Monitoring and Evaluation Report
FY 1999

Rio Grande National Forest, Colorado

United States Forest Service
Rocky Mountain Region
Region Two

April 2000

CERTIFICATION

The Rio Grande National Forest's Land and Resource Management Plan (Forest Plan) was approved on November 7, 1996. It has been amended four times to date. Currently, a Forest Plan amendment is being proposed to fix a mapping error in the Fox Mountain (020948) unroaded area. Two areas within this unroaded area have system roads in them, as well as past logging. We are proposing to rectify this error under the Handkerchief Mesa Environmental Assessment (EA) by correcting the unroaded boundary and associated acreage. We envision the Forest Plan remaining a dynamic document that will need to be periodically revised as information or conditions change.

Overall, the 1999 Monitoring and Evaluation results indicate that the management of the Forest is meeting goals, desired conditions, Standards and Guidelines, and prescriptive allocations (per 36 CFR 219.12 (k)). However, the Forest Interdisciplinary Team's evaluation of the 1999 monitoring results identified several additional potential Forest Plan amendments as follows:

- Terminology and definitions contained in the 1996 Federal Wildland Fire Management Policy Action Plan and the 1998 Wildland and Prescribed Fire Implementation Procedures Guide should be incorporated into the Forest Plan.

- The Desired Condition statement needs to be revised for Management-area Prescription 8.22 (Ski-based Resorts). The suggested wording is, "Except for minor changes affecting less than five acres (such as a building) or an unforeseen critical need on the existing development area, no additional ski area development will be approved until such time as a revised Master Development Plan is completed with an environmental assessment disclosing the effects of the plan and a decision has been issued."

- There are errors in the Forest's travel management mapping and/or corresponding Forest Plan/FEIS.

- The second sentence in Silviculture Standard #2 should be changed to read, ''Even-aged, two-aged, or uneven-aged management systems can be used and applied...'' The rationale for this change is to better reflect the various management systems and to be consistent with Table III-4 on the same page.

- Add the following on Page IV-25, under Desired Conditions for Management-area Prescription 5.11, "Suitable timberlands will be managed to provide a sustainable flow of forest products.'' Though the production of forest products is mentioned in the Prescription Category 5 Discussion, and again under Theme and Setting for Management-area Prescription 5.11, the Desired Condition was omitted, even though this Management-area Prescription, along with Management-area Prescription 5.13, was modeled in the FEIS as part of the Forest's primary timberlands.

- The fourth Desired Condition, under the Forest Products Management-area Prescription on page IV-27 should be changed to, "There are adequate old-growth components in forested stands.'' The rationale for this change is to be consistent with MA 5.11.

- Suggestions from the FY97 and FY98 Monitoring and Evaluation reports are incorporated here by reference.

I have reviewed the annual Monitoring and Evaluation Report for the Rio Grande National Forest for fiscal year 1999. I believe that the monitoring and evaluation requirements of the Forest Plan have been met and that the decisions in the Forest Plan are still valid. I have noted and considered the recommendations for the Rio Grande National Forest and will implement those that I decide are appropriate, after further analysis and required public notification and involvement.

/s/ Peter L. Clark 5/4/00

PETER L. CLARK Date
Forest Supervisor

1999 Monitoring & Evaluation Report

Contents

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This report was compiled, edited, and formatted by Vince Spero and Dean Erhard. Cover photograph by John Rawinski – late winter snow on the Rio Grande National Forest.

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Monitoring & Evaluation Report
Rio Grande National Forest
Fiscal Year 1999

Introduction

The organization of this report is as follows. First, there is a discussion covering the basis for monitoring on the Rio Grande National Forest. Next, is a discussion covering amendments followed by potential amendments to the Land and Resource Management Plan (Forest Plan). Next, is a resource-by-resource discussion of the monitoring requirements. Finally, a "State of the Resource FY 1999" section describes the results of monitoring by each resource area. An appendix provides additional detail on this past year's monitoring results.

Monitoring on the Rio Grande National Forest

In November 1996, the Revised Land and Resource Management Plan (Forest Plan) for the Rio Grande National Forest (RGNF or Forest) was approved. The Forest Plan establishes the management direction for all future activities, to ensure that an interdisciplinary approach is used to achieve the Desired Conditions described for all areas of the Forest. This Monitoring and Evaluation Report is based on the RGNF Monitoring Plan, as described in Chapter 5 of the Forest Plan for the Rio Grande National Forest. This report is not a list of outputs; rather, it describes conditions of the various resources after three years of Forest Plan implementation. The report is key to the concept of adaptive management (the ability to change as new information or technology is developed) and is the feedback mechanism for improved resource management. The information presented in this report will be used to determine if an amendment or revision of the Forest Plan is needed.

Monitoring and Evaluation criteria are based on national policies, Regional monitoring emphasis items, interdisciplinary-team concepts, and legal and other policy requirements. The Monitoring and Evaluation program asks the fundamental questions, "How are things working?" and "What needs to be changed?" 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)). The criteria include the following:

- Goals, Objectives, and Desired Conditions identified in the Forest Plan.
- Forest Management Direction.
- Land suitability.
- Management-area Prescriptions, as well as the Forestwide and Management-area-specific Standards and Guidelines.
- The Monitoring Plan.
- Congressional recommendations.

Annual monitoring goals are described in the Annual Monitoring Operation Plan (AMOP) detailing monitoring expected to be completed in the upcoming year. The AMOP is developed by RGNF resource

specialists, who are responsible for monitoring, and is reviewed and approved by the Forest Supervisor. The AMOP describes in detail reasons, methods, locations, responsible persons, and estimated costs.

Three types of monitoring are described for Forest management:

- **Implementation Monitoring.** This includes periodic monitoring of project activities to determine if they have been designed and carried out in compliance with Forest Plan direction and management requirements.

- **Effectiveness Monitoring.** This level of monitoring is used to determine if management activities are effective in achieving the Desired Future Condition described for each of the various management areas.

- **Validation Monitoring.** This level of monitoring is used to determine whether the initial data, assumptions, and coefficients used in the development of the Forest Plan are correct, or if there is a better way to meet Goals and Objectives and Desired Future Conditions.

Because the Forest Plan has been implemented for a relatively short time, this FY 1999 report focuses primarily on implementation and effectiveness monitoring. As trends develop and conclusions are validated, the third level of monitoring will be addressed.

Forest Plan Amendments

There have been four amendments to the Forest Plan to date.

Amendment # 1

Twister Blowdown Temporary Exception applied to Management-area Prescription 3.3. On 3/2/98 a Decision Notice was signed that amended the Forest Plan to allow for timber salvage harvesting on approximately 60 acres within Management-area Prescription 3.3 (Backcountry) in the Twister Blowdown area. The amendment lifted the no harvest Forest Plan Standard by exception, so that salvage of blowdown could occur on this site. Upon completion of the timber harvest, the amendment will be lifted, the constructed skid trail providing access to this area decommissioned, affected sites reforested, and the area again managed as Backcountry.

Amendment # 2

Wilderness Management Direction. The scope of Forest Plan direction for Wilderness was limited in the revised Forest Plan of 1996 due to ongoing wilderness planning efforts. It was recognized that growth in the population of Colorado has affected the amount and type of recreation use within the South San Juan and the Weminuche Wilderness Areas -- the most visited Wilderness area in the state. A review of Forest Plan direction pertaining to the management of recreation use, changes in recreational use patterns, and preservation of the wilderness character of these areas, was done in order to address these affects. Limits of Acceptable Change (LAC), a planning tool that enables wilderness managers to define acceptable wilderness conditions and then develop standards, guidelines, indicators, and management actions to meet acceptable conditions became available and was used to help formulate a Forest Plan amendment pertaining to Wilderness Management direction.

On 8/3/98 a Decision Notice was signed to implement wilderness management goals for the Forest Plan, to change Management-area Prescription definitions and locations, to add Wilderness Management-area Prescription and Forest-wide standards and guidelines, to define thresholds and possible management actions within Wilderness when thresholds are exceeded, to add wilderness monitoring requirements, and

to add wilderness management to the Forest Plan. The Forest Plan amendment and implementation of the Wilderness management direction and action items began on October 1, 1998.

Amendment # 3

Adjustment of a Botanical Special Interest Area Boundary. On June 18, 1999, a Decision Notice was signed approving the adjustment of a Special Interest Area boundary. The Special Interest Area was originally designed to protect a Sensitive plant (Ripley milkvetch), but the adjustment was made to better reflect the actual habitat of the plant. Ripley milkvetch generally grows in relatively open ponderosa pine /Arizona fescue communities (Douglas-fir may also be present and is somewhat co-dominant with ponderosa pine) where canopy coverage by all trees is less than 25% and where the elevation is about 9,200 feet or lower. Due to the electronic format used when revising the Forest Plan, abundant higher elevation habitat, not specifically conducive to Ripley milkvetch, was included within the Special Interest Area boundary. The analysis to support the amendment, done as a part of the November Analysis Area Environmental Assessment, resulted in reducing the acreage of the botanical Special Interest Area from 2,076 acres to 910 acres. The reduced acreage (1,166 acres) was included in a Bighorn Sheep Management-area Prescription (5.42). The location of the botanical Special Interest Area is to the west of Fox Creek, in the Hicks Canyon area, on the Conejos Peak Ranger District.

Amendment # 4

Timber Suitability Amendment. On March 2, 2000, Decision Notice was signed to amend the Forest Plan in regard to the suitable timber lands on the Rio Grande National Forest. The Amendment corrects omissions made between the publication of the Draft and Final Environmental Impact Statements for the Revised Forest Plan. Net adjustments of acres to the suitable timber land base results in an 8.3 percent increase in suitable lands, which was determined to not be a significant change.

Potential Forest Plan Amendments

One potential amendment to the Forest Plan is currently under analysis as follows:

Fox Mountain Backcountry Proposed Amendment. A Forest Plan amendment will be proposed to change 1,423 acres of land in the Fox Mountain area from Management-area Prescription 3.3 (Backcountry) to Management-area Prescription 4.3 (Dispersed Recreation) to correct a mapping error. These lands are currently roaded and therefore do not conform to the requirements of 3.3 Backcountry.

Monitoring Requirements

This section briefly synopsizes the minimum level of monitoring identified for each resource component of the Monitoring Plan. A more detailed description is included in the Forest Plan (Chapter V, pp. V-4 through V-16). Forest Monitoring efforts are focused on meeting these requirements, however, the amount of monitoring actually done for each element is a function of available funding.

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). To accomplish air-quality monitoring, a number of techniques will be employed. For instance, visibility data are available from the National Park Service, which monitors visibility at the Great Sand Dunes National Monument. Synoptic surveys in all four Wilderness Areas on the RGNF 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, stipulate that these lakes will be monitored three times per summer.

Aquatic Resources

Watershed health is a primary focus of the Forest Service, according to Chief Mike Dombeck. Accordingly, particular emphasis will be placed on this monitoring element. Water-resource monitoring will be reported based on an evaluation of protection of streams (including stream banks, shorelines, and wetlands), as well as minimization of erosion and flood hazards. Watershed-disturbance monitoring is expected to 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; and vary the Concern Level, based on existing information and experienced field people

Monitoring and evaluation of stream health, water quality, and riparian conditions occur as Level III watershed assessments. Watershed assessments are completed on at least one stream and riparian area per Analysis Area for each land-disturbing Environmental Analysis. Monitoring of streams within watersheds that have been identified as "at risk" will be reported based on Level II watershed assessments. Monitoring of the six streams identified as damaged in the Monitoring Plan, to evaluate improvement over time, will be reported based on long-term assessments (two streams will be evaluated each year).

Biodiversity

Maintaining the habitat necessary to support 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, Forest specialists will monitor those species and/or habitats about which there are some questions as to their potential viability. Species monitored are 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.

Monitoring will occur at two different scales. The "fine-filter" scale will focus on particular plant and wildlife species that generally occupy distinct habitats which cannot be accurately monitored at the landscape level. 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. The "coarse-filter" work focuses on tracking the changes in gross habitat conditions (e.g., cover type, structural changes).

Providing for and maintaining diversity of plant and animal communities is required by 36 CFR 219.27. To ensure that the Forest is meeting this objective four attributes have been selected for monitoring 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. The third is a validation of the reference-work and landscape-scale tools. The final attribute is a progress report on the gathering of data for the Forest's old-growth inventory/reconnaissance.

Fire and Fuel Management

"Serious or long-lasting hazard" potential will be reported based on a determination of "relative resource values." Hazard potential from wildfire will be determined through ocular estimates, fuel transects, on-site inspections, and/or surveys. In addition, the Fire program is routinely monitored 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 Forest's fire suppression program.

General Infrastructure

Monitoring will be reported based on the results of routine inspections of all facilities, including dams, facilities, drinking water, road bridges, trail bridges, and Forest Development Roads.

Health and Safety

This monitoring objective is focused on meeting the intent of the National Health and Safety Codes and Occupational Safety and Health Administration guidelines.

Heritage (Cultural) Resources

Monitoring will be reported based on the evaluation of protection measures for resources discovered during project evaluations. Monitoring of selected highly significant heritage resources not associated with specific projects will also be reported.

Consultation efforts, with those recognized American Indian tribes and nations having a demonstrated concern for the area of the RGNF, concerning areas of cultural importance will be monitored and reported.

Minerals

Monitoring will be reported based on a verification 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. Monitoring of oil and gas will occur if such activities are developed.

Monitoring of locatable minerals will be reported based on the inspection and enforcement of operation plans to assure compliance with the Forest Plan.

Noxious Weeds

Monitoring of noxious weeds (where and to what extent they are present) will be reported based on the evaluation of control methods on infested areas on the forest

Range

Monitoring of Suitable rangelands for condition and trend will be reported based on the information obtained from the Rocky Mountain Region's *Rangeland Analysis and Management Training Guide* (RAMTG) inventory process. The information is expected to yield baseline data to determine Desired Conditions of rangelands.

Monitoring of range suitability will be reported based on determinations made during the development of Environmental Assessments (EAs) and Allotment Management Plans (AMPs) for each allotment.

Range utilization will be reported based on the results of routine field analysis.

Recreation

Developed Recreation

Developed recreation monitoring will be reported based on the routine inspection and maintenance report for each facility.

Visitor expectations will be monitored and reported based on customer surveys, evaluation of campground occupancy rates, the evaluation of standards and guidelines, and campground hazard inspections.

Dispersed Recreation

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.

Unroaded Areas

Monitoring will be reported based on a representative assessment of backcountry areas. This will include the assessment of activities including motorized and nonmotorized recreation trail use, levels and type of use, and recreation settings. The assessment will also address conflicts, identification of areas of concentrated use, and measurement of other resource activities.

Wild and Scenic Rivers

Monitoring will be reported based on the assessment of any resource-management activities that occur within the river corridor.

Wilderness

Monitoring will be reported based on the evaluation of Wilderness Implementation Schedules, recreation uses, needs assessments, capacities, and guidelines.

Research and Information Needs

Monitoring will be reported based on the results of all resource-monitoring activities.

Research Natural Areas

Monitoring will be reported based on on-site inspections every five years.

Road Construction, Closures, and Decommissioning

Monitoring of road construction, closures, and decommissioning will be reported based on routine field reports.

Scenic Resources

Monitoring will be reported based on a determination of disturbance, using photographs, on-site inspections, and aerial photographs.

Soil Productivity

The protection of soil productivity will be monitored based on the requirements of 36 CFR 219.12(k)(2). The Forest will use several tools for soil monitoring, including the collection and analysis of core soil samples, erosion modeling, ocular estimates, transects, investigations, and professional judgment. Soil health assessments will be made to determine whether long-term soil productivity is maintained or improved. These techniques will be employed on ground-disturbing projects where high soil-erosion, mass-movement hazards or other soils concerns exist.

Special Interest Areas

Monitoring will be reported based on on-site inspections of designated Special Interest Areas every five years.

Timber

Restocking of final-harvest areas is required by 36 CFR 219.12(k). Monitoring will consist of surveys conducted in the first, third, and fifth year after final harvest. First-year surveys are on-site inspections, while third- and fifth-year surveys are statistically valid plot-inventory exams.

36 CFR 219.12(k) requires that all Forest lands be examined at least once every ten years, to determine if Unsuitable lands have become Suitable, or vice versa. Monitoring will also confirm that lands identified as Suitable do, in fact, meet suitability criteria.

36 CFR 219.12(k)(5)(iv) requires the Forest to monitor levels of destructive insects and disease organisms following management activities. The monitoring of created openings is tied to various legal requirements, including 36 CFR 219.12(k)(5)(iii), and 36 CFR 219.27(d)(2).

State of the Resource FY 1999

Summary statements, pertaining to the results of monitoring efforts done in Fiscal Year 1999, for each specific resource are presented below. The statements are based on the information presented in Appendix A entitled, "Monitoring & Evaluation Table, Rio Grande National Forest, Fiscal Year 1999."

State of the Resource: Air Quality

Air quality for the Forest is excellent. It remains an outstanding feature that people come to enjoy. Long visual distances enhance beautiful scenery. Some impacts occur from burning, but are quickly dissipated by stable atmospheric conditions. Regional haze diminishes visibility; however, visual distances remain among the best in the country.

The most sensitive high-elevation lakes are being monitored. Most recent results are not available from the lab yet. No additional information is available from lichen monitoring.

State of the Resource: Aquatic Resources

Watershed disturbances are highest in areas of past timber harvest. High levels of watershed disturbance seem to affect stream health in some areas on the Forest, but not in others. This seems to be mostly related to amount of precipitation. Areas of low precipitation, like the Saguache Ranger District, can tolerate more watershed disturbance before stream health begins to be impacted. The location of disturbances and how they are mitigated are more important criteria in these areas.

"Adequate" to "Robust" stream health is the norm, although the health of some streams has been diminished from management activities. Clover Creek has been impacted from a variety of sources including livestock grazing impacts to Clover Creek which will be addressed in the Alder-Silver Grazing Allotment EA. Rhodes Gulch has some bank damage that will be addressed in the Platoro Grazing Allotment EA. Impacts from Trail 793, identified on tributaries to La Garita Creek, are to be addressed during maintenance of that trail. An additional mitigation measure has been added to several EAs to limit harvest of trees along major perennial streams to allow natural recruitment of large woody debris to maintain stream health.

The Forest has been working on three different abandoned mine land reclamation projects that involve improving water quality and health of streams, riparian areas and watersheds. In the Alamosa River drainage, all abandoned mines have been evaluated. One mine in particular, the Pass-Me-By, is causing most impacts to water quality. This mine is on private land, but impacts National Forest System lands. The Forest will be exploring opportunities to get the State and EPA involved in possible reclamation of this mine. Most work has been completed in the Bonanza mining district, however, the Forest will be working on a few problems that remain. The main reclamation project for the Forest right now is the Willow Creek project. The Forest is working with the Willow Creek Reclamation Steering Committee to characterize problems for follow-up reclamation. A low-flow surface water characterization effort was completed in 1999.

The Forest has also been assessing streams to document impacts from existing diversions as part of an instream flow negotiation effort with local water users. All streams and all existing diversions have been assessed at the end of 1999. A draft court decree has been prepared. The Forest coordinated with Colorado Division of Water Resources and engineers for different water user organizations for a thorough review of the draft decree. The Forest expects completion of the court decree and hopefully settlement of this whole project in 2000. Final settlement would give the Forest substantial instream flow protection for

virtually all streams on the National Forest. *Editor's Note: a court decree was recently signed that gives Federal Reserved Water Rights to the Forest Service.*

State of the Resource: Biodiversity

Ecology Program

The Ecology Program was responsible for the plant-related items in the Biodiversity section of the Monitoring Plan. The plant items were as follows: 1) Fine-filter Assessment of plant species (*Astragalus ripleyi*; and other special status plants), and 2) Coarse-filter Assessment of habitat (Landtype Association status; special status plant communities; and old growth). Finally, the Ecology program was responsible for making a determination of whether the biodiversity-related goals, desired conditions, Standards and Guidelines, and prescription allocations (per 36 CFR 219.12 (k)) were being met or were still appropriate.

A brief assessment of each of these topics follows. More detail is provided in Appendix A. Overall, the Forest appears to be generally meeting the goals, desired conditions, and Standards and Guidelines for the Ecology resource as intended in the revised Forest Plan. Based on monitoring this past year, there is nothing to indicate that a change in Management-area Prescription allocation is needed relative to the Ecology resource. Research work continued on *Astragalus ripleyi.* On population of *Neoparrya lithophila* was visited and appeared to be stable. The IRI center in Dolores continues to improve the Forest's vegeation inventory data. One special-status plant community was visited and it appeared stable with no apparent threats. Old-growth inventories were completed for several small sales (all Districts) and the Grouse (Conejos Peak RD) landscape. To date, Mehl (1992)-defined old growth has been uncommon. On the Divide and Conejos Peak RDs, old growth appears to be limited due to a lack of patchiness, lack of structural diversity, and/or net productivity being too high. Because the Mehl criteria are biased toward more productive sites, the Saguache RD appears to lack the productive capability to meet the Mehl old-growth descriptions. The most significant findings this year were new discoveries of populations of Colorado tansy-aster (*Machaeranthera coloradoensis*), echo moonwort (*Botrychium echo*), and Ripley milkvetch (*Astragalus ripleyi*).

Wildlife Program

Wildlife habitat on the Forest is a mixture of ecological types offering habitat for a wide diversity of wildlife species. Overall, key components identified for monitoring, such as vegetation amount, quantity and pattern are adequate, and appear to provide for and maintain the diversity of animal communities required by the Forest Plan. Some population level monitoring is conducted on the Forest, but is limited due to prohibitive costs for obtaining statistically sound data. Presence/absence data is also collected as funding allows.

The Forest is a part of a State-wide effort to monitor population trends for various bird species found within the State. The plots selected will be monitored once a year for the next few years (5 years total data) to help determine status and trends for these species. This is the second year of data collection. The Forest's biologists also surveyed for presence or absence of boreal owl and goshawk at several locations on the Forest in 1999. Other work included creating cavities for boreal and flammulated owls, as well as other cavity nesters.

At this time, available information suggests no changes to Forest Plan Goals, Objectives, Standards and Guidelines, and Management-area Prescriptions are warranted. Continued monitoring will allow Forest biologists to assess the need for changes, as more projects are implemented using Forest Plan direction.

Fisheries Program

The Desired Condition for Biodiversity is to maintain viable populations of native species. The following paragraphs summarize the state of the fisheries resource on the RGNF relative to biodiversity and the 1999 Monitoring Plan.

Seven historic populations and seven transplanted populations of Rio Grande cutthroat trout (RGN) on Forest lands were monitored during 1999 by USFS and DOW personnel. Population status was identified as follows: 2 populations "at risk-stable", 2 populations "secure-stable", 5 populations "at risk-declining", 1 unknown, and 4 populations are presumed extirpated.

All the following definitions are from "Status of Rio Grande Cutthroat Trout in Colorado" (Colorado Division of Wildlife, 1998):

- "At risk-stable": a self-sustaning population which is impacted by habitat degradation or encroachment by non-native trout. Population trend is not increasing or decreasing in biomass and density.
- "Secure-stable": a self-sustaning population which is secure from impacts of habitat degradation or encroachment by non-native trout. Population trend is not increasing or decreasing in biomass or density.
- "Secure-expanding": a self-sustaning population which is secure from impacts of habitat degradation or encroachment by non-native trout. Population trends indicate increasing biomass and density.
- "At risk-declining": a populationwhich is impacted by habitat degradation or encroachment by non-native trout. Population trends indicate decreases in recruitment, biomass and density.

Of the 14 RGN populations sampled in 1999, non-natives were present in 11 populations. All 4 sites where RGN was extirpated now host non-native trout fisheries.

Because non-native trout are a primary threat to the stability of RGN populations, continual monitoring of these populations will ensure rapid detection of invasion by non-natives. FS biologists are working with the DOW to install barriers where none currently exist, or improve barriers that have failed. Two barriers are planned for installation in 2000. One barrier was installed in 1999. Non-native trout are known to occur in eighteen of the 35 RGN populations on the RGNF.

An additional threat to RGN populations can be habitat loss or degradation. Continued evaluation regarding the decline of populations and the role that habitat may play in this decline is necessary. Habitat evaluations are ongoing, and the DOW and the FS are working together to identify and address habitat concerns. Several habitat improvement projects on native fish streams have been completed, and more are planned.

The limited information available suggests that the Revised Forest Plan Direction, Desired Conditions, Standards, and Guidelines are effective in protecting biodiversity, in terms of the fisheries resource. However, because few projects have been implemented that have incorporated the Plan's direction (due to how new the Plan is), this should continue to be evaluated. Continued monitoring will allow FS biologists to assess the need for changes, but at this time, no changes to Forest Plan Direction, Desired Conditions or Standards and Guidelines are warranted.

State of the Resource: Fire and Fuels Management

To address the “state” of the fuels resource, it must be represented as a manifestation of Forest health. In FY 1999, several areas within Fire Regimes 1 (High Frequency/Low Severity) and Fire Regime 3 (Medium Frequency/Mixed Severity) and in Condition Class 2 or 3 were identified, evaluated, treatment planned, and/or treatment implemented. Where treatments were implemented, results were favorable.

On-going fuels/forest health surveys and evaluations provide land managers with valuable insight into the state of the resource as relates to the potential for wildland fires to create unacceptable resource impacts. Though some areas have been identified as such, the Forest Plan provides adequate direction and needs no significant changes in fire and fuels management. An amendment to the Forest Plan is needed to

reflect some revised terminology and definitions contained in the 1996 Federal Wildland Fire Management Policy Action Plan and the 1998 Wildland and Prescribed Fire Implementation Procedures Guide.

State of the Resource: General Infrastructure

Monitoring, based on the results of routine inspections of all facilities, including dams, facilities, drinking water, road bridges, trail bridges, and Forest Development Roads indicates the general infrastructure is meeting the needs of Forest users for access and multiple-use management.

State of the Resource: Health and Safety

Meeting the intent of the National Health and Safety Codes and Occupational Safety and Health Administration guidelines was met based on monitoring.

State of the Resource: Heritage Resources

The Forest made good progress in conducting the Heritage Resource monitoring called for in the FY 1999 Annual Monitoring Operation Plan (AMOP). The monitoring of several completed projects of different types where heritage resource sites were identified for protection indicates that protective measures are adequate to ensure the protection of sites. The monitoring of Heritage Resource Program sites, not associated with a specific project, that have the potential to be vandalized should be continued to further comply with established Standards and Guidelines. The review of Heritage Resource Inventory Reports for FY 1999 indicates that projects with the potential to impact Heritage Resources are being inventoried, and protective measures are adequate.

The Tribal Consultation Bulletin (TCB) should continue to be a vehicle for initial consultation with American Indian people concerning projects that may impact cultural sites important to them. Expansion of the numbers and the types of projects included in the TCB is recommended, to further comply with Standards and Guidelines. Additional face-to-face consultation should also be done to supplement the TCB for certain projects.

State of the Resource: Minerals

The minerals monitoring program requires us to validate leasing activities as well as standards and guidelines. There was no leasing activity on the Forest in FY1999. There were no proposals in the locatable minerals program. In the common variety mineral program, the Forest Service cooperated with the Colorado Department of Health and Environment and provided rock materials, free of charge, for needed reclamation work at the Summitville mine. The Forest Service monitored that project and the implementation was done according to Forest Plan Standards and Guidelines.

State of the Resource: Noxious Weeds

Noxious weeds are a persistent problem on the Forest. Inventories and control was conducted in FY 1999. Those species, which appear to have increased or have been inventoried more thoroughly, are leafy spurge, yellow toadflax, oxeye daisy, and whitetop.

State of the Resource: Range

Rangelands are being managed for a variety of seral stages with most of them being in upper mid-seral to high-seral condition. Inventory of rangelands conducted in FY1999 indicated that while there are a variety of seral stages found throughout the Forest, there is an imbalance of seral stage classes. There is not enough representation in the upper seral condition classes. Environmental analyses have been initiated to improve management and correct deficiencies.

State of the Resource: Recreation

Developed Recreation

Developed Sites: Deferred maintenance inventories (85%) were completed at the Forest's developed sites. Inventories indicated that the majority of the facilities were in fairly good condition. Campground upgrades and the meeting of accessibility standards remain a high priority when our campgrounds are scheduled for improvement work.

Ski Area: Wolf Creek Ski Area continues to upgrade and/or expand its infrastructure facilities. Several major upgrades were completed in FY 1999. A final phase (parking lots) of work is planned for completion either this coming season or the following season. It is recommended that the planning core team review the Management-area Prescription 8.22, Desired Condition development statement and consider revising (amendment) this statement.

Special Uses*:* The new 36 CFR 251 regulations were finalized in late FY 1999 with implementation scheduled for January 2000. Cost recovery regulations were issued for comment and will not be finalized until sometime in FY 2000. The Forest held several meetings with various permit holders regarding Title VI requirements and how to handle complaints. Our monitoring targets were met.

Meaningful Measures: Deferred maintenance inventories were completed at a majority of the Forest's developed sites (campgrounds, picnic areas, trailheads, interpretive sites, etc.). This information was recorded in our Meaningful Measures and Infra databases.

Dispersed Recreation

Trails: Deferred maintenance inventories were completed on 20% (250 miles) of the Forest's system trails. Approximately 30% (75 miles) of the trails were inventoried on the Divide RD and 70% (175 miles) was inventoried on the Conejos Peak RD. This information was placed in electronic trail folders and in our Meaningful Measures database.

Travel Management: The Forest did another update to its travel management map including travel regulations for distribution to our Forest visitors. Also updated were our portal entrance travel maps that were posted to notify visitors of our travel regulations. Travel management remains a big challenge both in educating Forest users and in funding personnel to administer the program, especially during the hunting season. There are errors in the Forest's travel management mapping and/or corresponding Forest Plan/FEIS that need to be corrected.

Unroaded Areas

An inspection of the Deep Creek corridor within the Snowshoe Mountain area indicated our desired condition for this area was being met and no management actions are needed at this time. We did receive a report of problems in the Pole Creek Mountain management area that will be looked at this field season and assessed as to what additional management actions need to be implemented to address these problems.

Wild and Scenic Rivers

No Wild & Scenic River corridors were monitored in FY 1999.

Wilderness

The new Wilderness Standards and Guidelines were implemented in FY 1999. Monitoring indicated that most compartments were within the established monitoring standards however, there were several areas within some compartments that exceeded the established standards. Various management actions/options to address these impacted areas will be discussed and implemented in FY 2000.

State of the Resource: Research and Information Needs

Progress was made in the following areas: 1) progress is continuing on inventorying watersheds with proposed timber harvest activities for old growth; 2) the Forest's road inventory is continually being updated each year; 3) riparian classification was completed by the Colorado Natural Heritage Program in FY99; 4) additional occurrence data for both the flora and fauna on the Forest have been collected and submitted to the Colorado Natural Heritage Program for inclusion into their Biological Database; and 5) an ethnographic overview is underway at the Great Sand Dunes National Monument and on the San Juan National Forest which can be tiered to by the RGNF.

State of the Resource: Research Natural Areas

The North Zapata Research Natural Area was visited and visually evaluated. It appears to be receiving very little human use. No changes in management direction are needed.

State of the Resource: Road Construction, Closures, and Decommissioning

No planned timber sale road closures were conducted in FY 1999. Forty-seven miles of unclassified road decommissioning was accomplished in FY 1999.

State of the Resource: Scenic Resources

Three separate areas were monitored for Scenic Resource compliance during FY 1999. Under the terms of Scenic Resources, all areas have two years to come into compliance with the Scenic Integrity Objectives for any area after project implementation. All areas were in compliance with the Scenic Resource Objectives, Standard and Guidelines and Management Prescriptions. There is no need to make changes to the Rio Grande Land and Resource Management Plan's Scenic Resource direction.

State of the Resource: Soil Productivity

The soil resource of the Rio Grande National Forest is carefully monitored through project work and soil health assessments. In FY 1999 numerous soil health assessments were completed on rangeland, timber sales, and burned areas. The Forest hosted a soil health field workshop for soil scientists on this issue in the summer of 1999. Results were favorable and Region 2 is in the process of field-testing the protocol on other Forests in the Region.

The soil health assessments provide land managers with feedback on important soil standards, conservation practices, and mitigation measures. Based on the assessments, soil health risks are identified. Though some impaired or at risk conditions are occasionally identified, the majority of the Forest's soils resources are in properly functioning status. Where at risk or impaired conditions exist, management would mitigate the effects to soils through specific project actions. The Forest Plan provides excellent direction and needs no changes for soil resources.

State of the Resource: Special Interest Areas

Monitoring of Special Interest Areas was not required in FY 1999. Monitoring, to be done once every five years, is due in FY 2001.

State of the Resource: Timber

Overall, timber resources across the RGNF reflect structure and composition within a natural range of variability. Some short-term human influences have affected, and are still affecting, the structure and composition of forested communities, particularly lower elevation forest cover types.

On-site field monitoring, primarily within past timber sale boundaries, during the summer and fall of 1998-99 revealed the following relative to monitoring objectives:

Restocking

Regeneration of areas harvested, since the mid-1970s when the Forest changed from mostly clearcutting to partial cutting (mostly shelterwood), has been consistently successful with natural stocking. The naturally occurring annual addition of new trees in spruce-fir forests, the most common and most actively managed forest cover type on the Rio Grande, has resulted in ample stocking. Four areas that have not regenerated to meet minimum stocking standards and are scheduled for planting in the late summer of 2000 are as follows:

- **Wolf Creek (within the proposed El Lobo Timber Sale).** A 10-acre area that was illegally harvested around 1970 had logs skidded onto, and hauled from, adjacent private land.

- **The Royal Pain Fire (within the Royal Park Timber Sale)**. A wildfire began in or near the then active timber sale. Logging slash burned extremely hot and the existing advanced regeneration was destroyed.

- **Grouse Timber Sale.** Some patch clearcuts in this former timber sale are not expected to regenerate fully.

- **Cumbres Timber Sale**. Some patch clear cuts in this former timber sale are not expected to fully regenerate.

Timber Suitability

Timber suitability and associated allowable sale quantity can be estimated through the use of advanced computer models, but still require field verification and/or current and accurate stand-exam data for support. Since FVS and FORPLAN modeling assume a "point in time" assessment of stand condition, accessibility, and economic environment prior to estimating growth over time, one should not assume that results of such modeling are reflective of true on-the-ground conditions, particularly if stand examination data are either old or have not been updated following timber stand treatments. Timber management personnel on the Forest will continue to gauge the timber-suitability assessment against observed forest conditions and make adjustments where appropriate. This will involve documenting and justifying why some modeled Unsuitable timberlands are actually Suitable, and vice versa.

An advantage of the Revised Forest Plan Timberlands-Suitability Assessment over the original 1985 Forest Plan is the ability to trace suitability status to any and all Forest stands. Also, Suitable and Scheduled Timberlands can be tracked as to which decade within the 200-year planning horizon appears most appropriate for planning harvest treatments (i.e., when stand growth or condition has reached a stage highly suited for harvesting). These capabilities were not possible with the 1985 Forest Plan.

Insect and Disease Infestations

There is potential for future spruce beetle infestations of high endemic or epidemic proportions in some former and/or future timber sale areas. Over the last 3 years, Forest Service entomologists have observed increasing populations of spruce beetle, and associated killing of overstory spruce, in the Cliff, Grouse, and Twister Timber Sale areas and also in the vicinity of Trujillo Meadows, Cornwall Mountain, and Shaw Lake.

Western spruce budworm (WSB) populations are at high endemic levels in many of the Forest's mixed-conifer stands, and are being found at moderate levels in subalpine fir in the lower or warmer bands within the spruce-fir zone. Limited harvesting and/or burning of these sites, coupled with continued fire suppression, and perhaps grazing by domestic livestock and elk, is maintaining or increasing readily available host habitat for WSB and resulting in continued moderate to severe defoliation of true firs and Douglas-fir. High stocking levels, compositional shifts to greater proportions of favored host tree species (e.g., Douglas-fir and true firs), and changing stand structure to more small-diameter stems and uneven-aged/multi-canopied conditions are together resulting in favoring WSB survival.

Harvest Openings

Harvest openings from recent, current, or proposed timber management have not approached, and/or are not expected to approach, the 40-acre limit.[1] Most harvest openings are less than one acre in size. Past created openings exceeding the 40-acre limit generally trace back to clearcutting in the 1960s and early 1970s. Most are fully stocked with sapling or pole-sized trees. An exception to this is the Twister Timber Sale(s) arising from the Fisher Mountain blowdown. This exception is authorized under 36 CFR 219.27(d)(2)(iii).)

Silvicultural Objectives

Monitoring and assessment of silvicultural objectives relating to timber management were not required prior to the revised Forest Plan and, if performed, were generally not documented. Field observations of past sales, conducted from 1997 to 1999, revealed that:

- Most timber management under the revised Forest Plan will take place in stands that have previously undergone varying treatments of the shelterwood system.

- Many preparatory and seed cuts of shelterwood, initiated primarily during the 1980s, both intentionally and unintentionally removed many of the large dominant spruce in spruce-fir stands, leaving smaller, less windfirm spruce and fir. Similarly, partial cutting of mixed-conifer stands removed larger and more valuable ponderosa pine over Douglas-fir (and Douglas-fir over white fir), pushing the composition and structure of stands toward late-seral conditions (multi-aged/canopied stands dominated by more shade-tolerant Douglas-fir and white fir).

- Many treated spruce-fir stands currently in a second-growth phase reflect an even greater shift in composition to true fir dominance, because planned post-harvest thinnings to reduce subalpine fir density were often not done, thereby retaining a high proportion of fir poles and saplings.

- More recent shelterwood treatments, such as the Part Stowe and Red Mountain Timber Sales, have emphasized retention of dominant high-quality spruce, with greater emphasis on removal of small, poorer-quality fir and spruce.

- Some silvicultural treatments involved partial cuts in the overstory when fully stocked next generation understories were available for release. Where harvesting is planned in areas emphasizing the production of timber products (Management Area 5.13 - Forest Products) the simulated shelterwood method could be used, to a much greater extent, to release established understories where potential for growth is high. If this method is not utilized to a greater extent, continued suppression by overstories will reduce the potential of understory trees for future release, lead to fir-dominant stands of lower commercial value, and, in some cases, increase the potential for damage from insects and disease by fostering dense, low vigor, susceptible stands.

- Recently, within spruce-fir stands, there has been a shift from shelterwood-dominant to group-selection-dominant harvesting. However, in most cases opportunities for meeting objectives for uneven-aged target stands have been overridden by the emphasis on harvesting only within groups in contrast to harvesting within and between groups. As a result, desired uneven-age stand

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1 ''Harvest openings" are here defined as final harvest treatments such as clearcuts/coppice, final overstory removals of shelterwood or seed-tree systems, or groups from group-selection systems. Smaller openings created from removal of individual trees or small clumps of trees, as in single-tree-selection harvests, are generally too small to be considered as openings. Also, not all overstory-removal harvests create openings, because in many instances, a fully stocked understory of sapling- and pole-sized trees is already fully established, particularly in spruce-fir stands, and the released stand exceeds trees per acre, average height, and distribution criteria for Silvicultural Guideline #4, "Opening Guidelines" (see page III-21 of the revised Forest Plan).

conditions will take more time to achieve and allowable sale quantity goals have been, and may continue to be, more difficult to accomplish.

- The varying implementation of shelterwood harvests and other harvest methods, coupled with natural disturbances, has maintained a diverse forest environment in and around areas managed for timber production.

Indirectly affecting silvicultural treatment objectives is the influence of ''no-bid'' sale offerings. The reliance on the timber industry as the primary means to accomplish silvicultural objectives on the RGNF cannot be met when viable bids are not forthcoming. The Forest has been working cooperatively with Regional Logging and Appraisal Specialists to design and appraise timber sales that meet resource management objectives, while providing economically desirable opportunities for efficient purchaser operations.

Output Performance

Timber resource outputs are measured in various ways including ''acres treated" and "volume of material harvested" (in either cubic or board feet). Several key outputs are stated in the Management Attainment Report (MAR). MAR timber resource outputs for FY99 are displayed in the table below:

Item	Measure	Planned	Accomplished	% Accomplishment
Reforestation	Acres	2100	2360	112%
TSI*	Acres	525	130	25%
Timber Volume Offer	CCF	9400	2144	23%

** Timber Stand Improvement (usually thinning)*

Recommendations

No major changes need to be made to the Forest Plan. Suggested minor changes in the Forest Plan include:

- Change second sentence in Silviculture Standard #2 to read, ''Even-aged, two-aged, or uneven-aged management systems can be used and applied...''. The rationale for this change is to better reflect the various management systems and to be consistent with Table III-4 on the same page.

- Page IV-25, under Desired Conditions for Management-area Prescription 5.11, add, "Suitable timberlands will be managed to provide a sustainable flow of forest products.'' Though the production of forest products is mentioned in the Prescription Category 5 Discussion, and again under Theme and Setting for Management-area Prescription 5.11, the Desired Condition was omitted, even though this Management-area Prescription, along with Management-area Prescription 5.13, was modeled in the FEIS as part of the Forest's primary timberlands.

- Change the fourth Desired Condition, under the Forest Products Management-area Prescription on page IV-27, to ''There are adequate old-growth components in forested stands.'' The rationale for this change is to be consistent with MA 5.11.

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APPENDIX A
Monitoring and Evaluation Table
Rio Grande National Forest
Fiscal Year 1999

This appendix synopsizes the monitoring actions and results for fiscal year 1999. The monitoring items listed below correspond with the components listed in Table V-1 from the 1996 revised Forest Plan.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
Air Quality				
Monitor & Evaluate (M & E) visibility, lake chemistry, and terrestrial systems. 36 CFR 219.27 (a).	(1) Photographic documentation of visibility. Coordinate with NPS. (L. Dobson)	Great Sand Dunes National Monument.	Visibility and particulate monitoring was completed, but the NPS did not analyze the data since no major pollution sources that could impact air quality were proposed.	No changes in the Forest Plan needed.
	(2) Chemistry of most sensitive lakes. (K. Garcia, J. Fairchild, S. Hall, L. Dobson)	Three lakes in the Weminuche WA; 2 in the S. San Juan WA; 2 in the La Garita WA; and 2 in the Sangre de Cristo WA.	Lake chemistry was evaluated. Data have not yet been received from the lab for analysis.	No changes in the Forest Plan needed.
	(3) Health of terrestrial systems such as lichen communities. (L. Stewart)	Three sites from the baseline survey will be reassessed by measuring concentration of chemical elements to begin measuring trends.	To our knowledge, no monitoring of lichen occurred on the Rio Grande NF in FY99.	No changes in the Forest Plan needed.
M&E Burn Plan. 36 CFR 219.27 (a).	Visual verification of smoke dispersal. (L. Floyd, L. Dobson)	Several Burns were completed.	Prescribed burning was accomplished with good smoke dispersal. Stable atmospheric conditions existed throughout the burning period. No complaints were received from the public.	No changes in the Forest Plan needed.
Assess air resources relative to (a) Forestwide Goals, Objectives, S&Gs; (b) Management-area Prescription Objectives, DCs, and	From monitoring results, conclude whether Standards and Guidelines and regulations are being followed, and if Desired Conditions are being met. (L. Dobson)	As a result of monitoring all the above sites.	Forest management activities are following Standards and Guidelines. Desired Conditions are being achieved. All lab analysis is not available yet for a complete assessment.	No changes in the Forest Plan needed.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
S&Gs; (c) Management-area Prescription allocations and monitoring methods (36 CFR 219.12 (k))				
Aquatic Resources				
M&E Watershed Disturbances. 36 CFR 219.27.	Level I watershed assessment to measure total and connected watershed disturbance and compare to concern levels. Measure acres of disturbance in each 6th/7th level watershed. Use runoff curve numbers to equate all disturbances to an equivalent roaded area. Assess risk to watershed health from increased runoff. (Hydrologist: L. Dobson)	Timber Sales: Handme, Grouse Beetle, Blowout. Range Allotments: Alder Silver, Platoro.	Surface disturbances for watersheds within these analysis areas are below concern levels, with a few exceptions. A Conejos River composite watershed exceeded concern levels, primarily because Platoro Reservoir consumes a large portion of the watershed; no RGNF work is needed. Several watersheds in the Handme analysis area exceed concern levels. This is the result of past activities. Some impacts to stream health were identified in the 1999 report. These issues will be dealt with in the Handme EA. Although additional areas were identified as concerns, no additional stream health problems were identified.	It appears that concern levels for total watershed disturbance have been set conservatively at a safe level to ensure adequate watershed health. No changes are needed.
M&E Stream and Riparian health. 36 CFR 219.27a.	(1) Level III stream assessment on one stream per 6th level watershed for each EA analysis area. By comparing to a like reference stream, assess water quality, channel condition and riparian function to measure amount, if any, of impairment. (Hydrologist: L. Dobson)	Clover Cr, Alder Cr., Peterson Cr., Spring Cr., Kelly Cr., Globe Cr., Burnt Cr., Wightman Fork., Iron Cr., other minor tribs in Alamosa R. drainage, Grouse Cr., Tribs to La Garita Cr., Canon Rincon, S. Fk., Conejos., El Rito Azul, Pass Cr., Trib, Tribs to Burro Cr., Creede Cemetary tribs, Lost Trail Creek., Willow Cr.	Stream health was adequate to robust for all except the following. Clover Creek had poor conditions and will be dealt with in the Alder Silver EA. Alamosa River tribs are poor quality; Pass-Me-By Mine is biggest human-induced contributer and Forest will be working with State and EPA to see what can be done. Lost Trail Creek trib is also impacted by past mining. Private lands with mines will be avoided in the Carson land exchange. East and West Willow Creeks and Windy Gulch were monitored as part of the Willow Creek mined land reclamation project. The Forest is participating with the Willow Creek Rec. Steering committee. Monitoring in 1999 focused on surface water quality. Problems will be coorelated with specific mine sites as work continues.	Stream health direction in the Plan is appropriate. No changes are needed.
	(2) Level III assessment to measure recovery of damaged streams over time. Compare changes in channel shape and composition to see if recovery is occurring with prescribed mitigation. (Hydrologist: L. Dobson; Fish	N. Fk. Rio de los Pinos, Grouse Cr. and North Fork Saguache Cr.	N. Fk. Rio de los Pinos was evaluated as part of Cumbres Allotment monitoring. Banks exceeded stability and alteration guideline limits. North Fork Saguache Creek also has highly altered stream banks in some segments. Monitoring exclosures have been established to measure differences in stream health with and without livestock and wildlife grazing. Grouse Creek had bank conditions that were meeting Forest guidelines.	No changes in the Forest Plan are needed.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
	biologist: S. Swift)			
	(3) Level II stream assessment to see if watersheds of concern experience stream/riparian damage. Look for visible evidence of channel damage or water pollution. If visible evidence exists, document with a level II stream health assessment. (Hydrologist: L. Dobson; Fish biologist: S. Swift)	Streams within watersheds of concern that are identified during level I Watershed assessments.	Additional watershed area in the Handme analysis area was identified as a concern. No additional stream impacts were identified to what was already reported last year. The Forest also monitored streams for impacts from exisitng stream diversions. This work was completed for the entire RGNF as part of instream flow negotiation settlement work with local water users. Completion of the settlement is expected in 2000 which will give virtually all streams on the RGNF instream flow protection.	No changes in the Forest Plan needed.
Assess Aquatic Resources relative to 36 CFR 219.12 (k)	Visually determine if Standards and Guidelines have been implemented and are achieving the Desired Conditions. (Hydrologist: L. Dobson; Fish Biologist: S. Swift)	Examine implementation of S & Gs in North Fork Saguache Creek.	Most streams monitored were meeting standards and guidelines. Extra mititation was added to allow natural recruitement of large woody debris to major perennial streams, to get recovery on Clover Cr., and to get recovery of Rhoads Gulch.	Aquatic S&Gs: No changes in the Forest Plan needed. Additional mitigation for large woody debris recruitment is allowed under current direction to protect long-term stream health. Other additional mitigation was needed for recovery not protection.
Biodiversity				
Monitor change in occurrence of selected native species. 36 CFR 219.27	(1) Ripley milkvetch -- use plots and transects. (CSU Ph.D. Candidate: J. Burt; Ecologist: D. Erhard)	Hick's Canyon and Terrace Reservoir	Intensive plot monitoring continued this past summer by researcher J. Burt in her study areas. FY 99 results are due to the Forest by 5/00.	This was the 4th year of a Ph.D. study. At the end of the study we will determine if a change is needed in the Forest Plan. No changes recommended in the Forest Plan at this time.
	(2) Native Fish Population Monitoring. (Fish Biologist: Sue Swift-Miller; FS Seasonal employee; DOW)	Bear, Benino, Deep, East Fork West Alder, Elkhorn Gulch, Jarosa, Jim, John's, Medano-Hudson Branch, West Fork Pass, Torsido, Wannamaker and Whale Creeks.	Rio Grande cutthroat trout (RGN) populations were monitored on 13 Forest streams and 1 lake during 1999 by CDOW and USFS personnel. Population estimates calculated by the CDOW suggest overall downward trends across the Forest. Of the 14 populations, 2 populations were at risk/stable, 2 secure/stable, 5 at risk/declining, 1 unknown, and 4 likely extirpated (see State of the Fisheries Resource for definitions of status). Threats to populations include non-native trout (non-natives were present in 11 of the14 streams monitored) and inadequate habitat, although additional assessment is necessary. Habitat and population assessment work is ongoing, and the USFS and CDOW are working together to address these threats, through habitat improvement	No changes in the Forest Plan recommended.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
			projects, barrier repair/construction, and reclamation work. Five management populations of Rio Grande cutthroat trout were established on the Forest in 1999. Two additional RGS populations were established on the Forest in 1999.	
	(3) Boreal toad ocular surveys. (DOW Tech, CNHP, G. Becenti)	High probablity sites in Conejos, Mineral and Saguache counties by CNHP/DOW. FS monitored existing sites and high probability areas on Divide RD.	42 sites were monitored by CNHP/DOW. Cliff Creek site was active in 1999. No new breeding sites or individuals were located.	No changes in the Forest Plan needed.
	(4) Peregrine falcon ocular surveys of nests. (DOW Peregrine crew, B. Joslin)	Known nests.	Six sites were monitored. At least 3 hatched young. No information on fledgling success.	No changes in the Forest Plan needed .
	(5) SW willow flycatcher transects.	The known suitable habitat on CP RD.	Was not accomplished this year because of a change in priorities.	No changes in the Forest Plan needed
	(6) Black swift ocular surveys of nests. (Schultz)	3 suspected nesting locations.	None of the suspected nesting locations were surveyed this year, although a report on potential additional locations and habitat assessmenst were completed.	No changes in the Forest Plan needed.
	(7) Bats ocular surveys of roosts. (Navo {DOW})	Terrace Reservoir.	Terrace Reservoir site was surveyed. 1 Townsend's bat was located.	No changes in the Forest Plan needed.
	(9) Birds assciated with spruce/fir forests. Standardized point-count transects. (Schultz).	Across the Forest.	420 plots on 28 transects were surveyed.	No changes in the Forest Plan needed.
Monitor the change in selected native species habitat. 36 CFR 219.27.	(1) Other EIS special-status plants. Photo interp., site visits, GIS, satellite imagery. (Ecologist: D. Erhard)	Special-status plants are at various sites over the Forest.	Visited one of the known rock-loving Neoparrya (Neoparrya lithophila) sites on the Forest. The population appears to be stable. Due to the rocky habitat that this plant grows in, threats are minimal. New populations of Machaeranthera coloradoensis, Botrychium echo, and Astragalus ripleyi (Sensitive plants) were discovered again this year.	No changes in the Forest Plan recommended.
	(2) Snag-dependent species; aerial mapping of current insect, disease, and fire events. (Wildlife biologist)	Forestwide	No analysis initiated this year.	No changes in the Forest Plan needed.
	(3) Animals listed in the EIS. (Wildlife Biologist)	None	There were no changes to the list in 1999.	No changes in the Forest Plan needed.
Monitor changes in composition,	Photo interp, GIS, satellite imagery, and/or spatial	All Landtype Associations over the	No monitoring required this year because it is too soon to detect any meaningful changes. We anticipate monitoring	No changes in the Forest Plan recommended.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
structure, and pattern for each Landtype Association. 36 CFR 219.27.	analysis. (Ecologist/Wildlife Biologist)	entire Forest.	this item in year 2006.	
Validate the vegetative composition and structure of LTA 1 reference landscape. 36 CFR 219.27.	Photo interp, GIS, satellite imagery, and/or site visit. (Ecologist: D. Erhard)	14 reference areas within E. Spruce on Mountain Slopes LTA. Found throughout the upper elevations of the Forest.	The IRI Center in Dolores has completed year two of 3 ½ years of contract mapping and attributing Common Veg. Unit (CVU) polygons on the Forest. A combination of contractor and IRI Center personnel will complete this work over the next 3-4 years. As part of this work, better inventory data will be collected in LTA1 landscapes. Once the IRI inventory is complete, we will determine whether this new information changes our assumptions of LTA1 reference landscapes.	No changes in the Forest Plan recommended.
Monitor changes in CNHP Significant Plant Communities listed in EIS. 36 CFR219.12 (k).	Photo interp, site visits, GIS, and/or satellite imagery. (Ecologist: D.Erhard)	Special-status plant communities are at various sites over the entire Forest.	Visited the documented piñon pine - one-seed juniper / scribner needlegrass plant community. It appears stable and there are no apparent threats to it.	No changes in the Forest Plan recommended.
Monitor the progress of old-growth (Mehl 1992) inventory and reconnaissance on the Forest.	Ocular, plots, GIS, and/or satellite imagery. (Ecologist, Wildlife Biologist, Forester)	Forestwide	Old-growth inventories were completed for several small sales (all Districts) and the Grouse (Conejos Peak RD) landscape. To date, Mehl (1992)-defined old growth has been uncommon. On the Divide and Conejos Peak RDs, old growth appears to be limited due to a lack of patchiness, lack of structural diversity, and/or net productivity being too high. Because the Mehl criteria are biased toward more productive sites, the Saguache RD appears to lack the productive capability to meet the Mehl old-growth descriptions.	No changes in the Forest Plan recommended. The Forest's progress toward inventorying old growth made additional progress this year.
Evaluate Biodiversity and Wildlife relative to 36 CFR 219.12 (k).	Ocular, plots, transects. (D. Erhard, R. Metzger, Sue Swift-Miller)	Forestwide.	One project was monitored this year on the Cumbres Allotment which focused on evaluating two riparian areas: (a) Rio de Los Pinos River (section 15, T32N R5E): Current utilization appeared to be high in many areas. Current shrub utilization appeared to be excessive since most stems on planeleaf willow (Salix planifolia) were browsed. This excessive shrub utilization exceeded Forest Plan S&Gs which limit use to no more than 15-20% of the current annual growth on riparian woody plants (Forest Plan, Guideline 8, page III-5). The riparian area had a narrow greenline dominated by water sedge (Carex aquatilis). Some stretches of the greenline were dominated by Kentucky bluegrass (Poa pratensis -- an exotic, invader grass). Utilization along the greenline	No changes in the Forest Plan recommended. Monitoring did reveal that livestock use on this allotment is not meeting some riparian S&Gs. The Forest Service is working with the allotment permittees to improve livestock distribution and reduce over use of riparian areas.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
			appeared to be exceeding Forest Plan S&Gs for fall use pastures in many cases where at least 6 inches of Carex sp. stubble was not left (Forest Plan , Guideline 6, page III-5). We conducted a streambank alteration transect at two points along the River. Neither one met the 20-25% allowable streambank alteration guideline (Forest Plan, Guideline 9, page III-5). (b) Grouse Creek (section 27, T33N R5E): Again, we conducted a streambank alteration transect at two locations along the Creek. The allowable alteration was exceeded in both cases. The greenline utilization on water sedge appeared to exceed the 6" allowable stubble height in most cases. Livestock use appeared to be too high in this area in order to maintain or improve riparian conditions over time. This monitoring did not reveal that biodiveristy and/or wildlife items in 36 CFR 219.12 (k) were in need of change.	
Fire and Fuels Management				
Assess Fire/Fuels relative to: 36 CFR 219.12 (k).	Ocular estimates using photo guides for estimating downed woody fuels. Fuel transects and surveys to determine actual loading and arrangement. On-site inspections. (FMO, Ecologist, & Silviculturist)	Ponderosa pine and mixed-conifer cover types (fire regimes 1 & 3, condition class 2 & 3).	Analysis and evaluation of fuel profiles (loading, arrangement, continuity) was conducted in various mid to low elevation areas (mixed conifer, ponderosa pine, Douglas fir) of the Cochetopa Hills, the Alamosa River drainage, and in the Conejos River drainage. Treatment methods (RX fire, mechanical) have been developed and appropriate project plans (i.e. Burn plans) have been implemented.	No changes needed in the Forest Plan
General Infrastructure				
Assess facilities for compliance with state & federal requirements & FS Handbook/Manual direction.	(1) Inspect dams, facilities, drinking water, road & trail bridges, and FDRs for safety and maintenance. (Forest Engineer)	50% of Forest bridges, all high-hazard dams, 33% of medium-hazard dams, 20% of low- hazard dams, 25% of all trail bridges, all drinking-water systems as required by the Safe Drinking	Bridge inspections were completed as scheduled by contract; dam inspections were completed as scheduled by the State Engineer's office; 10% of the trail bridges were inspected. All water systems were sampled and tested in accordance with the Safe Drinking Water Act; 50% of the facilities were inspected; and all of the Level 3, 4, and 5 roads were maintained and inspected.	No changes needed in Forest Plan monitoring requirements. Inspections and testing will continue as outlined.

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
		Water Act, all facilities and all Level 3, 4, and 5 roads.		
	(2) On-site inspections to monitor compliance with Travel Management Plan. (Law Enforcement Officers, District Level II Officers, and other personnel as assigned)	Various locations around the Forest as patrolled by Forest Law Enforcement Officers and other Forest Personnel.	Inspections were conducted through hunter patrols, constituent surveys, and day-to-day contacts by law enforcement officers and other FS personnel. Numerous issues were raised and some citations issued, and the Forest continues to seek compliance with the current travel management plan.	No Forest Plan changes needed.
	(3) Assess planned road closures through on-site inspections. (Engineering & Timber)	None.	No planned timber sale road closures were conducted in FY 1999. Forty-seven miles of unclassified road decomissioning was accomplish in FY 1999.	No Forest Plan changes needed.
M & E Infrastructure relative to: 36 CFR 219.12 (k).	Review and monitor infrastructure-related inspections and reports for compliance with Forest Plan Guidelines and Objectives. (Forest Planner)	As outlined in the Infrastructure section of the AMOP.	The Forest Planner reviewed the infrastructure monitoring that occurred in FY99 with the Forest Engineer to see if any changes were needed relative to 36 CFR 219.12 (k).	No changes in the Forest Plan recommended.
Health and Safety				
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. (Forest Planner; District Rangers)	Forest	Evaluations are on-going. There is nothing new to report this year.	No changes in the Forest Plan needed.
Heritage Resources				
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. Review timber sale EAs and other major-project EAs. (Heritage Specialist: V. Spero)	Forest	See below.	No changes needed in the Forest Plan.
M&E Consultations with American Indians.	Assess proposed management activities to determine if American Indian consultation	Project areas with sites or geographic features that are, or have the	The American Indian Consultation Bulletin (AICB) was issued in December 1998 & June 1999 for the following FY 1999 projects: Creede Landfill Land Exchange. FY	No changes needed in the Forest Plan. The American Indian Consulation Bulletin (AICB) should

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	was accomplished. (Heritage Specialist: V. Spero)	potential to be, considered culturally sensitive to American Indians.	1999 projects contained in earlier AICBs included: the November Timber Sale, The Handkerchief Mesa Timber Sale Analysis Area, Houselog Timber Sale Analysis Area, and the Fox Creek Grazing Allotment. The AICB is issued for projects with sites that are or have the potential to be considered culturally sensitive to American Indians; In addition American Indian consultaion is initiated by project "Scoping" letters and by the the RGNF Quarterly Scoping Document (SOPA).	continue to be issued as the initial Tribal contact for project proposals. The AICB should include more projects and be issued more regularly. Additional follow-up,, including phone calls to arrange visits to project areas, should be increased.
M & E Heritage Resource progam relative to 36 CFR 219.12 (k).	Review of all Heritage Resource Reports done in FY 1999. (Heritage Specialist: V. Spero)	Review of all Heritage Resource Reports done in FY 1999.	Reports for proposed projects sent to the Colorado State Historic Preservation Officer for concurrence were reviewed.	No changes needed in the Forest Plan. Proposed projects comply with 36 CFR 219.2 (k).
Minerals				
M & E oil & gas activities so effects do not exceed predicted by 10%	Compare annual & cumulate OG activity. (Minerals specialist: J. Rawinski)	Forest summary.	There was no oil and gas activity on the Forest in FY 99.	No changes needed.
Verify if areas are compatible with FP stips. Assess if occupancy could be allowed on the lease tract. 36 CFR228.1.2 (e) 1,2,3.	Verification form. (Minerals specialist: J. Rawinski)	Each lease.	There was no oil and gas activity on the Forest in FY 99.	No changes needed.
M & E Minerals program relative to 36 CFR 219.12 (k).	On-site inspections of mineral activities; review reports. (Minerals specialist: J. Rawinski and Fred Martinez)	Forest Summary.	There are some errata on the oil and gas leasing map. These need to be corrected and noted. Also monitored the proposal for Summitville reclamation and rock needs. Proposed plan will meet FS standards for reclamation, and other resource standards.	No changes or additional analysis needed.
Noxious Weeds				
M & E Noxious Weeds relative to: 36 CFR 219.12 (k).	Monitoring of noxious weeds (where and to what extent they are present) will be reported based on the evaluation of control methods on infested areas on the forest. (Forest and Ranger District Weed Coordinators)	Inventory efforts focused primarily on FDR road systems.	Forestwide inventories were conducted on all three Ranger Districts in 1999. Partnership agreements with BLM and the use of volunteers contributed significantly to this year's accomplishments. Specific information on species found and areas infested and treated/inventoried can be found in Ranger District records. Area inventoried totaled 768 acres: Conejos Peak RD, 485 acres; Divide RD, 133 acres; Saguache RD, 150 acres.	No changes needed in the Forest Plan

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Assess the extent of infestation and control methods of noxious weeds.	Monitor noxious weed infestations and control methods by using on-the-ground surveys.	See above	See above	No changes needed in the Forest Plan
Range				
M & E Range program relative to 36 CFR 219.12 (k).	Refer to monitoring items that follow (see below)	See below.		
M & E Rangeland seral stage to ensure the Desired Conditions.	(1) Various methods and techniques will be derived from RAMTG. MAR Target # 76.1. (Primary: G. Poe; Secondary: G. Snell, J. Jaminet)	Sulphur, Alder, and Alder/Silver Allotments	Total area inventoried on the Forest was 8,508 acres. Inventories conducted are as follows: Divide Ranger District: 602 acres (Sulphur Allotment), Saguache Ranger District: 7,906 acres (Alder and Alder/Silver Allotments).	No changes needed in the Forest Plan.
	(2) Monitor Desired Condition transects for trend. (Primary: G. Poe; Secondary: G. Snell, J. Jaminet)	See above	See above	No changes needed in the Forest Plan.
Assess rangeland suitability.	(1) Evaluate suitability of Forest Plan Rangelands. Intensive review at site-specific areas while applying criteria for capability and ID Team determination of suitability. (Primary Contact: G. Poe; Secondary: G. Snell, J. Jaminet)	Jarosa Mesa, Mesa, Bancos/Alazon, Dipping Lakes, Glacier, Saddle Creek, Roaring Fork, Twin Lakes, Sulphur, West Pinos, and Alder/Silver Allotments.	Rangeland Suitability/Capability determinationations were conducted on 42,041 acres and on the following allotments: Jarosa Mesa, Mesa, Bancos/Alazon, Dipping Lakes, Glacier, Saddle Creek, Roaring Fork, Twin Lakes, Sulphur, West Pinos, and Alder/Silver.	No changes needed in the Forest Plan.
	(2) Evaluate suitability of rangelands at the AMP level. (Primary Contact: G. Poe; Secondary: G. Snell, J. Jaminet)	See above.	See above.	No changes needed in the Forest Plan.
Monitor utilization of rangelands.	Various mehods will be used including: P/U cages, height-weight, stubble height, and ocular estimates. MAR target #75.1. (Primary Contact: G. Poe; Secondary: G. Snell, K. Garcia, T. Post, J. Jaminet)	Conejos Peak Ranger District: Cumbres, Bancos, Conejos Canyon, Platoro, Fox Creek, Archuleta, La Jara. Divide Ranger District: Church, Cross/Race, Handkerchief, Cattle Mountain, Sulphur, La Garita, Embargo,	Monitoring for vegetation utilization was conducted on all three Ranger Districts. About 265,516 acres were monitored for vegetation utilization. Various methods were used, including P/U cages, height-weight, stubble height measurements, and ocular estimates. Allotments monitored by Ranger Districts were the same as the Planned Locations in previous column.	No changes needed in the Forest Plan.

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		Decker, Park, Alder, Bear, West Pinos Allotments. Saguache Ranger District: Alder, Alder/Silver, California Gulch, Carnero, Cross Creek East, Klondike, Mill Creek, Saguache Park, San Juan/Maez, Spanish Creek, and Tracy Allotments.		
Recreation -- *Developed Recreation*				
Assess developed sites for a) visitor expectations, trends, and customer satisfaction; and b) quality and safe facilities.	(1) Customer Survey. Forestwide Market and Customer Survey. (Forest and District Recreational Personnel)	Forestwide.	The RGNF was selected to participate in a nationwide recreation use survey in FY 2000. Interview surveys to collect recreation use information is to begin 1/1/2000 with visitors as they leave the Forest. In August and September, pre-work was done to stratify sites and areas (day-use & overnight developed sites, dispersed areas, wilderness & viewing scenery) which were randomly selected as interview sampling days on the Forest.	Interview surveys will be done throughout FY2000. No changes needed in the Forest Plan.
	(2) Annual Developed-Site Hazard Tree Inspections. Inspection of Forest's campgrounds and picnic areas for removal of hazard trees. (I&D Specialist & District Rec/Timber personnel)	Campgrounds & Picnic Areas	Annual hazard tree inspections of campgrounds & picnic areas were completed as part of the sites' preseason maintenance inspections. Hazard trees were marked and removed. Hazard tree inspection reports are on file at Ranger District offices.	Preseason inspections are working well and will continue. No Forest Plan changes needed.
	(3) Monitor Ski Area Summer and Winter Activities. Monitor Wolf Creek Ski Area for compliance with approved summer/winter operating plans. (J. Flaget)	Wolf Creek Ski Area.	FY 1999 winter & summer operating plans were developed and approved and monitoring inspections made. Inspection reports are on file at the Divide RD office. Winter inspections included lift operations, ski patrol operations and procedures, avalanche procedures and operations, ski school operations, and annual billings and payments. Summer activities included completing the construction work on the Wolf-pup building; constructing a new shared storage building on the CDOT site; the overhead electrical line at the ski area was removed and a new undergrnd line was installed for the ski area; phase 1 of the approved EA (construction of the Alberta chairlift) was completed and Phase II (2 new parking areas) will be done in either FY00 or FY01.	Audit to implement the new ski-fee system did not occur in FY99. Based on a negotiated settlement, a new Decision Notice was issued for the ski area parking-lot expansion and new chairlift. Core Planning Team needs to review the Desired Condition ski area development statement for MA 8.22 and consider making necessary revision. No other changes in the Forest Plan are needed.

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	(4) Monitor RGNF Special-Use Permits. Inspections documented and/or inspection reports MAR 62.5 (Forest and District Recreation Personnel)	Forest Recreation Residences, Outfitter Guides (O/G), recreation events, and concession permits	Held an Outfitter Guide meeting with our Forest O/G permit holders to: review permits, billing and Title VI updates, to inform and answer question, and distribute posters to put up at their business site. Concession meeting was held with Area Mgrs and site mgrs to update them on Title VI complaints and how to handle them and give them posters to install on bulletin boards. A similar meeting was done with the Wolf Creek Ski Area. Our Title VI target was exceeded.	Deferred maintenance inventories were completed for all our developed sites in FY99 for input into Meaningful Measures and Infra databases. We will continue to monitor our special-use permits in FY00. No changes in Forest Plan needed.
Assess developed sites actual use compared with projected outputs (36 CFR 219.12 (k)	Use figures collected by concession campground mgrs and FS campground hosts in our fee campgrounds	All concession & FS campgrounds and picnic sites	Visitor use in the Forest campgrounds was recorded by our concession campground mgrs. Use reports on file at the RGNF Supervisors Office. Average occupancy rates are as follows: Conejos Peak RD campgrounds; 42%; Divide RD; Del Norte campgrounds; 42%, Creede campgrounds; 38%.	Conejos Peak RD and Del Norte campground use and occupancy rates were the same as in FY98. Use and occupancy rates were down 15% in campgrounds in the Creede area. No Forest Plan changes needed.
Evaluate developed recreation relative to 36 CFR 219.12 (k).	Comparative evaluation for M&E Report. (Forest and District Recreation Personnel)	Forestwide Developed-Recreation Prescription Areas.	Forest Recreation Objectives, Forestwide Standards, recreation Management-Area allocations, Desired Conditions, Standards and Guidelines, and Monitoring Items were used in project EAs and reviewed, and no changes are needed.	No Forest Plan changes needed.
Recreation -- *Dispersed Recreation*				
Evaluate traditional and nontraditional recreation opportunities.	(1) Trail log inventory using GPS -- MAR 62.3, 64.3. (Forest Trails Specialist and District Trail Coordinators)	10-15% of Forest Trails. Dispersed-campsite inventories throughout the Forest.	Deferred mtce trail inventories were completed on 20% (250 miles) of the Forest's trails in FY99. 30% (75 miles) was accomplished on the Divide RD and 70% was accomplished on the Conejos Pk RD. Records on file at the RGNF Supervisor's Office and Ranger District Offices.	Another 20% of the Forest trail inventory will be done in FY00. No change in the Forest Plan is needed.
	(2) Monitor representative watersheds to assess baseline capacity allocation. Monitor the amount of public and Outfitter Guide use occurring in identified watersheds. (Forest and District Rec. Personnel/RSST)	Forestwide institutional-use permits.	No specific area was monitored in FY99 to assess the baseline allocation capacity.	No Forest Plan changes are needed.
Monitor effects of off-road vehicle use of Forest trails and roads. 36 CFR 295.5.	Assess impacts to physical, biological and social resources (Indicators). (Forest Rec Specialist/RSST)	Hunter patrols during hunting season.	An update to our Forest developed travel map and portal-entry information maps was done in FY99 to notify all visitors and hunters about the travel regulations on the Forest. Patrols indicate we have some problem areas on the Forest which need addressing in FY00.	Further assessment of the travel management program will occur in FY 00, and there will be monitoring of the ATV use during hunting season. In reviewing our Forest motorized and nonmotorized trails, some errors were found which will require updates and a possible Plan Amendment. No

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				other changes in Forest Plan needed.
Evaluate Dispersed Recreation relative to 36 CFR 219.12 (k).	Comparative evaluation for M&E Report. (Forest and District Rec Personnel)	Forestwide Dispersed Rx Areas.	Forest dispersed-recreation Objectives, Forestwide and Management-area Standards and Guidelines, Desired Conditions, and Monitoring Items were used in project EAs and reviewed, and no changes are needed.	No Forest Plan changes needed.
Recreation -- *Unroaded Areas*				
Assess the physical, biological, and social resources within Backcountry Areas.	Assess the impacts on the physical, biological, and social resources (indicators). (Forest Rec Specialist and RSST)	Deep Creek	A spot check of the Deep Creek area was made by the Forest Recreation Specialist in regards to signing and whether motorized use was occurring in the area. Check indicated no management actions were needed. We did receive a report of problems in the Pole Creek Mountain area which will require additional management action in FY00.	No Forest Plan changes needed.
Evaluate Backcountry Areas relative to 36 CFR 219.12 (k).	Comparative evaluation for the M&E Report. (Forest and District Rec Personnel)	Forestwide Backcountry Areas.	The Backcountry Area Desired Conditons, Standards and Guidelines, Allocations, and Monitoring Items were reviewed and do not need to be changed. In the initial stages of the Handkerchief Mesa EA assessment work, an error was found in the Fox Mountain (020948) unroaded area. Two areas within this unroaded area have system roads in them, as well as past logging. The Handkerchief Mesa EA will deal with this error, and an amendment in the acreage and area boundary will be needed.	An amendment of the Forest Plan will be needed in conjunction with the Fox Mountain (020948) unroaded area. The acreage and area boundary will be addressed in the Handkerchief Mesa EA, and a Forest Plan amendment is recommended. No other Forest Plan changes are needed.
Recreation -- *Wild and Scenic Rivers*				
Assess the physical, biological and social resources within W/S River corridors.	Assess impacts on the physical, biological, and social resources (Indicators). (Forest / District Rec. Personnel and Core Team)		No W/S corridor was assessed in FY99.	No Forest Plan changes are needed.
Evaluate W/S River Mgmt Rx Objectives, Desired Conditions, and S&Gs. 36 CFR 219.12 (k)	Comparative evaluation for the M & E Report. (Forest Rec. Specialist and District Rec. personnel)	Forestwide W/S River Mgmt Rx Areas.	The W/S River Standards, Desired Conditions, Allocations and Monitoring Items were reviewed, and no changes are needed.	No Forest Plan changes needed.
Recreation -- *Wilderness*				
Monitor and evaluate visitor-use levels and other Wilderness resources. 36 CFR 293.2	Schedule for implementation those Priority 1 items outlined in each wilderness Area WIS. Surveys, data gathering, and reports. (District Wilderness Coordinators, Wilderness	South San Juan, Weminuche, La Garita, and Sangre de Cristo Wilderness Areas	Monitoring items for the Weminuche and South San Juan Wilderness Areas included campsite condition class, campsite density, meadow health, encounters, dogs not under control and high-lake surveys. Results of this monitoring indicates the management-area standards are being met. In a few incidences where monitoring shows	No changes needed in the indicators to be monitored per the wilderness EA.

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	Rangers, and Resource Specialists)		that standards are exceeded (campsite conditions, crowding, and dogs under control) some additional management actions will be needed. Monitoring actions in the Sangres and La Garita Wilderness did not occur.	
Evaluate Wilderness Forestwide Goals, Objectives, S&Gs and Wilderness Mgmt Rx Objectives, Desired Conditions, and S&Gs. 36 CFR 219.12 (k).	Comparative evaluation for the M&E Report. (Forest Rec. Specialist and District Widlerness Coordinators)	Forestwide Wilderness Mgmt Rx Areas	The Wilderness EA was completed and Decision Notice issued which amended the Forest Plan to include the wilderness desired conditions, management area prescriptions, standards and guidelines and management actions (indicators to be monitored).	A wilderness amendment has been made. No other Forest Plan changes are needed.
Research and Information Needs				
Determine progress of accomplishing needed research. (Items listed on the top of page V-16 of the Forest Plan).	Questionnaire. (Forest Planner)	Poll individual RSST members on progress.	Each RSST member was asked if any progress had been made on identified research and information needs. The results were: 1) progress is continuing on inventorying watersheds with proposed timber harvest activities for old growth; 2) the Forest's road inventory is continually being updated each year; 3) riparian classification was completed by the Colorado Natural Heritage Program in FY99; 4) additional occurrence data for both the flora and fauna on the Forest have been collected and submitted to the Colorado Natural Heritage Program for inclusion into their Biological Database; and 5) an ethnographic overview is underway at the Great Sand Dunes National Monument and on the San Juan National Forest which can be tiered to by the RGNF.	No changes in the Forest Plan recommended.
Research Natural Areas				
Evaluate RNAs relative to 36 CFR 219.12 (k).	Ocular, plots, transects, GIS. (Ecologist: D. Erhard)	Designated Research Natural Areas.	The North Zapata RNA was visited and visually evaluated. It appears to be receiving very little human use. There was no evidence of any conflict with 36 CFR 219.12 (k).	No changes in the Forest Plan recommended.
Scenic Resources				
Determine if project Scenic Integrity Objectives (SIOs) were met. Assess changes in SIO with respect to ROS.	On-site or photo-point monitoring. (Landscape Architect: K. Clum)	Projects where Scenic Resources is a key issue, and special areas such as campgrounds, gravel pits, and utility sites.	On-site monitoring at Blue Creek Post and Pole Timber Sale, Agua Ramon Pinon/Juniper Sale, and the Como Lake Road. All sites were in compliance with the Scenic Integrity Objectives for those areas.	No changes needed in the Forest Plan.
Determine if SIOs	Constituent surveys, visitor	District roads, trails,	Constituent Surveys were not completed in FY 99, since	No changes needed in the Forest

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were met. Assess Constituent Survey information	observations, interviews, and public participation. (Landscape Architect: K. Clum)	and recreation sites.	the surveys are awaiting Region-wide approval. However, site inspections and public contact were made during field visits to Crestone Campground and the San Isabel Trailhead to discuss visitor perceptions and expectations and the current status of Scenic Resources for these areas.	Plan.
Evaluate scenic resources relative to 36 CFR 219.12 (k).	Summarize report	Forest	Three separate areas were monitored for Scenic Resource compliance during FY 1999. Under the terms of Scenic Resources, all areas have two years to come into compliance with the Scenic Integrity Objectives for any area after project implementation. All areas were in compliance with the Scenic Resource Objectives, Standard and Guidelines and Management Prescriptions.	No changes needed in the Forest Plan.
Soil Productivity				
Assure that land productivity is maintained or improved.	(1) Monitor soil quality standards. (Soil Scientist: J. Rawinski)	FY 99 fire projects monitored include Spanish Creek and Marshall Gulch.	Soils within the Spanish Creek wildfire area are “at-risk” meaning soil health may be threatened by erosion. Until natural revegetation occurs (which is progressing nicely) monitor closely. The Marshall Gulch prescribed natural fire occured in the Sangre de Cristo mountains on steep slopes. It has “at-risk” soil health for erosion concerns. It also is revegetating naturally very well and is trending toward stability.	No changes in Forest Plan needed. Standards and assessments seem to be working.
		FY 99 Range projects monitored include: Cumbres Grazing Allotment.	The Region-2 Soil Scientists used the Cumbres Allotment as a test area for the soil health protocol. This procedure looked at areas inside and outside exclosures. It found impaired soil health in two pastures due to erosion and compaction. It found properly functioning conditions in Grouse Creek, later in the year.	No changes in Forest Plan needed. Standards and assessments seem to be working.
		FY 99 Timber Projects monitored: Twister Salvage Sale	Twister Salvage Sale incurred soil impacts during logging from excessive soil moisture. However, mitigation methods were applied and soil impacts were reduced. It is likely that soil impacts were excessive and appropriate mitigation (ripping, etc.) is planned at sales termination. Logger and sale administrator took positive efforts to keep impacts minimal.	No changes in Forest Plan needed. Standards and assessments seem to be working.
	(2) Use erosion model to predict erosion or analyze projects after completion. (Soil Scientist: J. Rawinski)	Projects where high erosion or mass-movement potential exists. Projects where soils is a key issue.	FY 99: No specific need to use this model was identified.	No change needed.
	(3) Ocular estimates, pace transects, on-site, professional	See soils projects mentioned above.	FY 99: In addition to above, looked at revegtation, soil erosion projectsand the South San Juan Grazing	No change needed.

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	judgements to monitor fertility, erosion, mass movement. (Soil Scientist: J. Rawinski)	Plus projects on this row.	Allotment.	
	(4) Mass-movement evaluation by monitoring existing and potential problem areas. (Soil Scientist: J. Rawinski)	Projects where mass-movement potential is moderate or high and other landslide-prone areas, W. Lost Trail Creek, Chama Basin, others.	FY 99: None monitored this year.	No changes needed.
M & E reclamation and reveg. efforts. (Soil Scientist: J. Rawinski.)	On-site and/or random transects, review District project records and erosion models. (Soil Scientist: J. Rawinski)	FY 99 revegetation monitoring.	FY 99: Willow Creek revegation committee. We developed prescriptions to look at best combinations of seeding, fertilizing, and restoring Willow Creek outwash, near Creede.	No changes needed. We are implementing native plant guidelines.
M & E Soil Productivity relative to 36 CFR 219.12 (k).	Project results, field reviews, data analysis, and modeling results. (Soil Scientist: J. Rawinski)	See above.	See all projects above.	No changes needed.
Special Interest Areas				
Assess protective measures and interpretive efforts.	Ocular surveys. (Ecologist: D. Erhard; Heritage Resource Specialist: V. Spero)	None	No monitoring required this year. This item is to be done once every five years. Due in FY 2001.	No changes in the Forest Plan recommended.
Evaluate Special Interest Areas relative to: 36 CFR 219.12 (k).	Summarize reports or information from Districts. (Ecologist: D. Erhard; Heritage Resource Specialist: V. Spero)	None	No monitoring required this year. This item is to be done once every five years. Due in FY 2001.	No changes in the Forest Plan recommended.
Timber				
Restocking of harvest areas. 36 CFR 219.12.	Stocking surveys. (Silviculturist: J. Griffin)	All locations/sites planned for 1st-, 3rd-, and/or 5th-year surveys.	In FY 99, a total of 2360 acres were certified as being fully stocked. Areas to be planted are noted in the column to the right. As of CY 92, all recent (within 15 years) final-harvest-removal survival surveys have revealed 100% stocking. In '93, 1715 of 1883 acres were found to be fully stocked. Some of those acres were 1st- & 3rd-year surveys, and full stocking is expected after 5 years. Similar results were seen with surveys in '94-'97. The RMRIS database and annual NFMA report can be referenced for this information.	No changes needed. Followup surveys to 1st- and 3rd-year surveys will continue. Four areas not meeting stocking requirements (the Royal Pain Fire within the Royal Park Timber Sale, some patch clearcuts within the Grouse Timber Sale, some patch clearcuts within the Cumbres timber sale, and an area of trespass timber near the headwaters of Wolf Creek) are scheduled for planting in late summer of '00.

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Assess timber suitability. 36 CFR 219.12; 219.27	(1) Standard suitability determination at Forestwide level. (Analyst/Silviculturist)	None.	An analytical error was found in the FEIS timber suitability assessment for the revised Forest Plan. The Forest's analyst failed to include Suitable timber lands based on Soils direction for Suitable lands. Timber lands in the Los Pinos/Cumbres/LaManga-Grouse areas on the Conejos Peak RD formerly deemed Tentatively Suitable and/or Suitable and Scheduled (in the draft EIS) were errantly identified as Unsuitable.	A Forest Plan amendment has been completed to correct the suitability error and may be combined with recommended changes in suitability derived from on-site inspections.
	(2) On-site inspection, inventory/growth-yield exams, soil sampling. (Proj. Silviculturalists {J. Griffin, K. Stuart}, Proj. Foresters and/or Technicians. Timber Sale Administrators {J. Flaget, T. Benedict + B. Valasquez}. Soil: J. Rawinski)	Pre-sale: Sp. Divide, R. Hondo, Ruston, Park Crk. Sal, W. Park. Suitable small sales + Beaver Mt., Jarosa, Red Mt., Cliff Salv., Post-Sale: stocking surveys + Royal, Burro, Blowout, Benino TSs.	Other areas assessed for suitability included all the sales in the Handkerchief Mesa Analysis; the sales in the Houselog Analysis; sales in the Jarosa Creede Analysis; and other sales such as Beaver Mountain, Park Creek Salvage, Boot Mountain, and Pinochle Park. No changes or recommendations for changes in suitability have resulted from these asessments thus far. Some individual sites in the Houselog Analysis Area are recommended for a change in prescription, because of the cost of getting roads into the sites. This would remove those areas from the “Experienced Budget”, but would not result in a change in suitability.	Areas previously entered for harvest should not be assumed to be suitable for timber management; conversely, some areas not selected by the suitability assessment for entry (i.e., “scheduled" by FORPLAN) should not be assumed to be unsuitable. When suitability status is uncertain, on-site investigations and/or stand exams, coupled with site-specific economic analysis, are necessary to determine appropriate management opportunities or constraints. Additionally, the lack of recent or current stand-exam inventory data in some areas has reduced the reliability of FVS and FORPLAN results, thereby requiring more field time by silviculturists and foresters to ensure timber suitability status is accurate.
Assess I & D infestations relative to endemic levels prior to and following management activities. 36 CFR 219.12	On-site observation and limited sampling. Can include stat. accurate plots. (Proj. Silvi.: J. Griffin, K. Stuart; Proj. Foresters + P. Metzger, J. Trujillo, P. Minow. Sale-Admin {J. Flaget, T. Benedict, B. Velasquez}. R2 I&D {R. Mask, P. Anguin, T. Eager})	Active TSs & ongoing Landscape Analyses & post-sale. Also areas undergoing extensive natural disturbance.	I&D infestations were observed in and around the proposed or upcoming Houselog Vegetative Mgt. Area and Park Creek Salvage TS (Saguache RD), Handkerchief Mesa Mgt. Area and Twister TS(s) (Divide RD); Low Country Mgt. Area and Borrego/November TS (Conejos Peak RD); and in/around the ongoing North Park Salvage TS (Saguache RD), the Wolf Creek Ski Area, and in/around the former Grouse TS (CPRD). These observations indicate that Western Spruce Budworm is even more widespread than previously realized, and we can say that virtually all of the Mixed	Areas found to be exhibiting increasing and/or potentially damaging infestations were Twister, Grouse, and Cross TSs for spruce beetle; Park Creek, North Park Salvage, Borrego/November TSs and the Low Country and Houselog areas, and the Mixed Conifer portion of the Handkerchief Mesa area. This last area was found to exhibit high endemic levels of Western Spruce Budworm.

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			Conifer type on the Forest has budworm at some level. An increase in the level of Mountain Pine Beetle was also noted in the Ponderosa Pine zone on the Saguache District.	No large areas of blowdown similar to Twister were observed. Other blowdown from the same time period has resulted in scattered blowdowns without high concentrations of insects. Silvicultural techniques should be used, whether in timber sale or other resource emphasis areas, that serve to reduce host habitat for these insects. No changes are needed in the Forest Plan.
Monitor size of harvest openings. 36 CFR 219.27.	Traverses, stocking surveys, on-site. (Proj. Silvi. Proj. Prep Foresters/Forestry Technicians)	Pre-sale, current active sales, post-sale areas.	Harvest openings were monitored in the following past timber sales: Cross, Demijohn, Poage Lake, Beaver Mountain, Grouse, Red Mountain, Cornwall, Laguna Seca, and Cumbres, and those sales in the Houslog Analysis Area. No harvest openings were found to exceed the 40-acre maximum.	The 40-acre-maximum size limit for even-aged individual cut block, patch, or strip openings has not been approached or exceeded since the 1970s. Most harvest openings created prior to NFMA ('76) are fully stocked and meet or exceed tree heights and % distribution, as noted in Forestwide Silviculture Guideline #4. No change needed in Forest Plan.
Assess implementation of silvicultural objectives during pre-sale, harvesting, and post-sale periods	On-site, photo points, density measurements. (Pre-Sale: Proj and consulting Silvi/Prep Forester/Forest Techs & ID team members from EA teams tied to specific TSs. Active contracts: Sale Admin. Post-sale: Same as pre-sale)	Pre-sale: Sp. Divide, R. Hondo, Ruston, Pk. Crk Salv., W. Park, all small on suitable, + Beaver Mtn., Jarosa, Red Mtn., Cliff Salv., Post-Sale: All / stocking surveys + Royal, Burro, Blowout, Benino TSs.	Monitored following sales: Red Mtn., Fox Mtn., Shaw Lake, Part Stowe, Ford, 5-Mile Pond, Ruston-Kreps, Thunder, Cross, Demijohn, Poage Lake, Campo Molino, Beaver Mountain, the sales in the Jarosa Creede Analysis, and Houselog Analysis, including Spring Gulch, Brown, and California Gulch. On-site observations indicate that objectives were met in some units/sales and not in others. Older shelterwood-system cuts removed more large spruce, retained more small, less windfirm spruce/fir. More recent shelterwood cuts have retained more high-quality large spruce. In some stands, better silvicultural Rx's could have been implemented. Example: several Fox. Mtn stands undergoing partial cuts of overstories could have undergone simulated shelterwood to release fully stocked understories. Planned post-harvest thinnings to reduce subalpine fir density were often not completed, resulting in fir-dominated stands in timber mgt. emphasis areas. More detailed info available in separate sale M&E reports.	Post-harvest assessments are key to adaptive mgt. Older ('80s) sales appeared to focus on products removed from stands, rather than residual/future stand condition and future management. Retain high-quality spruce, ponderosa pine, and Douglas-fir in shelterwood-system prep/seed cuts; avoid conversion to fir-dominated stands in timber-emphasis areas. Use overstory-removal cuts where healthy, fully stocked understory stands exist. Provide resources for updating stand-exam inventories, particularly where harvesting has occurred since inventory data were collected. Could add emphasis in FP & FEIS/FEIS App. indicating that

MONITORING ITEM	***METHOD and (CONTACT)***	***PLANNED LOCATIONS***	***MONITORING ACCOMPLISHED (what, where, results, summarize, references)***	***EVALUATION (What are the recommendations based on monitoring? Changes needed to the Plan?)***
				most patch clearcuts are actually simulated shelterwoods whereby a fully stocked understory is being released by removal of overstory.
Assess output performance of TS program quantity components as compared /outputs. 36 CFR 219.12	Comparative evaluations (MAR items: 17.1, 17.2, 19.0, 19.1, 20.0, 20.1, 77.1, 77.4, 77.5, 77.8, 77.9, 79.1, 79.2. (Analyst and the Timber Staff)	Various Forest offices.	Planned outputs were exceeded for reforestation, and the target was not met for timber volume offered. There was 20% accomplishment of timber stand improvement planned.	Accomplishment of the volume-offered target was largely due to lack of paint. Green offer has suffered, largely due to the judge's adverse decision regarding the Trout Mountain sales -- two potential sales totaling 7 MMBF green. The Forest is still undecided whether to pursue the Trout Mountain effort altogether.
Assess Timber program relative to 36 CFR 219.12 (k).	Comparative evaluations. (TCE Team)	Various Forest offices.	TCE team reviewed FP (Forestwide) Desired Conditions (Goals), Objectives, and Standards and Guidelines (for Silviculture); reviewed Mgt.-area Allocations, Prescriptions, and Standards/Guidelines for Mgt. Areas including Suitable timberlands (4.21, 4.3, 5.11, 5.13, and 5.41); and reviewed monitoring approaches to timber-related Desired Conditions. This review and evaluation was documented under 1920-2-3.	Some minor editorial changes are recommended for Forestwide Silvicultural Standards 1, 2, 8; for Guideline 2, and for Management-Area Prescriptions for 5.11, 5.13, and 5.41.