpasses for the Highway 160 improvement construction project, but coordinates with the Forest in the analysis of effects to facilitate project consultation. The Forest also is cooperating with private developers in the preparation of the Environmental Impact Statement for the proposed Village at Wolf Creek. These activities, in conjunction with the existing Wolf Creek Ski Area, could have locally significant cumulative impacts that may best be addressed through a linkage area management plan.

CONCLUSION

After reviewing the current status of the Canada lynx, the environmental baseline for the action area, the effects of the action, and the cumulative effects, it is the Service's biological opinion that the proposed amendment of MIS to the 1996 Rio Grande National Forest Revised Land and Resource Management Plan, with the commitment to follow the 2000 conservation agreement, is not likely to jeopardize the continued existence of the Canada lynx. No critical habitat has been designated for this species therefore none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Plans are permissive, in that they allow, but do not authorize actions to occur. The BA documents that current Plan language may allow actions that adversely affect lynx. As such, specific actions conducted under the current Plan may impart a level of adverse effect to individual lynx that rises to the level of take. However, the CA substantively reduces the potential for incidental take to occur as a result of actions implemented under the current Plan. The CA requires that all actions be evaluated using the LCAS and Science Report. Projects that comply with the standards and guidelines in the LCAS in most cases would not adversely affect lynx. And therefore no take would be anticipated in most instances. Where Forest Service projects do not comply with standards in the LCAS, and are likely to adversely affect lynx, and do not involve third parties, the Forest Service CA requires that they be deferred until Plans themselves are amended. Therefore, if projects that are likely to adversely affect lynx are deferred, no incidental take is anticipated. For those actions that may result in adverse effects to lynx, we cannot determine, without a project specific description whether the adverse effects would rise to the level of take. Once lynx amendments are completed, actions may go forward.

Amount or Extent of Take Anticipated

As mentioned above, third parties may propose actions that may result in adverse effects to individual lynx. However, the Rio Grande National Forest cannot anticipate what action may be proposed, when the action may occur, and where the action will occur.

At the broad scale of this consultation (Rio Grande National Forest, and the 4 landscape linkages), the Service is unable to anticipate all possible circumstances that may involve the take of lynx due to actions implemented under the current Plan in conjunction with the CA. The Service therefore conservatively anticipates that some low level of incidental take may occur due to some specific actions implemented under the current Plan in conjunction with the CA. The Service believes that the level of take would be low for reasons including, but not limited to those outlined in the previous paragraphs.

However, the best scientific and commercial information are not sufficient to enable the Service to estimate a specific amount of incidental take, that could result from implementation of the plan, to the species for the following reasons: programmatic plan effects are too broad in scale and difficult to predict to accurately identify specific actions that will result in incidental take; historic population levels of lynx are not well known in the Southern Rockies, and current population levels are changing with the continuation of the State's reintroduction; although most of the lynx that occur in Colorado are detectable in a relatively short time, little is known about how the reintroduced lynx use habitat, or may be affected by actions that impact habitat; mortality data are incomplete, and are changing as the reintroduction proceeds; habitat use in Colorado is generally assumed based on existing literature, and information specific to the reintroduced population is still being developed; take may occur in the form of alteration of habitat; and, up to 19 lynx are not detectable due to the failure of telemetry equipment or other factors associated with attempting to locate these missing individuals.

Effect of the Take

In this biological opinion, for reasons described earlier, the Service determined that continued implementation of the Plan in conjunction with the CA is not likely to result in jeopardy to the species. Therefore, the Service has determined that, assuming a low level of anticipated incidental take associated with actions implemented under the Plan, and in conjunction with the CA, the plan amendment, as proposed, is not likely to jeopardize the lynx designated population segment (DPS). However, the Service cannot exempt, through this biological opinion, the incidental take of lynx for any action carried out under the direction of the Plan. The Service is unable to anticipate all possible circumstances related to continued implementation of the Plan, including programmatic and individual actions that might be developed in the future. Therefore, incidental take will appropriately be assessed, and coverage under the terms of section 7(b)(4) and section 7(o)(2) of the Act will be granted as appropriate, at the project level during formal consultation.

The CA calls for Plans to be revised or amended considering the LCAS, the Science Report, and the Service's final rule (2000). The Service has concluded that such amendments or revisions would likely not jeopardize the lynx DPS. The conservation measures in the LCAS were intended to conserve the lynx, and reduce or eliminate adverse effects from the spectrum of management activities on Federal lands. The direction provided by the conservation measures would assist Federal agencies in avoiding negative impacts on lynx. Based on the best scientific and commercial information currently available, we believe that Plans that incorporate the conservation measures, and projects that implement them, are generally not expected to have adverse impacts on lynx. Implementation of the measures in the LCAS is expected to lead to the conservation of the species. Revision or amendment of this Plan incorporating the programmatic objectives, programmatic and project level standards and guidelines found in the LCAS, or substantive equivalent thereof, would likely sufficiently minimize the potential for adverse effect and the effects of any take that might occur at the programmatic scale and individual project level. The Service assumes that this plan will be amended, as discussed above, by 2005. Consultations on Plan revision or amendments will necessarily consider any new or otherwise pertinent information not considered in this consultation.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of Canada lynx.

> The Rio Grande National Forest shall, through implementation of their existing monitoring plan, include an annual assessment of the effects of actions that affect lynx and/or lynx habitat from actions that have occurred during any calendar year.

Terms and Conditions

To implement the reasonable and prudent measure, the Rio Grande National Forest shall, on an annual basis, provide the Service with a baseline tracking report for activities that have affected lynx and/or lynx habitat during the course of that year, and their overall impact on lynx management on the Rio Grande National Forest. The report shall be submitted to the Service no later than March 1 of the year following the reported year. Reporting shall be initiated by the Rio Grande National Forest by providing the Service with a report of actions for 2003, with the report being due to the Service by March 1, 2004, and continued in subsequent years. The purpose of the report is to monitor the baseline conditions of the lynx analysis units through time, which will provide a more accurate assessment of the effects of individual actions, as well as provide a tool for the assessment of accumulated effects to the LAU's. The report shall be provided to the Service annually until otherwise notified.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act requires Federal Agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Several conservation recommendations were provided in the October 25, 2000, biological opinion issued by the Service and documented in the consultation history. The Service recommends that the Rio Grande National Forest actively participate in implementing those recommendations as they were presented to the Forest Service as a whole.

REINITIATION NOTICE

This concludes consultation for the potential effects of the proposed Forest Plan Amendment to the Revised Land and Resource Management Plan for the Rio Grande National Forest on the Canada lynx. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: 1) new information reveals effects of the agency or corporate action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, 2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or 3) a new species is listed or critical habitat designated that may be affected by the action.

The Service arrived at a non-jeopardy opinion based, in part, on the assumption that the CA would be implemented. The CA commits the Forest Service to ensure that programmatic planning identifies potential impacts to lynx and incorporates conservation measures that reduce or eliminate possible adverse effects to lynx. The reinitiation requirement in the October 25, 2000, biological opinion provides a discussion regarding the continued implementation of the CA. The CA expires in December 2004. At that time, on administrative units with plans that have not been amended or revised to consider the lynx conservation measures in the LCAS, an extension of the CA and continuation of the provision in the CA will be necessary or reinitiation of consultation will need to occur. Amendments and revisions to Plans shall be completed in accordance with the schedule developed as per the direction in the CA, and in coordination with the Service. Should any revisions be made to the CA, such revisions or amendments shall be reviewed and approved in writing by the Service before revisions become effective.

If the Service can be of further assistance, please contact Kurt Broderdorp at the letterhead address or (970) 245-3920 or 243-6209, extension 24.

Sincerely,

/s/ 09/16/03

Susan C. Linner
Colorado Field Supervisor

cc: FWS/ES, Grand Junction
FWS/RO/ES, Lakewood (Attn: Bob McCue)
FS/RO, Lakewood (Attn: Nancy Warren)

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Record of Decision

Revised Land and Resource Management Plan

Rio Grande National Forest

Final Environmental Impact Statement
Revised Land and Resource Management Plan
USDA - Forest Service
Rio Grande National Forest

Includes the State of Colorado

Includes the Counties of Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache, Hinsdale, Custer, San Juan, and Archuleta.

This document presents the decision regarding the selection a Revised Land and Resource Management Plan for the Rio Grande National Forest. It summarizes the reasons for choosing the Selected Alternative as the basis for the Forest Plan which will be followed for the next 10 to 15 years. Estimates of the long-term environmental and economic consequences contained in the Final Environmental Impact Statement have been considered in this decision.

INTRODUCTION

> **This Nation as a whole should earnestly desire to leave the next generation the National honor unstained and the National Resources unexhausted...**

—Theodore Roosevelt, 1908

In some respects, things have not changed much since 1908. We feel the same obligation to future generations that Theodore Roosevelt felt so strongly about at the beginning of this century. I consider this plan to be a contract with the present as well as a promise to the future. I fully expect this Forest Plan to be the foundation for the next steps we all take toward intelligent and responsible multiple use of National Forest resources as we move on into the next century.

The Forest is large (1.8 million acres) and is essentially undeveloped. Only about an eighth of the entire Forest has had timber harvest and road construction. The undeveloped character of the Forest is somewhat unique and biologically and socially important. It serves as a biological reserve for many plant and animal species. It also offers a wide range of recreation opportunities that are available year round, as well as a unique setting which helps diversify the local economy. We anticipate that over the next decade, more people will discover the Rio Grande and compete for its resources. It is critically important for the Forest Service to protect the unique qualities of the Rio Grande while serving the public demand for both commodities and recreation.

The preservation of future options for the next generations is well founded in law. The Forest Service (and all federal agencies) are expected to lead the way toward a healthy relationship between people and their natural surroundings. We must be aware of the interactions between our activities and the subtle consequences of those interactions. In that light, the Congress clearly expects the Forest Service to monitor and evaluate the effects of management actions on the productivity of the land. For this reason, I consider monitoring this Forest Plan to be a critical component.

This Forest Plan Revision evolved around a concept recognizing that National Forests are ecosystems and that management of them to produce goods and services requires an awareness and consideration of the interrelationships among humans, plants, animals, soil, water, air, and other environmental factors within the ecosystems. This concept is important to a lot of people. One of the first things we heard in the public-involvement process was one person’s plea that we "not lose sight of the science" as we make the various decisions in the Plan. Another said, "People are part of ecosystems; don’t forget that." This Plan encompasses both the science and the needs of people. I selected an alternative that will manage the Forest in a manner that is sensitive to economic efficiencies, while being responsive to changing conditions of the land and its resources and to changing social and economic demands of the American people.

I believe that land productivity is an intricate tapestry of interconnected relationships and processes. One leads to the next in an unbroken cycle. I believe, too, that many of our past actions have either oversimplified or completely overlooked the systemic implications of our management.

We are embracing the concept of adaptive management in this Revised Forest Plan. Viewed from a strategic perspective this means that:

*When faced with two or more paths, each with its certainties and unknowns, we will take the one that will allow us to shift to another path if our initial decision doesn't take us closer to the achievement of the Forest Plan Goals and Objectives.

*We will make decisions that leave future generations with as many options as possible.

I would like to add some rigor to our understanding of the current conditions of resources entrusted to the Forest Service, and the consequences of management practices. I have directed that a monitoring-and-evaluation process be implemented that displays the implications of our decisions and activities. To accomplish this, I make the pledge to you, that I am emphasizing Monitoring and Evaluation and asking that it get top priority as work plans are developed each year.

I believe that some degree of "unknowing" has to be accepted if we are to progress. Intuition and extrapolation are both valued qualities in professional life. There is much to be learned from careful observation and expansive research. We do not have to prove everything on-site before it becomes a part of our operational norm.

The Forest has conducted considerable public participation in the development of the Revised Plan. Public views have textured the Plan significantly. We asked, we listened, we evaluated, and we tested the concepts, and the Plan is improved by the ideas suggested by the public. As a public-land management agency, our desire is to be a good neighbor, to do our part in the various communities in and around the San Luis Valley. I am confident that this is evident in the selected alternative.

I know that not everyone is content with my decision. It has been my experience that many people "generally" accept the concept of multiple use¾as long as their favored use comes first and receives the most emphasis. We believe that this Plan meets our moral, ethical, and legal obligations to the people and the environment that surrounds them. We have not been able to do everything that was suggested by the public; that would be impossible. We did, however, listen, and we paid close attention to, and used, the ideas and concepts that people shared with us.

The Forest Supervisor, the District Rangers, the Planning Team, and I have all struggled mightily with the possible human consequences of this Plan. Industries and lifestyles will be impacted by this decision. Unfortunately, we can't always buffer people from the adjustments that are needed in order to stay within the limits of sustainable production, nor can we offer unlimited opportunities to all people for each specific use. We have to keep looking to the future.

The philosophical foundation for the development of this Plan adhered to the following obligations:

*Protect and enhance soil productivity.
*Produce high-quality water.
*Protect the biodiversity of the Forest to ensure a biologically healthy and sustainable Forest in the future.
*Harvest the bounty (interest) from the forest (principal) for community sustenance and stability.

> **This leads to the "rule of thumb" which is the basic premise of ecological conservation: the land should retain as much of its original membership as is compatible with human land-use.**
>
> —Leopold, 1944

PUBLIC INVOLVEMENT CONDUCTED

The Rio Grande National Forest has conducted an extensive public involvement process that is ongoing. Initially, issues and concerns were identified by the Planning staff after reviewing environmental documents on file, letters from the public, and conversations with other Forest personnel. These issues were taken to the public and built upon. Eventually they evolved into the Revision Topics.

An initial set of public meetings was held in 1992 in the four towns where Ranger District offices were located, and at Chama, New Mexico. From these meetings, four public work groups were chosen by the public to represent various National Forest users (the people from Chama and La Jara went into one group). These groups have met a total of 26 times, including nine field trips. They helped refine the issues, brainstorm potential solutions to issues, and develop a preliminary range of themes for the alternatives. The public at large has been kept informed of the Forest Plan Revision process through a series of newsletters and news releases. Our mailing list includes more than 1,500 persons and organizations.

Public involvement and issue identification were carried on throughout Colorado at a series of 18 public meetings from November 1993 to January 1994. The preliminary alternatives and Revision Topics were presented at meetings in Denver, Boulder, Salida, Saguache, Monte Vista (three meetings), La Jara, Alamosa, Antonito, Chama, Durango, Pagosa Springs, South Fork, Creede, Del Norte, and Center. Over 600 people attended the meetings. Discussions were

lively, opinions diverse, and the level of interest in the Forest Plan Revision high. There was significant comment on the range of alternatives, and they were revised to reflect these comments. Another series of meetings was held after the publication of the Draft Environmental Impact Statement. These meetings were held to answer questions about the information in the Draft, or to clarify the information presented. Additional meetings have been held with interest groups (environmental, motorized and nonmotorized recreationists, timber industry, and others). To date, the Forest Planning staff have participated in over 100 public meetings and talked to a couple of thousand people face to face.

Forest Planning Staff have coordinated with other Federal agencies, the Bureau of Land Management, Fish and Wildlife Service, National Park Service, and Natural Resources Conservation Service; and various state agencies, including the Department of Natural Resources and the Colorado Division of Wildlife. Staff also coordinated with or requested reviews from the Rocky Mountain Forest and Experiment Station and various colleges, including the University of Wyoming, the University of Colorado at Boulder, Adams State College in Alamosa, and Ft. Lewis College in Durango.

A special effort has been made to contact the Hispanic people, who comprise almost 50% of the San Luis Valley population. Most Hispanic-owned businesses are on the mailing list. Roman Catholic priests throughout the San Luis Valley have helped find key Hispanic persons to include on the mailing list. Due to a newspaper article soliciting Hispanic involvement, two meetings were held with Hispanic groups in Monte Vista and Center, Colorado.

Another special effort has been made to establish a mutual and beneficial partnership with American Indians. The purpose of this effort was to gain understanding of each other; honor American Indian treaty rights; be sensitive to traditional religious beliefs and customs; and provide research, technology, and other technical assistance to American Indian governments.

To carry out these partnerships, four councils were established in the Rocky Mountain Region. The Southwest Council consists of representatives from the Hopi, the Jicarilla Apache, the All-Indian Pueblo Council, the Navajo, the Southern Ute, the Uinta and Ouray Ute, and the Ute Mountain Ute. This group is working with the San Juan and Rio Grande National Forests. Representatives of the Intermountain and Southwest Regions of the Forest Service, and other federal agencies, attend meetings regularly, though they are not official members of the Council.

After the publication of the DEIS and Draft Revised Plan, there was a 120-day public-comment period. The RGNF received over 800 individual letters that contained over 5,000 individual comments. The RGNF Supervisor and Forest Planner have read each of those letters, and the planning staff has responded to them (see FEIS, Appendix N). Many changes were made as a result of these comments (including the development of the selected alternative).

THE DECISION

This Record of Decision describes the Land and Resource Management Plan for the Rio Grande National Forest and my choice to **select Alternative G for implementation**, and my reasons for that decision. Alternative G is a refinement of the Preferred Alternative (D) and Alternative E that were identified in the Draft Environmental Impact Statement published in July 1995. I am selecting Alternative G because it positions the Forest well to meet the current demands for forest products, services, intrinsic values, and to honor our commitment to leave options for future generations.

Alternative G is a logical outgrowth of the alternative development and public involvement parts of the Forest Plan Revision process. The point was made, by the Forest Service, throughout the public involvement process that the Final (selected) alternative would likely be based on a combination of two or more of the existing alternatives. Alternative G is a combination of alternatives D and E. There are no elements or features in Alternative G that were not included or addressed in the original range of the alternatives. There are two important points that need to be recognized. These are:

1.Alternative G (selected) is within the range of alternatives that the public could reasonably anticipate that the Forest Service consider, and;
2.The public's comments on the alternatives in the Draft Environmental Impact Statement also apply to Alternative G and meaningfully inform the Forest Service of the Public's attitudes toward Alternative G. Indeed, Alternative G was developed because of the comments received on the Draft Environmental Impact Statement.

Alternative G complies with Judge Finesilver's Decision (Civic Action 87-F-1714) of 1989. Specifically:

*The Soil Resource Inventory has been updated and used in the definition of the Suitable Land Base that is included in the Forest Plan.

*The suitability analysis has been done in a totally different way than that done for the 1985 Plan. Documentation of the process is on file and is considered adequate for compliance with the Decision.

In order to implement this Forest Plan Revision, the Rio Grande Forest Supervisor will issue a separate Record of Decision for Travel Management that designates all Forest trails as either motorized or nonmotorized. Motorized trails are marked on the Alternative G Management-Area Prescription map.

Alternative G includes the adoption of the Outfitter-Guide Capacities identified in Appendix C of the Final Environmental Impact Statement. The moratorium on Outfitter-Guides is no longer in effect when this Plan is implemented (refer to the Implementation schedule in this document).

A Forest Plan for this National Forest, as well as each Forest in the National Forest System, is required by the rules implementing the *Forest and Rangeland Renewable Resources Planning Act of 1974* (RPA), as amended by the *National Forest Management Act of 1976* (NFMA). The purpose of the Forest Plan is to provide for multiple use and sustained yield of goods and services from National Forest System lands in an environmentally sound manner. NFMA implementing regulations at 36 CFR Part 219.10(g) require that a forest plan be revised on a 10-year cycle, or at least every 15 years.

As provided in 36 CFR 219.10(g), this decision will remain in effect until the Plan is revised, which is scheduled to be in 10 years but no longer than 15 years. In the FEIS, a 50-year planning period is used so that effects of alternative choices can be projected beyond the first decade. Short-term opportunities, problems, or conflicts may arise in managing the Forest that were not anticipated in the Plan Revision. When this occurs, the Plan can be adjusted through re-scheduling, amending, or revising.

As a management strategy for the Rio Grande National Forest, this Revised Plan and FEIS are programmatic. The emphasis in the Plan is not on site-specific decisions. Rather, it provides overall systematic guidance and establishes management direction to govern future actions.[1]

The original Forest Plan was adopted in 1985. The Revised Plan makes many changes to the original Plan. These changes are needed to address issues and concerns about how the Forest should be managed.

Public involvement/collaboration is ongoing. The RGNF subscribes to the philosophy of "fish bowl" planning. There are no secrets, and the door is always open to those interested in coming in to talk. The Forest Planning process is subject to the requirements of the *Federal Advisory Committee Act* (FACA). The Act requires that the public, across the board, be given equal opportunity to comment on the Plan and the process. The RGNF Planning Staff has listened to all points of view and has incorporated good ideas. The Forest Service retains the responsibility for the analysis of the alternatives, and for the identification of the selected alternative. I am confident that you will see that the staff has listened, and that your involvement in this process has been worth the effort.

DECISIONS AND REASONS FOR THE DECISION

This Record of Decision (ROD) explains the rationale and basis for my decision to select Alternative G for implementation, and to approve the Revised Rio Grande National Forest Land

[1]As an example, the Rio Grande National Forest has issued a separate Record of Decision dealing with motorized and nonmotorized trail designations in the Backcountry. Rather than Segregate uses, the Forest opted to manage the trail system to offer motorized or nonmotorized recreation opportunities.

and Resource Management Plan. The factors I considered were derived from the issues, concerns and opportunities identified through the initial planning process, as well as from the public comments received on the Draft Environmental Impact Statement and Draft Revised Forest Plan.

There are six fundamental decisions made in a Forest Plan. These include:

1.The establishment of Forestwide Goals and Objectives.

2.The establishment of Forestwide Standards and Guidelines.

3.The establishment of Management-Area direction.

4.The Plan designates suitable timber land and establishes an allowable sale quantity of timber (ASQ). It also identifies the level of timber we expect to be able to produce, based on experienced budget levels. The Plan designates land suitable for grazing and browsing. It identifies the land that is suitable and available for oil and gas leasing. It provides for a broad range of outdoor recreation opportunities.

5.The Plan establishes the minimum legal requirements for monitoring and evaluating the implementation of the Revised Plan.

6.Based on a review of unroaded areas, it does not recommend to Congress any areas for Wilderness study. The Plan identifies fourteen streams that are considered eligible for inclusion in the National Wild and Scenic River System. The Plan also includes the designation of six Research Natural Areas, and Special Interest Areas.

Alternative G is selected based on a combination of Goals and Objectives, Standards and Guidelines, Management Area direction and the way the alternative addresses the Revision Topics. The Revision Topics are:

1.Biological Diversity
2.Wilderness, Unroaded, and Other Special Area Considerations
3.Timber Management and Suitability
4.Recreation and Travel Management
5.Oil and Gas Leasing

Key decision factors are discussed in detail in the following sections.

Decision 1.The Establishment of Forestwide Multiple-Use Goals and Objectives

These Goals and Objectives are listed in Chapter II of the Revised Plan. These are listed in accordance with the planning regulations at 36 CFR 219.11(b). All Forest Goals and Objectives are tiered to the Regional Goals identified in The Rocky Mountain Regional Guide, as amended May 1992; technical correction, June 1996.

The Goals and Objectives would apply to any of the alternatives, however, each alternative achieves them in a different way, depending on the emphasis of the alternative. I would refer the reader to the comparison of alternatives in Chapter 2 of the FEIS.

With regard to the Goals and Objective here is how the Alternatives compare:

Alternative NA is an expression of past management philosophy. The alternative is focused more on the "pieces" of the Forest rather than the "whole". The alternative attempts to provide direction of some of the components of biological diversity, but clearly, the goals and objectives are focused on economic values.

Alternatives B's and D's emphasis is on resource production (within the limits of ecosystem sustainability). While the alternatives do offer more balance, they are focused more toward the achievement of the Goals and Objectives that are based on economic values.

Alternative A leans heavily toward the function of natural processes with little or no human intervention. Alternative F is based on the concept of "island biogeography". Both alternatives emphasize the Goals and Objectives that center around resource protection and maintenance of biological diversity. Neither alternative emphasizes the achievement of the Goals and Objectives that are oriented toward economic values.

Alternative E begins to get at a balance between biological and economic Goals and Objectives. The alternative is based on the concept of no additional development of the Forest.

I chose Alternative G because it is a good balance between protecting ecological processes for future generations and offering goods and services for current users. The alternative is similar also to alternative D in that it offers a level of goods and services that support the Forest's role in the local economy. The best example I can think of is in the application of Prescription 5.13 (Forest Products). The prescription is clearly geared toward the achievement of Goals like Objective 3.2 (the production of a sustainable level of goods and services), 6.2 (the effective management of market oriented programs), and 8.2 (the recognition of local economic dependence on National Forest programs and activities). Yet, the Standards and Guidelines for the Management-Area ensure that equally important objectives like 1.3 (the improvement of

watershed conditions), 2.3 (the sustainability of wildlife populations), and 2.4 (the ability of species to disperse over large areas) can be achieved as well. There is a balance.

Some of the important objectives that are based on the law and identified in the Revised Plan include:

*Improve watershed conditions to restore favorable soil relationships and water quality (watershed rehabilitation). (Forest Objective 1.3)

*Protect the integrity of the soil and water resources by discouraging motorized- vehicle use in wetlands, wet meadows, and riparian areas. (Forest Objective 1.6)

*Emphasize the function of natural processes with little or no human influence in designated Wildernesses and in areas categorized as Backcountry, Wild Rivers, and Research Natural Areas. (Forest Objective 2.1)

*Ensure the sustainability of viable populations of all native wildlife species through the maintenance or improvement of habitat conditions. (Forest Objective 2.3)

*Manage wildlife habitat at the appropriate scale (e.g., local, regional, Statewide, or beyond) to maintain the ability of species to disperse over large areas. (Forest Objective 2.4)

*Use prescribed natural fire and management-ignited fire where forest ecosystems evolved under the influence of wildfire. This includes the use of fire as a management tool. (Forest Objective 2.9)

*Continue to emphasize the long-term sustainable production of resources for economies, communities, and people. This includes the production of timber within sustainable limits -- the softwood allowable sale quantity is 21 MMBF/year -- our anticipated harvest level based on experienced budgets is 11 MMBF/year. (Forest Objective 3.2)

*Primarily use the existing road system. (Forest Objective 3.4)

*Emphasize the maintenance of natural- or near-natural-appearing landscapes in all areas of the forest, and to increase access to a range of recreation opportunities in attractive settings. (Forest Objective 4.1)

*Emphasize interpretation, information, and environmental education as important parts of outdoor recreation. (Forest Objective 4.6)

*Emphasize the effective management of the Forest's market-oriented programs (timber, range, minerals, and special uses, so that they are financially profitable). (Forest Objective 6.2)

*Emphasize the spirit of cooperation with all people, including those whose livelihood is dependent on National Forest resources, in the development of plans and projects. (Forest Objective 7.1)

*Continue to recognize the nature and extent of local economic dependencies on National Forest activities. Give special attention to resource programs that help diversify rural economies. (Forest Objective 8.2)

*Emphasize high-quality customer service. (Forest Objective)

*Emphasize and give priority to an ongoing comprehensive monitoring and evaluation effort to ensure compliance with the Forest Plan. (Forest Objective)

All of the Goals and Objectives listed in Chapter II of the Revised Land and Resource Management Plan are important, and the achievement of them is emphasized in the implementation of this Forest Plan. The land allocations in Alternative G are structured toward the achievement of these Goals. The Goals that I have listed here characterize the intent of this Plan and offer a focus for the future. These Goals depict an attitude that I am confident will continue over the next 10 - 15 years. Our focus is on outcomes, rather than outputs. We will take credit for what is produced and we will accept responsibility for the condition of the land when projects are completed. "Ecosystem management" is not a buzzword...it is a way of doing business, an attitude toward the land and the people we serve. It is not dependant on funding, but on our focus on the accomplishment of these goals.

Decision 2.The Establishment of Forestwide Management Requirements (Forestwide Standards and Guidelines).

There are some changes in the Standards and Guidelines, particularly the Forestwide Standards and Guidelines. These are listed in Chapter III of the Revised Plan, and are required by the resource integration requirements of 36 CFR 219.13 through 219.26; and 219.27.

I need to emphasize one important point. Our objective is to simplify the content of the Forest Plan. Toward that end, I have directed the Forest not to reprint all of the laws, policies, Manual and Handbook direction. These rules still apply, and I direct you to Appendices A through E in the Forest Plan for a list of them.

The rationale used for the Goals and Objectives applies to the establishment of Standards and Guidelines as well. The Standards and Guidelines apply across the range of alternatives. I am selecting Alternative G based on the balance between the production of goods and services and ecological sustainability that is achieved through the combination of Goals and Objectives, Standards and Guidelines, and Management-Area Prescriptions. The Standards and Guidelines will be monitored to ensure that they are working.

Some of the important changes in the Forestwide Standards and Guidelines are:

*We have selected the Standards and the Design criteria for soil and water that are to be included in the *Regional Watershed Conservation Practices Handbook.*

*The Forest Plan Revision included an Oil and Gas Leasing analysis. Several resource Stipulations will apply to development on all administratively available and authorized lands, unless a more restrictive Stipulation is required in the Management-Area Prescription. These Stipulations include "No Surface Occupancy-(NSO)," and "Controlled Surface Use-(CSU)."

*Soils guidelines include direction for the retention of fine slash, to ensure soil productivity for the future.

*The construction of permanent and temporary roads is limited.

*Road and trail construction (in some cases reconstruction) will be located away from streams and wet areas, to protect important riparian habitat and water quality.

*Several Standards apply specifically to the management of riparian areas and wetlands. The Standards apply to vegetation management, the design and construction of stream crossings, stream channel pattern, natural ground cover, soil structure, water budget, drainage patterns, instream flows, negotiated agreements with water users, and the operation of water-use facilities.

*We have identified Standards that are designed to protect the biological diversity of the Forest for the future. These include management direction for the retention of coarse woody debris, the inventory and assessment of old growth during project planning, aspen management, and the use of spatial-analysis concepts in project planning.

*We have opted to use the Clary and Webster Range Standards and Guidelines until specific management requirements are identified in Allotment Management Plans.

*We have included the direction for the use of even-aged, two-aged, or uneven-aged silvicultural prescriptions, restocking levels by species, use of artificial-regeneration methods, and opening Guidelines for timber management.

*Standards and Guidelines are adopted for the management of wildlife in all areas of the Forest. Some of these include cover for ground-nesting birds, bat habitat, the protection of active and inactive raptor nests, protection of Threatened and Endangered Species, measures to prevent new additions to the Threatened and Endangered Species list, bald eagle sites, and, most important, the protection of habitat for existing species over the entire Forest.

*Standards and Guidelines have been adopted for the management of noxious weeds, insect and disease management, and fire.

*Forestwide Standards and Guidelines are adopted for the management of developed and dispersed recreation. Particular emphasis is placed on the monitoring of recreation use all year, and the need to modify use if necessary.

*Specific Standards and Guidelines are adopted to protect Wilderness resources.

*Specific Standards and Guidelines are adopted to ensure the protection of scenic resources.

* Several Standards and Guidelines have been adopted for travel management, including limiting motorized use to designated roads and trails, direction to pursue the closure of roads causing resource damage, and road and trail construction or maintenance.

These are a few of the Forestwide Standards and Guidelines that foster the intent of this Forest Plan and what we expect to accomplish with it. All of these Standards and Guidelines will be carefully monitored to ensure that they are working, or to identify those that merit change. The Standards and Guidelines are the direction for management and serve to illustrate the intent of the Plan. The Standards and Guidelines leave the latitude to accomplish Forest objectives where it should be...in the hands of those who work for the Forest and with the public to design and administer projects as the plan is implemented.

Decision 3.Establishment of Management Area Direction (Management- Area Prescriptions and associated Standards and Guidelines) for 17 Management Areas.

The Forest will use 17 Management-Area Prescriptions to implement the Forest Plan. These are listed in Chapter IV of the Revised Forest Plan. This direction will guide future management activities within each specific management area, and is required by 36 CFR 219.11(c).

The application of the Management-Area Prescriptions is where the alternatives vary the most. The mix of prescriptions and how they are applied is a key factor in my decision. Here is how the alternatives compare and the rationale for choosing Alternative G.

Alternative NA is an expression of past management. Land allocations in this Alternative clearly emphasize the production of goods and services and subordinate other resource values. The Alternative does little to resolve the Revision Topics outside of Timber Management and Suitability.

Alternatives A and F are similar in that they stress the importance of biological systems over human needs. Alternative A would result in the majority of the Forest being designated or recommended for Wilderness. Timber harvest would occur but would be the result of other resource management objectives since there are no suitable lands nor programmed Allowable Sale Quantity. Alterative F is based on the theory of "island biogeography" and employs a combination of Standards and Guidelines and Management-Area Prescriptions that achieve that emphasis. Land suitable and scheduled for timber management would be limited. Both alternatives manage the majority of the Forest either as Wilderness or managed in a way very similar to Wilderness. Recreation in both alternatives heavily favors nonmotorized uses. Oil and Gas is either not allowed (Alternative A) or minimized (Alternative F).

Alternatives B and D favor resource production. We anticipate that this can be accomplished within the biological capability of the Forest. These alternatives emphasize sustainable production on a greater area of the Forest. Both alternatives would require the development of several unroaded areas causing a fundamental change in the unique (undeveloped) character of the land. Neither alternative recommends additions to the National Wilderness Preservation System. Both alternatives feature multi-season, multi-use recreation programs which include the maintenance or expansion of existing developed recreation sites. Both alternatives will emphasize motorized recreation opportunities but Alternative D will increase the availability of nonmotorized opportunities outside of Wilderness. Both alternatives include Backcountry Motorized or Backcountry Nonmotorized Management Prescriptions. The comments received on the Draft Environmental Impact Statement indicate that these allocations do little to resolve recreation issues. Indeed, they appear to cause more problems than they solve.

Alternative E continues to get at a balance of uses with the Management-Areas employed. Biological diversity is protected due to the limitation of development to areas already under management. Suitable timber lands consist of previously harvested areas and areas outside of inventoried unroaded areas. The Alternative includes the recommendation of selected unroaded areas for Wilderness designation. The remainder of the areas will be managed to offer Backcountry Motorized or Backcountry Nonmotorized recreation opportunities. These

prescriptions are the same as those used in alternatives B and D and I have the same reservations about them. Oil and Gas leasing would be limited to lands that do not have high recreation values outside of Wilderness.

I chose the mix of Management-Area Prescriptions in Alternative G. Biological diversity will be protected across the Forest as a whole. Much of the Forest outside of Wilderness will remain undeveloped. There are no recommendations for Wilderness designation. Timber management will occur on suitable lands that consist of previously harvested areas and portions of the unroaded areas. The harvest level that we anticipate (based on experienced budgets) and the ASQ assures resource protection, and can be done in way that is aesthetically pleasing.

The Alternative has one very important distinction. The unroaded areas will be managed using Backcountry Prescription 3.3. This prescription is different than those used in the other alternatives because it does not segregate users to one area of the Forest or another. Instead, we will manage the trails in the Backcountry areas for either motorized or nonmotorized uses. In this way, the Forest is available to a variety of people. Oil and Gas Leasing opportunities are available where it makes sense to offer them. That is, on the areas of the Forest (generally outside Wilderness and Backcountry) where a high potential exists.

With regard to biological diversity and the approach taken in Alternative G, I need to make one point. Alternative G is a refinement of alternatives E and D. Most of the unroaded areas are allocated to Backcountry so that biological systems are protected there as well as in other parts of the Forest. The Alternative features the "species dispersal concept" for the protection of biological diversity as opposed to the "island biogeography concept" featured in Alternative F. Our analysis does not demonstrate the validity on one concept over the other; rather, it demonstrates the applicability of one over the other. Simply stated, the "island biogeography" approach seems more applicable to the Forests in the Northwest or the East. The vegetation in the ecosystems in which the Rio Grande National Forest is located is more naturally fragmented, and so, more amenable to the "species dispersal" approach. This way animals will have connective corridors to other areas in the region and the habitat and hiding cover on the rest of the Forest that will allow animals to travel to and utilize these corridors. Our analysis also supports the conclusion that recreation uses can be managed so that they are compatible with the protection of biological diversity. We do intend to carefully monitor these uses.

The Management-Area Prescriptions used in Alternative G include:

Category 1 -

There are 430,820 (approximately 22% of the Forest), included in these prescriptions in Alternative G. This category includes Management-Area Prescriptions for Wilderness and eligible Wild Rivers.

Wilderness - Pristine: These are areas managed to protect and perpetuate their essentially pristine conditions. Natural processes and conditions are not measurably affected by human use. Recreation opportunities that offer solitude and require a great deal of self-reliance are found in these areas of the Wilderness.

Wilderness - Primitive: These are areas managed to protect ecological conditions. Recreation opportunities that offer a moderate degree of solitude but require a great deal of self-reliance are offered in these areas of the Wilderness.

Wilderness - Semi-Primitive: These are areas managed to protect natural conditions and give access to other segments of the Wilderness. Encounters with other users should be expected, and people should expect to see some evidence of human activity.

It is important that people realize that Wildernesses are managed to protect what they are - Wilderness - first. Wilderness areas are designated by Congress and are managed to retain their natural influences without improvements or human habitation, and to preserve their natural character.

Recreation is an activity that is allowed, but is not the purpose for which Wildernesses were designated. Therefore controls on activities are more evident, and restrictions on levels of use may come to bear as use increases over time.

No areas are recommended for Wilderness designation in Alternative G. This decision is based on the conclusions of the Wilderness Needs Assessment that is in Chapter III of the Final Environmental Impact Statement, Wilderness section. Lands managed under these prescriptions are not included in the suitable-timber land base. The Needs Assessment supports the conclusion that the existing Wildernesses on the Forest have the capacity to sustain more use. These areas also offer a broad ecological representation of the ecosystems and vegetative types on the Forest.

Designated and Eligible Wild Rivers: These are managed to protect and perpetuate eligible river segments. These river segments may or may not be located within designated Wilderness.

The Forest has identified 14 rivers or streams that have been identified as eligible for Wild and Scenic designation. My decision is to manage these rivers or streams under a Wild and Scenic River Management Prescription until such time as a suitability analysis is done. At that time the

river segment will either be recommended to Congress for designation or it will be managed under the Prescriptions of the lands adjacent to the area. Please note that eligibility will not affect the existing negotiated agreements with local water users.

Category 2 -

There are 11,870 acres (about 1% of the Forest) included in these prescriptions. This category includes the Prescription for the management of Research Natural Areas. I am selecting six individual areas for designation as Research Natural Areas in Alternative G. These are described in the Research Natural Area section of FEIS, chapter 3. These areas are representative of a range of vegetation types and topographic features that have not been heavily influenced by humans. Timber harvest is prohibited in these areas and there are some restrictions to livestock grazing. The Forest will not do any development within these areas and recreation use will continue with few restrictions. These areas are not included in the suitable timber land base.

Research Natural Areas: These are areas managed to protect or enhance exemplary ecosystems designated for non-manipulative research, education, and maintenance of biodiversity.

I am approving the designation of six RNAs in Alternative G. These areas and the educational and research opportunities they offer are an important factor in my decision. We dropped one proposed area based on the high level of public concern. The remaining six areas, combined with other Research Natural Areas in the Region, ensure that research and education opportunities will be available in the future.

Category 3 -

There are 500,070 acres (approximately 25% of the Forest) included in these Prescriptions. These Prescriptions include Special Interest Areas, Backcountry, and eligible Scenic Rivers. My decision to select Alternative G is based on the inclusion of these areas and the role they play in the realization of Objectives and Desired Conditions for the Forest.

Special Interest Areas - These areas are managed to protect or enhance areas of unusual characteristics. For example, the John Fremont Special Area includes the remnants of the campsites used by the Fremont Expedition. This Prescription protects those sites for future generations. These areas are not included in the suitable-timber land base.

There are seven Special Interest Areas designated in Alternative G. These areas have unusual plant, geologic, or historical characteristics and will play a significant role in the future of the forest.

Backcountry - This Prescription represents the greatest change from the 1985 Forest Plan. It offers resolution of all five revision topics and is a key factor in my decision to select Alternative G. There are some important facets concerning the use of this Prescription.

For instance, the Backcountry Prescription protects important biological components of the Forest that so many people are concerned about. Since almost all of the Unroaded Areas on the Forest are included in Backcountry, these areas will help satisfy concerns for the preservation of biological reserves. We are confident that these areas can be managed to protect their biological values and at the same time offer backcountry opportunities to the public.

By using this Prescription, options will remain open if additions to the National Wilderness Preservation System are needed in the future. We heard loud and clear from many people that there has been enough development on the Rio Grande.

Backcountry areas are not included in the suitable-timber land base. Timber harvest for any reason (including salvage from fire, insects and disease, or other natural disturbances) is not allowed. These areas will remain undeveloped.

The use of the Backcountry Prescription has some important ramifications for recreation and travel management. Backcountry recreation experiences are in demand, and the use of this Prescription will allow us to satisfy the demand and still protect the integrity of the area.

*First of all, we are not segregating users, as we did in the other alternatives. Based on the comments we received, segregating use areas appears to cause more problems than it solves. Instead, the Backcountry Prescription allows all users to access the area. Some trails that have been open to motorized uses will be limited to nonmotorized access as per the Record of Decision issued for Travel Management. The trails that are open to motorized uses are highlighted on the map of Alternative G. The specific trails in the Backcountry and the criteria for non-motorized designation are listed in the Recreation section of the Final Environmental Impact Statement.

*Another facet of the decision includes the modification of the All-Terrain-Vehicle game retrieval policy. In the Backcountry, All-Terrain-Vehicles and other trail vehicles are limited to designated trails only. Motorized cross-country travel is not allowed in the Backcountry for All-Terrain-Vehicle game retrieval.

*People are concerned about the use of snowmobiles in the Backcountry. My staff reviewed the literature that was submitted pertaining to snowmobile use, and found nothing that would lead to the conclusion that any additional restrictions to those already in place are needed. In reality, snowmobile use occurs in only a few areas (roads and packed trails, for the most part) and the terrain in the Backcountry offers better restrictions than any we might choose to apply. Snowmobile use in the Backcountry will be monitored, and restrictions applied if the need arises.

*Oil and gas leasing is limited to the areas with high potential for oil and gas resource development (with a No-Surface Occupancy Stipulation). All other areas in the Backcountry are not authorized for lease. We've chosen this option so that the unroaded character of the area is protected.

The selection of Alternative G and the use of this Prescription maintains the Rio Grande's most visible attribute - its undeveloped areas - and maintain management options in these areas for the future.

Eligible Scenic Rivers - These areas are managed to protect river segments that are eligible for Wild and Scenic River designation. These areas are not part of the land base suitable for timber management. Current water-use and stream-protection agreements with local water users will continue.

Category 4 -

There are 109,140 acres (about 6% of the Forest) included in this category in Alternative G. These Prescriptions are an asset to the Alternative and another important factor in my decision. These are lands where ecological processes are managed to be compatible with recreation use. These areas are the scenic backdrop for the nation's number-one recreation activity: driving for pleasure and viewing scenery. Prescriptions in this category include:

Scenic Byways or Railroads - These areas are managed to protect or preserve the scenic and recreation values and uses on lands adjacent to Scenic Byways and Railroads.

Management, including livestock grazing and timber harvest, will occur as these areas are included in the suitable-timber land base. These activities will be designed so that they resemble naturally occurring patterns or disturbances in the landscape. These areas are the most "seen" on the Forest, and are a key feature of Alternative G.

Dispersed and Developed Recreation - These areas are another important component in the Forest recreation program in Alternative G. These lands are managed with emphasis on a wide

range of settings that are appropriate for a variety of recreation opportunities within different landscapes.

These areas are included in the suitable-timber land base. Activities will be designed to resemble naturally occurring patterns or disturbances in the landscape. Most of the Forest's developed recreation sites are located within these areas, and are a destination for visitors from all over the United States.

Eligible Recreation Rivers - These areas are managed to protect eligible Recreation River segments. These lands are not part of the suitable-timber land base. Current water-use and stream-protection agreements made through negotiation with local water users will continue.

Category 5 -

These are areas managed to produce a mix of forage, forest products, and wildlife habitat, while maintaining scenic resources and offering recreation opportunities. There are 727,590 acres (approximately 37% of the Forest) included in these Management Areas[2]. Prescription in this category include:

General Forest and Intermingled Rangelands - These are areas of the Forest where a variety of management options are allowed. These include livestock grazing, wildlife habitat improvement, dispersed recreation, and timber harvest.

One of the key features of this Prescription is that we have the option to manage for resource production while ensuring that there is sufficient habitat in key locations that allows animals to move about the Forest and adjacent areas as they need to.

These areas are included in the suitable-timber land base. Timber management is allowed but it is not emphasized in these areas.

Forest Products - The intent of this Prescription is to allow a full range of activities, with an emphasis on the production of commercial wood products.

These areas will emphasize the production of commercial wood products. This Prescription is used on areas of the forest where it makes sense to apply the Prescription. It will be evident that we are managing for timber products in these areas however, we will still maintain, at least, the

[2] Timber harvesting is allowed in various Category 4 and 5 prescriptions. Timber harvesting (suitable and scheduled timberlands) will only occur on 291,320 acres in Alternative G. This is a much smaller amount of land than are in all Category 4 and 5 lands combined.

minimum habitat and cover requirements that allow animals to move around the forest as they need to.

These areas are included in the suitable-timber land base.

These areas and the timber they produce are a key component of my decision. Several factors came into play. First of all, resource protection measures are in place. Harvest will be planned using the spatial-analysis guidelines developed by Forest Staff. Composition, structure, and function of Forest vegetation will figure in all plans and decisions. At least the minimum habitat for wildlife will be maintained, so animals can move around as they need to: within the Forest and beyond. Old growth will be inventoried and assessed so that its role can be determined.

Deer and Elk Winter Range - These areas are managed to provide adequate amounts of quality forage, cover, and solitude for deer, elk, and other species while on winter range. These areas are included (with precautions) in the suitable-timber land base. The use of snowmobiles is restricted to designated roads and trails within these areas.

These areas are a key feature of Alternative G because they protect the habitat that is critical for wildlife in the winter.

Special Wildlife Areas - Bighorn Sheep - These areas are habitat for established bighorn sheep herds on the Forest. These lands are not included in the suitable-timber land base.

Category 6 -

These areas are managed to produce forage for livestock, wildlife, and/or recreational stock. There are 76,090 acres (about 4% of the Forest) in this category. Livestock grazing is permitted in all Prescriptions. The Prescription in this category is:

General Rangelands - These areas are managed to produce forage for livestock, wildlife, and/or recreational stock. It is important to note that these are not the only areas where livestock grazing is allowed.

These areas are the true rangeland on the Forest and it makes sense to apply this Prescription. These lands are not included in the suitable-timber land base.

Category 7 -

This category and its group of prescriptions was not used on the Rio Grande National Forest.

Category 8 -

These are areas where the ecological conditions and natural processes are likely to be permanently altered by human activities, beyond the level needed to maintain natural-appearing landscapes. There are 1,180 acres (approximately 0.1% of the Forest) in this prescription. The Prescription in this category is:

Ski-Based Resorts, Existing/Potential - These areas are managed for their existing or potential use as ski-based resort sites. These areas are not part of the suitable-timber land base.

The Prescription applies to the Wolf Creek Ski Area, including locations where expansion may occur. I am not approving any expansion, since additional Environmental Analysis will be required before that decision can be made. It does make sense to include the area where expansion might occur in this plan.

These Management-Area Prescriptions are selected for the implementation of this Plan. The mix of Management Prescriptions and the options and opportunities they offer is a key factor in my decision to select Alternative G. The mix of Prescriptions very effectively address the five Revision Topics, protects biological diversity, offers the opportunity for the realization of user expectations, protects wildlife habitat for all species, and ensures the existence of a healthy Forest for future generations. In short, Alternative G responds to what people told us they want. Indeed, the Alternative was originally developed from the themes that the public work groups gave us earlier in the process. The Alternative makes sense.

Decision 4.The designation of suitable timber land and establishment of the allowable sale quantity (ASQ). Designation of lands suitable for grazing and browsing. The identification of lands suitable and available for Oil and Gas Leasing. Provision for a broad spectrum of forest and rangeland related outdoor recreation opportunities.

Tables displaying the suitable land base are in the FEIS and meet the requirements of 36 CFR 219.14, 219.16, 219.20, and 219.21.

The role that the Rio Grande National Forest plays in the local timber industry is a controversial and highly polarized subject. This is one aspect of the overall decision that I have truly agonized over. We read the letters that the mill workers sent in during the comment period and we took them to heart. Here is how the alternatives compare.

Alternative NA is the current (1985) management Alternative. The previous plan and its associated timber outputs have proven unrealistic. Experienced budgets have not been to the

level of the plan's expected budget and consequently contributed to the difficulty in producing a reliable level of timber harvest in recent years. The problem has been compounded by the need to balance the Forests budget between the various resource programs.

Alternatives A and F produce the lowest levels of timber harvest. Lands suitable for timber production are limited (Alternative F) or are not identified (Alternative A). Availability of, and accessibility to, other wood products is limited in each alternative.

Alternatives B and D produce the highest level of harvest. The alternatives do not fully resolve the concerns expressed in the other revision topics. Both of these alternatives sacrifice much of the undeveloped nature of the Forest. A better balance is needed.

Alternative E makes a good start at achieving the balance. Suitable lands consist of those previously harvested and areas outside of inventoried unroaded areas. The Alternative still leaves some important facets of timber management and suitability unresolved.

I believe Alternative G offers the balance we are seeking. A letter from the local County Commissioners in the San Luis Valley was brought to my attention. In the letter the Commissioners expressed concern over the future of the timber industry in the San Luis Valley and asked that we select an alternative that assures a sustainable level of harvest but one that accomplishes harvest in an environmentally sound and aesthetically pleasing way. Alternative G addresses that concern. We were asked (by industry) to analyze the potential of aspen for the local market. Alternative G includes aspen as a separate component of the Allowable Sale Quantity. Local concerns over the availability of firewood, posts and poles, and other forest products are addressed in the Alternative.

My decision in approving this Plan (Alternative G) and the suitable timberlands in it takes into account the needs of people, the importance of biological diversity, the ability of the Forest to produce a sustainable level of harvest, and the balance between all of these factors. The timber industry helps diversify the local and regional economy in and around the San Luis Valley. On the other hand, we heard from many people who feel that we have no business harvesting timber on this National Forest. My message is clear - we will continue to produce timber, within limits, on the Rio Grande National Forest. My decision presents some challenges to industry. The old saying is that challenges offer opportunity. I am confident that we can continue to work with industry to overcome these challenges, take advantage of the opportunities they present, and achieve mutual goals within the framework of this plan.

There are 291,325 acres of land suitable and scheduled for timber management. The Allowable Sale Quantity is 51,800 Thousand Cubic Feet per decade (210 Million Board Feet). The Allowable Sale Quantity for Aspen is 11,190 Thousand Cubic Feet per decade (18 Million Board

Feet). Under the full budget level, the annual average Allowable Sale Quantity is 21 Million Board Feet per year for softwoods and 1.8 Million Board Feet per year for aspen. The ASQ levels for softwoods and aspen are Noninterchangeable Components (NIC). This represents the upper end of the range the Forest is capable of harvesting. Based on experienced budgets, the Forest expects to sell 11 Million Board Feet per year of softwoods. Unless additional funding is included, Aspen will not be sold under the experienced budget.

The harvest level is sustainable, and it is within the limits that the Forest can supply under the framework of Alternative G. I realize my decision presents challenges for the timber industry, but I am confident that we can assure a steady supply of at least 11 Million Board Feet annually, based on experienced budgets. The alternative also offers some important opportunities. For example, we were asked to supply aspen for the market. We have included aspen as a separate component of the Allowable Sale Quantity.

Another extremely important facet of this Forest Plan Revision is livestock grazing. This is a controversial subject that runs the gamut between no domestic livestock on the National Forest to the debate of the needs of ranchers and the level of grazing on National Forest lands. Livestock grazing will continue on the Rio Grande National Forest. We have placed emphasis on effective management of grazing allotments. We will use the Clary and Webster guidelines until the individual Allotment Management Plans are in place. The Standards and Guidelines in Alternative G will improve the unsatisfactory conditions on rangelands, maintain the quality of those in satisfactory condition and protect the Forest's fragile riparian areas and wetlands.

Alternative G has 576,995 acres of suitable rangelands. These rangelands can meet the needs of livestock permittees. Grazing will continue to be a valued use of resources on the Rio Grande National Forest. The amount of suitable rangelands in Alternative G is slightly lower than Alternative NA, but should accommodate livestock needs while maintaining healthy herds of elk, deer and bighorn sheep.

There will be 61% of the Forest available for oil and gas leasing in Alternative G. The available and authorized land is located on areas of the Forest where Oil and Gas potential is high. Keep in mind, that even under the high development scenario, only 220 acres of development is anticipated. Resource development can occur with standard lease terms and resource protection stipulations as necessary.

Decision 5.The establishment of requirements for monitoring and evaluating the implementation of the Revised Plan to meet the requirements of 36 CFR 219.11 (d).

Another key factor in my selection of Alternative G is that a monitoring plan be in place that will ensure that this plan is working over time. Forest Staff have developed a Monitoring Plan that identifies the minimum requirements for monitoring that is legally required. The Plan also identifies the minimum requirements for monitoring that is not legally required, but is important. Most of these items have been identified based on concerns expressed by the public.

This Plan is a contract with the public to ensure that the Forest is healthy and will continue to be. The Monitoring Plan is our commitment to fulfill the terms of that contract. I have placed emphasis on monitoring, and I am confident that the Forest will comply with the requirements (legal and otherwise) of the Plan. The Monitoring Plan requirements are in Chapter V of the Revised Plan.

Decision 6.Documentation that We Will Not Recommend Any Further Additions to the Wilderness Preservation System.

One of the reasons why I am selecting Alternative G for implementation is that it has no recommendations for additions to the National Wilderness Preservation System. The basis for my decision is the conclusions presented in the Wilderness Needs Assessment in Chapter III of the Final Environmental Impact Statement. Disclosure of this decision is consistent with the requirements of 36 CFR 219.17.

I know that many people feel that Wilderness designation offers the highest level of protection for unroaded areas, and that they will be disappointed with this decision. While this may be true, there are other factors to consider. For instance, nearly a quarter (430,300 acres) of the Rio Grande National Forest is already designated Wilderness. These Wildernesses are ecologically well represented at the Province level. There is a demand for Backcountry recreation experiences and we have more options available to satisfy that demand in a non-Wilderness setting. Future options are still available. Almost all of the Unroaded Areas on the Rio Grande National Forest have been allocated to Backcountry Prescriptions. The Backcountry Prescription protects the wild characteristics of the unroaded areas. If needed, they can be recommended as Wilderness in the future. Finally, a lot of the people we talked to (locally and regionally) do not want anymore Wilderness. They do not want these areas developed, either, but for the most part they see Wilderness as a magnet that attracts people where a Backcountry Prescription does not.

One final point regarding the inventory of the unroaded areas. We have updated our roadless inventory in this Forest Plan Revision. This information is included in Chapter 3 of the FEIS and in Appendix B of the FEIS. The updated inventory takes the place of the RARE II inventory. RARE II was an effort to plan a single resource prior to integrated Forest planning. The updated inventory includes newly developed planning requirements which are much better than those

from the RARE II era. This inventory will be used for all related Forest Plan Implementation activities and is the official Rio Grande National Forest unroaded inventory.

BENEFITS, COSTS, AND ENVIRONMENTAL EFFECTS

Issues, concerns and comments on the Draft Environmental Impact Statement and Proposed Revised Plan received particular consideration in the decision-making process. The environmental consequences of the Revised Plan and the other alternatives have been studied thoroughly. Alternatives are described and compared in Chapter II of the FEIS. Environmental consequences are discussed in Chapter III.

Financial and economic analysis was also performed on each alternative. I am pleased that Alternative G has the highest economic Present Net Value (PNV). While other alternatives ranked very close, especially Alternatives B and D, Alternative G will provide the highest PNV for the American public. Other items considered include benefit/cost and revenue/cost ratios, income to the US Treasury, funds sent to counties, and job and income impacts.

FACTORS CONSIDERED IN THIS DECISION

In the course of making the aforementioned six individual decisions in the Forest Plan, I considered numerous factors, in effect making many decisions within decisions. Some of these factors included:

*The applicable laws, policies, Manual, and Handbook direction that govern the development of a Forest Plan and the management of National Forest lands.

*Protection of the basic resources (air, soil, and water).

*The people who use the National Forests, and the communities they live in, as well as the relationship of the Forest Service with people and communities.

*Economics and the role the Rio Grande National Forest plays in local, regional, and national economies.

*The "science." There are many facets to consider here. The science refers to the biological science as it applies to the management of National Forests. Since people are an integral part of ecosystems and this Plan, the subject also covers the application of social science. Neither of the sciences are perfect.

*The role of the Rio Grande National Forest in the greater San Juan ecosystem.

*Biological processes including the protection of Threatened, Endangered, or Sensitive plant and animal Species, natural processes, the importance of riparian areas, old growth, human activities and how they influence ecosystems, habitat capability, connectivity, fragmentation, and hiding cover.

*The role of fire in ecosystem dynamics.

*Access to the Forest and to the facilities available to the public.

*Negotiated water agreements.

*The plans and policies of other government agencies (local, state, and national).

*Adequate representation of Forest areas in the Wilderness Preservation System.

*Motorized and nonmotorized use of the Backcountry and other areas of the Forest.

*The effects of recreation on ecosystems.

*The literature review and the results of it in the analysis of the alternatives._

*The coarse- and fine-filter analysis done at both the eco-section and province level.

*The determination of Outfitter-Guide Capacities for the Forest.

I considered all of these factors and more in the decision-making process. The alternatives considered were developed and analyzed based on these factors.

THE PURPOSE AND NEED AND REVISION TOPICS

The National Forest Management Act (NFMA) require that Forest Plans be revised every 10 years and that the Forest Service explain why the revision needs to be done. The Purpose of, and Need for, the Forest Plan Revision are fully explained in Chapter I of the Final Environmental Impact Statement.

The issues addressed in the Forest Plan are identified by Revision Topic. Revision topics are generally thought of as subjects for which resource conditions, technical knowledge, or public perception of resource management have created a "need for change." The Revision Topics

constitute the identification of significant issues, as required by law. The Revision Topics addressed in this Plan are:

*Biological Diversity
*Wilderness, Unroaded Areas and Other Special-Area Considerations
*Timber Management and Suitability
*Recreation and Travel Management
*Oil and Gas Leasing

The Revision Topics are fully described in Chapter I of the Final Environmental Impact Statement.

CHANGES BETWEEN DRAFT AND FINAL

We made several changes between the publication of the Draft Environmental Impact Statement and the publication of the Final documents. These changes include:

*The development of a new alternative (Alternative G) as a logical outgrowth of public input and comments.

*The update of the Rocky Mountain Resource Information System (RMRIS) database.

*The conversion of the Geographic Information System (GIS) from Map Overlay Statistical System (MOSS) to ARC.

*The recalculation of acreages based on the use of ARC GIS.

*The addition of irregular shelterwood to the menu of silvicultural prescriptions modeled.

*The incorporation of the connected-disturbance analysis done for watersheds.

*We reran FORPLAN and benchmarks, and performed additional sensitivity analysis.

*Aspen was added as a noninterchangeable component (NIC) of the Allowable Sale Quantity.

*We developed the Backcountry Prescription for use in Alternative G.

*We designated trails in the Backcountry as motorized and non motorized in Alternative G, in compliance with the Travel Management ROD issued separately.

ALTERNATIVES CONSIDERED

Following is a brief description of the alternatives considered in this analysis. Before describing them, I would like to make some important points concerning the alternatives.

*The strength of the alternatives and of this planning process is that the alternatives express a range of concerns and issues raised by the public. The range is not based on predetermined outputs. Any similarity in the numbers between alternatives is purely coincidental.

*All alternatives include the concepts of multiple-use management and incorporate the philosophy of ecosystem management. All alternatives share a set of basic Goals and Standards and Guidelines which insure protection of Forest resources and compliance with applicable laws.

*All alternatives (including the current management alternative) use a new numbering scheme for Management Areas that is consistent with other Forests in the Rocky Mountain Region and surrounding Regions.

*All alternatives meet the management requirements of 36 CFR 219.17, as well as all other legal and regulatory requirements.

OBJECTIVES SHARED BY ALL ALTERNATIVES

All alternatives will meet the objectives established in the *Rocky Mountain Regional Guide*. These include:

*Protect the basic soil, air, and water resources.

*Provide for multiple uses and sustainability in an environmentally acceptable manner.

*Provide for a variety of life through management of ecosystems.

*Provide for scenic quality and a range of recreation opportunities that respond to our customers and local communities.

*Emphasize cooperation with individuals, organizations, and other agencies in coordination of planning and project implementation.

*Promote rural-development opportunities.

*In cooperation with other landowners, strive for improved landownership and access patterns, to the mutual benefit of both public and private landowners.

*Improve the financial efficiency of all programs and projects.

GENERAL DESCRIPTION OF THE ALTERNATIVES

Alternative A

This Alternative represents a "light touch" approach to forest management. Wilderness and nonmotorized recreation would be emphasized. There would be no suitable timberland and any logging would be the result of other resource program objectives.

This is how Alternative A responds to the Revision Topics:

Biological Diversity: The intent of this Alternative is to allow ecological processes such as fire, insects, disease, and other processes to occur with little or no influence from humans. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: All unroaded areas 5,000 acres and greater would be recommended for inclusion in the National Wilderness Preservation System. All undeveloped areas between 500 and 5,000 acres would remain undeveloped. There are seven Research Natural Areas recommended for designation and 14 Wild, Scenic, or Recreation Rivers proposed.

Timber Suitability and Management: There will be no lands designated Suitable for timber management, or scheduled for harvest. There will be no Allowable Sale Quantity identified with this Alternative. Timber harvest may be used to meet other resource management objectives.

Recreation and Travel Management: Management emphasis will be on nonmotorized recreation within those areas proposed for Wilderness designation. Travel management emphasis will be on reducing the miles of road throughout the Forest that do not meet management objectives, or are causing resource damage.

Oil and Gas Leasing: All existing and recommended Wilderness would be unavailable for leasing. The remaining lands would be closed to leasing by management direction.

Alternative B

This Alternative represents an emphasis on management to ensure economic stability using higher levels of timber harvest and the perpetuation of other programs that provide monetary returns at the local and national level.

This is how Alternative B responds to the Revision Topics:

Biological Diversity: A sustainable flow of products, services, and ecosystem values that are socially acceptable, economically viable, and within the biological capability of the resources will be provided. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: There are no recommendations for Wilderness designation in this alternative. Unroaded areas with high potential for timber production and oil and gas leasing will be scheduled or made available for development. All other areas would be managed for Backcountry motorized or nonmotorized recreation. There are seven Research Natural Areas recommended for designation and 14 Wild, Scenic, or Recreation Rivers proposed.

Timber Suitability and Management: Timber management will emphasize sustainable production from the Suitable land base within the natural range of variability. Management prescriptions emphasizing the production of Forest products will be used.

Recreation and Travel Management: Recreation management will emphasize multi-season multi-use programs. Travel management will emphasize closure of roads that cause resource damage.

Oil and Gas Leasing: All lands outside Wilderness will be available and authorized for oil and gas leasing. Two approaches were analyzed. The first would lease lands with standard lease terms only. The second would lease lands using standard lease terms plus resource protection Stipulations where needed.

Alternative D

This Alternative represents a blend of land management allocations that reflect people's concerns for biological values and social needs. This Alternative provides for the sustainability of Forest resources and the viability of the local economy in and around the San Luis Valley.

This is how Alternative D responds to the Revision Topics:

Biological Diversity: Ecological processes, diversity, and productivity will be maintained naturally or artificially where human-valued outputs are desired. Emphasis is on balancing

human uses that dominate and those that are subordinate to the natural environment. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: There are no recommendations for Wilderness designation. Many unroaded areas will be retained and managed to offer semi-primitive nonmotorized-and motorized-recreation opportunities. There are seven Research Natural Areas recommended for designation and 14 Wild, Scenic, or Recreation Rivers proposed.

Timber Suitability and Management: Timber would be managed on Suitable lands using a full range of even-and uneven-aged silvicultural prescriptions. Management would be designed to simulate natural disturbances of the landscape.

Recreation and Travel Management: Multi-season, multi-use opportunities are emphasized. Travel management emphasis is on reducing the miles of roads that do not meet management objectives or are causing resource damage.

Oil and Gas Leasing: Most of the legally available (Nonwilderness) lands would be administratively available and authorized for leasing.

Alternative E

This Alternative represents an emphasis on Forest management that would retain multiple resource objectives with little or no development of the Forest.

This is how Alternative E responds to the Revision Topics:

Biological Diversity: Ecological processes, diversity, and productivity will be maintained naturally or artificially where human-valued outputs are desired. Natural processes will occur with little human influence in the unroaded areas of the Forest. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: Selected unroaded areas will be recommended for inclusion in the National Wilderness Preservation System. All others will be managed to provide nonmotorized and motorized backcountry recreation experiences. Seven Research Natural Areas are recommended for designation.

Timber Management and Suitability: Suitable timber lands would consist of previously harvested areas of the Forest.

Recreation and Travel Management: Recreation emphasis would be on multi-season, multi-use opportunities. Travel management emphasis would be on reducing miles of road that are causing resource damage.

Oil and Gas Leasing: Wilderness and recommended Wilderness would be legally unavailable for leasing. On the remaining lands, areas having high recreation values would generally be closed to leasing by management direction. All other lands would be administratively available and authorized for lease with standard lease terms and resource protection Stipulations as necessary.

Alternative F

This Alternative was developed by a group of local residents, working in conjunction with the Colorado Environmental Coalition. The Alternative is framed around the concept of island biogeography, which the group feels is the best way to perpetuate biological diversity.

This is how Alternative F responds to the Revision Topics:

Biological Diversity: This Alternative emphasizes preserving large tracts of land in a series of "core reserve" allocations and areas recommended for Wilderness. Connective corridors are included for wildlife dispersal between various Core Reserve areas. Ecological processes, diversity, and productivity are maintained primarily through natural means. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: Some unroaded areas would be proposed for Wilderness; and all other unroaded areas would remain roadless to protect biodiversity values, especially the habitat for Threatened and Endangered species. These Core Reserve areas would be managed much the same as designated Wilderness. There are seven Research Natural Areas recommended for designation.

Timber Management and Suitability: Lands suitable for timber production would be limited. There would be no allocation of lands to Management Prescription 5.13, Forest Products. Silvicultural prescriptions would be dominated by uneven-aged management.

Recreation and Travel Management: Recreation would be allowed, but not emphasized. The dispersed-recreation program would emphasize semi-primitive nonmotorized opportunities, with motorized opportunities limited to recreation travel corridors. No motorized uses would be allowed in Core Reserve areas.

Oil and Gas Leasing: Wilderness and recommended Wilderness would be legally unavailable for leasing. Areas considered important for protection of biodiversity would be closed to leasing by management direction. Only a few areas of the Forest would be available for leasing.

Alternative G (The Selected Alternative)

This Alternative was developed in response to the concerns expressed in the letters written during the comment period between the Draft and Final. It represents a blend of land management allocations that reflect people's concerns about biological values and social needs. These objectives would be accomplished with little or no additional development of the Forest.

This is how Alternative G responds to the Revision Topics:

Biological Diversity: Ecological processes, diversity, and productivity will be maintained naturally or artificially where human-valued outputs are desired. Natural processes will occur with little human influence in the unroaded areas of the Forest. We anticipate that species viability will be maintained.

Wilderness, Unroaded Areas, and Other Special-Area Considerations: There are no recommendations for Wilderness designation. The majority of the unroaded areas would be managed under the Backcountry prescription for the preservation of biological processes and for motorized and nonmotorized recreation. There are six areas recommended for Research Natural Areas. There are 14 Wild, Scenic, or Recreation Rivers proposed.

Timber Management and Suitability: Timber would be managed on Suitable lands using a full range of even-aged, two-aged, and uneven-aged silvicultural prescriptions. Management would be designed to simulate natural disturbances of the landscape.

Recreation and Travel Management: Recreation emphasis would be on multi-season, multi-use opportunities. Travel management emphasis would be on reducing miles of road that are causing resource damage.

Oil and Gas Leasing: Wilderness would be legally unavailable for leasing. On the remaining lands, areas having high recreation values would generally be closed to leasing by management direction. All other lands would be administratively available and authorized for lease, with standard lease terms and resource protection Stipulations as necessary.

Alternative NA

This is the No Action Alternative. "No Action" means that the current management allocations, activities, and management direction found in the 1985 Forest Plan (as amended) would continue. Alternative NA also reflects new data and information. Standards and Guidelines have been updated, new technology has been incorporated, the criteria for suitable timberlands have been updated and incorporated, and the additions to the Wilderness system in the 1993 Wilderness Act have been included. The Alternative features timber production, increased water yield, and the availability of livestock grazing.

This is how Alternative NA responds to the Revision Topics:

Biological Diversity: Biological Diversity became an issue after the 1985 Plan was completed. Current management direction with regard to biological diversity is weak. The 1985 Plan is focused more on the "parts" of the ecosystem than on whole ecosystems.

Wilderness, Unroaded Areas, and Other Special Area Considerations: The additions to the Wilderness system included in the 1993 Colorado Wilderness Act have been incorporated. No other Wilderness additions are proposed. The upper parts of the Conejos River will be managed to protect Wild and Scenic River characteristics that were identified in 1982. All other land allocations in the 1985 Plan apply. There are no Special Interest Areas or Research Natural Areas proposed.

Timber Suitability and Management: To meet the requirements of Judge Finesilver's 1989 Court Order, the Tentatively Suitable timber base has been reanalyzed with newer and better information, including soils data. This new analysis has decreased the Tentatively Suitable Timberlands from 870,000 acres to 765,100 acres. Updated Standards and Guidelines would apply.

Recreation and Travel Management: Management direction in the 1985 Plan would apply.

Oil and Gas Leasing: Updated Standards and Guidelines would apply, including a new set of oil and gas lease Stipulations. All lands outside of designated Wilderness would be available and authorized for leasing with stipulations.

FINDINGS REQUIRED BY OTHER LAWS

As the Regional Forester (deciding officer), I have considered the multitude of statutes governing management of the Rio Grande National Forest, and I believe that this decision represents the best possible approach to harmonizing and reconciling the current statutory duties of the Forest Service.

The RGNF Forest Plan is in compliance with the *Clean Water Act* because of the conclusions presented in Chapter III, Aquatic Resources section of the FEIS.

The RGNF Forest Plan is in compliance with the *National Historic Preservation Act* because of the conclusions presented in Chapter III, Heritage Resource section of the FEIS.

The RGNF Forest Plan is in compliance with the *Endangered Species Act* because of the conclusions presented in Chapter III, Wildlife section of the FEIS.

The RGNF Forest Plan is in compliance with the *Clean Air Standards* because of the conclusions presented in Chapter III, Air Resources section of the FEIS.

IDENTIFICATION OF THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

I consider Alternative E to be the environmentally preferred alternative. I have not selected this Alternative for implementation because of the reasons cited in this Record of Decision.

IMPLEMENTATION DATE

Implementation of this decision will occur seven calendar days following publication of the legal notice of the decision in the *Federal Register.*

Forest Plan Implementation

In accordance with the National Forest Management Act, Section 6 (I), "When Land Management Plans are revised, resource plans and permits, contracts, and other instruments, when necessary, shall be revised as soon as practicable. Any revision in present or future permits, contracts, and other instruments made pursuant to this section shall be subject to valid existing rights."

Recent NEPA projects were approved under the original Forest Plan. Because the Plan revision was focused on areas of change occurring since the original Plan (and by issues raised by the public) and because reliance is still placed on the original Plan and FEIS, except where changes are made in the Plan, or new information was included in the revision FEIS, the potential for "significant new information" issues involving "pre-revision" NEPA documents is reduced. We are committed to complying with the NEPA, NFMA, and other environmental laws which apply in the case of forest plans and projects. With respect to this Forest Plan Revision, we will deal with such issues as "significant new information" under NEPA and "consistency" under NFMA on a case by case basis.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES

This decision is subject to administrative review pursuant to 36 CFR 217. Any appeal of this decision must be fully consistent with 36 CFR 217.9, and be filed in duplicate with the Chief, USDA - Forest Service, 14th and Independence., S.W., 201 14th Street, Washington, DC 20250, within 90 days of the date of the published legal notice.

Any notice of appeal must include at a minimum:

*A statement that the document is a Notice of Appeal filed pursuant to 36 CFR part 217;

*The name, address and telephone number of the appellant;

*Identification of the decision to which the objection is being made;

*Identification of the document in which the decision is contained, by title and subject, date of the decision, and name and title of the Deciding Officer;

*Identification of the specific portion of the decision to which objection is made;

*The reasons for objection, including issues of fact, law, regulation, or policy; and, if applicable, specifically how the decision violates law, regulation, or policy; and

*Identification of the specific changes(s) in the decision that the appellant seeks.

For questions concerning the Appeal process, contact:

USDA Forest Service
Attn: Ecosystem Management Staff (Steve Segovia)
PO Box 96090
Washington D.C. 20090-6090
(202) 205-1066

For questions concerning the Forest Plan, contact:

James B. Webb
Forest Supervisor
Rio Grande National Forest
1803 West Highway 160,
Monte Vista, Colorado 81144

CONCLUSION

I am pleased to announce this decision and bring this phase of the Forest Plan Revision to completion. As stated in the beginning of this document, I consider this Forest Plan to be a contract with the present as well as a promise to the future. What remains now is the challenge that is before all of us. That is, to work together; the public, the Forest Service, the ranchers, the enviromentalists, the timber industry, and all of the others who have an interest in Forest management. Together, we need to overcome the challenges, to realize the opportunities, and achieve the Goals and Objectives of this Forest Plan.

The Revised Forest Plan is our commitment to fulfill the terms of the contract. We will commit to the philosophy of adaptive management as we work together to implement this Plan. We will carefully monitor our activities, the condition of the land as projects are completed, the products produced, and the effectiveness of the resource protection measures included in the Plan.

Most importantly, this Plan is our commitment to the future to ensure a healthy Forest for the next generations.

/s/ Elizabeth Estill 11/7/1996

ELIZABETH ESTILL **Date**

Regional Forester

APPENDIX B
Key National and Regional Policies

Following is a partial listing of national and Regional Forest Service policy relevant to this Land and Resource Management Plan. A complete listing can be found in the Forest Service Manual and Forest Service Handbook (Forest Service Directives System).

The Forest Service Directive System is the primary basis for the management and control of all internal programs and the primary source of administrative direction to Forest Service employees. The directives system sets forth legal authorities, management objectives, policies, responsibilities, delegations, standards, procedures, and other instructions that are continuing and that apply to or are needed by more than one unit.

External directives are federal regulations, executive orders, or other issuances which originate outside the Forest Service, but which apply to Forest Service operations. Some external directives are incorporated in the Forest Service Directives System as external handbooks. Internal directives are continuing written direction that originates within the Forest Service to implement laws, regulations, and executive orders. The Forest Service Manual and Handbooks, including amendments, supplements, or interim directives issued thereto, are the sole components of the Forest Service Directives System.

The Forest Service Manual (FSM) contains legal authorities, goals, objectives, policies, responsibilities, instructions, and guidance needed on a continuing basis by Forest Service line officers and primary staff in more than one unit, to plan and execute assigned programs and activities.

Forest Service Handbooks(FSH) are directives that provide instructions and guidance on how to proceed with a specialized phase of a program or activity. Handbooks are either based on a part of the Manual or incorporate external directives.

The majority of standards and guidelines used to implement Forest Plans are located in the Directives System under the following general headings and codes:

1010	Laws, Regulations, and Orders
1030	Forest Service Mission
1500	External Relations
1900	Planning
2060	Ecosystem Classification, Interpretation, and Application
2070	Biological Diversity (Reserved)
2200	Range Management
2300	Recreation, Wilderness, and Related Resource Management
2400	Timber Management

2500	Watershed and Air Management
2600	Wildlife, Fish, and Sensitive Plant Habitat Management
2700	Special Uses Management
2800	Minerals and Geology
3400	Forest Pest Management
5100	Fire Management
5400	Land Ownership
7400	Public Health and Pollution Control Facilities
7500	Water Storage and Transmission
7700	Transportation System

The intent of many Forestwide standards and guidelines are incorporated into permits which authorize specific uses on the National Forests and National Grasslands. General permitting requirements can be referenced as follows:

Minerals: FSM 2817, 2822
Range Management: FSM 2230.3
Recreation: FSM 2331.1, 2342.04
Special Uses: FSM 2711
Timber Management: FSM 2451
Transportation System: FSM 7731.16

AMERICAN INDIANS (FSM 1563)

On October 22, 1993 the United States Department of Agriculture issued a policy statement on Indian tribes. The outlined policies include:

* Supporting the principles of self-governance delineated in the Indian Self-Determination Act and Education Assistance Act.

* Consulting with tribal governments regarding the influence of USDA activities on water, land, forest, air, and other natural resources of tribal governments.

* Seeking input from tribes on USDA policies and issues affecting tribes and reconciling Indian needs with the principles of good resource management.

* Observing the American Indian Religious Freedom Act.

* Working with tribal governments, high schools, and universities to encourage the development of agribusiness skills and sharing of information through exchange of technical staffs and skills.

* Encouraging early communication and cooperation between agencies with responsibilities to tribal governments.

* Consistent with applicable law or regulation, facilitating tribal participation in program planning and activities.

DAMS (FSM 7500)

For administrative Class A, B, C, and high-hazard Class D dams located on National Forest System lands, annually update the National Inventory of Dams (PL 99-662) in accordance with data elements required by the Federal Emergency Management Agency (FSM 7514).

Maintain a record for all dams on National Forest System lands over six feet high (vertical difference between the lowest point on the crest of the dam and the lowest point in the original stream bed). As a minimum, the record should include the dam identification, location, purpose, owner, administrative classification, hazard-potential classification, height, and maximum storage (FSM 7514).

HERITAGE RESOURCES (FSM 2360)

For the Rocky Mountain Region, heritage resources are defined as those features, sites, and values having scientific, historical, educational, and/or religious and cultural significance. Included are not only the physical or tangible elements, but also the

philosophical, spiritual, and emotional attributes associated with places and things (FSM 2361).

Locate, evaluate, protect, and foster public use and enjoyment of heritage resources.

* Protect all heritage resources listed on, or eligible for, the National Register of Historic Places (NRHP).

* Nominate all eligible heritage resources to the NRHP.

* Early in the planning process, all proposed undertakings will be reviewed by a Forest Service professional heritage resources specialist.

  Complete heritage resource inventories, evaluations, and mitigation measures for a project's area of potential effect prior to issuing environmental decision notices (FSM 2361)

* Avoid effects to heritage resources until evaluated and determined ineligible for the NRHP.

* Implement appropriate mitigative measures in consultation with the State Historic Preservation Officer (SHPO) and/or the Presidents' Advisory Council on Historic Preservation (ACHP) when eligible heritage resources will be affected.

* Maintain, stabilize, or enhance all eligible heritage resources.

Take responsibility for curation of artifacts in keeping with 36 CFR 79 and other guidelines (FSM 2361).

A field cultural resources inventory and evaluation of the area of an undertakings potential effects will be completed to the level necessary for reasonable decision making. The process required by Section 106 of the National Historic Preservation Act will be completed prior to the approval of any undertakings that may have an effect on a cultural property eligible for or listed on the National Register of Historic Places. Include the results of this analysis in the NEPA documentation for the project(FSM 2361, 2361, 2361, 2361).

Inventory both project and non-project related areas as outlined and put in priority in the Heritage Resource Management Inventory Strategy (FSM 2360).

A site specific Cultural Resources Management Plan will be prepared in consultation with SHPO for all listed NRHP properties (and properties with comparable designations), to ensure that they are managed appropriately (FSM 2363).

Promote suitable public use, study, and enjoyment of these resources, including but not limited to academic/scientific study, interpretation, tourism, adaptive use, and other cultural activities (FSM 2361, FSM 2363).

* Cooperative programs, agreements, and other partnerships with appropriate groups and institutions will be used to further the goals for management of cultural resources.

* Historic properties that are eligible to be or are listed on the National Register will be considered for public use and interpreted where appropriate.

* Native American religions and cultural practices will be supported and fostered, where possible.

* "Windows on the Past" and other in-service emphasis programs will be supported and developed to enhance recreation values of cultural resources, as appropriate.

FIRE MANAGEMENT (FSM 5100)

Presuppression Management (FSM 5120)

Ensure an appropriate level of protection from damage by wildfire to achieve land and resource management goals and objectives (FSM 5120.2).

Fire Suppression (FSM 5130)

Safely suppress wildfires at a minimum cost consistent with land and resource management objectives (FSM 5130.2).

Structural firefighting is the responsibility of local fire agencies (FSM 5138.2).

Structural firefighting from advancing wildfire within the National Forest Protection Boundary is the responsibility of local fire agencies and the Forest Service (FSM 5138.1).

Prescribed Fire (FSM 5140)

Management ignited or prescribed natural fire will be used as an ecological management tool where it is the best option to achieve management objectives. Prescribed natural fire planning requirements must be addressed in Forest Plans and implementation schedules approved by the Regional Forester (FSM 5140.3, R2 Supp. 5100-93-3).

Fuel Management (FSM 5150)

Identify, develop, and maintain fuel profiles that contribute to the most cost-efficient fire protection and use program in support of land and resource management objectives (FSM 5150.2).

Sustainable ecosystems' fuel treatment shall be consistent with historic fire regimes and natural variability in fuel profiles characteristic of that vegetation (FSM 5150.3, R2 Supp. 5100-93-2).

Cooperative Fuel Treatment (FSM 3150)

Cooperate with State and local governments and fire protection districts in the development of fire hazard reduction plans and ordinances by providing technical assistance (FSM 3170).

INFRASTRUCTURE (FSM 7700)

Locate roads to avoid wetlands. If infeasible, design shall include the placement of culverts, bridges, etc., as to mitigate and minimize impacts on the natural function of the wetland (FSM 2527, FSM 7721.12, FSH 7709.56b, FSH 7709.56).

Unless a proposed road is determined necessary as a permanent addition to the National Forest Transportation System close it and revegetate it. Revegetation will be achieved as soon as practicable (FSM 7703.1).

Close or obliterate temporary roads immediately when use ends (FSM 7703.1).

Control the density of continuously open roads on NFS lands in each watershed to maintain low risks of increased streamflow or sediment yield that impairs channel stability or aquatic habitat (FSM 7721.12).

Establish the specific purpose and intended use for each existing and proposed road, based on management direction. Document this purpose by writing specific road management objectives which include appropriate design, operation, and maintenance criteria. Plan, develop, operate, and maintain roads in accordance with FSM 7700. Employ traffic management strategies of encourage, accept, discourage, eliminate, or prohibit on all roads (FSM 7712.31).

Develop road management programs to require commercial users to pay their share of road maintenance (FSM 7732.21).

INTEGRATED PEST MANAGEMENT (FSM 4500)

Use only chemicals registered with the Environmental Protection Agency and follow label instructions.

Use buffers around water sources, lakes, wetlands, streams, and sinkholes to keep pesticide concentrations in water well below those harmful to drinking, irrigation, aquatic life, and non-target vegetation. Treatment of individual plants with aquatic-labeled pesticides may occur in buffers (FSM 2150.3).

Use individual-plant instead of broadcast treatments where practical. Favor chemicals with normal half lives of under 3 months. Apply pesticides at lowest effective rates, and as large droplets or pellets to reduce drift (FSM 2150.3).

Develop a noxious weed and pest management program that addresses the following components: awareness, prevention, inventory, planning, treatment, monitoring and reporting. Noxious weed programs will be in coordination and cooperation with local weed districts where they exist. Priorities for implementing a noxious weed program include:

a. prevention of potential invaders
b. control invading species new to an area
c. integrated weed management efforts on established stands
d. emergency spill plans for pesticide projects
e. document where pests are treated and type of treatment applied.

(FSH 2209.23, FSM 3431, FSM 2153.3, FSM 2157, FSH 2109.12, FSM 2156.2, 2158)

Monitor pest hazard and risk and the effectiveness of integrated pest management techniques as part of the monitoring of the Forest Plan (FSH 1909.12, FSM 3400).

Intensify integrated pest management in high use recreation areas (FSM 2330.3, FSM 3450).

Identify insect and disease hazards to high value resources and schedule management activities to minimize impacts during project implementation (FSH 1909.12, FSM 3420).

LANDOWNERSHIP ADJUSTMENTS (FSM 5400)

Work with other federal agencies to consolidate ownership and propose jurisdictional transfers which achieve the following objectives:

a. Develop more effective and efficient work units.
b. Reduce administrative costs.
c. Improve, maintain, and simplify user access to public lands.

Adjust National Forest System and private lands to create a landownership pattern that meets objectives of the Forest Service and other landowners.

Manage National Forest System lands identified for exchange or sale consistent with surrounding management area goals and in accordance with the following:

a. Terminate special-use permits on an opportunity basis and in compliance with applicable regulations and Forest Service policy.
b. Renew or extend special-use permits on an annual basis only with specific notice of the potential sale or exchange included in the authorization.
c. Do not authorize construction of additional permanent facilities.
d. Do not adversely affect land values by management activities.
e. Do not adversely affect land values by through issuance of special-use permits.
f. Acquire unrestricted rights-of-way whenever possible to maintain the value of the public land.
g. Ensure needed public rights-of-way are retained across all lands conveyed out of public ownership.

Convey lands only if:

a. Flood hazards on and downstream from conveyed lands are not increased.
b. Natural and beneficial values of acquired wetlands equal or exceed those of conveyed wetlands.
c. Natural water regimes in wetlands downstream from conveyed lands are not disrupted.
d. Lands have been evaluated for the presence of hazardous materials and known hazardous materials have been removed.
e. Lands do not contain habitat identified by US Fish and Wildlife Service as necessary for recovery of federally listed threatened and endangered species.
f. Lands do not contain unique resource characteristics.

Effect jurisdictional transfers that achieve the following objectives:

a. Reduce duplication of efforts by users and agencies in terms of time, cost, and coordination.
b. Improve or maintain user access to the administrating agency.
c. Decrease travel and enhance management.
d. Improve public understanding of applicable laws, regulations, policies, and procedures.
e. Develop more effective and efficient work units.

Property Boundary Administration (FSM 7150)

Locate, mark, and post landlines according to the following priorities:

a. Lines needed to meet planned activities;
b. Lines needed to protect NFS lands from encroachment, and
c. All other lines (FSM 7152).

MINERALS and GEOLOGY (FSM 2800)

General

Recommend withdrawal from mineral location those lands which have been determined to have other valuable resources and use potential of such value that protection could not be provided through regulations found in 36 CFR 228A (FSM 2761).

Leasable Minerals

Specific guidelines for prospecting, leasing, and development are established by reference to the following:

a. Onshore Oil & Gas Order No. 1.
b. Uniform Format for Oil and Gas Lease Stipulations (3/89). Stipulation guidance is listed for: no surface occupancy, timing limitation, controlled surface use, and special administration.
c. USDA-Forest Service and USDI-Bureau of Land Management "Surface Operating Standards for Oil & Gas Exploration and Development" commonly referred to as the "Gold Book."
d. Interagency Agreement For Leasing between the Director of the BLM and Chief of the FS dated Nov 21, 1991.
e. Interagency Agreement For Operations between the BLM and FS for Leasable Mineral Operations on NFS, October 28, 1987 (or as subsequently amended).

FSM 2820.3-5; 2820.4a, 6, FSM 2820.12, FSM 2822 and 2823-3d, FSM 2860, FSM 2824-2; App. A, Uniform Stipulation Requirements.

RANGELAND VEGETATION (FSM 2200)

Allotment Management Plans (AMPs) need to provide for threatened, endangered, and sensitive species (FSM 2203, FSM 2211, FSM 2212).

Construct structural improvements, to maintain or improve rangeland conditions within classified wilderness, consistent with wilderness values (FSM 2323).
Give emphasis to developing livestock management strategies that are economically efficient. (FSM 2212)

Structural and non-structural improvements to maintain or improve rangeland conditions will be designed to benefit wildlife or minimize impacts on wildlife. (FSH 2209, FSM 2209, FSM 2240)

RECREATION (FSM 2300)

Developed

Creativeness, relaxation, and personal experiences are generated by participation in recreation activities within preferred settings. Manage for a variety of recreation settings and opportunities to meet our customer's needs and desired experiences (FSM 2310).

Our emphasis is to provide quality service and customer satisfaction. Safety and cleanliness are essential standards at all developed recreation sites. Maintain a broad spectrum of quality recreation sites and facilities (FSM 2330).

Rehabilitation of existing, and development of new, developed recreation sites will be accessible to people with disabilities. Different challenge levels will be based on the recreation setting, customer needs, and type of facility appropriate with the recreation setting (FSM 2330).

Concession operations will be allowed based upon the recreation management objectives (FSM 2340).

Recreation Opportunity Spectrum (ROS)

Changes to ROS classes will be documented in a NEPA decision document (FSM 1922, FSM 2310).

RIGHTS-OF-WAY ACQUISITIONS AND GRANTS

Acquire rights-of-ways using the following criteria:

a. Legal access for existing roads and trails which provide general access to the National Forest (FSM 5461, FSM 2353).
b. Legal access to support planned projects and high priority activities at least two years prior to project implementation (FSM 5461).

Grant, where appropriate, rights-of-way across National Forest System lands using the following criteria:

a. To owners of non federal land who have a statutory right of access (FSM 2730).
b. To state, county, and local governments for public roads (FSM 2730).
c. To owners of non-federal land requesting access in excess of that guaranteed by law (FSM 2730).

RIPARIAN AREAS AND WETLANDS (FSM 2526.03)

Give preferential consideration to riparian-dependent resources when conflicts among land use activities occur.

Delineate and evaluate riparian areas prior to implementing any project activity. Determine boundaries by onsite characteristics of water, soil, and vegetation.

Give attention to land along all stream channels capable of supporting riparian vegetation (36 CFR 219.27e).

Give special attention to land and vegetation for at least the recognizable area dominated by the riparian vegetation and to adjacent terrestrial areas to assure adequate protection for the riparian-dependent resources. This area will be approximately 100 feet from the edge of perennial streams and other water bodies.

SCENIC RESOURCE MANAGEMENT (FSM 2380)

Management activities that are inconsistent with the Scenic Class Objectives (SCO) will not be allowed unless a decision is made to change the SCO. A decision to change the SCO will be documented in project NEPA decision documents (FSM 2382).

At the project implementation stage the SCO should be refined to the project scale (FSM 2383).

As new viewer platforms (such as roads, trails, recreation areas or housing developments outside National Forests) are developed, the SCOs should be reassessed (FSM 2382).

For areas which do not currently meet the Scenic Class Objectives, use landscape rehabilitation as a short-term alternative to restore landscapes containing undesirable visual impacts to a desired visual quality (FSM 2383).

Decisions should have been made and documented for Visual Quality Objectives (VQO) during the forest planning process (FSM 2382) .

SOIL, WATER, AND FISHERIES (FSM 2500)

Require water developments to minimize damage to channel flow carrying capacity, aquatic habitat, and riparian vegetation (FSM 2541.35).

In conducting improvements, use land treatments that disperse runoff and restore effective ground cover that controls erosion and sediment. Use stream treatments that restore stable beds and banks and good aquatic habitat features. Apply treatments with the lowest possible maintenance needs. Monitor improvements to be sure they have met their objectives (FSM 2522.2).

Manage land uses in general forest and rangelands so that long-term soil productivity will not be impaired due to erosion, compaction, scorching, or loss of organic matter and nutrients. In so doing, analyze the cumulative effects of existing and proposed disturbances on long-term soil productivity (FSM 1922.41).

Manage land uses in watersheds so that channel stability and aquatic habitat are not degraded due to altered streamflow, increased sediment yield, or introduced chemicals. Conduct a watershed analysis of the cumulative effects of existing and proposed disturbances on watershed and stream health. Manage land uses to prevent the watershed from being rated in critical condition (FSM 1922.41).

SPECIAL USES MANAGEMENT (Non-recreation) (FSM 2700)

Do not approve any special use applications that can be reasonably met on non-Federal or other Federal lands unless it is clearly in the public interest (FSM 2703).

Act on special-use applications according to the following priorities:

a. Those required by law or regulation, or national in scope.
b. Those in the public interest, mainly local or regional in scope.
c. All others.

Do not approve any special-use applications for areas adjacent to developed sites unless the proposed use is compatible with the purpose and use of the developed site.

Utilize approved electronic sites where feasible.

Do not approve applications for use of federal land that involve any hazardous materials as defined in U.S.C. 9601 et seq., 40 CFR 261.30 and 40 CFR 302.4. The hazardous materials listed are individual chemicals. These references do not relate to hazardous waste dumps (FSM 2703).

SPECIAL USES MANAGEMENT (Recreation) (FSM 2700)

Manage and administer recreation special uses based on recreation objectives, resource capabilities, and sound business management principles. (FSM 2702)

TIMBER (FSM 2400)

General

Forests are to be managed to provide net public benefits. Many different philosophies and strategies are used that provide benefits desired in the areas of urban interface, those areas used for recreation and viewing, for wildlife habitat, watershed protection, water-

yield enhancement, and others, as well as for wood and fiber products. In most cases, these must be integrated. Managers are to develop and use a wide variety of prescriptions to meet these public priorities and to accept that traditional economic considerations must be supplemented with both the empirical and subjective ones (FSM 2470).

Plan areas for timber harvest only if assured, based on existing technology and knowledge, that long-term soil productivity will not be degraded (FSH 2409).
Provide for wildlife habitat improvement and enhancement of other renewable resources in sale area improvement plans.

Tree Stand Improvement

Provide for accelerated growth, create specific stocking, and improve quality and vigor of timber stands.

Silvicultural Prescriptions

Silvicultural prescriptions for tree stand improvement, including thinning should evaluate the tradeoffs associated with alternative treatments in terms of increased timber yields, economic efficiency, enhanced wildlife habitat, increased wood products yield and quality, improved long term forest health, increased species and structural diversity and the desired future condition for the stand (FSH 2409; FSH 2409.17).

Silvicultural prescriptions will be prepared for all vegetation management activities proposing the management of forested vegetation. The extent of silvicultural prescriptions and the level of skill needed to prepare them are documented in FSH 2409 (FSH 2409.26d; FSH 2409.17).

Inventory improvement needs in sale areas during sale reconnaissance. Use KV funds as applicable after sale closure to accomplish needed improvements including education and interpretation (FSH 2409.19).

TRANSPORTATION AND TRAVEL

Transportation System Management (FSM 7700)

Unless a proposed road is determined necessary as a permanent addition to the National Forest Transportation System, close it and vegetetate it. Close or obliterate temporary roads immediately when use ends (FSM 7703).

Establish the specific purpose and intended use for each existing and proposed road, based on management direction. Document this purpose by writing specific road management objectives, which include appropriate design, operation, and maintenance criteria. Employ traffic (travel) management strategies of encourage, accept, discourage, eliminate, unrestricted, or prohibit on all roads (FSM 7712).

Trails

Provide for a wide range of recreation opportunities, both motorized and nonmotorized. The trail system on each National Forest will:

a. Consider barrier-free opportunities for all new construction or rehabilitation proposals.
b. Not be dedicated to single use unless clearly necessary to resolve conflicts or create unique opportunities.
c. Document the purpose and use of each trail. (FSH 2309)

Trail systems will be integrated across administrative boundaries, including adjacent Forest Service units, other federal agencies, state, and municipal trails (FSM 2353).

UTILITY CORRIDORS

Use "National Forest Landscape Management, Volume 2 - Chapter 2, Utilities," for principles and concepts of design and construction. Key points include:

a. Design: The engineering design and the landscape design must be accomplished together. Pay particular attention to design considerations for visual impact, clearing of the right-of-way, utility crossings, structure design, color, and support facilities.
b. Construction: Address construction needs relative to the land base, construction equipment, "construction train," and materials storage. Construction methods must be suited for the utility, as well as for the site, and should be flexible enough to be changed if necessary. Everyone involved in the construction should be informed of the land management goals of the project to help reduce the impact of construction equipment on the land.

WATER QUALITY (FSM 2520)

Develop integrated soil/water/fishery improvement schedules for watersheds, coordinated with other resources. Coordinate with state wildlife agencies. Apply treatment and land-use controls as needed to restore soil productivity, water quality, channel stability, and aquatic habitat (FSM 2522).

WILDERNESS (FSM 2320)

Competitive contests will not be permitted (FSM 2323).

Livestock grazing activities are permitted in accordance with guidelines in House of Representatives Report No. 96-617 (FSM 2323) .

Prohibit construction of new administrative facilities or structures. Existing administrative facilities will not be replaced if they become uninhabitable or are substantially damaged (FSM 2220).

Human influences will be managed to preserve wilderness values, physical characteristics, and natural processes (FSM 2320).

Vegetative restoration projects may be needed where man's activities have altered natural ecosystems and there is no reasonable expectation of natural revegetation. Species indigenous to the ecosystem should be planted. Where non-indigenous species must be used, they should be selected based on the likelihood that they will not persist beyond the rehabilitation period (FSM 2323).

Unless otherwise specified, fish and wildlife management activities will emphasize the protection and/or restoration of natural processes (FSH 2309.19 ID 2, 9/5/86, 23.1-1).

Construct bridges to only the standard necessary to accommodate the specific class of user. Construct bridges only where no safe opportunities exist to cross streams or gorges during periods of normal stream flow and/or where necessary to protect the wilderness resource (FSM 2323).

Wildfire will be managed in accordance with the Fire Management Action Plan (FMAP). Lightening fires that meet prescribed conditions may be used to maintain ecosystem naturalness. Prescribed fire may be used to reduce fuels and prevent the spread of wildfire into or from a Wilderness (FSM 2324).

Control problem wild animals on a case-by-case basis in cooperation with other agencies. Use methods that directly control the offending animal and which present the least risk to other wildlife, and/or visitor (FSM 2323).

WILDLIFE (FSM 2600)

Manage animal damage in cooperation with the State wildlife Agency and Animal and Plant Health Inspection Service to prevent or reduce damage to other resources and direct control toward preventing damage or removing only the offending animal (FSM 2650).

Provide habitat for Federally listed or proposed endangered or threatened species on National Forest System lands (FSM 2672, FSM 2676).

Complete biological evaluations/assessments on actions authorized through NEPA decision documents, funded or carried out by the Forest Service to determine the effects on Federally listed or proposed endangered, threatened, and sensitive species (FSM 2672).

Carry out consultation, "informal" or "formal" as appropriate, with Fish and Wildlife Service when biological assessments determine that Forest Service actions may effect Federally listed or proposed endangered or threatened species (FSM 2671).

Habitats for all existing native and desired non-native plants, fish, and wildlife species will be managed to maintain at least viable populations of such species (FSM 2601).

APPENDIX C
Statutes

American Indian Religious Freedom Act -- Act of August 11, 1978

Americans with Disabilities Act of 1990

Anderson-Mansfield Reforestation and Revegetation -- Act of October 11, 1949

Antiquities Act -- Act of June 8, 1906

Archaeological Resources Protection Act of 1977, as amended 1988
Act of October 31, 1979

Architectural Barriers Act of 1968

Clarke-McNary Act of 1924 -- Act of June 7, 1924

Clean Air Act Amendments of 1977 -- Act of August 7, 1977

Clean Water Act of 1977

Clean Water Amendments ("Federal Water Pollutions Control Act Amendments of 1972")
Act of October 18, 1972

Color of Title -- Act of December 22, 1928

Common Varieties of Mineral Materials -- Act of July 31, 1947

Comprehensive Environmental Response, Compensation and Liability Act, as amended
Act of December 11, 1980

Cooperative Forestry Assistance Act of 1978 -- Act of July 1, 1978

Disaster Relief Act of 1974 -- Act of May 22, 1974

Eastern Wilderness Act -- Act of January 3, 1975

Economy Act of 1932 -- Act of June 30, 1932

Emergency Flood Prevention (Agricultural Credit Act of 1978)

Act of August 4, 1978

Endangered Species Act of 1973 -- Act of December 28, 1973
Energy Security Act -- Act of June 30, 1980

Federal Advisory Committee Act of 1972 -- Act of October 6, 1972

Federal Cave Resources Protection Act of 1988 -- Act of November 18, 1988

Federal Coal Leasing Amendments Act of 1975 -- Act of August 4, 1976

Federal Insecticide, Rodenticide, and Fungicide Act -- Act of October 21, 1972

Federal Land Policy and Management Act of 1976 -- Act of October 21, 1976

Federal Noxious Weed Act of 1974 -- Act of January 3, 1975

Federal Onshore Oil and Gas Leasing Reform Act of 1987 -- Act of December 22, 1987

Federal Power Act of 1920 -- Act of June 10, 1920

Federal-State Cooperation for Soil Conservation -- Act of December 22, 1944

Fedreal Water Pollution Control Act of 1956, as amended (Water Quality Act of 1965, Clean Water Restoration Act of 1966)
Act of July 9, 1956

Federal Water Project Recreation Act of 1965 -- Act of July 9, 1965

Fish and Wildlife Conservation Act -- Act of September 15, 1960

Fish and Wildlife Coordination Act -- Act of March 10, 1934

Forest Highways -- Act of August 27, 1958

Forest and Rangeland Renewable Resources Planning Act of 1974 -- Act of August 17, 1974

Forest and Rangeland Renewable Resources Research Act of 1978 -- Act of June 30, 1978

Freedom of Information Act -- Act of November 21, 1974

Geothermal Steam Act of 1970 -- Act of December 24, 1970

Granger-Thye Act -- Act of April 24, 1950

Historic Preservation Act -- Act of October 15, 1966

Intermodal Surface Transportation Efficiency Act -- Act of December 18, 1991

Joint Surveys of Watershed Areas Act of 1962 -- Act of September 5, 1962

Knutson-Vandenberg Act -- Act of June 9, 1930

Land Acquistition -- Act of March 3, 1925

Land Acquisition-Declaration of Taking -- Act of February 26, 1931

Land Acquisition-Title Adjustment -- Act of July 8, 1943

Land and Water Conservation Fund Act of 1965 -- Act of September 3, 1964

Law Enforcement Authority -- Act of March 3, 1905

Leases Around Reservoirs -- Act of March 3, 1962

Mineral Leasing Act -- Act of February 25, 1920

Mineral Leasing Act for Acquired Lands -- Act of August 7, 1947

Mineral Resources on Weeks Law Lands -- Act of March 4, 1917

Mineral Springs Leasing -- Act of February 28, 1899

Mining Claims Rights Restoration Act of 1955 -- Act of August 11, 1955

Mining and Minerals Policy Act of 1970 -- Act of December 31, 1970

Mutiple-Use Sustained-Yield Act of 1960 -- Act of June 12, 1960

National Environmental Policy Act of 1969 -- Act of January 1, 1970

National Forest Management Act of 1976 -- Act of October 22, 1976

National Forest Roads and Trails Act -- Act of October 13, 1964

National Historic Preservation Act Amendments of 1980 -- Act of December 12, 1980

National Trails System Act -- Act of October 2, 1968

Occupancy Permits -- Act of March 4, 1915

Organic Administration Act -- Act of June 4, 1897

Petrified Wood -- Act of September 28, 1962

Pipelines -- Act of February 25, 1920

Preservation of Historical and Archaeological Data -- Act of May 24, 1974

Public Land Surveys -- Act of March 3, 1899

Public Rangelands Improvement Act of 1978 -- Act of October 25, 1978

Rehabilitation Act of 1973, as amended

Renewable Resources Extension Act of 1978 -- Act of June 30, 1978

Research Grants -- Act of September 6, 1958

Right of Eminent Domain -- Act of August 1, 1888

Rural Development Act of 1972 -- Act of August 30, 1972

Safe Drinking Water Amendments of 1977 -- Act of November 16, 1977

Sikes Act -- Act of October 18, 1974

Small Tracts Act -- Act of January 22, 1983

Smokey Bear Act -- Act of May 23, 1952

Soil and Water Resources Conservation Act of 1977 -- Act of November 18, 1977

Solid Waste Dipsosal ("Resource Conservation and Recovery Act of 1976")
Act of October 21, 1976

Supplemental National Forest Reforestation Fund -- Act of September 18, 1972

Surface Mining Control And Reclamation Act of 1977 -- Act of August 3, 1977

Sustained Yield Forest Management -- Act of March 29, 1944

Timber Export -- Act of March 4, 1917

Timber Exportation -- Act of April 12, 1926

Title Adjustment -- Act of April 28, 1930

Toxic Substances Control Act -- Act of October 11, 1976

Transfer Act -- Act of February 1, 1905

Twenty-Five Percent Fund -- Act of May 23, 1908

Uniform Federal Accessibility Standards (in accordance with the Architectural Act of 1968)

U.S. Criminal Code ("Title 18, United States Code, Chapter 91 -- Public Lands") Act of June 25, 1948

U.S. Mining Laws (Public Domain Lands) -- Act of May 10, 1872

Volunteers in the National Forests Act of 1972 -- Act of May 18, 1972

Water Quality Improvement Act of 1965 -- Act of April 3, 1965

Water Resources Planning Act -- Act of July 22, 1965

Watershed Protection and Flood Prevention Act -- Act of August 4, 1954

Weeks Act Status for Certain Lands -- Act of September 2, 1958

Weeks Act of 1911 -- Act of March 1, 1911

Wild and Scenic Rivers Act -- Act of October 2, 1968

Wilderness Act -- Act of September 3, 1964

Wildlife Game Refuges -- Act of August 11, 1916

Wood Residue Utilization Act of 1980 -- Act of December 19, 1980

Woodsy Owl/Smokey Bear Act -- Act of June 22, 1974

Youth Conservation Corps -- Act of August 13, 1970

REGULATIONS

36 CFR 60 - National Register of Historic Places
36 CFR 212 - Forest Development Transportation System
36 CFR 213 - Administration Under Bank-Jones Act
36 CFR 219 - Planning
36 CFR 221 - Timber Management Planning
36 CFR 222 - Range Management
36 CFR 223 - Sale and Disposal of NFS Timber
36 CFR 228 - Minerals
36 CFR 241 - Fish and Wildlife
36 CFR 251 - Land Uses

36 CFR 254 - Landownership Adjustments
36 CFR 261 - Prohibitions
36 CFR 291 - Occupancy and Use of Developed Sites and Areas of Concentrated Public Use
36 CFR 292 - National Recreation Areas
36 CFR 293 - Wilderness - Primitive Areas
36 CFR 294 - Special Areas
36 CFR 295 - Use of Motor Vehicles off Forest Development Roads
36 CFR 296 - Protection of Archaeological Resources
36 CFR 297 - Wild and Scenic Rivers
36 CFR 1800 - Advisory Council on Historic Preservation
40 CFR 1500-1508 - Council on Environmental Quality
National Electrical Code
National Fire Code
Uniform Building Code
Uniform Mechanical Code
Uniform Plumbing Code

EXECUTIVE ORDERS

E.O. 11593 - Protection and Enhancement of Cultural Environment
E.O. 11990 - Protection of Wetlands
E.O. 11644/11989 - Use of Off-Road Vehicles
E.O. 12113 - Independent Water Project Review

AGREEMENTS

This section inlcludes Cooperative Agreements, MOU's, Challenge-Cost Share Agreements, Master Agreements, Interagency Agreements, etc., relevant to the Rio Grande NF

Minerals Management: MOU between State of Colorado and Regions 2 and 4 of the Forest Service. This MOU establishes the State as principal bond holder for mining activities carried out on NFS lands, to avoid double bonding.

Minerals Management: Letter of Agreements and Interagency Agreements for Cooperating Agency in Forest Plan Process (with BLM). Interagency agreement on procedures in administering oil and gas operations on NFS lands.

APPENDIX D
Mineral Leasing Stipulations and Lease Forms

This appendix contains the resource-protection stipulations that would be attached to the lease as proposed in a number of Forest Plan alternatives. They are designed to protect important surface-resource values and uses, and would be applied to specific lands on the Forest.

The first part of this appendix contains a copy of the Offer to Lease and Lease for Oil and Gas, BLM Form 3100-11, which contains the standard lease terms.

STANDARD LEASE FORM

The following "Notice for Lands of the National Forest System the Jurisdiction of Department of Agriculture" is attached to every lease issued through the BLM. After the Notice for Lands are the stipulations that would be used under most alternatives.

R2-FS-2820-13 (92) Serial No. _____

NOTICE FOR LANDS OF THE NATIONAL FOREST SYSTEM UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE

The permittee/lessee must comply with all the rules and regulations the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of Interior in the permit. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of an exploration plan by the Secretary of the Interior, (2) uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by an exploration plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed

To: **District Ranger**

At: (Address)

Telephone: (Number)

who is the authorized representative of the Secretary of Agriculture.

NOTICE

CULTURAL AND PALEONTOLOGICAL RESOURCES - The FS is responsible for assuring that the leased lands are examined to determine of cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the FS, shall:

1. Contact the FS to determine if a site-specific cultural resource inventory is required. If a survey is required, then:

2. Engage the services of a cultural resource specialist acceptable to the FS to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the FS for review and approval at the time a surface-disturbing plan of operation is submitted.

3. Implement mitigation measures required by the FS and BLM to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

The lessee or operator shall immediately bring to the attention of the FS and BLM any cultural or paleontological vertebrate resources or any other objects of scientific interest discovered as a result of surface operations under this lease, and shall leave such discoveries intact until directed to proceed by FS and BLM.

ENDANGERED OR THREATENED SPECIES - The FS is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the FS that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the FS. An acceptable report must be provided to the FS identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

Lease form

lease form

Serial Number

No Surface Occupancy Stipulation for Bighorn Sheep Habitat

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description). Maps should be included as well.

For the purpose of: Protecting important bighorn sheep habitat.

Bighorn sheep exhibit a high fidelity to certain locations used for lambing, feeding, and watering. The Colorado Division of Wildlife has identified these locations. The no surface occupancy stipulation would not allow disturbances on these important wildlife sites.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action that the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: Oil and gas activities, including field development, could cause impacts to herd calving, movements, and feeding causing the sheep to relocate to less favorable sites. For these reasons, no surface occupancy will be allowed so as to protect these important habitats.

This stipulation is consistent with the Forest Plan because it protects an important aspect of biodiversity and achieves the goals of wildlife management.

This stipulation is appropriate because standard lease terms alone allow occupancy. Timing limitations would only protect the animals during the birthing season but a field development could still occur and temporarily or permanently displace bighorn sheep from these important areas.

Serial Number

No Surface Occupancy Stipulation for Watersheds of Concern and High Concern

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description)

All or portions of Sec. ____, T. ____, R. ____ as shown on the attached map which becomes a part hereof.

For the purpose of:

Protection and restoration of the _____ watershed (Watershed Number _____) that has been damaged through past surface disturbance.

Conditions under which a waiver of this stipulation would be considered:

1. A site-specific watershed analysis determines that the watershed is actually not a watershed of concern, then the NSO could be waived. Other resource stipulations may still apply.

2. Total surface disturbance in the watershed has been reduced and restoration has occurred to bring the watershed within acceptable limits.

Any changes to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and also to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM to this NSO stipulation is granted.

Serial Number

No Surface Occupancy Stipulation for Special Interest Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For the purpose of: Protecting unique and special areas of historic or cultural importance. This stipulation would be applied to the following special areas:

Management Prescription 2.1 and 3.1

Special interest areas have unique cultural, geologic, scientific, and social values that will be protected by the NSO stipulation.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Exceptions may be allowed if the lessee can demonstrate that the integrity of the special area would not be impaired by development.

Why This Stipulation is Needed to Protect Resource Values: This stipulation is consistent with the proposed management-area prescriptions 2.1 and 3.1, Special Interest Areas. This stipulation is necessary so that unique and special resources may be protected from ground-disturbing activities associated with development.

Serial Number

No Surface Occupancy Stipulation for Soils having High Mass Movement Potential

No surface occupancy or use is allowed on the lands described below: (legal subdivision or other description).

For the purpose of: Protecting long-term soil productivity and ecosystem sustainability. Areas with "high" mass movement potential have been mapped and are identified within the soil resource inventories for the Rio Grande Forest.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed. WEM's will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

This stipulation may be waived if an on-site investigation by an interdisciplinary team concludes that operations may be carried out without undue risk to soil and water resources.

Why this Stipulation is Necessary for Resource Protection: This stipulation is necessary to protect sensitive soils and ecosystems from mass failure (landslides). This stipulation prohibits ground-disturbing activity. Standard lease terms are inadequate because they would allow occupancy and associated ground-disturbing activities. Any physical disturbances to the surface soils from roads, earthmoving, or pad construction might result in mass movement, a reduction of soil productivity, and increased sedimentation. The NSO stipulation would not allow occupancy and would maintain productivity while allowing leases.

This stipulation is consistent with the Rio Grande National Forest Land and Resource Management Plan which must manage the land so that long-term soil productivity is not damaged or impaired. It is consistent with other management activities such as timber activities. These soils were excluded from the suitable timber base.

Serial Number

No Surface Occupancy Stipulation for Research Natural Areas

No surface occupancy or use is allowed on the lands described below: (legal subdivision or other descriptions)

For the purpose of: Protection of important biotic and abiotic components of ecosystems.

Conditions under which stipulation would not apply: None

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed. WEM's will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: This stipulation is consistent with management area prescription 2.2 Research Natural Areas, which emphasizes protection of important natural areas for research and scientific study. Activities other than research and study are limited to those that are non-destructive of the natural vegetation and do not allow roads and facilities. NSO is appropriate because it will not allow occupancy in these natural areas, thereby protecting areas for study. Standard lease terms or other stipulations would be inadequate because occupancy would be allowed, disturbing and impacting the natural functions of the ecosystem. Under NSO, leasing would be allowed while protecting surface resources.

Serial Number

No Surface Occupancy Stipulation for Alpine Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For the purpose of: To protect fragile ecosystems that are not reclaimable and highly visible.

Areas identified in the Plan by the Kobresia on Alpine Slopes Landtype Association shall not have occupancy so that these fragile ecosystems may be protected from disturbances. Reclamation of alpine areas has proven very difficult, if not impossible, on these ecosystems.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: Alpine areas are defined by landtype associations. The "Kobresia on Alpine Summits" ecological land unit association are high-elevation tundra areas having sedges, forbs, and shrub vegetation on shallow soils. Soils are strongly acidic, and have poor revegetation potential due to shallow rooting depth. This ecological unit is in a harsh climatic regime characterized by high winds, cold temperatures, 30 to 50 inches of precipitation per year, and a very short growing season.

The no surface occupancy stipulation is the most appropriate stipulation to protect these fragile ecosystems. Surface disturbances of any kind would be difficult, if not impossible, to reclaim. NSO is consistent with the overall concept of ecosystem management to protect sensitive resources and assure long-term productivity and sustainability of the land.

Standard lease terms, CSU or TL, would all allow occupancy, but would disturb these ecosystems. NSO allows these lands to be leased, while protecting and sustaining these fragile ecosystems.

Serial Number

No Surface Occupancy Stipulation for Backcountry Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For the purpose of: To protect the backcountry nature and experience within these remote areas.

This stipulation is applied to areas allocated to:

Management Prescription 3.3 Backcountry*

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: Backcountry prescription areas are generally unroaded, natural-appearing, and have little evidence of recent human-caused disturbance. No surface occupany stipulation would be the most appropriate stipulation to protect these backcountry values. Surface disturbances of any kind would affect the nature and recreation potential of these areas. Standards lease terms, CSU or TL, would all allow occupancy, but would not protect the backcountry experience. NSO allows these lands to be leased, while protecting and maintaining these areas in an undeveloped setting. The NSO stipulation is consistent with the Forest Plan which emphasizes areas that are natural appearing with little or no evidence of recent human-caused disturbance. The NSO stipulation would be compatible since the aim is to provide recreation near the primitive end of the recreation opportunity spectrum.

Prescription 3.31 allows motorized uses on designated trails and selected low standard roads that require 4-wheel drive. To allow occupancy for oil and gas development, would require higher standard roads to be built. Higher standard roads would change the backcountry nature of these areas.

*Only apply this stipulation to areas with high oil and gas potential. All other areas (3.3) are not administratively available for lease.

Serial Number

No Surface Occupancy Stipulation for Ski Resorts

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For the purpose of: To protect existing or potential winter sports sites.

This stipulation will be applied to the following areas:

Management Prescription 8.22 Ski Resorts

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: This stipulation is consistent with management area prescription 8.22 Ski Resorts. NSO is the appropriate stipulation because the mineral estate is available to be leased, while the integrity of the ski area as a recreational place is maintained throughout the four seasons. Timing limitations, controlled surface use, and standard lease terms would allow occupancy, and may create conflicts with four-season use or summer maintenance activities.

This stipulation is consistent with other activities allowed or restricted in such areas. For example, these lands are to be recommended for withdrawal from locatable mineral entry with every new master development plan. Alpine ski area lands are not allocated as suitable timber lands so no harvest is planned from these areas. Some tree removal could occur for ski area expansion, safety, aesthetics, and vistas.

Serial Number

No Surface Occupancy Stipulation
For Slopes of 40 Percent or More

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Any area within the leasehold which has slopes of 40 percent or more falls under the jurisdiction of this stipulation.

For the purpose of: To protect soil resources from excessive soil erosion, to reduce potential impacts to fisheries, to minimize sedimentation, and to reduce visual impacts from roads on steep slopes.

The Forest RIS database identifies the "average slope" of sites throughout the Forest. This will determine the areas needing this stipulation.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

The leasee may use existing roads on such slopes to access gentler terrain. If new roads are needed through an area of 40 percent slopes or greater, then an on-site investigation will be conducted by various Forest resource specialists such as a hydrologist, soil scientist, engineer, landscape architect, and others. Approval may or may not be given depending on the potential resource impacts estimated by the resource specialists.

Why this Stipulation is Necessary for Resource Protection: This stipulation is consistent with the Forest Plan which has goals of maintaining soil productivity and protecting water quality. This stipulation supplement is not defined by management area prescriptions, because steep slopes may occur anywhere on the Forest. Visual impacts are also reduced by this stipulation since many of the steep slopes on the Forest would require full bench road construction which would be highly visible.

This stipulation is consistent with other activities allowed or restricted in steep slopes.

Serial Number

Timing Limitation Stipulation
For Deer and Elk Winter Range

No surface occupancy is allowed during the following time periods. This stipulation does not apply to operation and maintenance of production facilities: From December 1 through April 15.

This stipulation is applied to all lands allocated to Management Prescription 5.41

No surface occupancy or use is allowed on the lands described below: (legal subdivision or other description).

For the purpose of: Keep disturbance to acceptable levels, limit activities to periods of time when animals are not concentrated on these critical winter ranges.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed, and will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

This stipulation may be waived after environmental analysis reveals that big-game animals are not in the area. This determination depends highly on the type of winter, snowfall amounts, and big-game herd movements and patterns.

Why this Stipulation is Necessary for Resource Protection: This stipulation is consistent with management prescription 5.41 Deer/Elk Winter Range, which emphasizes habitat management for deer, elk, pronghorn and bighorn sheep. The Timing Limitation Stipulation is appropriate because it will minimize impacts during the critical winter period from December 1 through April 15. Standard lease terms alone would not allow adequate time periods for protection of the elk winter range. Occupancy would be allowed in these areas during between April 16 through November 30.

Serial Number

Controlled Surface Use Stipulation
For Soils Having Moderate Mass Movement Potential

On the lands described below: Legal description.

Surface occupancy or use is subject to the following special operating restraints: Areas mapped with this stipulation have a moderate mass movement potential, which means they may be subject to landslides, earthflows, debris avalanches, and block slippage. Because of this possibility, occupancy (drill pads and access roads) will only be allowed after an on-site review by soil, water, and engineering specialists of the proposed well location. The specialists may approve the proposed location or require a new location.

For the purpose of: To protect soil, water and fisheries resources from mass failure (landslides).

The Forest RIS database identifies the soil units having moderate mass movement potential. Soil resource inventories identify these areas as well and can be used to identify areas having moderate mass movement potential.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed. WEM's will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action that the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: Areas mapped with this stipulation have a moderate mass movement potential, which means they may be subject to landslides, earthflows, debris avalanches, and block slippage. Because of this possibility, occupancy (drill pads and access roads) will only be allowed after an on-site review of the proposed well location. The specialists that conduct the review may approve the proposed location or suggest a new acceptable location. The review team may consist of, but is not limited to the following specialists -- hydrologists, soil scientists, geotechnical engineers, and landscape architects.

This stipulation is necessary because proposed well locations may need to be moved more than 200 meters in order to keep mass movement risks minimized.

The CSU stipulation is consistent with the intent of the Land Management Plan which has goals of maintaining soil productivity, ecosystems sustainability, and protecting water quality. NSO would be overly restrictive since many areas within the stipulated area can have occupancy. Standard lease terms would be inappropriate because they would not describe the specific restrictions and limitations to development.

Serial Number

Controlled Surface Use Stipulation
For Scenic Resource Areas

On the lands described below: Legal description.

Surface occupancy or use is subject to the following special operating restraints: These areas have high scenic and recreational values that may require screening or buffering, or site relocation to meet landscape character through the use of line, form, color, and texture. Relocation of proposed well sites may require distances greater than 200 meters.

A computer-generated perspective may be required by the authorized officer as part of the visual impact assessment. In addition, an on-site investigation will be required by a qualified landscape architect as part of the site-specific environmental analysis.

This stipulation is applied to the following areas, unless a more restrictive stipulation applies.

Management Prescription 4.3, Dispersed Recreation
Management Prescription 4.21, Scenic Byways
Management Prescription 3.4, Scenic Rivers
Management Prescription 4.4, Recreation Rivers

For the purpose of: Protecting visual resources.

Any changes: Waivers, exceptions, or modifications (WEM's) to this stipulation will be considered only at the time operations are proposed. WEM's will be subject to the Forest Land and Resource Management Plan in effect at the time of consideration, and will be subject to applicable regulatory and environmental compliance requirements. Granting of a WEM is a discretionary action which the operator should not routinely expect. The Forest Service reserves the right to impose other stipulations in the same area of this leasehold if a WEM is granted.

Why this Stipulation is Necessary for Resource Protection: This stipulation is necessary because proposed well locations may need to be moved more than 200 meters in order to protect scenic resources.

The CSU stipulation is consistent with the Land Management Plan management area prescriptions 2.2, 3.4, 6.93, and 6.94. NSO would be overly restrictive since many areas within the stipulated area can have occupancy. Standard lease terms would be inadequate because they would generally allow relocations of approximately 200 meters, and this limited distance may not protect the scenic resources.

Appendix E
Land Adjustment Strategy

The U.S. Forest Service manages approximately 1.9 million acres within the Rio Grande National Forest. Within the boundaries of the Forest are over 100,000 acres of privately owned land intermingled with federal land, which sometimes makes efficient operation difficult both for the Forest Service and the private landowner.

A land exchange is the voluntary exchange of land by mutual agreement between the Forest Service and a non-federal landowner for the benefit of both parties. It is needed to consolidate landownership patterns in areas of intermingled landholdings so that all parties can manage their land more effectively.

Land exchanges were first authorized in the National Forest System in 1908. Since that time, more than 100 acts have authorized land adjustments. Land adjustments are a means of solving problems associated with fragmented landownership.

Over the years, a number of mutually satisfactory land exchanges have been made with private landowners, states, counties, cities, and companies. Frequently, an exchange can also make available lands suited to and needed for community expansion and development

Congress has provided authority for the exchange of lands in the National Forest System, subject to the following general rules:

(1) The exchange must be in the public interest.

(2) The appraised value of the properties being exchanged must be equal.

(3) Lands are exchanged on the basis of their market value, not acre for acre.

(4) The properties to be exchanged must be in the same state unless special legislation is enacted.

(5) Lands can be exchanged only with a person who is a citizen of the United States, a corporation, or a non-federal government entity.

The exchange process is entirely voluntary and either the Forest Service or the other owner can initiate the negotiations. Some benefits are a reduction of miles of boundary lines and corners to mark and maintain; fewer trespass problems, claims, and lawsuits; and lower costs for road construction and maintenance due to consolidation of ownership.

There is reasonable balance of acreage transferred between the Forest Service and private landowners in the exchange program. However, lands being conveyed in the United States are often in more remote areas. Consequently, the lower values generally associated with these types of properties require larger acreages to balance the value of the federal lands being exchanged.

The types of lands the Forest Service would like to acquire are:

(1) Lands within Congressionally designated areas.

(2) Lands with water frontage, wetlands, and associated riparian ecosystems.

(3) Lands having Endangered or Threatened species habitat

(4) Lands having unique historical or heritage (cultural) resources.

(5) Lands primarily of value for outdoor-recreation purposes and lands needed for aesthetic protection.

(6) Lands that ensure access to public lands and resources.

(7) Key tracts that will promote effective resource management.

(8) Lands that will consolidate ownership and reduce miles of property lines and corners to maintain.

(9) Lands that maintain or stabilize the economies of local governments.

Conversely, these types of lands are suitable for disposal:

(1) Lands that states, counties, cities, or other federal agencies can use to serve a greater public purpose.

(2) Small parcels intermingled with mineral or homestead patents.

(3) Lands suitable for development by the private sector, if development (residential, agricultural, industrial, recreational, etc.) is in the public interest.

(4) Parcels isolated from other National Forest System lands.

(5) Lands occupied by substantial structural improvements for which there is no greater need.

(6) Lands in developed areas that are losing National Forest character.

Normally, lands to be conveyed will be used to acquire other lands, through exchange. A map and list of lands desirable for acquisition and suitable for disposal are available for review at each District Ranger's office and the Forest Supervisor's office.

In some cases, where there is an eligible applicant and the land is eligible for disposal through the provisions of the *Small Tracts Act*, small parcels will be sold, to resolve a management problem between the Forest Service and the neighboring landowner.