FY 1997

Monitoring and Evaluation Report

San Juan - Rio Grande National Forests

April 1998

Contents

Introduction

This report is presented in two sections. The first addresses the monitoring done for the Rio Grande National Forest portion of the San Juan - Rio Grande National Forests. The second section addresses the monitoring done for the San Juan portion. The formats differ for each side of the Forests, but the information is presented as one report.

Monitoring: Rio Grande National Forest

In November 1996, the Revised Land and Resource Management Plan (Forest Plan) for the Rio Grande National 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 Monitoring Plan for the Forest, and is described in Chapter 5 of the Forest Plan for the Rio Grande National Forest (RGNF). This report is not a list of outputs; rather, it describes conditions of the various resources after one year 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.

The RGNF Interdisciplinary Planning Team developed the criteria for the Monitoring and Evaluation program. These criteria are based on national policies, Regional monitoring-emphasis items, interdisciplinary-team concepts, and legal and other policy requirements. The criteria include:

- The Goals, Objectives, and Desired Conditions identified in the Forest Plan.
- The 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.

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)). **Desired Conditions** (Forest Plan, Chapter 1) describe the conditions that the Plan is designed to achieve on the entire Forest.

Forestwide Objectives (Forest Plan, Chapter 2) are more specific statements, describing results or conditions the Forest Service (FS) intends to achieve on the ground. Objectives are tied closely to Desired Conditions.

Monitoring Objectives (Forest Plan, Chapter 5) are statements developed from the Forestwide Objectives, and show what will be monitored and evaluated as part of the monitoring program. This linkage is important in meeting

the intent of 36 CFR 219.12(k), which says that "...implementation shall be monitored on a sample basis to determine how well objectives have been met..."

The annual monitoring work is described in the Annual Monitoring Operation Plan (AMOP). The AMOP details the monitoring work expected to be completed in the upcoming year. The AMOP is developed by Forest Resource Specialists who are responsible for monitoring, and is reviewed and approved by the Forest Supervisor. The AMOP describes in detail the reasons, methods, locations, responsible persons, and estimated costs.

Three types of monitoring are described for Forest management:

- **Implementation Monitoring.** This includes the 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 in implementation for such a short time, this 1997 report focuses primarily on implementation and effectiveness. As trends develop and conclusions are validated, the third level of monitoring will be addressed.

Planning Activities: Rio Grande National Forest

There has been one amendment to the Revised Forest Plan, and two more amendments are expected when the NEPA analysis supporting them is completed. Those projects are currently underway. Several other potential amendments are addressed as part of the conclusions of this report.

Amendment #1

This amendment was approved by the Forest Supervisor on March 3, 1998. The amendment temporarily suspends Backcountry Management-Area Prescription Standard Number 1 on the 62 acres addressed in the Twister Blowdown Environmental Assessment. The amendment will be rescinded upon completion of the salvage work in that area. The rationale for the amendment is described in the Decision Notice for 3.3 Backcountry, included in the Twister Blowdown EA.

Potential Amendments

The potential amendments under analysis include:

- **The correction of an error regarding timber suitability**. The error occurred between the publication of the Draft and Final Environmental Impact Statements. Correction of the error will return approximately 27,000 acres to the Tentatively Suitable timber land base. There will be no changes in the Allowable Sale Quantity as a result of this Forest Plan amendment. Analysis is underway.

- **Adjustment of a Botanical Special Interest Area boundary**. The purpose of this Special Interest Area is to protect a Sensitive plant (Ripley milkvetch). This plant generally grows in relatively open ponderosa pine / Arizona fescue communities (Douglas-fir may also be present and is somewhat codominant with ponderosa pine) where canopy coverage by all trees is less than 25% and where the elevation is about 9,200' or lower, in the Hicks Canyon area. Analysis to support the amendment is underway as part of the November Timber Sale Environmental Assessment.

Recommendations have been made to investigate the need for additional Forest Plan amendments, but the analysis to support them has not been started. There have been no adjustments in the acreage of any Management Areas as a result of Forest Plan amendments.

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; the amount of monitoring actually done for each element, however, is a function of the funding available.

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. These are species found on the Threatened and Endangered list, the Regional Sensitive Species list, and the Colorado Natural Heritage Program's list of Species Of Special Concern and Significant Plant Communities.

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), and if there have been any changes in the condition of the site location(s).

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.

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 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.

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).

Fire and Fuels 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 (eyeball) 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.

Range

Monitoring of Suitable rangelands for condition and trend will be reported based on the information obtained from the Rocky Mountain Region's *Rangeland and 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 (EA) and Allotment Management Plans (AMP) for each allotment.

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

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.

Watersheds, Including Soils, Water, and Riparian and Aquatic Ecosystems

Watershed Health

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 are completed on at least one stream and riparian area per Analysis Area for each land-disturbing EA.

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).

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 judgement. These techniques will be employed on all of the ground-disturbing projects where high soil-erosion or mass-movement hazards exist.

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

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.

Special Interest Areas

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

Research Natural Areas

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

Heritage Resources

Monitoring will be reported based on the evaluation of protection measures for resources discovered during project evaluations.

Consultation with American Indian nations will be reported concerning areas of cultural importance to the various tribes.

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 campground hazard inspections.

Scenic Resources

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

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.

Travel Management

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.

Road-Construction Closures

Monitoring of road closures will be reported based on routine field reports.

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.

Research and Information Needs

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

Monitoring Results

Monitoring activities and results are described by resource and activity. The format is similar to the format used in the Monitoring Plan so that what we intended to monitor and what was actually monitored can be compared.

Biodiversity

Monitoring Item (a): Monitor change in occurrence of selected native species.

Methods

1. Ripley milkvetch: use plots and transects.
2. Other EIS special-status plants. Photo interpretation, site visits, GIS, and satellite imagery.
3. Rio Grande cutthroat stream shocking (population estimates).
4. Boreal toad ocular surveys.
5. Peregrine falcon ocular surveys of nests.
6. Southwest willow flycatcher transects.
7. Black swift ocular surveys of nests.
8. Bats ocular surveys of roosts.
9. Birds associated with spruce/fir forests, point counts, nest search, mist netting.

Monitoring Done

1. Intensive plot monitoring continued this past summer by researcher J. Burt in her study areas. FY 97 results are due to the Forest by 2/98.
2. Visited the known Black Canyon gilia (*Gilia penstemonoides*) site on the Forest. The population appears to be stable and the habitat appears to be more extensive than was originally indicated in the Colorado Natural Heritage Program's biological database. There are no apparent threats to this plant or its habitat. New populations of *Machaeranthera coloradoensis* and *Gilia penstemonoides* (Sensitive plants) were discovered this year.
3. Rio Grande cutthroat trout (RGN) populations were monitored on nine Forest streams during 1997 by USFS and Colorado Division of Wildlife (DOW) personnel: Middle Fork San Francisco Creek, Pass Creek, Bennett Creek, Cave Creek, Medano Creek, Middle Fork Carnero Creek, Cat Creek, East Pass Creek, and West Fork San Francisco Creek. Population estimates calculated by the DOW indicate inconsistent trends across the Forest. Two populations were unstable/at risk, with one likely extirpated, while all others appeared to be stable (see State of the Fisheries Resource for definitions of "stable" and "at risk"). In addition, two new populations were discovered this year (genetic analysis pending). Two populations monitored on private land in 1997 appear to be stable. Threats to populations include non-native trout and inadequate habitat, although additional assessment is necessary. Habitat and population assessment work is ongoing (preliminary habitat assessments done on 11 RGNF streams in '97), and the USFS and DOW are working together to address these threats, through habitat improvement projects, barrier repair/construction, and reclamation work.
4. A cooperative effort was undertaken with the DOW. Besides the Love Lake/Trout Creek sites, 67 high-probability sites were surveyed throughout the Forest. There were no new breeding sites or individuals located. The Cliff Creek breeding site was not active.
5. The DOW's Peregrine crew surveyed all the known nests. All four were occupied. One failed, two fledged a total of six young (three apiece), and one was uncertain.
6. Was not accomplished this year because of a change in priorities.
7. One of the suspected nesting locations (Chama Basin) was surveyed. Multiple adults were seen in the vicinity of a waterfall, but no confirmed nesting was documented.
8. DOW was not able to get to Terrace Res site, but did survey two suspected locations just off the Forest boundary near the Sand Dunes, and found two new Townsends roosts.
9. Was able to complete a total of 86 point counts. Was able to demonstrate a modest effort could provide enough information to monitor gross changes in some of the species populations.

Conclusions

1. This is the second year of a four-year Ph.D. study. At the end of the study, specialists will determine if a change is needed in the Forest Plan. No changes recommended in the Forest Plan.
2. No changes in the Forest Plan recommended.

3. Because continued monitoring of populations will ensure rapid detection of invasion by non-natives or other threats, I would recommend monitoring native fish populations every four years, or more frequently if the situation justifies it. This would provide a method of prioritizing streams that the "10% of all RGNF streams" criterion does not, and would ensure monitoring occurs often enough to detect problems, but not so frequently as to cause unnecessary disturbance or harm.

   The number of populations monitored per year depends on funding. Two other native fish species, Rio Grande chub and sucker, are important species that also warrant monitoring. This monitoring section should be called Native Fish Population Monitoring, rather than Rio Grande Cutthroat Trout Stream Shocking. Cooperative efforts between USFS (habitat-management lead) and DOW (species-management lead) are aimed at ensuring protection of native species populations.

4. No changes in the Forest Plan needed.

5. No changes in the Forest Plan needed.

6. No changes recommended.

7. No changes in the Forest Plan needed.

8. No changes in the Forest Plan needed.

9. There needs to be a slight change in methods. Given a concern over study design and budgets, there has been a shift in intent over how best to accomplish the necessary bird monitoring (see the *Monitoring 2000* report for details). Basically, the thrust will be on point counts only.

Monitoring Item (b): Monitor the change in selected native-species habitat.

Methods

1. Snag-dependent species; aerial mapping of current insect, disease, and fire events.

2. Animals listed in the Environmental Impact Statement.

Monitoring Done

1. The latest aerial survey of the Forest's insect and disease "hotspots" was obtained. This will become the baseline on which future comparisons will be made.

2. There were no changes of the list.

Conclusion

No changes in the Forest Plan needed.

Monitoring Item (c): Monitor changes in composition, structure, and pattern for each Landtype Association.

Methods

Photo interpretation, GIS, satellite imagery, and/or spatial analysis.

Monitoring Done

No monitoring required this year because it is too soon to detect any meaningful changes. Forest staff anticipate monitoring this item in year 2006.

Conclusion

No changes in the Forest Plan recommended.

Monitoring Item (d): Validate the vegetative composition and structure of LTA 1 reference landscape.

Methods

Photo interpretation, GIS, satellite imagery, and/or site visit.

Locations

Fourteen reference areas within E. Spruce on Mountain Slopes LTA. Found throughout the upper elevations of the Forest.

Monitoring Done

The IRI Center in Dolores awarded a contract to begin mapping and attributing Common Vegetative Unit (CVU) polygons on the Forest. A combination of contractor and IRI Center personnel will complete this work over the next two years. As part of this work, better inventory data will be collected in LTA1 landscapes. Once the IRI inventory is complete, Forest staff will decide whether this new information changes the assumptions of LTA1 reference landscapes.

Conclusion

No changes in the Forest Plan recommended.

Monitoring Item (e): Monitor changes in CNHP Significant Plant Communities listed in EIS.

Methods

Photo interpretation, site visits, GIS, and/or satellite imagery.

Locations

Special-status plant communities are at various sites over the entire Forest.

Monitoring Done

Visited the documented bristlecone pine / Arizona fescue plant community near Creede. It appears stable, and there are no apparent threats to it.

Conclusion

No changes in the Forest Plan recommended.

Monitoring Item (f): Monitor the progress of old-growth (Mehl 1992) inventory and reconnaissance on the Forest.

Location

Entire Forest.

Method

Ocular, plots, GIS, and/or satellite imagery.

Monitoring Done

Old-growth inventories were completed or were in progress for the Puddles #2 Timber Sale (Divide RD) and the Houselog Landscape (Saguache RD). To date, Mehl (1992)-defined old growth has been uncommon. Because the Mehl criteria are biased toward more productive sites, early indications are that there will be very little Mehl old growth on the Saguache RD.

Conclusion

No changes in the Forest Plan recommended.

Monitoring Item (g): Evaluate Biodiversity and Wildlife relative to 36 CFR 219.12 (k).

Methods

Ocular, plots, transects.

Monitoring Done

Three projects were monitored this year: Tewksberry Trail area, Como Lake Road, and Saguache Park Riparian project. All three projects were in compliance with Prescriptions, Standards and Guidelines, Objectives, Suitable lands, Monitoring Plan, and Congressional recommendations with respect to the Ecology, Wildlife, and Fisheries programs.

Conclusion

No changes in the Forest Plan recommended.

State of the Resource: Ecology

The Ecology program is responsible for monitoring Research Natural Areas (RNAs), Special Interest Areas (botanical areas), and plant-related items in the Biodiversity section of the Monitoring Plan.

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.

The most significant findings this year were new populations of Colorado tansy-aster *(Machaeranthera coloradoensis)* and Black Canyon gilia (*Gilia penstemonoides)*−both Forest Service-designated Sensitive plants. The Forest is still refining an old-growth monitoring protocol, and old-growth surveys are proceeding slower than expected. Motorized-vehicle trespass is a concern in the Spring Branch RNA.

State of the Resource: Wildlife

The Forest made good progress on conducting the variety of viability surveys identified in the Monitoring Plan. The effort was made possible by cooperative ventures with Division Of Wildlife and the Colorado Bird Observatory. Biologists were able to locate two new bat roosts (just off the Forest boundary); document the existence of Black Swifts during the breeding season in a area with suitable breeding habitat (Chama Basin), which suggests there is indeed breeding activity taking place (though not confirmed); determined that six young peregrine Falcons were fledged; surveyed 67 high-probability sites for boreal toads; and demonstrated that many spruce-fir birds could be monitored effectively with a moderate number of point counts.

The evaluation with respect to Goals, Objectives, Standards and Guidelines, and Management-Area Prescriptions is somewhat limited, since the Plan is so new, there are not that many projects that have been implemented which have incorporated the Plan's direction. Forest staff did review three projects and found them to be in compliance with the Plan.

No available information suggests a need to make any changes in the Plan's Wildlife direction.

State of the Resource: Fisheries

The Desired Condition for Biodiversity is to maintain viable populations of native species. In the Forest Plan Monitoring section, FS biologists identified that for the fisheries resource, this was to be tracked by monitoring the change in occurrence of Rio Grande cutthroat trout (RGN) populations in at least 10% of RGN streams on the Forest annually. The following paragraphs summarize the state of the fisheries resource on the RGNF relative to biodiversity and the 1997 Monitoring Plan.

The Colorado Division of Wildlife (DOW) lists 23 streams on the RGNF as supporting Rio Grande cutthroat trout refugia populations. The DOW defines "refugia populations" as those historic or transplanted populations that are naturally reproducing (John Alves, DOW, personal communication). Eleven of these refugia populations are historic or wild, and 12 are transplanted. Nineteen waters (streams and lakes) on private land also support RGN refugia populations. In addition, about 40 waters on the Forest have been stocked with RGN and are considered RGN management populations, rather than refugia populations.

It is unknown whether these management populations will naturally reproduce; because their long-term viability is uncertain (they are often stocked in marginal habitats that may not support natural reproduction, and non-native trout are frequently present), they are not considered refugia populations. Management populations are managed as recreational put-and-grow fisheries.

Nine of the 23 refugia populations on Forest lands (40%) were monitored during 1997 by USFS and DOW personnel. Population estimates calculated by the DOW indicate inconsistent trends in populations across the Forest, suggesting that site-specific factors play the strongest role in population stability. Two populations appeared to be unstable and at risk, One is likely extirpated, and all others appeared stable.

The DOW also monitored two populations of RGN on private lands in 1997, both of which appeared to be stable. The DOW considers a population to be "at risk" when there is evidence of encroachment by non-native trout species (Rio Grande Cutthroat Trout Management Plan, 1997). "Stable" populations are defined as those that exhibit evidence of reproduction and recruitment (Rio Grande cutthroat trout Management Plan, 1997). Of the two unstable RGN populations sampled in 1997, one had not been sampled since the 1980s, and the other was sampled in 1995. Neither population was considered stable when last sampled, and both were considered at risk due to non-native-trout encroachment. Both are historic or wild populations. On the other hand, the population likely extirpated was a transplanted population, and no non-native trout are present.

It is becoming apparent that in some cases, streams that were selected for native fish transplants may have been unsuitable due to limited or marginal habitat (low water, high gradients, lack of overwinter habitat–problems often associated with small, high-elevation streams), resulting in population instability or loss. Initial assessments suggest that the habitat was insufficient for supporting the population that has been extirpated. Colorado State University Ph.D. candidate Amy Harig is conducting research addressing these questions. Her research, when completed, will provide excellent information helping to direct future reclamation and transplant activities. One reclamation project is being planned.

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. One barrier will be installed in 1998. Non-native trout are present

in seven of the 23 RGN populations on the RGNF.

An additional threat to RGN populations can be habitat loss or degradation. Further evaluation regarding the decline of populations and the role that habitat may play in this decline is necessary. Preliminary habitat evaluations were conducted on 11 native fish streams in 1997 (report on file), and resulted in several projects to improve habitat (East Pass Creek, Osier Creek), or input to environmental analyses that will lead to habitat improvement (North Fork Carnero Creek, Pass Creek). Habitat evaluations are ongoing, and the DOW and the FS are working together to identify and address habitat concerns.

It is difficult to assess whether the Revised Forest Plan Direction, Desired Conditions, Standards, and Guidelines are effective in protecting biodiversity, in terms of the fisheries resource, because few projects have been implemented that have incorporated the Plan's direction (due to how new the Plan is). 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.

Research Needs

There is a need for additional native fish inventory work. The DOW conducted intensive systematic fish surveys in the 1980s, and determined that all native fish populations had been identified. However, two new populations of RGN were discovered during summer 1997, emphasizing the need for additional inventory efforts.

Recommendations

1. Native fish populations should be monitored at least every four years, because site-specific factors play the strongest role in population stability, and because continual monitoring of populations will ensure rapid detection of invasion by nonnatives or other threats. This would provide a method of prioritizing streams that the "10% of all RGN streams" criterion does not, and would ensure that all populations are continually monitored, but not so frequently as to cause unnecessary disturbance or harm. Using this criterion, a total of nine streams would be recommended for monitoring in 1998. The number to be monitored in any one year will be more reasonable (six or so streams per year) once we have caught up on the backlog of streams in need of monitoring.

2. Rio Grande chub and Rio Grande sucker are important native species that warrant monitoring.

3. This monitoring section should be changed to read Native Fish Population Monitoring, to incorporate Rio Grande chub and Rio Grande sucker into the monitoring plan.

4. Habitat evaluations provide critical information and identify resource needs, and should continue to be emphasized.

Reference Cited

Rio Grande Cutthroat Trout Management Plan, 1997, Colorado Division of Wildlife, Monte Vista, Colorado.

Air Quality

Monitoring Item (a): Monitor and evaluate visibility, lake chemistry, and terrestrial systems.

Methods

1. Photographic documentation of visibility. Coordinate with the National Park Service.

2. Chemistry of most sensitive lakes.

3. Health of terrestrial systems such as lichen communities.

Monitoring Done

Visibility and particulate monitoring show a static trend of good air quality for the Sand Dunes area.

Lake chemistry was evaluated for the nine lakes. Data indicate healthy lakes with no apparent adverse impacts.

Lichen monitoring to date shows elevated concentrations of some constituents in certain locations, indicating the need for a long-term monitoring effort to determine trends.

Conclusion

No changes in the Forest Plan recommended.

Monitoring Item (b): Monitor and evaluate burn plan.

Method

Visual verification of smoke dispersal.

Monitoring Done

Prescribed burning was accomplished with good smoke dispersal. Stable atmospheric conditions existed throughout the burning period. No complaints were received from the public.

Conclusion

No changes in the Forest Plan are recommended.

Monitoring Item (c): Assess Air Resources relative to: (a) Forestwide Goals, Objectives, and Standards and Guidelines; (b) Management-Area Prescription Objectives, Desired Conditions, and S&G's; and (c) Management-Area Prescription allocations and monitoring methods.

Method

Based on the results of monitoring items (a) and (b) above, assess whether Standards and Guidelines requirements are being followed, and if Desired Conditions are being met.

Monitoring Done

Forest management activities are following Standards and Guidelines. Desired Conditions are being achieved; however, preliminary lichen-study results suggest that biological systems have been slightly impacted in isolated locations.

Conclusion

No changes in the Forest Plan are recommended.

State of the Resource: Air Quality

Air quality for the Forest is excellent. It remains an outstanding feature that people come to enjoy. Beautiful scenery is enhanced by long visual distances. 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 continue to show lack of impacts from acid deposition. Initial results from lichen analysis suggest that sulphur might be impacting biology in isolated areas on the Forest. If this is occurring, its impact appears to be very slight, but more sampling will occur for us to better understand what is happening.

Timber

Monitoring Item (a): Restocking of harvest areas. 36 CFR219.2.

Method

Stocking surveys.

Monitoring Done

First-, third-, and fifth-year surveys completed on 2,437 acres. As of calendar year '92, all recent (within15 years) final-harvest-removal survival surveys have revealed 100% stocking. In '93, 1,715 of 1,883 acres were found to be fully stocked. Some of those acres were first- and third-year surveys, and full stocking is expected after five years. Similar results have been seen with surveys in '94-'97. The RMRIS database and annual NFMA report can be referenced for this information.

Conclusions

No changes needed. Followup surveys to first- and third-year surveys will continue. Three areas not meeting stocking requirements (the Royal Pain Fire within the Royal Park Timber Sale, some patch clearcuts within the Grouse Timber Sale, and an area of trespass timber near the headwaters of Wolf Creek) are scheduled for planting in late summer of '98 or '99.

Monitoring Item (b): Assess timber suitability. 36 CFR219.12.

Methods

1. Standard suitability determination at Forestwide level.

2. On-site inspection, inventory/growth-yield examinations, and soil sampling.

Monitoring Done

1. An error was found in the FEIS timber-suitability assessment for the revised Forest Plan. Timber lands in the Los Pinos/Cumbres/LaManga-Grouse areas on the Conejos Peak RD formerly identified as Tentatively Suitable and/or Suitable and scheduled (in the draft EIS) were incorrectly identified as Unsuitable.

2. Some sites or portions of sites within the Ruston Reentry were observed, on-site, to be unsuitable for ground-based harvest systems. These areas were excluded from this sale. Some sites/portions of sites within the Mountain Lion/Lookout Analysis Area were found to be suitable for timber management (though not scheduled from the suitability assessment); this change in suitability status was documented in the sale preparation folder (2430). (See Soils section for additional timber-suitability discussions.)

Conclusions

1. A Forest Plan amendment is underway to correct the suitability error, and may be combined with recommended changes in suitability derived from on-site inspections.

2. 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 examination, coupled with site specific economic analysis, is necessary to determine appropriate management opportunities or constraints.

   Additionally, the lack of recent or current stand-examination-inventory data in some areas has reduced the reliability of FVS and FORPLAN results, thereby requiring more field time by silviculturists and foresters to assure timber suitability status is accurate.

Monitoring Item (c): Assess insect and disease infestations relative to endemic levels, prior to and following management activities. 36 CFR219.12 & 219.27.

Methods

On-site observation and limited sampling. Can include statistically accurate plots.

Monitoring Done

Insect and disease infestations observed in and around the proposed or upcoming Houselog Vegetative Management area and Park Creek Salvage Timber Sale (Saguache RD); Handkerchief Mesa Management area and Twister Timber Sale(s) (Divide RD); Low Country Management area and Borrego/November Timber Sale (Conejos Peak RD); and in/around the ongoing North Park Salvage Timber Sale (Saguache RD), the Wolf Creek Ski Area, and the former Grouse Timber Sale (Conejos Peak RD).

Conclusions

Areas found to be exhibiting increasing and/or potentially damaging infestations were the Twister, Grouse, and Cliff Timber Sales, for spruce beetle. Park Creek, North Park Salvage, Borrego/November Timber Sales, and the Low Country and Houselog areas were found to exhibit high endemic levels of western spruce budworm. 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.

Monitoring Item (d): Monitor size of harvest openings. 36 CFR219.27.

Methods

Traverses, stocking surveys, on-site inspections.

Monitoring Done

Harvest openings monitored in the following past timber sales: 5-Mile Pond, Ruston, Ford, Fox Mountain, Thunder, Tiny Beaver, Part Stowe, and Shaw Lake. No harvest openings found to exceed the 40-acre limit.

Conclusions

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.

Monitoring Item (e): Assess implementation of silvicultural objectives during presale, harvesting, and post-sale periods.

Methods

On-site, photo points, density measurements.

Monitoring Done

Timber Staff monitored following sales: Red Mountain, Fox Mountain, Shaw Lake, Part Stowe, Ford, 5-Mile Pond, Ruston-Kreps. On-site observations indicate that objectives met in some units/sales but not

in others. Older shelterwood-system cuts (e.g., Ford, 5-Mile Pond, and Ruston-Kreps) removed more large spruce and retained more small, less "windfirm" spruce/fir.

More recent shelterwood cuts have retained more high-quality large spruce. In some stands, better silvicultural prescriptions could have been implemented. Example: Several Fox Mountain 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 often were not completed, resulting in fir-dominated stands in timber-management-emphasis areas. More detailed information available in separate sale Monitoring & Evaluation reports.

Conclusions

Post-harvest assessments are key to adaptive management. 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 preparation/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-examination inventories, particularly where harvesting has occurred since inventory data were collected. Could add emphasis in Forest Plan & FEIS/FEIS Appendix indicating that most patch clearcuts are actually simulated shelterwoods, whereby a fully stocked understory is being released by removal of overstory.

Monitoring Item (f): Assess output performance of Timber Sale program quantity components as compared with outputs. 36 CFR219.12.

Method

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).

Monitoring Done

Planned outputs were exceeded for reforestation and timber stand improvement. Timber volume offer was 40% less than planned.

Conclusions

Volume-offer shortfall due largely to continued litigation of 4.0 MMBF Metroz North Timber Sale (Forest has been awaiting court's decision for two years). Sale needs only appraisal prior to contract preparation and advertisement. Some timber sales resulting in less than planned volumes due to former harvest entries that removed more volume and higher-quality trees than prescribed.

Monitoring Item (g): Assess Timber program relative to 36 CFR 219.12 (k).

Method

Comparative evaluations.

Monitoring Done

Timber Center of Excellence (TCE) team reviewed Forest Plan (Forestwide) Desired Conditions (Goals), Objectives, and Standards and Guidelines (for Silviculture); reviewed Management-Area Prescriptions, silvicultural prescriptions, and Standards/Guidelines for Management Areas, including timber-related Desired Conditions. The review and evaluation were documented under 1920-2-3.

Conclusion

Some minor editorial changes are recommended for Forestwide Silvicultural Standards 1, and 2, and for Management-Area Prescriptions for 5.11, 5.13, and 5.41.

State of the Resource: Timber

Timber resources across the RGNF are suspected to 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 during the summer and fall of 1997 of primarily past timber sales revealed the following (as tied to monitoring objectives):

Restocking

Regeneration of areas harvested since the mid-'70s, when the Forest switched from largely 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 of stands prior to partial-cut harvests; partial cutting has repeatedly made available

additional growing space for more new trees. Three areas that have not restocked and are scheduled for planting in the late summer of '98 are:

- Wolf Creek (near Flat Mtn. Yurt and within the proposed El Lobo Timber Sale). A 10-acre area was harvested illegally around 1970 (with logs skidded onto and hauled off adjacent private land).

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

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

Timber Suitability

An advantage of the revised Forest Plan timberlands-suitability assessment over the original 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 Plan.

Timber suitability and associated allowable sale quantity can be estimated through the use of advanced 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 error was made in the timber-suitability assessment regarding spruce-fir stands in the Cumbres/LaManga area of the Conejos Peak RD. Some Landtype Units within the Engelmann Spruce on Landslides Landtype Association (LTA) were omitted from the Suitable lands between the Draft and the EIS, even though soil assessments coupled with timber harvesting have shown these timber stands can respond favorably to management. A Forest Plan Amendment is underway to correct this problem.

As part of reconnaissance tied to the Mountain Lion/Lookout Vegetation Management project, 10 out of 91 stands were surveyed in12 locations, and 11% were recommended for changes in suitability due to mostly rocky soils that would preclude regeneration. Also, 27 stands (30%) contained areas too steep for conventional harvesting.

Initial planning for the Ruston Reentry Timber Sale indicated that about 1,470 acres would be treated. The actual area designated within harvest units was 1,088 acres (a reduction of 26%). Excluded areas included steep slopes, riparian/wetland zones and buffers, rocky areas, and areas with insufficient coniferous overstory to meet silvicultural objectives. It is important to note that the Suitable timber lands on the Forest contain stands or portions of stands exceeding 40 percent slope (considered the operable limit for conventional ground-based logging systems), which does not to preclude the use of cable (suspended) logging systems.

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, or outside managed timber stands. Over the last two years, FS entomologists have observed increasing populations of spruce beetle, and associated killing of overstory spruce, in the Cliff and Grouse Timber Sale areas. (The Cliff Timber Sale, west-southwest of Creede, was initiated in '95 to salvage dead and dying timber in and around a small blowdown area. The Grouse

Timber Sale, west of LaManga Pass, was a commercial sawtimber sale occurring mostly in the early 1990s.)

On October 10, 1997, a tornado touched down along a 3-mile-long swath through mostly spruce-fir timber in the Lime Creek area, about 12 miles south of Creede. About 680 acres was impacted by these strong winds, nearly 2/3 of which was mostly leveled. Most of this windthrown timber lies within a Forest Products Management Area (MA) and is planned for removal before successive life cycles of the beetle lead to elevated populations. But 62 acres lies within a Backcountry Management Area at the head of Pierce Creek. The Backcountry MA Prescription calls for natural processes and disturbances to occur unimpeded. Within this area, ample downed spruce should provide suitable brooding habitat for spruce beetle; many overstory spruce could be killed when adult beetles spread to adjoining timber stands.

Additionally, conversations with hunters revealed that strong winds and associated blowdown occurred throughout much of the Forest around the time of the tornado. If so, readily available host habitat may create conditions conducive for spruce beetle proliferation. Following several life cycles, mortality of overstory Engelmann spruce may become locally or extensively widespread, resulting in long-term compositional changes in spruce-fir stands.

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/multicanopied conditions are together resulting in favoring WSB survival.

Of the 91 stands observed in the Mtn. Lion/Lookout area, about 50 (55%) are made up of mixed-conifer species susceptible to WSB. Of those 50, 45 (90%) reflected at least moderate defoliation from WSB in one or more coniferous species, and many reflected moderate to severe infestations of dwarf mistletoe.

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.* Most harvest openings are less than one acre. Past created openings exceeding the 40-acre limit generally trace back to the clearcutting of the '60s and early '70s, and most are fully stocked with pole-sized trees. (An exception to this could be the proposed Twister Timber Sale(s) arising from the Fisher Mountain Tornado blowdown. This exception is fully authorized under 36CFR219.27(d)(2)(iii).)

Silvicultural Objectives

Monitoring and assessment of silvicultural objectives as tied 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 in 1997, 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.

* "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).

- Many preparatory and seed cuts of shelterwood, initiated primarily during the '80s, 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 composition and structure of stands toward late-seral conditions (multi-aged/canopied stands dominated by more shade-tolerant Douglas-fir and white fir).

  For example, of 91 stands observed in the Mountain Lion/Lookout area, at least 12 (14%) were judged to have undergone obvious "high-grading" (removal of the largest and often best trees in the stand) by previous harvests; many more of these stands were suspected of more subtle high-grading. Assuming standard means for estimating the proportion of trees retained versus trees removed were used during this time of larger-cohort removal, it is suspected that a number of these sales removed a greater proportion of the overstory volume than was intended.

  This has had a twofold effect on decreasing windfirmness of some stands: (1) the protective overstory canopy was opened up to a greater extent than expected under standard silvicultural practices, and (2) many of the most windfirm trees in the stand–individual dominant trees with wind-exposed crowns rising above the general level of the canopy–were those targeted for removal.

  Current or future entries may be more limited, due to these past practices and resulting influences on stand structure and composition, than would be expected if standard silvicultural practices were adhered to.

- 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 (e.g., 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 stands/units reflect lighter cuts than those of the past.

- 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 (i.e., 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 not, 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.

- In spruce-fir stands in recent years, there has been a shift from shelterwood-dominant to group-selection-dominant harvesting. But in most cases, opportunities for meeting objectives for uneven-aged target stands have been overridden by the emphasis on concentrating harvesting only within groups (in contrast to harvesting within and between groups). As a result, desired stand 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-harvest cuts and other harvest methods (though not always fulfilling planned objectives), coupled with natural disturbances, has maintained a diverse Forest environment in and around areas managed for timber production.

Another concern noted from field observations that ties to both created openings and silvicultural treatments is the proliferation of noxious weeds along timber sale roads and on former log-landing sites. Timber sale contract provisions outlining requirements for erosion-control measures and/or treatment of noxious weeds have been a regular component of most contracts since the late 1980s, and will continue to be.

Indirectly affecting silvicultural-treatment objectives is the influence of "no-bid" sale offerings–that is, timber sales for which no bids were received at auction. The Forest's reliance on the timber industry as the primary means to accomplish silvicultural objectives 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

There are various ways to measure timber resource outputs. Some tie to acres treated, some to volumes of material harvested (in either cubic or board feet). Several key outputs are displayed in the Management Attainment Report (MAR). Following are MAR timber resource outputs for fiscal year 97.

Item	Measure	Planned	Accomplished	% Accomplishment
Reforestation	Acres	2,000.0	2,437.0	121%
TSI*	Acres	130.0	163.0	125%
Timber Volume Offer	MMBF	8.0	4.8	60%

*Timber Stand Improvement (usually thinning)

With volunteers aiding RGNF timber technicians in regeneration surveys, 437 extra acres were surveyed. These surveyed acres also counted toward meeting reforestation treatment needs generated by final harvest removal treatments (clearcuts/coppice, shelterwood overstory removal, or group-/single-tree-selection harvests). (All areas surveyed were certified as meeting stocking requirements for new stands.) Planned thinning Goals were exceeded by 33 acres.

Timber volume offer was 40% less than planned due largely to the continued litigation of the Metroz North Timber Sale. This 4.0 MMBF sale of spruce-fir sawtimber, needing only to be appraised in value before a contract can be prepared and advertised, has been held up for 1½ years awaiting the court's final decision. In addition to regeneration surveys, 8,340 acres of stand-exam inventory was completed.

As alluded to earlier, past high-grading; heavier than normal harvests; harvesting on steep, rocky, or wet ground; and the retention of less valuable trees (from a wood products standpoint) have all contributed to a reduction of expected volume (and/or value) in current and future entries. (For example, of 91 stands observed in the Mountain Lion/Lookout area, nine (10%) had substantially lower on-site volumes than was recorded in the stand-inventory database. Often, these stands reflected high-grading from past harvest activities.) This has had, and will continue to have, an influence on output performance–particularly in acres treated and volume outputs–and may result in some continued no-bid sale offerings.

Recommendations

Following are suggested changes in the Revised Forest Plan.

- Forestwide Standards and Guidelines: Page III-17, Silviculture Standard #1,

change all references to CFR's with"(l)" or "(lll)" to "(i)" or "(iii)". Rationale: to be consistent with the correct style of the CFR.

- Change second sentence in Silviculture Standard #2 to read, "Even-aged, two-aged, or uneven-aged management systems can be used and applied...". Rationale: to better reflect the various management systems and to be consistent with Table III-4 below (on same page).

- Change Silviculture Standard #8, page III-20, second sentence, to read, " ...On Unsuitable or Suitable but Not Scheduled lands, timber cutting may occur...". Rationale: dropping the highly subjective term "limited," used to describe "timber cutting," better focuses the reader on what may occur.

- Change Silviculture Guideline #2, page III-20, second sentence, to read, "...as to perpetuate a range of environmental conditions...". The word deleted, "this," is not defined or identified until the third sentence, leaving the reader questioning, "What 'range of environmental conditions'?"

- Management-Area Prescriptions: Page IV-25, under Setting for General Forest and Intermingled Rangelands, delete from second sentence, "...however, uneven-aged management systems are more likely to occur." Rationale: This may or may not be true, particularly in mixed-conifer or lower-elevation spruce-fir stands where uneven-aged systems may promote western spruce budworm habitat and accompanying defoliation.

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

Delete the second occurrence of the word "exist" where discussing mineral and energy resource opportunities. Rationale: The term is used redundantly.

- 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." Rationale: to be consistent with MA 5.11.

- Change Standard #2 in the Deer and Elk Winter Range Management-Area Prescription, page IV-29, by deleting "...with resource constraints." Rationale: All Management-Area Prescriptions have resource constraints. Also, this statement will then be consistent with similar statements in other Suitable Management-Area Prescriptions.

- Monitoring Approaches: There are questions as to the most effective and accurate means to assess stand-by-stand timber suitability and/or the meeting of silvicultural objectives. Both objectives tie with output performance, as well. Most observations were made by experienced foresters, but without the time and personnel to perform statistically accurate assessments.

  Reduced resources for stand-examination inventories, coupled with the one- to two-decades-old status of much of the Forest's available inventories, has made estimates of timber-stand conditions less accurate during planning stages, both at the project and Forest levels, than in the 1980's, when funding for timber inventories was at a much higher level. Hence there is some concern about the accuracy of FVS and FORPLAN outputs−and therefore about the accuracy of the estimated allowable sale quantity.

  Commitments to increasing resources for updating stand inventories, to managing the Suitable Timberlands base, and to continue assessing timber-resource conditions and management activities are needed to fulfill the objectives for timber

resources set forth in the Revised Forest Plan.

Fire and Fuels

Monitoring Item (a): Assess Fire/Fuels relative to: 36 CFR 219.12 (k).

Methods

Ocular estimates using photo guides for estimating downed woody fuels. Fuel transects and surveys to determine actual loading and arrangement. On-site inspections.

Monitoring Done

Conclusions

Range

Monitoring Item (a): Monitor and evaluate Range program relative to 36 CFR 219.12 (k).

Methods

Refer to monitoring items that follow.

Monitoring Done

See below.

Conclusions

See below.

Monitoring Item (b): Monitor and evaluate Rangeland seral stage to ensure the Desired Conditions.

Methods

Various methods and techniques will be derived from RAMTG. MAR target # 76.1.

Monitoring Done

The total area inventoried on the Forest was 142,854 acres. Inventories by District, including allotments where inventories were conducted, were as follows: Conejos Peak RD, 100,000 acres (Archuleta, Cumbres, Wolf Creek, Fox Creek, Mesa, Jarosa Mesa, Red Lake, Dipping Lakes, Twin Lakes, Roaring Fork, and Saddle Creek Allotments); Divide RD, 36,854 acres (Shaw, Decker, Trout, Frisco, East Piños, Alder, and Sulfur Allotments); and Saguache RD, 8,000 acres (Cave and Pasture Allotments).

Conclusion

No changes needed in Forest Plan.

Monitoring Item (c): Assess rangeland suitability.

Method

Intensive review at site-specific areas while applying criteria for capability and IDT determination of suitability.

Monitoring Done

Rangeland Suitability/Capability Determinations were conducted on two Districts for five allotments: Conejos Peak RD, 23,500 acres on the Archuleta, Cumbres, and Wolf Creek Allotments; Divide RD, 14,500 acres on the Shaw and Canon Allotments.

No Suitability/Capability analysis was completed on Saguache RD allotments.

Conclusion

No changes needed in the Forest Plan.

Monitoring Item (d): Monitor utilization of rangelands.

Methods

P/U cages, height-weight, stubble height, and ocular estimates. MAR target #75.1.

Monitoring Done

Monitoring for vegetation utilization was conducted on about 161,000 acres on all three Districts. Methods were P/U cages, height-weight, stubble-height measurements, and ocular estimates. Half of all active allotments were monitored on each District.

Conclusion

No changes needed in the Forest Plan.

Noxious Weeds

Monitoring Item (a): Monitor and evaluate noxious weeds relative to 36 CFR 219.12 (k).

Methods

On-site inventory, integration of existing information. Inventory information will be entered in GIS.

Monitoring Done

Forestwide inventories were conducted on all three Districts in 1997. Partnership agreements with BLM and the use of volunteers contributed significantly to this year's accomplishments.

Area inventoried totalled 380 acres: Conejos Peak RD, 160 ac.; Saguache RD, 20; Divide RD, 200. Inventory efforts focused primarily on FDR road systems. Specific information on species found and areas infested and inventoried can be found in District records.

Conclusion

No changes needed in the Forest Plan.

Watersheds, Including Soils, Water, and Riparian and Aquatic Ecosystems

Watersheds

Monitoring Item (a): Monitor and evaluate watershed disturbances. Level I watershed assessment to measure total connected watershed disturbance and compare to Concern Levels.

Method

Measure acres of disturbance in each 6th- and 7th-level watershed. Use runoff curve numbers to equate all disturbances to an equivalent roaded area. Assess risk to watershed health from increased runoff.

Monitoring Done

Surface disturbances for watersheds within these analysis areas are below concern levels, with a few exceptions: California Gulch and Hat Springs Creek watersheds, in the Houselog Timber Sale, have relatively high levels of surface disturbance. Stream channels within these watersheds are still healthy, due to two factors: (1) the climate is quite dry, so runoff is naturally low; and (2) disturbances are fairly well disconnected from stream channels.

Hicks Canyon within the Fox Allotment also has a high percentage of disturbance within the watershed area, but is an ephemeral channel with no signs of excessive runoff.

Conclusion

No changes in the Forest Plan are recommended.

Monitoring Item (b): Monitor and evaluate stream and riparian health. Level III stream assessment on one stream per 6th-level watershed for each EA analysis area.

Method

By comparing to a like reference stream, assess water quality, channel condition, and riparian function to measure amount, if any, of impairment

Monitoring Done

All of these streams, plus an additional six, were monitored for stream health. Stream health was adequate to robust for all but six:

- Mill Creek has undesirably high width/depth ratios.
- Big Springs Creek (tributary to Houselog Creek) has too much sediment from road discharges.
- Schrader Creek also has too much sediment in isolated locations from road runoff.
- The Rio Chama is highly unstable for about ¼ mile, due to gabions that are preventing the river from proper adjustments.
- Leopard Creek in Leopard Park is getting undesirable bank damage from livestock trampling.
- The Middle and North Forks of Saguache Creek have unstable banks in some locations due to poorly designed fish structures, and possibly from hoof action.

Conclusion

No changes in the Forest Plan are recommended.

Monitoring Item (c): Monitor and evaluate stream and riparian health. Level III assessment to measure recovery of damaged streams over time.

Method

Compare changes in channel shape and composition, to see if recovery is occurring with prescribed mitigation.

Monitoring Done

The Kitty Creek headcut control structure is intact and functioning well; however, the electric fence is not working and may need to be replaced with a permanent fence.

The Crooked Creek riparian-restoration project is functioning well. Some minor maintenance is needed.

Recreation is not causing widespread or serious stream health impacts on Park Creek.

Increased flows into Weminuche Ditch has accelerated erosion and downcutting of the stream below.

Conclusion

No changes in the Forest Plan are recommended.

Monitoring Item (d): Monitor and evaluate stream and riparian health. Level II stream assessment to see if Watersheds Of Concern experience stream or riparian damage.

Method

Look for visible evidence of channel damage or water pollution. If visible evidence exists, document with a Level III stream-health assessment.

Monitoring Done

Stream-health problems associated with higher levels of watershed disturbance were not identified for watersheds and streams assessed.

Conclusion

No changes in the Forest Plan are recommended.

Monitoring Item (e): Assess Soil and Aquatic Resources relative to 36 CFR 219.12(k).

Method

Visually determine if Standards and Guidelines have been implemented and are achieving the Desired Conditions.

Monitoring Done

Riparian areas within Saguache Park were properly functioning, for the most part. Bank-stability guidelines were not being met in certain locations of Saguache Park, and projects are being initiated to correct problems.

The Como Lake road has not been properly waterbarred. Additional waterbars have been located in the field for an established partner to construct.

Old roads behind Fun Valley have been appropriately closed where they were located too close to stream channels. Some trails are not adequately drained, and are eroding.

Conclusion

No changes in the Forest Plan are recommended.

Soils

Monitoring Item (a): Assure that land productivity is maintained or improved.

Methods

1. Monitor soil-quality standards.
2. Use erosion model to predict erosion or analyze projects after completion.
3. Ocular estimates, pace transects, and on-site professional judgements to monitor fertility, erosion, and mass movement.
4. Mass-movement evaluation by monitoring existing & potential problem areas.

Monitoring Done

1. Saguache Park Riparian Soil Monitoring: Soil core samples were extracted and compared between a grazed pasture and an exclosure. Livestock-grazed areas were not compacted compared to the "elk only" grazing within the exclosure. Water infiltration was noticeable reduced in the grazed area, suggesting some impacts from livestock on soil structure and water movement. Suggests need to improve livestock distribution to keep soils/infiltration healthy (report on file).

   Leopard Park Soil Health Study: Soil samples were collected to evaluate soil compaction. Results show that soil compaction is a concern in the Leopard Park area of Leopard Creek Allotment.

2. Soil erosion models being revised from MSLE to WEPP.

3. Wolf Creek Ski Area Inspection: An on-site review was made at the ski area relative to soil and water conservation practices. Overall, the Area is doing an excellent job of controlling erosion and sedimentation (letter on file). One deficiency noted was the need to use native plants in revegetation efforts, which is directed by the new Standards of the Plan. The Forest Service provided them with the revised seed prescriptions for future use.

   Marshall Gulch Prescribed Natural Fire, July 1997. Soil scientist conducted pace transects to see if surface cover factors were being met. Results show the bare-soil standards were being met, indicating that erosion would be within tolerable limits.

Spanish Divide Escape Fire: Did 100' measured transect of surface-cover standards. Appears they are not being met and revegetation/reseeding should be done.

4. Ruston Soils Mass-Movement Evaluation: In August 1997, an on-site soil investigation was done to evaluate some potential mass-movement landforms in the Ruston Timber Sale. Indicators of mass movement were observed, and a moderate hazard exists. Recommended to either harvest lightly or not cut at all.

   In July 1997, Forest biologists and soil scientists traversed the Chama Landslide. All indications are that it has stabilized and is naturally revegetating well. There was no movement this year.

Conclusions

1. Meeting Forest Plan Standards for soils. No standard for infiltration, but management needs to be improved to restore infiltration.

2. Meeting Forest Plan Standards for soils. No standard for infiltration but management needs to be improved to restore infiltration.

3. No change needed.

4. No change needed. Need to watch these Standards to see if they protect the soil from erosion.

State of the Resource: Soils

The Desired Condition for soils is to maintain or improve soil health. The Monitoring and Evaluation Report for FY 97 describes the specific analyses and evaluations that were done in FY 97 relative to soil health. The following paragraphs summarize the state of the soil resource on the RGNF.

The Revised Forest Plan Direction, Desired Conditions, Standards, Guidelines and Monitoring Plan seem to be effective in protecting the soil resources and are, in general, being implemented. No changes are necessary in the Revised Forest Plan from a soils perspective. There is a discrepancy in the Suitable timber lands relative to soil units that is discussed elsewhere in this report.

In general, the Forest has met the desired conditions required by the Forest Plan for the soil resource. In those instances where resource conditions have not met Desired Conditions, changes in management are proposed and implemented. Some of the successful soil objectives include keeping fine slash in the Forest for nutrient cycling, maintaining coarse woody debris at project sites, and meeting soil-cover standards on range allotments, timber sales, and prescribed fires. Successful monitoring projects included evaluating soils in the Saguache Park grazing allotment, evaluating the Como Lake road for erosion concerns, and evaluating backcountry uses in the Tewksberry area. Other objectives met include soil and water improvements in Watersheds Of Concern, riparian areas, and other high-priority areas.

There are some areas of concern whereby soil conditions do not meet the desired soil conditions. Specifically, soil compaction remains an issue in timber sales and grazing allotments. The Forest conducted considerably more core sampling (for compaction determinations) in FY 97, and more is scheduled for FY 98. The results have been interesting. Soil infiltration was found to be impacted to some degree by livestock grazing in the Saguache Creek riparian area. This issue needs to be evaluated in other allotments, as well.

Surface-soil-cover standards were evaluated at the Spanish Creek escape wildfire. This escaped fire started in slash piles but escaped into 40 acres of nearby down woody debris. The fire burned very hot and ignited most of the surface organic layers. Hydrophobic (water-repellent) conditions were also created. Preliminary evaluations show that surface-cover standards are not being met in the second year since the fire. Restoration measures are necessary.

Another concern is soil-cover standards relative to prescribed natural fires. In the first year since the Marshall Gulch burn in the Sangre de Cristo Mountains, soil-cover standards are being met. The second-year standards become more stringent, and we will monitor to see if natural revegetation can establish itself and keep soils effectively protected from erosion and meet standards.

Soils have been impacted by a wide variety of activities from the recent and distant past. Continued monitoring and evaluation of the

soil resource are planned through the next planning horizon.

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 RD, 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. Health of some streams has been diminished from management activities. Of 26 streams monitored in FY97, six had some problem that was affecting their health. Mill Creek (Saguache RD) has undesirable width/depth ratios. Big Springs Creek (a tributary to Houselog Creek) has elevated fine sediment from roads. Schrader Creek is also impacted in spots from sediment delivered from an adjacent road. The Rio Chama is unstable and out of balance for ¼ mile below gabions that were installed to control bank erosion, but have also prevented the river from natural and needed adjustments. Leopard Creek, particularly Leopard Park, has elevated bank alteration and instability from livestock and wildlife trampling. Portions of Middle and North Fork Saguache Creeks have bank instability from poorly designed fish structures and livestock/wildlife use of riparian areas.

Remediation of problems is already being planned. Poorly designed and malfunctioning fish structures will be removed.

Minerals

Monitoring Item (a): Monitor and evaluate oil and gas activities so effects do not exceed predicted by 10%.

Method

Compare annual and cumulate OG activity.

Monitoring Done

There was no oil and gas activity on the Forest in FY 97.

Conclusion

No changes needed.

Monitoring Item (b): Verify if areas are compatible with FP stipulationss. Assess if occupancy could be allowed on the lease tract. 36 CFR228.1.2 (e) 1,2,3.

Method

Verification form.

Monitoring Done

No verification done. No lease applications processed.

Conclusion

No changes needed.

Monitoring Item (c): Monitor and evaluate Minerals program relative to 36 CFR 219.12 (k).

Methods

On-site inspections of mineral activities, review reports.

Monitoring Done

There are some errata on the oil and gas leasing map. These need to be corrected and noted.

Conclusion

No changes or additional analysis needed.

State of the Resource: Minerals

Minerals activities consist of three major mineral resources: locatable (hard rock), leasable (oil and gas, etc.), and common-variety mineral materials.

There are few activities in locatable minerals, with most actions being small in size and effect. There were no major proposals.

The leasable-minerals program is just starting to implement new Plan direction. There have not been any leasable-mineral activities or lease applications for a number of years now. However, leases have been filed as of FY 98.

The major common-variety mineral material proposal involves the EPA, State of Colorado, and the reclamation of the Summitville site. EPA proposes to use FS rock materials in the reclaiming of the site. The FS is working closely to see that multiple resource objectives are accomplished. All of these activities are within the scope of the Revised Forest Plan, and no changes are needed.

Unroaded Areas

Monitoring Item (a): Assess the physical, biological, and social resources within Backcountry areas.

Method

Assess impacts on the physical, biological, and social resources (indicators).

Monitoring Done

Per District request, the Tewksberry unroaded area was reviewed and an assessment report completed as of June 1997. This report is on file at the SO. The review and assessment dealt with Monitoring Plan Objectives, Backcountry area Desired Conditions and Direction, District concerns, and the identification of issues and recommended actions associated with them.

Conclusions

The assessment shows that, overall, Forest Management Direction and Standards are being met.

Some deficiencies identified included the need to correct the Forest Plan map to show the correct location of the Tewksberry trail; the need for trailhead bulletin board/trail information, including ethics such as Leave No Trace; the need for trail-maintenance work associated with the lower section of trail; the need for signing the trail for types of users; the need to identify trails to include in the Forest inventory and establish trail standards; the need to correct erosion problems; and the need to pursue some interpretive opportunities.

No Forest Plan changes needed.

Monitoring Item (b): Evaluate Backcountry Areas relative to 36 CFR 219.12 (k)

Method

Comparative evaluation for the Monitoring & Evaluation Report.

Monitoring Done

The Backcountry Area Desired Conditions, Standards and Guidelines, Allocations, and Monitoring Items do not need to be changed.

Conclusions

No Forest Plan changes needed. Backcountry Area assessments will continue in FY98.

State of the Resource: Unroaded Areas

Nonmotorized and motorized trails remains a key issue. RS 2477 is expected to affect some of the Forest trail designations within Backcountry Areas. Monitoring remains important to meeting Management Objectives and Desired Conditions for Backcountry Areas.

Wild and Scenic Rivers

Monitoring Item (a): Assess the physical, biological, and social resources within Wild and Scenic river corridors.

Method

Assess impacts on the physical, biological, and social resources (Indicators).

Monitoring Done

No Wild and Scenic River corridor was scheduled for assessment in FY 97. An area assessment is scheduled every three years: FY 99.

Conclusions

In FY 98, the impacts of the Highway 160 upgrade on eligible-Wild-and-Scenic-River values will be assessed, and the values protected. No Forest Plan changes are needed.

Monitoring Item (b): Evaluate Wild and Scenic River Management Prescription Objectives, Desired Conditions, and Standards & Guidelines 36 CFR 219.12 (k).

Method

Comparative evaluation for the Monitoring & Evaluation Report.

Monitoring Done

The Wild and Scenic River Standards, Desired Conditions, Allocations, and Monitoring Items do not need changing.

Conclusion

No Forest Plan changes needed.

State of the Resource: Wild and Scenic Rivers

Highway 160 improvements and monitoring of the Cumbres Allotment will provide documentation related to meeting Wild and Scenic River Standards and Desired Conditions.

Wilderness

Monitoring Item (a): Schedule for implementation those Priority 1 items outlined in each Wilderness Area Wilderness Implementation Schedule (WIS).

Methods

Surveys, data gathering, and reports.

Monitoring Done

Monitoring items for the Weminuche and South San Juan Wilderness Areas included visitor use, encounters associated with groups, dog control, crowding assessment, area capacities, campsite densities around lakes, riparian conditions, and high-lake surveys. A visitor use study was done in the San Isabel Lake area of the Sangres. No monitoring items were undertaken with the La Garita Wilderness in FY 97.

Conclusions

Results of the monitoring-assessment work done in the Weminuche and South San Juan showed Standards were being met for the categories assessed. Continued review and assessment are needed in FY 98 for establishing the lake-area campsite densities. New FS wilderness orders may be needed in FY98. No changes needed in the wilderness implementation schedules.

Monitoring Item (b): Evaluated Wilderness Forestwide Goals, Objectives, Standards and Guidelines, Management Prescriptions, Objectives, and Desired Conditions 36 CFR 219.12 (k).

Monitoring Done

The San Juan National Forest (SJNF) completed a Wilderness Management Direction Environmental Assessment to amend its Forest Plan. Many of the Wilderness Objectives, Management Prescriptions, Standards, Desired Conditions, and Allocations are part of the Rio Grande plan.

An error was found in the Forest Plan in the Prescription Category 1 table footnote on pg. IV-2. No other changes are needed in the Wilderness Objectives, Standards, Management Prescriptions, Allocations, or Desired Conditions.

Conclusions

When the SJNF Wilderness Management Direction EA is approved, an amendment to the Rio Grande Plan is needed, to incorporate the direction outlined in this assessment.

An erratum is needed to correct the footnote error found in the Plan on page IV-2.

No other Forest Plan changes are needed.

State of the Resource: Wilderness

Emphasis is on managing these areas as a single entity, assessing the impacts and management direction of all wilderness resources and not solely recreation-related issues and impacts.

Special Interest Areas

Monitoring Item (a): Assess protective measures and interpretive efforts.

Method

Ocular surveys.

Monitoring Done

No monitoring required.

Conclusion

None.

Monitoring Item (b): Evaluate Special Interest Areas relative to 36 CFR 219.12 (k).

Method

Summarize reports or information from Districts.

Monitoring Done

No monitoring required.

Conclusion

None.

Research Natural Areas

*Monitoring Item (a): Evaluate RNAs relative to: * 36 CFR 219.12 (k).*

Methods

Ocular, plots, transects, GIS.

Monitoring Done

The Spring Branch RNA was evaluated visually. The District has made good progress getting "Road Closed" signs up on all the spur roads from FDR 327 (Cedar Springs Rd.). There are still some minor vehicular-trespass problems, which we anticipated would happen in this area.

Conclusions

No changes in the Forest Plan recommended. We need to make sure road-closure signs stay in place.

Heritage Resources

Monitoring Item (a): Monitor and evaluate Forest projects to assure HRs have been protected. Exchange. NFHR Funds: 5RN330 5SH903.

Method

On-site inspection of each National Register of Historic Places-eligible heritage resource identified for protection. MAR 65.4.

Monitoring Done

Heritage Resource sites on the Red Mountain and Cow Camp Timber Sales identified as needing protection during project activities were inspected, with no resource damage detected.

Sites 5RN330 & 5SH903 were inspected and no additional vandalism was noted.

The site of J. C. Fremont's "New Years Camp" of 1849 was inspected, and it was found that a portion of new trail was built through the site. Trail reconstruction was to have stayed on the existing trail, but the small section of trail through the site was a mistake by the volunteer trail crew. No damage of site features was noted.

Conclusions

No changes needed in Forest Plan. Additional project coordination should be done on projects involving volunteers.

Monitoring Item (b): Monitor and evaluate consultations with American Indians.

Method

Review Timber Sale Environmental Assessments and other major project Environmental Assessments.

Monitoring Done

The American Indian Consultation Bulletin (AICB) was issued in August 1996 & May 1997 for the following FY 1997 projects: Houselog Timber Analysis Area, Table Mountain Timber Sale, Mountain Lion Timber Sale, and the Rito Hondo Timber Sale. The AICB is issued three times a year for "major" projects; otherwise, the RGNF Quarterly Scoping Document is being used as the vehicle for American Indian consultation. Range projects were not included in the AICB, but were in the Quarterly Scoping Document.

Conclusions

No changes needed in the Forest Plan. The American Indian Consultation Bulletin (AICB) should continue to be issued three times a year, and expansion of proposed project types and numbers of should be included. Proposed range projects with known heritage resources that could be of cultural interest to American Indian people need to be included in the AICB.

*Monitoring Item (c): Monitor and evaluate the Heritage Resource program relative to * 36 CFR 219.12 (k).*

Method

Summarize Heritage Resource reports.

Monitoring Done

Reports for proposed projects were sent to the Colorado SHPO for concurrence.

Conclusion

No changes needed in the Forest Plan.

State of the Resource: Heritage Resources

The Forest made good progress in conducting the Heritage Resource monitoring called for in the FY 1997 Annual Monitoring Operation Plan (AMOP). The monitoring of two completed timber sale projects 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 sites not associated with a project that have the potential to be vandalized should be continued, to comply with established Standards and Guidelines.

Certain activities that are not adequately supervised, such as volunteer trail work, should be monitored more closely, to avoid situations such as the inadvertent impact on J.C. Fremont's historic New Years Camp of 1848-1849 from trail reconstruction activity.

The American Indian Consultation Bulletin (AICB) should continue to be a vehicle for consulting 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 AICB is recommended, to comply with Standards and Guidelines. Additional face-to-face consultation should also be done, to supplement the AICB for certain projects. The review of Heritage Resource Inventory Reports for FY 1997 indicates that projects with the potential to impact Heritage Resources are being inventoried, and protective measures are adequate.

Developed Recreation

Monitoring Item (a): Customer survey

Method

Forestwide market and customer survey.

Monitoring Done

This survey was not undertaken in FY 97. It is scheduled to be completed every five years.

Conclusion

No changes needed in the Forest Plan.

Monitoring Item (b): Annual developed-site hazard-tree inspections.

Method

Inspection of Forest's campgrounds and picnic areas for removal of hazard trees.

Monitoring Done

Annual hazard-tree inspections of the Forest's campgrounds and picnic areas completed as part of the sites' preseason inspections. Hazard trees marked and removed. Large-scale volumes of hazard trees scheduled for District small-sales program. Hazard-tree inspection reports on file at District Offices.

Conclusions

Preseason inspections will occur in FY 98. No change in Forest Plan needed.

Monitoring Item (c): Monitor ski area summer and winter activities.

Method

Monitor Wolf Creek Ski Area for compliance with approved summer/winter operating plans.

Monitoring Done

FY 97 winter and summer operating plans were approved, and monitoring inspections made (inspection reports 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 billings & payments.

Hazard-tree assessment was done along the chair lift corridors on the ski area, and analysis of ski area expansion involving construction of new maintenance facility, expansion of new parking area, and construction of new Tranquility chair lift.

Summer activities included an addition to the ski lodge to improve the kitchen and lodge access; installation of a new water storage tank and water meter to monitor the amount of domestic use and snowmaking use; additional drainage-improvement work and installation of settling ponds (refer to the Soils monitoring section); ripping and seeding of roads no longer needed; and rehab work on the Kelly-Boyce trail, including seeding work.

Conclusions

New ski fee system to be implemented in FY 98; improvements in ski area explosive caches made as a result of assessment of avalanche procedures; ongoing evaluation of R-2 ski area explosives protocol to continue in FY 98; scoping and planning will continue in conjunction with the new storage facility, new parking lot expansion, and the Tranquility chair lift.

No changes in the Forest Plan needed.

Monitoring Item (d): Monitor Forest's special-use permits.

Methods

Inspections documented and/or inspection reports.

Monitoring Done

Appraisal of fair market value for rec summer home group areas was completed and approved, and permit holders notified of the new appraisal. National Campground Concession and O-G Desk Guides published, distributed, and being used in conjunction with administration of permits; new fee implemented for the Beaver Creek Youth Camp; 30-Mile resort operating plan approved and maintenance items being incorporated into annual resort operations; FLURS database updated and information used in the FY 98 special-uses budget allocation.

Conclusions

Use of the Concession and O-G Desk Guides will continue in FY 98. Meaningful Means standards will be implemented in the budget process for FY 99. Continue to work with rec summer home permit holders regarding the new appraisal; O-G administration will continue.

No changes in Forest Plan needed.

Monitoring Item (e): Assess developed-site actual use compared with projected outputs.

Method

Forest's campground occupancy rates and use figures (MAR 26.0).

Monitoring Done

Visitor use in campgrounds was recorded by our concession managers and provided to the FS.

Average daily occupancy use in the campgrounds was 20%. Campground visitor use was 31.0 M RVDs.

Conclusions

Length of stay by visitors in campgrounds averaged about 2-3 days, which was a shorter duration than in 1996. Visitor use in campgrounds will continue during the use season in FY98.

No change in Forest Plan needed.

Monitoring Item (f): Evaluate Meaningful Measures Recreation Component Standards.

Method

Meaningful Measures Monitoring Plan.

Methods

Standards have been established and in place for developed recreation sites, trails, and special uses. Dispersed-areas (general forest areas) standards are being developed and completed in FY 98. Trail and special-use standards were used in the FY 98 budget allocation process.

Monitoring Done

Meaningful Measures Standards and monitoring to be implemented in FY 99. MM categories, priorities, and Standards will be used in the FY 99 budget allocation process.

Conclusion

No Forest Plan changes needed.

State of the Resource: Developed Recreation

Developed Sites

The operation and maintenance of a majority of the Forest's developed sites will remain under concession. Rehabilitation of the Forest's developed recreation sites will be set up and financed through the Region 2 Capital Investment Program.

Wolf Creek Ski Area

Major upgrades and improvements have been made over the last five years. Continued upgrades and expansion are being proposed. A master-plan proposal is being developed.

Special Uses

The major emphasis is on consistency of permit management and administration. National desk guides based on fair market value have been developed and are being implemented. The Forest Plan Capacity Determination and Needs Assessment will be used to establish future outfitter-guide and institutional opportunities and service days. There is a need to monitor the capacity baseline allocation information.

Meaningful Measures

Meaningful Measures (for developed and dispersed recreation, trails, special uses, and wilderness) priorities, standards, and monitoring will influence the Recreation program priorities, management, administration, and funding allocations.

Dispersed Recreation

Monitoring Item (a): Evaluate traditional and nontraditional recreation opportunities.

Method

Trail log inventory using GPS. (MAR 62.3, 64.3.)

Monitoring Done

Because of a reduced trail maintenance budget in FY 97, no GPS trail logs were done. However, a student intern assessed various items within the following areas: Bennett Mountain, Windy Mountain, Silver Mountain - Cat Creek, Silver Lakes - Willow Mountain area, and Little La Garita - Groundhog Park - La Garita Creek.

The assessment looked at trailhead conditions, trail log and conditions, campsite conditions, and trail user surveys (the documentation of these area assessments is on file at the Supervisor's Office in Monte Vista).

Conclusions

Deficiencies observed included maintenance needs at trailheads, missing trailhead signs, no trail signs indicating types of use allowed on trails, no trail signs at trail junctions, and the need for additional trail maintenance. Campsite inventories along each trail were found to be in good condition. Very few visitor contacts were made to make a good analysis of user issues and trends.

No change in the Forest Plan is needed.

Monitoring Item (b): Monitor representative watersheds to assess baseline capacity allocation.

Method

Monitor the amount of public and O-G use occurring in identified watersheds.

Monitoring Done

No specific area was monitored to assess the baseline capacity allocation. However, all watershed allocations were reviewed and assessed in conjunction with issuance of a Forestwide O-G prospectus, to determine the types of activities needed on the Forest, available areas for the service offered, and the available service days to be awarded. A Forestwide prospectus was issued, proposals and applications were submitted to the Forest, the proposals were assessed, and letters were sent out notifying qualified applicants who would be awarded new O-G permits.

Conclusions

The capacity-allocation review indicated a need to shift service days from the Squaw Creek area to a location where service days are available.

The prospectus resulted in 29 additional temporary permits to be issued in FY 98.

The Forest has reached its optimum allocation of hunting O-G permits.

Future summer and winter opportunities will be assessed for future prospectuses to be issued.

In FY 98, institutional groups will need to submit applications for assessment and permit issuance.

Monitoring Item (c): Monitor effects of off-road-vehicle use of Forest trails and roads.

Method

Assess impacts on the physical, biological, and social resources (Indicators).

Monitoring Done

Como Lake was assessed in September 1997 (the trip notes, photos, and recommendations are on file at the SO). This assessment included identifying waterbar locations in the road between Como Lake and Crater Lake, and recommendations for soil and

water protection on the road in the Como Lake area and the lower Como Lake access road.

During hunting season, hunter use of ATVs was assessed during various District hunter patrols. Various areas on the Districts were included in this assessment (both assessments are on file at the Supervisor's Office).

Conclusions

The Como Lake evaluation indicated a need for waterbar work and rock fill for ruts in the road, to protect it from further deterioration. Minimal off-road-vehicle use is occurring on this road. Further assessment and review of ATV use during hunting season will continue in FY 98.

There is a need for a Forest travel management map, signing of trails to indicate user types on trails, a Forest Order in conjunction with travel management policy, and increased hunter patrols. The FY 97 monitoring indicates there are some areas where off-road-vehicle use is occurring.

No changes in the Forest Plan are needed.

Monitoring Item (d): Evaluate dispersed recreation relative to 36 CFR 219.12 (k)

Method

Comparative evaluation for M&E Report.

Monitoring Done

Forestwide inventories were conducted on all three Ranger Districts in 1997. Partnership agreements with BLM and the use of volunteers contributed significantly to this year's accomplishments.

Total area inventoried was 380 acres: Conejos Peak RD, 160 ac.; Saguache RD, 20 ac.; Divide RD, 200 ac. Inventory focused primarily on FDR road systems. (Specific information on species found and area infested and inventoried can be found in District records.)

Conclusion

No changes in the Forest Plan are recommended.

State of the Resource: Dispersed Recreation

Trails

Need to update the Forest Trail Inventory using GPS information. Trail maintenance and reconstruction remain a high priority.

Travel Management

Remains the biggest challenge, both in management strategies and on-the-ground administration. There is a need for better signing, visitor information and education, travel management maps, and monitoring.

Scenic Resources

Monitoring Item (a): Determine if project Scenic Integrity Objectives were met. Assess changes in Scenic Integrity Objectives with respect to Recreation Opportunity Spectrum.

Methods

On-site or photo point monitoring.

Monitoring Done

On-site photo point monitoring was completed at the Creede power line location, Agua Ramon site, and the Willow Creek Trail relocation (Trail #865}. All sites met the Scenic Integrity Objectives, with the exception of the Willow Creek Trail relocation.

Conclusion

No changes needed in the Forest Plan.

Monitoring Item (b): Determine if SIOs were met. Assess Constituent Survey information.

Methods

Constituent surveys, visitor observations, interviews, and public participation.

Monitoring Done

Constituent Surveys were filled out on Trail #561 (West Fork Trail), Trail #712, Trail #714, Trail #718 (Three Forks Trail), and Trail #813 (Continental Divide Trail). Visitor observations (along with visitor correspondence) took place at these locations and FDR #250, FDR #648, La Garita Road 41G, FDR #684, and FDR #675.

Conclusion

No changes needed in the Forest Plan.

Monitoring Item (c): Monitor and evaluate the Scenic Resources program relative to 36 CFR 219.12 (k).

Method

Summarize reports.

Monitoring Done

Conclusions

State of the Resource: Scenic Resources

The Forest Constituent Surveys were conducted on several roads and trails throughout the San Juan - Rio Grande National Forests.

Surveys were conducted using a combination of on-site interviews with visitors and survey feedback. The survey information was qualitative, and responses contained positive feedback on the management of Scenic Resources Forestwide. Positive responses also verified the appropriate Concern Level assigned to the designated road or trail where the survey process was conducted.

The Creede power line location project was inspected in August 1997, and the Scenic Integrity Objective was met using underground power lines. There was a slight change in texture and color, due to earth-moving to install the power line; however, activities did not dominate the characteristic landscape. This area is expected to be fully revegetated within this growing season.

The Agua Ramon site includes a new cellular/radio tower in place of the existing one. Inspections in October 1997 showed that this tower meets the Scenic Integrity Objectives, due to the location and distance from which the tower can be seen.

The Wolf Creek Ski Area water tower project also met the Scenic Integrity Objectives for the area. The color and placement of this tower blended so well into the existing characteristic landscape that it is difficult to detect this tower, even in the immediate foreground. The colors and placement of the Ski Area Water Tower make this blend with the characteristic landscape.

The Willow Creek Trail reconstruction project did not meet the Scenic Integrity Objective of "High." Most of the trail in the lower portions did meet the Scenic Integrity Objectives; however, about ¼ to ½ mile of the trail construction is in need of rehabilitation. Rehabilitation recommendations include replanting, removing slash from the observer's line of sight, and angle-cutting stumps away from the immediate-foreground views of the trail.

Conclusions

Of the five monitoring locations, all were in compliance with the Scenic Resource Objectives, Standards and Guidelines, and Management Prescriptions, with the exception of the Willow Creek Trail relocation.

There is no need to make any changes in the Revised Land and Resource Management Plan's Scenic Resource Direction.

Infrastructure

Monitoring Item (a): Assess facilities for compliance with state and Federal requirements, and FS Handbook/Manual direction.

Methods

1. Inspect dams, facilities, drinking water, road and trail bridges, and FDRs for safety and maintenance.

2. On-site inspections to monitor compliance with Travel Management Plan.

3. Assess planned road closures through on-site inspections.

Monitoring Done

1. Bridge inspections were completed as scheduled by contract. Dam inspections were completed as scheduled by the State Engineer's office. Ten percent of the trail bridges were inspected. All water systems were sampled and tested in accordance with the Safe Drinking Water Act, except for Stone Cellar CG on the Saguache District. Fifty percent of the facilities were inspected. All of the Level 3, 4, and 5 roads were maintained.

2.

3. No planned timber-sale road closures were conducted in 1997.

Conclusions

1. No changes needed in Forest Plan Monitoring requirements. Inspections and testing will continue as outlined.

2.

3. No changes needed.

Monitoring Item (b): Monitor and evaluate Infrastructure relative to 36 CFR 219.12 (k).

Method

Review and monitor infrastructure-related inspections and reports for compliance with Forest Plan Guidelines and Objectives.

Monitoring Done

Conclusions

Health and Safety

Monitoring Item (a): Monitor and evaluate Forest activities relative to National Health & Safety Code and OSHA guidelines.

Method

Review and monitor guidelines on public safety and health.

Monitoring Done

Conclusions

Research and Information Needs

Monitoring Item (a): Determine progress of accomplishing needed research.

Method

Questionnaire.

Monitoring Done

Conclusions

Monitoring: San Juan National Forest

Recreation and Travel Management

The San Juan National Forest has experienced a steady increase in recreation use in the past few years. While budgets have not kept up with the estimated funding needed for the recreation program, other sources, such as the Capital Investment Program, have helped.

The increased Capital Investment funding over a three-year period was used to improve some facilities and develop additional sites on the San Juan Skyway. Many other sites (primarily campgrounds) need rehabilitation. Campgrounds and other developed sites that are 25-30 years old and in need of rehabilitation are scheduled for reconstruction.

The Forest's capacity for meeting the needs of present and expected future developed-recreation users appears to be adequate. Changes, however, are occurring in the types of recreation users that are using developed recreation sites. An increase in use by recreation vehicles (RVs) and an older clientele are pointing to the need for different facilities to meet these changing conditions. Therefore, the emphasis is–and should remain–on improving existing sites, not on increasing capacity.

Maintenance of existing facilities continues to be hampered by funding far below the estimated need. The Forest has strived to overcome this shortfall by operating all developed-campground facilities with concessionaire operations. This has been a positive program which appears to be cost effective.

We have embarked on a program to rent out some Forest Service cabins and lookouts, totake advantage of these historic structures and to offer a unique opportunity to the public. This program has proved to be highly popular.

Through partnerships and the San Juan Mountains Association (SJMA, formerly the San Juan National Forest Association), we have increased our capacity to provide interpretive programs and tours. The SJMA is conducting daily tours and an extensive field-seminar program at the Chimney Rock Archaeological Area during the summer. Partners at the Durango Rock Shelter are also offering tours of this area.

Trail use, particularly day hiking and interpretive trails, is also seeing a large increase, along with off-road vehicle (ORV) use. Mountain-bike use has greatly increased on the Forest within the past five years, and is fast becoming one of the primary uses on many trails throughout the Forest. Trail reconstruction and construction have decreased over the past two years, due to a dramatic decrease in budget. Budget allocations are far short of the Forest Plan levels. Progress has been made by providing barrier-free trails at the Animas Overlook, Big Al, Chimney Rock, and other interpretive site locations.

Downhill skiing opportunities on the Forest continue to meet the existing demand. In 1990, the Forest Service issued a permit to construct an additional downhill development on the Forest, the East Fork Ski Area, near Pagosa Springs. In 1995 the Forest terminated the permit for this area due to lack of progress by the proponent in meeting the special-use-permit requirements for development of the area. Purgatory Ski Area is developing a revised master development plan that will guide development of this area over the next 5-10 years.

Dispersed recreation continues to increase on the Forest; driving for pleasure is the most popular activity. The San Juan Skyway is now designated an "All American Road," one of only six in the nation. The Skyway is being devel-

oped to offer interpretive and other recreational options along the route. A particular area of concern for dispersed-recreation managers is whether the distribution of backcountry use is well balanced.

As recreation use continues to increase, the number of applications for commercial-use (outfitter-guide) permits has also risen. The Forest had placed a moratorium on the issuance of new permits until an allocation analysis was completed in 1998 and a determination made on the need for additional commercial services.

Analysis of Need for Change

As part of the Forest Plan revision process, we formed a Travel And Recreation Working Group that began meeting in July 1997 to study recreation and travel management issues on the San Juan National Forest (SJNF).

In February 1998, the group began integrating recreation with travel planning; members anticipate finishing during spring 1998. The aim is to highlight the range of members' perspectives and recommendations to consider in developing alternatives.

The group identified three important questions:

- Is our future desired condition to accommodate more users? How can the SJNF better accommodate the current amount of users?
- How can the forest minimize, direct, and contain user impacts?
- What experiences are desired by different Forest users? In other words, considering both the resources and the types of activities, what preferred uses can be achieved?

Based on the issue discussions during the first two meetings, the following working-group goal, objectives, and outcomes were derived.

Goal

Provide general management guidelines for minimizing resource impacts, and for providing quality recreation opportunities and adequate access for all users.

Objectives

- Provide natural-resource protection when planning and managing travel and recreation on the SJNF.
- Address people management, considering the experience desired by different user groups, resource impacts, and wildlife habitat.
- Address motorized-recreation and travel planning.
- Provide direction for minimizing and containing user impacts.
- Consider wildlife habitat with regard to recreation and travel access, especially winter recreation effects on winter range.

Outcomes

Mapping

Recreation User-Group Map

In the fall of 1997, working-group members, as well as other local residents who belong to specific user groups, met for special mapping meetings to mark trails, roads, and areas of particular interest. They also recorded areas of conflict and destination points, and provided other related information.

Each map was then compiled into winter and summer travel-inventory maps. The summer travel map was overlaid on existing SJNF roads, trails, and ROS areas. Separate transparent overlays were used for motorized and nonmotorized modes of recreation.

The maps' purpose is to compare current and desired recreation routes with the current ROS and travel management direction. It identifies travel and recreation activity from a user's perspective, as well as desired use, trail improvements, and loop opportunities. Specifically, the map marks trails and roads that are:

- current and proposed bicycle routes;

- current horse routes;
- current and proposed ATV routes
- current and proposed motorcycle routes;
- current and proposed 4X4 routes;
- preferred nonmotorized trails (bicycles okay); and
- preferred nonmotorized and nonmechanized trails.

Although there were a few areas of overlapping use and desired changes, the maps show that, overall, current travel and recreation management is working fairly well; diverse users are either separating themselves or sharing the trail with few conflicts. Members often have emphasized multiple use and cooperation among recreation users. Some commented that, given the large number of users and range of current opportunities, conflicts are minimal. There simply is not enough Forest to separate uses, they assert.

Multiple use may be okay in the sense of shared access among current users. However, caution was expressed about the multiple-use philosophy that leads to the belief that all uses can be satisfied. Future recreation planning needs to acknowledge the point when the land cannot accommodate more uses.

Map of Management Concerns

For two meetings in February and March of this year, SJNF Ranger District specialists brought a map showing suggested changes in travel management classifications for about 25 areas. They based their considerations on their field observations and asked working-group members to give their impressions of the suggested changes. They stressed that the proposals are not official, but are ideas for changes that managers wanted to discuss.

Proposals included changing to nonmotorized a few motorized trails where the physical terrain is difficult and little used. Many opportunities for linking old roads and upgrading trails to provide motorized trail loops were also identified.

Discussion of these two issues also led to much discussion about the SJNF travel policy. The Dolores RD uses the "Open Unless Designated Closed" policy. In contrast, the Columbine and Pagosa RDs' policy is "Closed Unless Designated Open," which implies restricting access to designated roads and trails, prohibiting off-road and off-trail use. Given the high density of roads on the Dolores RD, combined with resource-protection issues, members generally accepted making the policy for the entire Forest "Closed Unless Open."

Area-Specific Recommendations

In addition to responding to area-specific management concerns, members have made recommendations for other areas throughout the course of their regular meetings — particularly in relation to a desired Recreation Opportunity Spectrum for any given area. As of this writing, these area-specific comments are being compiled for final review by the working group as they continue their study process. They are not included here.

Themes and Strategies

The group's course of study reverberated with repeated calls for three values that must be sustained through planning and management: resource protection, multiple-use philosophy, and adequate access and travel opportunities that offer a full range of recreation experiences. The following are some strategies members suggested for achieving these keystone themes:

- Emphasize a multiple-use recreation-and-travel plan by encouraging responsible use and working out user conflicts, rather than imposing restrictions or segregating uses.
- Protect opportunities for solitude and more natural recreation experiences by designating some areas for nonmotorized-recreation activities–for example, cross-country skiing and hiking.

- Use the "Closed Unless Open" area and road policy across the SJNF to better protect the resource, especially given the current need for user education. A benefit would be a positive message in signage, e.g., "open to..." rather than "closed to..." (Disagreement exists over this theme, and discussion will continue as community members and the FS continue to develop a solution.)

- Manage primitive areas in large blocks, to:

  - protect and retain biological diversity;

  - reduce fragmentation, especially between high and low elevations; and

  - preserve a natural environment and refuge for animals and humans.

- Develop facilities along key points of the San Juan Skyway, to accommodate user needs and provide interpretive and general Forest information.

- Concentrate use and development along highways and urban corridors, to reduce resource impacts and protect other areas. Receiving special mention were:

  - protect wildlife habitat and corridors from fragmentation; and

  - preserve the natural character and solitude of other areas, especially backcountry.

- Minimize resource impacts from motorized-recreation use, by:

  - providing adequate motorized access and opportunities, restricted to designated roads and trails;

  - designating roads and trails in the current F (open) areas; and

  - developing ATV loop trails, to reduce off-trail violations, reduce environmental mischief, and spread the flow of traffic on the few existing motorized trails.

- Minimize wildlife disturbances and habitat impacts caused by travel and recreation, by:

  - restricting recreation access in low-elevation winter-range habitat,

  - concentrating uses, and

  - managing recreation access seasonally, depending on periods of wildlife use.

- Minimize hunting-season impacts, by:

  - making the SJNF Visitor Map and travel regulations more understandable;

  - posting better ground signs;

  - supporting registration programs that provide a contact point for educating users and funneling them into appropriate areas;

  - including more information in Colorado Division of Wildlife (DOW) pamphlets;

  - increasing FS personnel presence;

  - using more volunteers;

  - collaborating with DOW on enforcement;

  - generating revenue to fix the heavy-impact problems; and

  - implementing a state conservation stamp to pay for monitoring and improving habitat.

- Establish partnerships with Forest users and community organizations, to:

  - provide voluntary maintenance and monitoring,

- increase public contact and access to Forest Service information, and
- create informational maps specific to each recreation activity or travel mode.

New Planning Approaches and Directions

As they progressed in discussions and learning, members identified new approaches and management opportunities for improving recreation and travel planning. Some of the following recommendations are fairly new planning directions for the SJNF, and could result in significant changes in use.

- Create a Nonmechanical And Nonmotorized Trail designation, to provide solitude and natural recreation experiences outside designated Wilderness, especially more accessible lower-elevation opportunities.
- Establish guidelines and a review process for new travel modes, before allowing them access.
- Distinguish between motorized modes of travel when designating trail access.
- Include management flexibility in the Plan in order to address future conflicts and allow seasonal management, because uses and needs change year to year.
- Encourage joint recreation and travel planning with the BLM in the Silverton area.
- Monitor for both social and physical impacts in recreation and travel planning (approval of the Capacity Analysis)

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Future Opportunities

The recent integration of recreation user maps with the FS ROS areas, roads, and trails has produced a number of issues for the group to address further. Below are listed some of the possible tasks still to be examined by the group.

- Develop a winter ROS map.
- Review the wildlife group's maps and recommendations, to better plan recreation access with regard to wildlife habitat.
- Continue to integrate summer and winter recreation desires with travel planning.
- Discuss the potential for establishing a consistent travel policy across the Forest, and possibly designate specific roads and trails for access routes within F areas on the Dolores RD.
- Integrate previous study-group concerns with the continuing travel management study.
- Work with the USFS to create a Desired Future ROS map. The ROS map being used now illustrates "current ROS distribution."
- Design a new visitor information map.

Travel Management Planning Status

The activities listed above will contribute to a travel management plan with which the Forest proposes to amend the current Forest Plan. A goal for the new travel management plan is to be consistent across the Forest and address known problems with the current Plan. The SJNF expects to develop alternatives by October 1998.

Wilderness

Evaluation of Plan Implementation

The SJNF manages close to 20% of its land area as designated Wilderness. An additional 59,840 acres was designated Wilderness with the 1993 Colorado Wilderness Act. The Act also designated 62,550 acres as the Piedra Area, which is to be managed to maintain its existing Wilderness character and potential for inclusion in the National Wilderness Preservation System.

The direction found in the Forest Plan for Wilderness includes Standards and Guidelines for four Management Areas. These Standards and Guidelines were developed on a Regionwide basis and are consistent through most Forest Plans found in Region 2.

Many of the Wilderness Standards and Guidelines in the Plan are difficult to measure, and were developed without local-public involvement. Most of the implementation and monitoring efforts that have taken place since the Plan was developed have concentrated on physical Wilderness resources−mainly campsite conditions.

The Forest staff has completed land acquisition on over 600 acres in the Wilderness. This accomplishment will allow for consistent management for Wilderness values by reducing the potential for evidence of human activities and development within the Wilderness boundaries.

Over the last two years, we have begun to gather information on recreation use, including commercial and institutional as well as general-public use; visitor demographics; trip diaries to model visitor movements within the Wilderness; and surveys of visitor concerns and experience factors.

Information gathered so far indicates a trend toward increased use of the Wilderness resource, with associated effects on social and physical/biological values of Wilderness.

Analysis of Need for Change

Goals and Objectives

The Plan contains little direction regarding the natural role of fire within Wilderness. A comprehensive Wilderness fire management program should be developed.

Standards and Guidelines

The increase in recreational use has created a corresponding increase in impacts on both the physical and social Wilderness resources. We are completing a Forest Plan amendment of Wilderness management direction that redefines Standards and Guidelines, Monitoring Requirements, and Desired Conditions through new Management Prescriptions. These changes address:

- Trail-encounter and camp-encounter Standards and indicators.
- Domestic-dog regulations.
- Group-size regulations.
- Campfire restrictions in alpine, krummholz, and meadow areas.
- Areas in which commercial recreation operations can occur.
- Areas in which trail maintenance, reconstruction, and development can occur.
- Minimum distances from lakes, rivers, streams, and trails for campsite locations and stock use.
- "Summer use period" definition for group-size regulations.
- Direction determining at what level of overuse to implement a permit system.

PAOT coefficients are unrealistic to measure. We need to articulate a better way to measure acceptable recreation-use levels for each Prescription Area.

We need to adapt and incorporate direction on prescribed natural fire and management-ignited fire into the Plan.

Indicators and Standards for a variety of resources within Wilderness should be reviewed. These include air quality Standards; water quality indicators for high lakes and effects from mining operations; recreational-stock grazing-utilization Standards; wildlife habitat indicators−particularly for black bear, mountain goat, and indicator species such as boreal toad; noxious-weed and non-native-plant indicators and Standards; riparian area Guidelines; and direction on management of National Register-eligible properties (historic surface architecture in particular).

Management Area Prescriptions

Prescription Area boundaries should be reviewed.

Wilderness Opportunity Classes or Prescription descriptions should be revised to incorporate new Desired Future Conditions.

Monitoring and Evaluation

The monitoring item, Acres Managed as Wilderness, should be removed.

We should consider substituting the LAC indicators and Standards that are being developed as part of the FP planning process as our monitoring tools for Wilderness. Other resource indicators beyond recreation need to be developed for Wilderness in the revision process.

Wildlife

Evaluation of Plan Implementation

Management Area 5B

12-13.5 Management Prescriptions for 5B (Big-Game Winter Range) areas have been applied as directed in the Forest Plan. The direction for this Prescription Area is used effectively in project planning. There is some concern about the capability to monitor the Standards for "30% of the area in created openings," and maintaining the Standards for cover across the Prescription Area. This may be facilitated once GIS is available, but is difficult to do currently over a large area.

We also have not been able to evaluate the Standards for maintaining a certain percentage of habitat effectiveness and habitat capability. In addition, we are not tracking populations of big game to know whether or not we are contributing to meeting DOW population objectives. In most cases, the National Forest land within the DOW population units (i.e., Data Analysis Units) is relatively small. As such, tracking population data, other than to look at relative trends, may not be meaningful.

Another concern about the big-game winter range area is that it does not correspond to the DOW's delineation of significant or "critical" big-game winter habitat. Also, due to the unpredictable winters in southwest Colorado, there has been interest in delineating a "transition" range; i.e., areas significant to elk and deer in milder winters. The increased impacts from rural development adjacent to the Forest will further heighten the significance of big-game winter range on the National Forest land.

In general, natural succession is occurring in much of the big-game winter range, resulting in type conversions that affect the habitat. This is primarily a result of fire suppression. For example, the piñon-juniper type is encroaching on the sagebrush-grassland type, which is important deer habitat. This may hamper our ability to meet certain habitat Goals without increased emphasis on habitat improvement projects (e.g., prescribed fire).

Over the past three years, funding for big-game habitat improvement activities accomplished cooperatively with the DOW has declined. This is primarily due to the DOW's emphasis on accomplishing projects identified through their Habitat Partnership Program. This major planning effort includes all ownerships, and thus has spread DOW's funding across a larger land base. The HPP effort has been ongoing in the counties on the east side of the Forest and should begin in the western counties in 1996.

Accomplishment of big-game habitat improvement projects on the Forest has varied, due to weather that limited opportunities to burn. The spring and fall of 1993 were wet, which

precluded extensive burning. In 1994, conditions were dry, but most personnel were involved in wildfire suppression and unavailable for prescribed fires. With regard to road closures, we are unable to effectively manage and monitor many that are established. This is particularly true in winter range where flat topography limits our ability to use gates effectively. At present, we have not been able to fully evaluate the effectiveness of these projects.

Management Area 4B

Management Prescriptions for 4B (Management Indicator Species [MIS]) are not being applied consistently across the Forest. Much of the problem is due to the fact that specific MIS species were not identified to the Prescription Area. We may want to rethink the utility of a Prescription of this type and consider switching to a management system that more generally provides for habitat needs.

Threatened and Endangered Species

With increased emphasis on T&E species Regionwide and the issuance of a Regional

Sensitive Species list in 1993, the TES administration workload has increased dramatically. In particular, inventories to ascertain whether these species are present or whether there is suitable habitat have been emphasized. While many of the inventories have been negative, a significant find occurred in 1995, with the sighting of southwest willow flycatchers in two locations on the Forest. Additional inventory should be emphasized.

Watchable Wildlife

The Forest Service has instituted a program to provide opportunities to enhance the public's enjoyment of wildlife watching. Emphasis has been placed on interpretive signs, trails, and brochures. We expect that this program will increase in the future because of the excellent public service it offers. The Watchable Wildlife program, however, was not included in the direction or anticipated costs of the 1983 Forest Plan.

Environmental Education

The public demand for environmental education has increased dramatically in recent years.

While most of the emphasis has been in reaching school children, other adult- and family-centered programs have been implemented. The San Juan Mountains Association has been an integral part of this education effort. One District last year accomplished 76 environmental-education programs on wildlife, reaching approximately 2,750 people. As with the Watchable Wildlife program, environmental education was not included in Forest direction, has no accomplishment reporting or budget associated with it, and is not reflected in the 1983 Forest Plan. Analysis of Need for Change

Goals and Objectives

We need to consider increasing emphasis on funding inventory and protection of Threatened, Endangered, and Sensitive species.

We should consider direction that adds a program focus on providing interpretive information to the public.

A current Forest Plan Goal is to "improve habitat diversity on 4 of the Forest" (Chapter III-3). This Goal needs to be reevaluated and a determination made on how to measure and/or monitor this goal.

We should examine landscape-level biodiversity Goals and/or management requirements to address current issues. This might include Goals and/or Standards for fragmentation, corridors, keystone species, natural disturbance events, desired vegetation composition and structural diversity, wetlands, unique habitat areas, etc.

In general, natural succession is occurring in much of the big-game winter range, resulting in type conversions that affect the habitat. This is primarily a result of fire suppression. For example, the piñon-juniper type is encroaching on the sagebrush-grassland type, which is important deer habitat. This may hamper our ability to meet certain habitat Goals without increased emphasis on habitat improvement projects (e.g., prescribed fire).

Our big-game program should be an integral part of the Habitat Partnership Program implemented by DOW. We should take this opportunity to establish coordinated Goals and Objectives for big-game habitat and populations.
Prescribed natural fire will be more integral to our management. We need to establish Objectives for this program.

Standards and Guidelines

Wildlife and Fisheries direction should be integrated more thoroughly with Watershed, Riparian, and Recreation.

The Forest Plan should include Management Direction for the inventory and protection of habitat for Threatened, Endangered, and Sensitive plant and wildlife species. This would include evaluating land acquisitions, Standards for protecting each species, and ongoing monitoring. The anticipated costs of this work needs to be reflected in the Planning budget file.

Neotropical Migratory Birds has surfaced as a major issue. Standards for managing and monitoring habitat for these species should be pursued.

Many of the Standards and Guidelines for individual species need to be revised. For example,

the goshawk Standards are inadequate to protect a nesting goshawk, according to the latest scientific literature. In addition, the Abert squirrel, road density, and wildlife-tree (snag) Standards are not effective.

Riparian-habitat Prescriptions are inadequate for the protection of riparian-dependent species. These Standards need to be reevaluated.

There continues to be conflict over allocating forage between big game and livestock. It is virtually impossible to separate utilization between the two.

The introduction and/or reintroduction of both native and non-native species needs to be addressed.

Management Area Prescriptions

The necessity of Prescription Area 4B (Management Indicator Species, MIS) is in question. Management Prescriptions for 4B are not being applied consistently across the Forest. Specific MIS species were not identified for the Prescription Area; the Management Indicator Species concept is not supported by most wildlife professionals. A landscape-level approach (section

level) for managing vegetation, based on conservation biology principles, could be pursued.

The 5B (Big-Game Winter Range) Prescription Area does not correspond to the DOW's delineation of significant or "critical" big-game winter habitat. Also, due to the unpredictable winters in southwest Colorado, there has been interest in delineating a "transition" range; i.e., areas significant to elk and deer in milder winters and/or a bull elk winter range.

Monitoring and Evaluation System

There is some concern about the capability to monitor the Standards for "30% of the area in created openings," and maintaining the Standards for cover across the Prescription Area. This may be facilitated once GIS is available, but is difficult to do over a large area. We also have not been able to evaluate the Standards for maintaining a certain percentage of habitat effectiveness and habitat capability. In most cases, the National Forest land within the DOW population units (i.e. Data Analysis Units) is relatively small. As such, tracking population data, other than to look at relative trends, may not be meaningful.

With regard to road closures, we are unable to effectively manage and monitor many that are established. This is particularly true in winter range where flat topography limits our ability to use gates effectively. At present, we have not been able to fully evaluate the effectiveness of these projects.

Neotropical Migratory Birds has surfaced as a major issue. Standards for managing and monitoring habitat for these species should be pursued.

Other Issues and Concerns

There is a potential issue with maintenance of the aspen type. Much of the aspen type is mature. However, there are some publics concerned about harvesting stands of mature, contiguous aspen, due to the potential resulting fragmentation, and the effect it may have on species such as goshawk. A landscape-level approach to aspen management should be pursued.

The increased impacts from rural development adjacent to the Forest will further heighten the significance of managing big-game winter range on the National Forest.

The introduction and/or reintroduction of both native and non-native species needs to be addressed.

The Forest has completed an analysis to determine the impacts and environmental consequences of government-sponsored predator control (the APHIS program). A decision was made in March 1992 to allow the predator-control program to continue, with some restrictions. It does not appear that further Forest Plan amendment will be necessary.

Fisheries

Evaluation of Plan Implementation

Emphasis areas for 1997 included implementation of the Colorado River cutthroat trout conservation strategy, abandoned-mine-land reclamation in the upper Animas River, and Division

7 water rights negotiations. Other activities included Forest Plan revision, NEPA analyses, Biological Assessments for water depletions, Regional Office tasks, and interagency coordination.

The program priorities have been clearly articulated and are being pursued within the budgetary and personnel constrains that we are faced with.

Analysis of Need for Change

Goals and Objectives

The Forest Plan provides little direction for fisheries. It states a single Goal: to "improve fish habitat on suitable streams and low-elevation ponds and lakes." The Plan defines objectives in terms of recreation visitor days, with projections ranging from 135,000-255,000 RVDs/yr. Under "general direction" within the Management Direction section, it reiterates NFMA requirements for maintaining viable populations. In addition, the current Regional Goals and Objectives for Plan Revisions provide little in the way of fisheries direction, and the Regional Watershed Conservation Practices Handbook only generally addresses the biological components of aquatic management.

The Revision should consider Goals and Objectives that address existing and potential habitat conditions, population viability and production capability, aquatic TES management, aquatic biodiversity, riparian-fisheries interaction, user opportunities, etc. Emphasis needs to be placed on a more holistic approach to aquatic-ecosystem management.

Other Issues and Concerns

Significant issues that may need to be addressed in the Plan Revision include:

- TES management (cutthroat trout, the "big-river fishes").
- Wilderness stocking (specifically in designated pristine areas).
- Wild fish management (Forestwide).
- Whirling disease.
- Water quantity issues (water development/instream flows).
- Water quality issues (mine waste contamination, etc.).
- User-group conflicts.
- Fishing guide/outfitter allocations and distribution.
- Aquatic biodiversity.

Range

Evaluation of Plan Implementation

Of the 881,000 acres of Suitable rangelands, about 61,000 acres has been classified as "Low Ecological Condition." Low ecological range is generally found in areas where vegetation production potential is minimal (for example, steep, rocky, or exposed soils such as Mancos shale-derived slopes).

There are currently 136 grazing allotments on the Forest. Of these, 111 are cattle, 23 sheep, and two recreation livestock allotment. Thirteen of these allotments are vacant. Districts have consolidated some allotments through the allotment planning process. This has resulted in fewer grazing allotments, which has improved the efficiency of administering permits and increased the number of allotment management plans that are in compliance with the Forest Plan.

The 1995 Rescission Act (PL 104-19) was signed into law on July 27, 1995. Section 504 of this law requires that National Forests establish and adhere to a schedule for the completion of National Environmental Policy Act analysis and decisions on all allotments within the National Forest System unit for which NEPA analysis is needed. The San Juan - Rio Grande National Forests have developed this schedule, and will follow it in our short- and long-range planning process.

Since 1993, we have completed 29 additional allotment management plans, bringing the total to 104 allotments that are verified as operating in full compliance with the Forest Plan.

Both the sheep and cattle industries are experiencing a depressed market. The sheep market continues on what has been several years of low market prices for mutton. In addition, federal government wool incentives have been eliminated, making it more difficult for permittees dependent on their income from sheep to remain solvent. A drop in the prices cattle producers are receiving at the sale barn has continued for over a year and is undoubtedly having an effect on Forest permittees. No significant change or effect on the Forest range program has been noted as a result of these economic factors.

Although management Prescriptions are being applied in making land management decisions, we continue to have trouble applying the 9A (Riparian) and 4B (Wildlife) Prescriptions consistently. One reason may be that more specific direction on utilization levels and other measurement factors is needed to better determine when desired levels of use are being reached.

In an attempt to fill this need for more specific direction and guidance in riparian-area and upland-site management, the Forest is seeking to develop clear, measurable, and acceptable Standards. Our goal is to develop a guide or package that will clarify and simplify the existing utilization Standards so that permittees, the general public, and Forest specialists can all easily recognize prescribed-use levels.

Analysis of Need for Change

Goals and Objectives

The two Goal statements listed under Range are unrealistic and create expectations from some of our users, namely grazing permittees, that we may not be able to meet. The statement, "Provide for grazing of livestock at moderately increased level" implies that we will increase permitted-livestock numbers on the Forest. The fact is that since the implementation of the Plan, we have experienced a decrease in total permitted numbers, due in part to the depression in the sheep market.

This statement could be viewed as leading the permittees and industry on, and giving them false hope of raising their permit numbers. The basis for this statement does not exist. We would need site-specific information to determine if the possibility of increasing permitted numbers exists. Since the Forest Plan is intended to be a broad-level planning step, the issue of permitted numbers and changes of them should not be a product.

The Goal is too narrowly focused to gain support outside the minority directly benefitting from this activity. To gain wider support, we need to have a Goal that talks more to the ecological health of the rangeland resources and focuses on the management of those resources, rather than on the benefactor or user of those resources. By doing this, we begin to show that we are managing with an ecosystem concept, rather than managing for livestock.

The second Goal statement of "Providing for intensive livestock management on approximately 60 percent of the Forest" may be difficult to accomplish on some Districts, such as Pagosa, due to the large amount of designated Wilderness. Although the AMPs and Annual Operating Instructions incorporated details of how grazing will occur within these areas, the limitation of what can be done to remain in compliance with the law makes it difficult to develop intensive management system for livestock grazing.

Perhaps a clear definition of the term "intensive management" is needed to distinguish level of intensity. Is it necessary to attach an expected level of accomplishment (60%), and if so, how was 60% arrived at? A clear statement defining "intensive," and describing what is acceptable and what is not, would be more appropriate.

The specific objective of grazing use displayed in Table III-1, Projected Average Annual Outputs, Expenditures, Costs, and Returns, is unrealistic and not supported by sound resource-inventory data. The table indicates that the permitted Animal Unit Months (AUM) level will increase by 38,000 AUM between the years 1985 and 2030. If we use a four-month grazing season, this equates to an approximate increase of 9,500 animal units. That is substantial, considering the issues and reasons discussed earlier.

Also in regard to Table III-1 and the concern of AUM level displayed, if this is an output measure rather then an availability measure, then it needs to be made clear that this is not intended stocking or permitted numbers. In other words, distinguish between available and permitted or intended stocking. In some cases, we may have AUMs that no one has interest in using.

As mentioned in previous comments, the usefulness of the Goal and Directives can be improved by incorporating a sense of ecosystem or rangeland health, while maintaining grazing as an available use of the Forest resource. If a projection of AUM levels is mandatory over the life of the revised plan, then let's try to agree on a defensible basis for making the projection, i.e., current level with anticipated changes as per 15 AMP Schedule. Another possibility is to offer the AUMs that are not currently permitted but that can be used on allotments where we intend to continue to graze, if a qualified applicant exists.

The Plan Goal of increasing grazing is no longer valid. The Goal of intensive livestock management on 60% of the Forest may not be valid.

Many sheep allotments are vacant and not suitable for conversion to cattle.

Rest-rotation systems were designed for several allotments in the Mancos area, but were not fully implemented for a variety of reasons. Less intensive management strategies may be more appropriate for many areas of the Forest, due to terrain, the amount of forage available or reasonably available, and the current infrastructure.

The Goals should be expressed in terms of desired pattern of vegetation or ecological condition and community sustainability. Livestock grazing would be one means to achieve these desired conditions, and not an end in itself. Goals should be developed for upland and riparian areas.

Standards and Guidelines

We need to develop clear, understandable utilization guides for riparian and upland sites. This may require listing allowable use by species and for specific rotation systems.

We also need to consider eliminating certain grazing practices or philosophy, such as season-long or continuous-grazing systems. This type of practice may not qualify as intensive management.

General Direction states, "Remove livestock for the remainder of the grazing season from allotments managed under a continuous-grazing system when further utilization of key areas will exceed allowable use criteria for the season." This direction should apply regardless of the grazing system in place. Do not identify continuous-grazing systems as the only ones where this is applied.

Again with regard to continuous-grazing systems, we need to look closely at whether they should be used at all. In the opinion of some of the Forest Range Cons, continuous grazing is a contradiction of intensive grazing management. If considered an acceptable system, then clearly define how this system in intended to work. It may be a usable or desired system in special-uses pastures, but may not be used as a feasible strategy in grazing allotments where more intensive management is needed or desired−and certainly not on 4B, 5B, and 6B Rx areas. Also, distinguish the difference between continuous-grazing systems and season-long grazing systems, if there is one.

Under General Direction for Range Resource Management - Standards and Guidelines a. 1. a., it talks about under Rest Rotation System allow 50 60% on heavy-use pastures and up to 45% on light-use pastures. This statement is confusing, since it is not clear what is meant by "heavy-use" and "light-use" pastures. We need to clarify intent.

S&Gs a. 1. a. , maximum allowable use on Bluegrass of 80% is too high. Use at this level will not allow for improvement on that site. Where we want to move to a higher seral stage, grazing Bluegrass sites at this intensity will not get us there. For other plant associations, it would be helpful to have the Plan describe allowable use level by plant association, if we have sound data/research to support us.

Incorporate into the S&Gs our Riparian Standards clearly defined. Also with regard to Riparian Standards, keep in mind in crafting new

riparian Standards and Guidelines that it may not be desirable to manage all riparian areas to achieve high seral stage. Allow the Rx area description and the specific AMP analysis and mitigation measures to determine the seral stage desired, based on the Rx activity. To clarify, we cannot expect to manage all riparian areas in or for a high seral stage, and also graze livestock in that same area. One is exclusive of the other. We can manage for healthy riparian areas that are not in high seral stage, and also have managed livestock grazing.

Not sure if this is applicable within the FLRMP or more in the area of implementation and monitoring; allowable-use levels developed will be applied regardless of type of resource use activity. For example, allowable use for a given Rx will apply to permitted-livestock grazing as well as recreational-livestock grazing. We have areas on the Forest where heavy recreational-livestock use occurs with no apparent regard for the proper grazing use or level. Must strive to be consistent regardless of activity.

Generally, the S&Gs are effective in meeting their intended resource management/protection purpose. However, there are opportunities to improve and clarify by being more specific. By being more specific at this level of how we will do things, we will be more successful at the

site-specific level of analysis (AMP), making effective changes where needed. Cases where they are not effective, such with Bluegrass mentioned above, modifications have been made when developing mitigation measures at the AMP level.

Many of the current Standards and Guidelines are not measurable, either qualitatively or quantitatively.

Some, like the Water Quality Standards one, do not really help guide or evaluate our actions.

Others, like Managing All Riparian Ecosystems in At Least Upper Mid-Seral Stage, do not fit with any concept of dynamic systems.

Although there is a Guideline that references ground-cover Standards, we had little to help us interpret our estimates: Is 50% OK, is 30% too little, and, if so, under what circumstances?

How to interpret an assortment of compliance and not? Are some Standards and Guidelines more critical/important than others? And, if so, whose prejudices win out?

Utilization Standards should focus on desired plant communities and less on bluegrass.

Direction in some Prescriptions to use extensive, season-long grazing systems is contrary to good livestock management practices, and is almost impossible given the utilization Standards in the Plan.

Develop Standards focusing on desired plant communities and attainable goals, instead of range condition and trend.

We need to be able to manage for a variety of seral stages. Need to develop utilization Standards for desired plant communities and/or individual species that are easily used by a variety of users.

Develop tangible/measurable/evaluatable Standards and Guidelines.

Need to move Goal statements out of the Standards and Guidelines and develop measurable Standards and Guidelines that can be used to develop management requirements and mitigation measures, and to measure our success in management.

Need to develop sets of Standards and Guidelines and management requirements and mitigation measures that can be used by permittees for self-monitoring.

Management Area Prescriptions

Consider clarity in language when describing allowable-use Standards similar to what is used in the 8A Rx - Wilderness Area Management.

To some degree there is a conflict between the Goal of managing range resources in an intensive-management system and Rx 3A-Semi-primitive nonmotorized recreation in roaded or unroaded areas. Also some conflicts in managing timber in 6B areas. The

limitations imposed in the general direction and S&Gs in this Rx have an effect on how intensively allotments can be managed.

Forestwide, 90% of the time on-the-ground management is occurring, according to the Rx allocation. In the cases where it is not, it is due to reasons such as erratic permittee management or acts of God, such as drought, requiring a change.

Given that the original Goals are not longer realistic and that much of the Forest, including areas that are not 6B, is in allotments and grazed, there should be a better way to blend commodity and noncommodity uses. Focus should be more on vegetative pattern, a variety of seral stages, and desired plant communities; then livestock management and timber harvest plus prescribed fire would be means, rather than ends. Goals and Objectives would be a mosaic of vegetation and outputs would be tracked separately.

Timber harvest activities do not always benefit livestock management in 6B areas.

In some areas, 6B has been assigned to Unsuitable range.

Standards for big-game winter range could be more flexible, depending on when livestock are using a specific unit.

Consider whether we will still need utilization Standards by prescription, if the focus is shifted to desired plant communities.

If Management Area Prescriptions are to be assigned to specific areas, "ground-truth" to ensure that livestock grazing is not assigned to Unsuitable areas and/or areas with little to no forage production.

Monitoring and Evaluation

While tracking of outputs is appropriate, monitoring should also include some measures of our relative achievement of desired conditions.

Outputs (animal months) is the only monitoring requirement in the Forest Plan and is tracked via Management Attainment Reports. Some measure of output or financial return is appropriate (animal months grazed, number of active allotments, dollars paid in grazing fees, etc.).

Projected outputs may need to distinguish between cattle and sheep.

In addition to tracking outputs, we should monitor/track acres meeting specific plant condition/community Goals.

Other Issues and Concerns

Objectives for grazing use (AUMs) need to be more realistic in light of issues that have an effect on determining grazing use, such as continuing budget reductions, difficulty in implementing "the law" due to opposing interpretations, need for extensive supporting data to avoid or prevail in litigation or appeal cases, and changing social needs and expectations.

Effects of aspen harvest on livestock forage production and maintenance of allotment capacity

Timber harvest in 6B areas that adversely affect livestock management. How to offset loss of forage in 7E areas following timber harvest.

Several questions have been raised about range direction in the existing Plan. The first is what type of Standard are we to use in writing and monitoring the effectiveness of allotment management plans? As our analysis has changed from traditional range condition and trend to an ecologically based approach, how do we describe the management goal for an area, and how do we measure our success in achieving that goal?

The second question is related to the effect of grazing on riparian areas. Are current Riparian Standards and Guidelines adequate to protect the resource? This is listed under Range because that is where the question is frequently raised; however, this is an issue that applies to all riparian uses, and will overlap particularly recreation and wildlife.

Timber

Analysis of Need for Change

As we transition to Forest Plan revision, we will need to build on our timber-trend information to account for significant timber program changes over the past four years. Areas of greatest program change have included (1) the reduction in budget and timber supply from that projected by the 1992 amended Forest Plan; (2) increased stumpage prices and increased administrative costs; (3) changes in industry infrastructure, particularly in the Pagosa Springs area as a result of Lance Industries' closure; and (4) changes in the types, size, and location of tree species offered for sale since 1992.

Goals and Objectives

In general, the Goals and Objectives appear valid, though, if possible, they should be expressed in ecosystem-management terms. For example, vegetation management Goals (and resulting objectives), should reflect broad-scale ecological needs and should be described in terms of the hierarchical system, established primarily at the Physiographic Zone, and area levels.

Projects like the pine zone project and the baseline ecological research in the ponderosa pine type should help define our vegetative management Goals and Objectives for the major tree cover types. The analysis that leads to Goal and Objective establishment should include a comparative analysis of reference and

current conditions, and should describe significant deviations between the two, including suggested courses of action (Goals and Objectives) to remedy wholesale differences.

Standards and Guidelines

The range-of-natural-variability studies and examination of current vegetation condition suggest a significant shift in our approach to ponderosa pine and mixed-conifer cover type management. Findings from the aspen study will be available during the revision. These studies suggest a significant shift in management direction and resulting Standards and Guidelines for these major cover types.

The Standards and Guidelines in the 1983 Forest Plan emphasized even-aged silviculture. The 1992 Amended Plan changed management emphasis to uneven-aged silviculture. The Standards and Guidelines would benefit from further direction regarding "q" values, reentry cycles, and max-tree-size Goals.

What constitutes an intermediate-cover landscape needs further definition. The concepts of closed-canopy, open-canopy, and intermediate landscapes may be of limited value from the standpoint of developing timber project-specific silvicultural treatments.

Utilization Standards need to be revisited in light of changing vegetation management Goals. An example is that successful implementation of vegetation management Goals may require increased emphasis on thinning small-diameter materials.

Management Area Prescriptions

Region 2 has adapted a new set of Regional standard Prescriptions that are slightly different than the Prescriptions the San Juan NF used in 1983. We will have to adapt this new menu of Prescriptions, or some variant thereof, during Plan revision. As minimum, we may have to make some changes in the management area to fit the new system to the management intent of the existing Plan, especially in the case of the old 4b, since there is no longer a wildlife Rx.

Over the past 12 years of implementing the current plan, we've had instances where we've had to adjust the Suitable timber base on the basis of site-specific findings. We will continue to make those adjustments as on-the-ground knowledge suggests that such changes are warranted. During the revision, we will need to revisit the timberland-suitability question as a matter of legal requirement.

Another concern is whether we're managing the land according to Prescriptive direction; we've had a tendency to manage timber-emphasis areas much differently than we do other Prescriptions outside roadless areas. Generally, various Standards and Guidelines come to bear and limit what we would do if we were really going to maximize or optimize wood fiber production.

Monitoring and Evaluation System

We should examine changing the current Monitoring And Evaluation Plan to emphasize progress toward achieving DFCs. Basically, under such a system we would examine what the geographic area looked like ten years ago; what we said it should look like and should produce; and what it looks like now and has produced. Key questions would be: Did we reverse the trend? Did we move it toward DFC? Possibly a graphical (GIS) representation might also be good.

We should examine implementing monitoring based on ecosystem-management elements such as seral-stage distribution, patch size, risk of catastrophic fire, risk of insect and disease epidemic, and watershed health. These measurements should be coarse-filter-type measurements and should be done in addition to fine-filter measurements such as used for T&E species and cultural resources.

For the Forest Plan revision, we should identify important elements to track progress toward meeting DFC, like, for example, percentage in given successional stage by spp, or risk of stand replacement fire, or watershed health, patch size, acres of high-risk stands for Mt. Pine beetle attack, etc.

Other Issues and Concerns

There is a need to define relative levels of risk of things like wildfire and forest health that we would be managing toward or willing to accept.

Roadless-area management and its relation to the current ASQ continue to remain controversial issues. The 1992 Amended Forest Plan attempted to resolve management direction for roadless areas that were then part of the Suitable timber base. As a result of the 1992 Amendment, the Forest reduced Suitable roadless areas from approximately 180,000 acres to 95,000 acres. Planning and implementation of timber sales continue to be highly controversial, however, despite the 1992 decision that appeared to resolve the roadless-area timber management issue. Roadless areas are key to fulfilling the ASQ objective. To fully implement the current ASQ of 24 MMBF/yr. would require obtaining approximately 35-40 percent of the ASQ volume from roadless areas.

There are a number of vegetation management issues that we should address programmatically in the Revision. Questions that consistently arise at the project level include habitat fragmentation, wildlife corridors, patch size, and habitat connectivity. The all require "big picture" assessments to establish the proper context for project-level analyses.

Also, given the old-growth controversy that we experience on a case-by-case basis on every project decision, we should map, quantify, and provide for comprehensive old-growth management at the Forest Plan level. Though the 1992 Amended Plan quantifies old growth, much additional data has been collected during the past three years that should be considered in developing old-growth management direction in the context of landscape-level Standards and Guidelines for vegetation management. The S&Gs should implement vegetative desired conditions that are developed in full consideration of range of natural variability.

We may need to separate the unroaded, unmanaged old growth from the roaded, managed old growth, since they are two different issues. Again, if we can handle this at the Forest Plan level, it could save us a lot of headaches at the project level.

The urban/forest interface presents a management challenge. As a result of an increase in residential construction and other development in the wildland/urban-interface areas of the Forest, and a lack of vegetative disturbance from fire or silvicultural treatment, many small parcels of National Forest System land which are intermingled with private ownership are at a high level of risk for attack by insects and diseases, and for catastrophic wildfire events.

A combined hazard and risk analysis of insects, disease, and catastrophic wildfire should therefore be conducted as a part of the Forest Plan revision. A geographical representation of relative risk would be very useful in the prioritizing of hazard-reduction treatments. Hazard reduction in these areas will generally require a combination of silvicultural treatment and reintroduction of low-intensity fire.

The validity of our timber-growth and -yield projections may be in question. We will need to reassess predicted yields from the suitable base as we revise the Forest Plan. We will also need to reexamine the appropriate ASQ, based on cost efficiency, community needs, and sustainable ecosystems. Modifications of the timber direction and level of ASQ should be a result of landscape analysis from an ecosystem perspective of all Suitable acres, previously entered or not.

Planning Questions from the 1992 Monitoring Issues Paper

- How should we manage roadless areas not recommended for Wilderness designation?
- What areas are suitable for timber harvest?
- What volume of timber can be provided from these lands to local markets?
- What is the local demand for timber from the San Juan NF, and what is the appropriate level of timber supply?
- Is the Forest's commercial timber program financially efficient?

Water, Soils, And Air

Evaluation of Plan Implementation

The average annual water yield from the SJNF is approximately 2.5 million acre-feet. Within the Forest, it is used nonconsumptively by aquatic and terrestrial ecosystems; water is also used consumptively to meet Forest Service purposes and those of other users. Some water is diverted and used off-Forest.

The downstream demand for water continues to grow, and there will certainly be conflicts among those interested in protecting and maintaining instream flows, those interested in developing water supplies to meet local and regional needs in the Upper Colorado River Basin, and those interested in meeting Lower Colorado River Basin needs or needs outside the Colorado River Basin.

The 1983 Forest Plan emphasized enhancement of water yield through vegetation management, primarily timber harvest; because of this emphasis, total annual water yield is one of the outputs tracked in these monitoring reports. The water-yield Prescription included in the '83 Plan has not been implemented, due to environmental and visual constraints, and is not included in the 1992 Amended Forest Plan. Over the past ten years, the emphasis in watershed management for the SJNF has shifted from increasing water yield to maintenance or improvement of aquatic and hydrologic integrity.

The 1983 Forest Plan did not include any Air-related activities in the monitoring plan. Since 1985, the Air program has evolved and now includes data collection (as part of several national monitoring networks) and inventory of sensitive resources such as lichens and high-elevation lakes. In FY '91, the funding for the Air program was increased significantly, and has been approximately $120,000 per year subsequently.

The top priority of the Soils program on the SJNF is the protection of soil resources. Extensive field analysis of soils is performed in areas where major management activities are proposed. These project areas are also monitored during and after the activities are implemented, to ensure that soil resources are properly protected.

Through FY '89, funding for cooperative soil inventories accounted for almost 50% of the total allocated to the Forest. Field work for the soil resource inventory on the Forest was completed in 1992. This inventory provides excellent base data for Forestwide planning and project analysis.

Recent soil and water improvement projects have included road rehabilitation, contour furrowing, and reconstruction of earthen gully plugs constructed in the late 196 0s and '7 0s. As part of the Federal Facilities Compliance Program, the Forest has rebuilt and/or upgraded water and sewage systems at campgrounds and administrative sites, has participated in a water quality assessment of the

headwaters of the Animas River sponsored by the State WQCD, and has conducted a similar assessment of a portion of the Mancos River.

All projects are analyzed and prepared to be in compliance with Forest Plan Standards and Guidelines. Monitoring of individual projects is helping us to determine the effectiveness of this direction. Examples of site-specific monitoring and results include:

The Forest contracted a water quality reconnaissance of the East Fork of the Mancos River, in response to local concern about perceived changes in water quality. Several sources of extremely acidic water were located in the upper basin of the river; these areas did not appear to be associated with past or present mining activities.

The Forest completed detailed geologic mapping of the headwaters of the East Fork and the South Fork of the West Fork of the Mancos River. The mapping was done to identify sources of the acidic and highly mineralized water identified the previous year. Several geologic anomalies producing acid rock drainage were located.

The discovery of a small population of Colorado River Native Cutthroat in Coldwater Creek highlighted concerns about sediment delivery associated with the existing road network. In response to this concern, rehabilitation of the roads in the Mosca, Coldwater, and North Sand Creek watersheds was made a precondition for any future timber sale activities in the area (see the Clauson Timber Sale EA).

After spring runoff and again in late summer, the Forest conducted a synoptic assessment of the East Fork and the South Fork of the West Fork of the Mancos River, to determine downstream changes in water quality and the quality and amount of water draining from inactive mines and through the geologic anomalies identified in 1990. The water samples were analyzed for total and dissolved metals and for pH and other associated parameters. The final report for this project is being prepared.

The Forest participated in the State WQCD's synoptic water quality assessment of the Upper Animas River and its tributaries.

The Forest began monitoring physical and biological indicators of aquatic health related to sediment in the upper portion of Coldwater Creek.

Through implementation monitoring, operational problems in a small timber sale which had the potential to adversely affect the water quality of Coldwater Creek were identified and corrected as part of the road rehabilitation in the watershed.

The Forest developed operational and reclamation requirements to protect water quality and limit soil erosion for a small placer mine adjacent to the Dolores River.

As part of the implementation monitoring done in conjunction with contract administration, one of the Forest's timber sale administrators identified a runoff/soil erosion problem in part of the Barlow Timber Sale. Specifications for remediation were developed with the Forest's soil and water technical specialists, and implemented by the sale operator.

The Forest participated in the State WQCD's synoptic water quality assessment of the Upper Animas River and its tributaries.

The road rehabilitation done in 1991 was evaluated to determine whether any of the treated areas needed maintenance and whether design changes were appropriate for future projects.

The placer mine by the Dolores River was periodically inspected during operation by District administrators and the Forest's technical specialists. Reclamation is now complete.
Evaluation of earth gully plugs constructed in the 1960s and '70s throughout several areas of the Forest revealed both design and maintenance problems. These structures are being progressively reconstructed as funding permits. The reconstructed structures are monitored to identify any continuing maintenance needs.

Implementation monitoring is part of the ongoing responsibility of timber sale administrators and the Forest personnel administering mining operations, activities taking place under special-use permits, and other activities.

Precipitation chemistry, the chemistry of airborne particulates, and visibility are monitored under the auspices of the national NADP and IMPROVE programs. The chemistry of selected lakes in the Weminuche Wilderness is also monitored by the USGS as part of the Forest's Air program.

Analysis of Need for Change

Goals and Objectives

The Goals in the 1983 Forest Plan for Soils and Water are:

1. Protect soils and water productivity so that neither will be significantly or permanently impaired;

2. Protect streams, lakes, riparian areas, and other bodies of water through management activities;

3. Improve water quality by allowing those watersheds presently below water quality Standards to recover;

4. Increase water yield through land treatment measures consistent with other resource objectives and water quality Standards.

The second and third Goals are still valid.

The fourth Goal, to increase water yield, was eliminated in the 1992 Amendment. The Objectives (1992 Amendment) project a decline in water yield and approximately 170 acres of watershed improvements per year.

The first Goal, to protect soil and water productivity, should be rearticulated to clarify the extent to which we are allowing ourselves to screw things up. First, we should manage our activities to prevent any impairment of water quality; second, any impairments which might occur must be limited in extent and intensity, and of short duration.

The linkage between Goals, Objectives, and outputs should be updated and should include the revised MAR objectives and outputs.

Standards and Guidelines

Achieving Resource Management/Protection

In general, we do seem to be doing things right, primarily because the Forest has enough of a collective knowledge base to figure out appropriate practices, management requirements, and mitigation measures–and when not doing something is the right answer. While the general direction in the Plan reflects laudable intentions for watershed management, the Standards and Guidelines reference obsolete inventory and analysis techniques, or are too vague to serve as management requirements and mitigation measures for specific activities.

Watershed conservation practices (WCPs) and other requirements and stipulations are applied; however, they are not tracked from conception through implementation, nor are they qualitatively or quantitatively evaluated for effectiveness.

Many of the activities taking place on the Forest are supervised or administered by Forest Service personnel. WCPs and other management requirements and mitigation measures are included in contract, occupancy, or special-use stipulations, and are usually enforced by the individual responsible for administration of the activity. The Forest has not, however, developed a systematic way to document either the actual implementation of these WCPs or their qualitative or quantitative effectiveness.

Recommended Changes

1. Develop better linkages among:

   - the Standards and Guidelines, Watershed Conservation Practices Handbook, and the Clean Water Act; and

   - the characteristics of the watershed and/or the drainage network; the aquatic ecosystem; and past, proposed, or foreseeable activities.

2. Emphasize systematic implementation monitoring for water and air resources. Monitor six to eight activities per District per year. Participate in interagency audits of the implementation and effectiveness of selected projects. Develop a process that:

   - Ensures that the individuals responsible for administering Forest activities are aware of all WCPs and other management requirements included in project EAs or EISs;
   - Provides a process to document periodic inspections during a project and after its completion; and
   - Provides at least a qualitative evaluation of the success or effectiveness of the management requirements.

   Such a process would assure the transfer of management requirements from EAs and EISs to contracts, special-use permits, and other documents authorizing occupancy of National Forest System lands and their implementation and relative effectiveness.

3. Continue effectiveness monitoring of selected projects.

   Monitor the effectiveness of management requirements and the effects of Forest activities for two to four projects Forestwide. Emphasize integrated monitoring of stream health.

   There are qualitative and quantitative techniques suitable for project monitoring, including photo points, channel cross-sections and profiles, macroinvertebrates or aquatic habitat inventories, and intensive sampling of water quality parameters and fish populations. The combination of techniques and the location of the monitoring will vary from project to project depending on the objectives and the nature of the activity to be monitored.

Management Area Prescriptions

The 9A Prescription as Currently Written Is Limited to Perennial Streams

The implicit limitation of the 9A Prescription to perennial streams and lakes is not appropriate, given our current understanding of the biological and hydrologic importance of intermittent streams as a part of the drainage network. It is not consistent with our current practices in watershed management.

General Direction and Standards & Guidelines

The Standards and Guidelines about maintaining these ecosystems in upper-mid-seral condition are contradictory to the dynamic nature of the processes affecting the system. Better to have management objectives that are site specific.

Limitation of instream flow management to fisheries is no longer appropriate.

Reference is made to ground-cover Standards, but there are no quantitative or qualitative factors.

Obsolete techniques are referenced, including HYSED, and channel-stability ratings.

Recommended Changes

1. Reevaluate general direction for timber in 9A areas.

1. Although there is a statement that timber will be available on a low-yield basis, following statements include maintaining growing-stock-level Standards, utilizing firewood by both commercial and non-commercial methods, establishing satisfactory stands within a five-year period, and cutting stumps at ground level in the 100-year floodplain. Enquiring minds wonder if timber should be available at all from riparian areas, and what are we doing making stumps in a floodplain?

2. Revise the General Direction and Standards and Guidelines.

Monitoring and Evaluation System

"Quantity of Water Meeting Quality Standards" Is Not a Good Measure of the Quality or Quantity of the Forest's Soil and Water Activities or Stewardship

Note that increased water yield as an objective and monitoring requirement was eliminated in the 1992 Amendment.

"Water meeting quality standards (acre-feet per year)" is a Plan output and is currently tracked in the monitoring report on a Forestwide basis. This quantity is an estimate derived by subtracting the water yielded from areas such as the Upper Animas and other historic mining districts from the estimated Forestwide yield. While important as part of the existing condition, this focus on mined areas and chemical standards is only part of the water quality and stream health issue.

Recommended Changes

1. Do not continue to estimate Forestwide Water Yield Meeting Quality Standards/Goals.

   The estimates of water yield and the "quantity meeting quality" Standards are not accurate enough to be sensitive measures of the Forest's activities from year to year, nor do they reflect the current management emphasis on the maintenance of aquatic and hydrologic integrity rather than water yield.

2. Develop and implement integrated, holistic inventory and monitoring techniques to assess stream health.

   A combination of biological and physical characteristics is a better basis for assessing stream health and the effects of management activities.

The Forest Is Not Monitoring the Effects of Forest Activities on Air Resources

The Forest is collecting baseline information about precipitation chemistry and sensitive resources potentially affected by changes in air quality. However, no implementation or project monitoring is being done.

Recommended Change

Monitor the effects of Forest activities on air quality and/or sensitive receptors.

Other Monitoring Activities

Ongoing

- Precipitation chemistry and the chemistry of airborne particulates are monitored under the auspices of the national NADP and IMPROVE programs. The chemistry of selected lakes in the Weminuche Wilderness is also monitored by the USGS as part of the Forest's Air program. Visibility monitoring ceased when the equipment was stolen.

- Through a cooperative agreement with Brigham Young University, the Forest began a lichen inventory in 1993 that will provide a species list, evaluation of relative abundance and bioaccumulation of metals, and identification of sensitive species. This information will be the baseline for the monitoring of long-term changes due to change in air quality. This inventory was completed in 1997.

- Implementation monitoring is part of the ongoing responsibility of timber sale administrators and the Forest personnel administering mining operations, activities taking place under special-use permits, and other activities.

1993

- For the third year, the Forest participated in the State Water Quality Control Division's synoptic water quality assessment of the Upper Animas River and its tributaries.

- The road rehabilitation done in 1991 and 1992 in Coldwater, Mosca, and Sand Creeks was evaluated to determine whether any of the treated areas needed maintenance, and whether design changes should be made for future projects.

- As part of the continuing implementation monitoring of the Barlow Creek Timber Sale, inadequate road drainage was identified as a source of sediment observed adjacent to Barlow Creek. The problem was remedied through cleaning of the existing culverts, installation of additional culverts, and construction of rock reinforced rolling dips in the roadway.

1994

- While data collection continues, the emphasis in the Upper Animas watershed shifted to the creation of a stakeholders group, involving individuals and agency, industry, and interest group representatives.

- The Forest initiated a best management practices audit of a timber sale, a portion of a grazing allotment, and the Mosca Road rehabilitation project with representatives from the Regional Office and the State Water Quality Control Division.
- The Forest developed an integrated process to assess stream health. Data was collected to prototype the process.

1995

- The road rehabilitation done in 1991 and 1992 in Coldwater, Mosca, and Sand Creeks was evaluated to determine whether any of the treated areas needed maintenance and whether design changes should be made for future projects. No maintenance needs have been identified. The only design change might be the use of more native plant species in the seed mix; however, local native species were becoming established.

- As part of the background information to support NEPA analysis in order to issue grazing permits, an ID team (range conservationist, hydrologist, and wildlife biologist) conducted what was essentially implementation monitoring of Forest Plan

  Standards and Guidelines relating to grazing. This is described in greater detail in the grazing-management section.

- The Forest began monitoring stream bank disturbance in order to develop management requirements based on stream type and/or other indicators of stream sensitivity.

Lands

Evaluation of Plan Implementation

Land Line Location

The Forest, working with BLM, has managed to conduct a dependent resurvey of one township a year. The Forest needs a maintenance program in order to protect our posting and marking investment, but is not currently funded for that activity.

Rights-of-Way Acquisition

The current funding is adequate for the amount of Forest target assigned by the Regional Office. There is no need to change the methods of monitoring implementation of this program. Although we have been able to achieve more than we anticipated in the Forest Plan, uncertain funding will not permit us to predict continued achievement at that level.

Land Adjustment

In 1991, we purchased 2,195 acres in the Piedra Valley and 654 acres within the boundaries of the Weminuche Wilderness.

In 1992, with a great deal of community support and assistance, we were able to purchase 530 acres in the Hidden Valley area, north of Durango. This acquisition will allow us to plan with residents for the interpretation and protection of an archaeological site, and provide additional recreational opportunities.

The program remains underfunded to accomplish the targets identified in the Forest Plan. Because of the complexity of these projects, an appropriate level to exchange would be 80 acres, rather than the 500 in the Forest Plan. We need to continue to pursue opportunities to work with partners, including local open-space groups.

Small Tracts Act cases would be appropriate to include in the Forest Plan as a monitoring item

when the Forest Plan is revised. This program should be a priority for the service it provides the public, as we are able to work with people to resolve encroachments.

If we maintain an acquisition program we can continue to acquire "easier" rights-of-way; however, funding opportunities that we have used may decrease. Other negotiated rights of way are likely to be more expensive and time consuming.

1994	Becket Exchange	354 acres
1995	Electra Exchange	1,200 ¨
1996	Lindner Exchange	200 ¨
1997	Rico Exchange	480 ¨
1997	Forest Lakes Exchange	120 ¨

Infrastructure

The road development program on the SJNF has historically been accomplished through two sources: in conjunction with the timber sale program, and through appropriated funding in the Capital Investment Program. Yearly fluctuations in this program reflect the fact that it is funded through the direct-appropriations process and is not necessarily linked to other Forestwide programs, and is subject to annual increases or decreases in Congressional budgeting for National Forest System roads. In addition, funding for this type of road development work is obtained on a competitive basis through the Regional Office. This combination of factors has caused the program to Evaluation of Plan Implementation

We have begun to focus on reconstruction and gravel replacement to try to maintain roads as directed in the Forest Plan. We are also replacing existing bridges that are unsafe; however, we are far behind the schedule specified in the Forest Plan.

There has been some shifting of projects among the years that causes us to show differences between miles planned and accomplished.

Analysis of Need for Change

Goals and Objectives

We have found no difficulty in implementing Forest Plan Standards and Guidelines, but accomplishment schedules were optimistic.

It is appropriate to reassess our travel management policy and fully integrate that direction with other resource needs in the revision of the Plan.

Heritage Resources

Analysis of Need for Change

Goals and Objectives

The Goals for Heritage Resources do not address values other than recreation and research. The Goals are biased toward western scientific values and recreation, while overlooking broader social values. Goals and Objectives incorporating traditional cultural values, or multiple social values, should be considered. Heritage resource objectives which are independent of recreation Goals and Objectives should be developed to reflect other aspects or values of Heritage Resource management.

There are many different aspects of the Heritage Resources program on the Forest that either are not adequately identified in the Goals and Objectives, or do not have appropriate indicators and units of measure. In addition to the recreation support (public-education or interpretive programs), there are Heritage Resource inventory and evaluation, site stabilization and preservation efforts, ecosystem analysis (paleo-environmental reconstruction and analysis of human effect on the natural environment), consultation, and curation. There is a need to measure these activities with appropriate indicators and units of measure. These data are available and can be produced when agreement on indicators is achieved.

The Management Area Direction and units of measure for monitoring the progress toward achieving Heritage Resource Goals are not adequate to measure all of the Goals identified for Heritage Resource management. Currently, the

only indicators and units for evaluating progress toward Heritage Resource Goals are recreation and dispersed-recreation user-day indicators. These are not adequate measurements of any of the Heritage Resource Goals.

For example, the first Goal for management of Heritage Resources states, "Locate, determine significance, and where appropriate, preserve historical and archaeological sites." The indicators and units should include number of sites located and evaluated, number of sites eligible for the National Register of Historic Places, and number of sites where preservation treatment and off-site or on-site interpretation have occurred.

The second and third Goals also do not have appropriate indicators. The second Goal for management of Heritage Resources states, "Manage exceptional historical and archaeological sites for increased public use and visitation, while still protecting the values of the site." There are no indicators or units demonstrating what site values are protected and how, or if, it was done. The third Goal for management of Heritage Resources states, "Make historical and archaeological sites available for study by agencies involved in research." No research measurements are established.

Indicators and units of measure need to be established that are independent of recreation. They should also be defined in more detail than "Nonrecreation" (currently applied in the Management Area Prescriptions) to reflect the diverse activity in Heritage Resource management. Although there is overlap with recreation Goals, Heritage Resource management Goals and Objectives should appear organizationally independent from recreation in the Forest Plan document.

Standards and Guidelines

There are Department of Interior, National Park Service Standards and Guidelines used for preservation of historic and prehistoric sites, National Register evaluation, definitions of traditional cultural properties, artifact curation, and others, that are current and provide more detail than FSM 2300/2360. Currently, FSM 2360 is the only reference for Standards and Guidelines in the management of Heritage Resources.

Management Area Prescriptions

Add the following ¶: "There are five National Register Districts on the Forest: Chimney Rock, Falls Creek, Spring Creek, Lost Canyon (Archaeological Areas), and the Anasazi Archaeological District. At present, Chimney Rock and Falls Creek have 10C designations. The other archaeological districts need to have Prescription review, in particular the Anasazi Archaeological District surrounding McPhee Reservoir. This should be done at the landscape level, since the National Register district boundaries may coincide with landscape boundaries."

Other Issues and Concerns

Inventory of Heritage Resources on the SJNF since 1983 has revealed a concentration of some of the most exceptional and numerous sites on the Colorado Plateau, and in Region 2. Heritage resources on the Forest share designation with other cultural sites and districts on the Colorado Plateau as one of the world's eleven most important, and at the same time, threatened and endangered cultural areas (National Trust for Historic Preservation 1995). The Four Corners region, including several historic and prehistoric sites on the Forest, have achieved international recognition. This Forest has become a heritage and ethnotourism destination, and the FS has become a major regional partner in providing these opportunities.

Significant legislative changes for managing Heritage Resources have occurred since 1992. These new mandates include 1992 amendments to the National Historic Preservation Act (NHPA) and enactment of the Native American Grave Protection and Repatriation Act, 1992 (NAGPRA). The most significant product from the amended NHPA and NAGPRA, which is not addressed in the Forest Plan, is direction for Native American consultation regarding treatment of traditional cultural places (which may range from individual sites to landscape features, and may include tangible and intangible

values), and treatment of sensitive collections (human remains and associated funerary objects, and objects of cultural patrimony).

The potential for conflict between the demand for increased opportunity and diversity of heritage tourism and educational experiences, and the demand for increased sensitivity in the treatment of traditional cultural places, and the treatment of sensitive collections, is imminent. The polarity of the conflict may not be eliminated, but can be mitigated by the Forest Service electing to improve how we manage for multiple social values in general, and the treatment of Heritage Resources in particular.

The Forest Plan recognizes economic and recreational value of Heritage Resources and measures this by user numbers, but does not recognize the increasing emphasis on managing for multiple values (i.e., traditional cultural). Additionally, sites or landscapes on the Forest that may not demonstrate recreational value may still have other values to emphasize, including traditional cultural ones, or research value. The Forest Plan is presently inadequate in addressing these concerns in the treatment of Heritage Resources.

Interpretation of sites is only one area of consideration where management of traditional cultural properties is a concern. In order to comply with 1992 revisions of the National Historic Preservation Act, consultation with Native Americans on the treatment of traditional cultural properties (places) is required for all undertakings.

Of particular note, the proposed 36 CFR, Part 800 regulations implementing the 1992 amendments provide direction for consultation on traditional cultural properties. Two of the most significant items are: talk to the tribes in a culturally appropriate manner (personalized), and talk to the tribes as a consulting agency in developing management alternatives prior to public scoping.

These directions are drastically different from our present approach to consultation at the public-scoping level (usually with no more than a single scoping letter), and may profoundly affect how Forest action alternatives are developed and selected.

Fire

Fire has always been a historic part of the landscape. The presence of fire, or its absence, has a profound effect on the natural life systems and the surrounding associated ecotypes. There is evidence that fires have burned large acreages within the San Juan - Rio Grande NFs area throughout history.

Prior to the time of domestic livestock grazing and organized firefighting (early 1900s), most fires were of low intensity, creeping through the forested lands and fanning across open meadows. Large stand-replacement fires were not common except in the large mixed-conifer stands; the frequency was in the 150 300-year range.

Many plant communities were maintained in a seral stage by recurring natural disturbances, including fire. Until recently, land management agencies such as the Forest Service were expected to suppress all wildfires, to minimize acreage burned. Little consideration was give to a corresponding application of prescribed fire to maintain ecosystem health.

This has resulted in ecological changes in the Forest and surrounding rangelands. The buildup of fuels has changed the character of the wildland ecosystem and creates a threat to resources, life, and property. Recent insect activity in some areas has changed the type and rate of fuel buildup, thus creating the potential for fires to be more intense and more costly to suppress. The long-term intent of an active prescribed-fire program is to reduce these effects and improve the overall Forest health.

The fire management program on the San Juan - Rio Grande Forests is a coordinated interagency effort involving federal, state, and local agencies. The overall fire management objective is to provide a cost-effective program which responds to land and resource management Goals and Objectives. This includes fire protection, suppression, and use.

In FY 96, the Forest implemented an expanded fire management program based on the NFMAS (National Fire Management Analysis System) analysis. With this process incorporated, the

Fire program on the Forest will be taking an active role in using fire to meet Forest ecosystem-management objectives. Along these lines, a Prescribed-Fire Plan was completed during spring of '97 and operational during the '97 field season. This Plan sets long-term direction to use management-ignited fire (MIF) and prescribed natural fire (PNF) to treat natural fuels Forestwide.

Analysis of Need for Change

Goals and Objectives

The Plan needs to be amended to disclose fully the ecological and societal risks of using and excluding fire. Current planning does not consider the risks, probabilities, and consequences of various management strategies, e.g., wildfire versus prescribed fire versus fire exclusion. Existing Goals and Objectives do not recognize fire as an essential ecological process and natural change agent. Ecosystem problems associated with fire exclusion are increasingly being recognized as having reached severe proportions, adversely affecting biological diversity and increasing the risk of conflagration events.

Existing Goals and Objectives do not adequately define the integration of multifunctional burn projects done for wildlife, range, timber, etc. Also, the treatment of activity fuels is not addressed as it relates to risk hazard reduction and resource protection.

The Plan also needs to be amended to include the MIF/PNF Plan and realistic targets brought down by the NFMAS planning schedule.

Standards and Guidelines

Existing Standards and Guidelines identify the need for prescribed-fire ignitions (planned and unplanned) as a management tool. This Standard and Guideline stands by itself and needs to be supported by the Prescribed-Fire Plan and Amendment. There are no Standards and Guidelines concerning the use of appropriate-response strategy (Control, Contain, and Confine).

As with both appropriate-response and prescribed-fire strategies, there is no direction on the role of fire on a landscape. Direction is needed to support the proper use of fire on differing landscapes; the susceptibility and resilience of a particular landscape to fire effects needs to be considered in building useful Standards and Guidelines.

No current direction exists on the role of fire within and adjoining the urban interface, which is rapidly increasing in areas susceptible to frequent fire occurrence. Standards and Guidelines need to be devised for the treatment of activity-generated fuels from timber harvesting and mechanical hazard-reduction projects.

Management Area Direction

Current management area direction on the actions fire management can take to meet Forestwide Standards and Guidelines is lacking. Management Area Prescriptions that are attainable and specify fuel-modification and ignition methods need to be developed for management areas. Prescriptions need to reflect acceptable ecosystem and social Forest Plan direction.

Monitoring and Evaluation

The monitoring aspect of prescribed and wildfire activities needs to be included. This calls for a consistent, well-planned scientific assessment of pre-burn, burn, and post-burn conditions. Currently the gathering of data is fragmented: fire folks gather data on wildfires and fuel management, timber folks on brush disposal, wildlife folks on wildlife-habitat burns, etc. Therefore we have no overall picture of the efficacy of the use of prescribed fire. The existing data does not help guide our planning or strategic thinking in the context of ecosystem management.

Some tools that assist in data collection and monitoring include Fire Protection Assessment (risks and values); NFMAS; Air Quality models; Fire Behavior Models; acres burned, both human and natural; strategy used to obtain control; and particulate-matter output by using

We also need to include the activity fuels generated; this would include Prescriptions for treatment, whether they be piles or broadcast, chipped or burned, etc.

Ecology/Biodiversity

Analysis of Need for Change

Goals and Objectives

The Forestwide Goals and Objectives for vegetation appear valid, except the 3rd Veg. Goal is not valid in all cases.

There is public or community support for the current Soils Goals and Objectives; for the Riparian Areas and Ecology G&Os, some yes and some no.

We could add some Soils G&Os; the others should be reviewed. Additional soils Goals and Objectives need to be identified in order to insure that soil resources are protected, and in order to recognize the important role soils play in the Forest's ecosystems and ecological processes. New Goals and Objectives should have an ecological focus.

In Soils, we are not delivering what we projected in terms of Objectives; reasons: budgetary shortfalls and projected workload not accurate.

The Soils Objective related to Resource Improvement needs to be changed to better reflect the current situation.

We need to include Old Growth and late-seral stages in our Objectives statements. Also need to add a statement on sustainability in the Timber section.

Most Objectives are not quantitatively measurable to determine whether they are too high or too low.

The G&Os are useful for setting out our philosophies, both for internal & public information, but we need to work on being more specific.

An additional question needs to be asked: Are the Goals & Objectives clear? There are too many vague terms & statements used. Pg. IIIa-1, under Timber Goals, what is "Forest regulation"? What is the definition of "forest health"? How do we "improve Forestwide age class & species diversity"? This could mean many things, and we may not want to do this in all places.

Miscellaneous: (1) Pg. III-5, under Human & Community Development, suggest replacing "economic growth" with "economic stability." Under Protection, replace "provide air quality" with "ensure air quality." (2) Pg. III-3, under vegetation, include fire as a functional area in Goal #4.

Standards and Guidelines

Soils S&Gs are effective and neither too stringent nor too lax. There are no gaping holes, there is no conflicting direction, and the S&Gs are not too regimented.

Both soils and riparian-area S&Gs meet their intended resource management/protection purpose, and the intended purpose is valid for both.

There is no need to move some of the direction from Forestwide Direction to the Management Area Prescriptions, or vice versa.

New soils-related information found in the Watershed Conservation Practices Handbook, and in Standards and Guidelines developed by the Rocky Mountain Regional Office and other R-2 Forests, should be reviewed and possibly incorporated into the SJNF Plan.

For riparian areas, seral stages are not defined well and the new range handbook is getting away from seral stages altogether.

We may not want or be able to maintain all riparian areas in upper-mid-seral stage, or the latest seral stage possible.

For riparian areas, the Dispersed Recreation Management General Direction and S&Gs need to be reviewed (Frissell Condition Classes are outdated).

For riparian areas, silvicultural prescriptions are hard to understand and don't make much sense the way they are written.

The SGs are too stringent regarding seral stages, and OK for the rest. There are no

gaping holes, there is no conflicting direction, and the S&Gs are not too regimented.

Much of the information in the Management Area Prescriptions should be moved to Forestwide Direction.

There are no Standards & Guidelines for Ecology. We should incorporate ecological concepts and principles in the Stds. & Guides for other resource areas.

Generally, the Standards and Guidelines are not effective for Old Growth. They do not meet their intended resource management/protection purpose, because they aren't being addressed at this point. It's also our opinion that the 5% as currently stated may not be adequate. We may need to explore developing a defensible Standard based on EM principles, i.e., Range of Natural Variability.
Management Area Prescriptions
Generally, the Prescriptions are correctly assigned, but we may want to examine the question of additional research natural areas

In some cases, the resource potentials and/or conditions are such that Prescriptions should be changed.

Monitoring and Evaluation

The current Monitoring Requirements for Soils need additional criteria and requirements, so that the implementation of Plan direction and Plan Standards and Guidelines can be better evaluated.

For Soils and Riparian Areas, time constraints and budgets make the Soils S&Gs hard to monitor.

We need to be able to measure and map and monitor the distribution of seral stages to see if we have met our S&Gs.

Scenic Resources And Interpretation

Analysis of Need for Change

Goals and Objectives

For the most part, the Goals and Objectives appear valid. However, since these were established the Forest has reintroduced historical and environmental interpretation as an integral part of its management. In fact, in 1989-90, interpretation was one of the Forest's top three priorities. It should be considered as a viable program and merged into the Forest Plan.

It seemed that we received a generally favorable response when we queried the public regarding the current G&Os in 1994, during the "Experiment" effort.

In regard to the scenic resource, the single mention in the Goals section is OK. No quantification in the Objectives section, perhaps because of the challenge to be measurable. Again, in the next effort we should look at including Interpretation in this section.

Standards and Guidelines

Management Standards and/or Guidelines should be completely redone, to be in accordance with the new FS scenery-management system.

Management Area Prescriptions

There were a some glaring problems with the VMS wording in the Prescriptions, i.e.:

- "Do not exceed the VQO of Modification" was often misunderstood. Some then thought that the VQO was Modification, or that they could not go to a higher VQO, such as Partial Retention. It would have been better stated, "The minimum VQO for the area is modification."

- The Prescription system took a very general direction for the VQOs, and constrained the application of the VMS to the variables of a Prescription Area. The new SMS must be applied to the future Plan Prescriptions.

Monitoring and Evaluation

Compliance with Visual Quality Objectives should be a monitoring element. Monitoring techniques would be field and office reviews of projects, permits, roads, structures, EAs, and EISs. Frequency of measurements would be a 25% sampling annually of work plans, 10% of

permits, 100% of all sites with high Retention VQO. Action would be initiated by any reduction in the approved VQO.

Other Issues and Concerns

A contemporary management issue affecting this program is the increased public visitation yearly to attractions on the Forest. For example, the San Juan Skyway has increased in popularity and use annually since its designation in 1988. This not only brings about the need to initiate more visitor-contact programs such as interpretation, but also brings up the importance of maintaining and enhancing the scenic quality along its viewsheds. The major reason the public visits Colorado National Forests is the scenery. And we receive more people participating in the "Driving for pleasure" recreation activity than in any other single use on National Forests.

This is mainly a national issue, with some regional influence.

Should this issue be a major focus of the Forest Plan revision? We should discuss the increased use and people-contact programs such as interpretation very closely. It should be part of the total picture, if in fact we are going to produce a Plan that is balanced for all resources.

Recreational use will continue to grow at a steady rate. Programs such as maintaining or enhancing the scenery will become increasingly important, as will visitor-contact programs, chief of which is Interpretation. We touch more people through interpretation than through all other contact programs combined.