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Date: September 24, 2001

To Interested Person,

The fiscal year (FY) 2000 Annual Monitoring Evaluation Report for the Routt National Forest is enclosed. This is the second year of monitoring implementation of the Routt Revised Forest Plan, which was approved on February 17, 1998. The Forest Interdisciplinary (ID) Team and the Forest Leadership Team have reviewed the information from this effort. The results of the analysis and review are documented in the attached report.

The report for FY 2000 especially focuses on the effects of the Routt Divide Blowdown (1997), and the site-specific projects that have been implemented to respond to that significant event. Windstorms of this magnitude are very rare, especially at the altitude where this one occurred. There is very little scientific knowledge about the long-term effects on the environment due to such events, or about the recovery process in the affected areas. Therefore, a major part of the Forest Plan monitoring effort is being focused on the Blowdown.

Monitoring the Forest Plan entails obtaining data from projects implemented on the ground, and determining the effectiveness of their prescribed mitigation measures. Planned projects can then be modified and improved mitigations utilized. Plan monitoring is a formal way of adapting and improving based on real-world experience.

The Routt National Forest is managed with the intent of balancing the public benefits for all the people of the United States. The annual monitoring report is one method of determining how well we are achieving the goal of "Caring for the Land and Serving People." Your opinion about how well we are doing is also important to us. Therefore, if you have any comments or suggestions, please contact Monitoring Specialist Stephen Nielsen at the address shown above or phone (307) 745-2404.

SINCERELY,

/S/ MARY H. PETERSON
MARY H. PETERSON

FOREST SUPERVISOR

ROUTT NATIONAL FOREST

LAND AND RESOURCE MANAGEMENT PLAN 1997 REVISION

ANNUAL MONITORING AND EVALUATION REPORT

FISCAL YEAR 2000

EXECUTIVE SUMMARY

The purpose of this report is to evaluate and document the results of implementing the Routt National Forest Land and Resource Management Plan *1997 Revision* for the fiscal year 2000. This report compares actual outputs and services with those estimated in the Revised Plan, it evaluates data for indications of trends or effects, it identifies any needed changes in Plan direction or Plan implementation including a need to amend or revise the Plan and it identifies any research needs.

Our monitoring efforts continue to focus on the aftermath of the October 1997 wind event that leveled over 20,000 acres of forested land in and just west of the Mt. Zirkel Wilderness Area near Steamboat Springs, Colorado, and our management activities that address the results of that event. We are tracking the spread of spruce bark beetles and mountain pine beetles whose populations increased because of the timber blowdown. We are working with researchers to learn more about whether or not we can mitigate the insect epidemic that is likely to occur over the next several years.

Our monitoring results show that we have implemented Plan standards and guidelines and applied best management practices which has resulted in acceptable water quality, soil productivity, and watershed health. We are also maintaining adequate habitat to protect threatened, endangered, and Region 2 sensitive wildlife species.

It appears that spruce bark beetle populations are increasing and spreading at a faster rate than was predicted immediately after the timber blowdown. Mountain pine beetles are also increasing and causing mortality in the Troublesome area. We note a widespread decline in the health of subalpine fir stands. The Bark Beetle Analysis (Environmental Impact Statement) initiated to address these concerns describes alternative actions for reducing infestation of trees by tree-killing bark beetles. We expect a decision on that proposal sometime in late 2001 or early 2002.

There are three areas where our monitoring indicates a need for change in management:

- On range allotments where we surfaced a need to improve our practices in riparian areas. New practices have been developed and will be incorporated into individual permits when they come up for renewal. (Page 15)
- In forested stands harvested for timber production. We must guarantee that five years after harvest they have been reforested again and to standards in the Forest Plan. More than 90 percent of the timber stands harvested five years ago meet that requirement. The areas that do no meet that standard will be planted and monitored in the future so that all areas are fully stocked. (Pages 15-17)
- In tracking volunteers and partnerships with other entities who help us manage our recreation program. We need to improve the way we measure and report on these activities. (Page 20-21)

There is no need to amend or revise the Forest Plan at this time.

Routt National Forest
Land and Resource Management Plan
Annual Monitoring Evaluation Report
Fiscal Year 2000

Introduction

The purpose of this report is to evaluate and document the results of Forest Plan monitoring that was performed during fiscal year 2000. As a result of this monitoring the Interdisciplinary (ID) Team may make recommendations to the Forest Supervisor concerning the adequacy of the Forest Plan to provide direction for managing the Routt National Forest. Monitoring activities were accomplished by the ID Team and other Supervisor's Office and District resource specialists.

The Revised Routt National Forest Land and Resource Management Plan (Forest Plan) was approved on February 17, 1998, when Acting Regional Forester Tom L. Thompson signed the Record of Decision. The Monitoring Evaluation Report for fiscal year 2000 includes monitoring activities that were completed between October 31, 1999 and September 30, 2000. The ID Team made an effort to monitor projects developed and implemented under the revised Forest Plan standards and guidelines.

On October 25, 1997, an intense windstorm occurred along the west boundary of the Mount Zirkel Wilderness, north of Steamboat Springs, Colorado, on the Medicine Bow-Routt National Forests. This event, commonly referred to as the "Routt Divide Blowdown," caused extensive windthrow to Engelmann spruce, sub-alpine fir, and lodgepole pine trees on approximately 7,600 acres within the Mount Zirkel Wilderness, and an additional 5,300 acres outside the wilderness. The Medicine Bow-Routt National Forests assembled an Interdisciplinary Team to analyze the effects of the blowdown and to develop an appropriate course of action. On July 17, 1998, the Record of Decision (ROD) for the North Fork Salvage Analysis Final Environmental Impact Statement (FEIS) was signed. This decision initiated a series of salvage sale operations designed to rehabilitate the affected area.

Most of the monitoring accomplished during the 2000 field season was directed towards evaluating the effects of the Routt Divide Blowdown; verifying the assumptions made in the North Fork Salvage Analysis Final Environmental Impact Statement; identifying the effects of the salvage operations, and determining the effectiveness of the mitigation measures that have been implemented. Monitoring also reviewed the effectiveness of several modifications to the Best Management Practices (BMP's), as well as potential application of mitigation measures developed for the blowdown, which may have broader application on the forest.

This report summarizes observations made by the ID Team and also reports the accomplishment of specific measurable targets (S-2 Table, Forest Plan, 1997 Revision. Monitoring for the Routt Land and Resource Management Plan (Routt Plan) will evolve from year to year as issues change and more experience is gained with implementing the Plan. Under the new plan, monitoring focuses on identifying and analyzing the effects of plan implementation and subsequently refining plan direction, as necessary.

Overview of Monitoring, Team Conclusions and Recommendations

The ID Team did not identify any items that would require immediate changes to the Forest Plan. However, monitoring did identify some needs to alter implementation as well as several other topics that could result in non-significant amendments in the future. The ID Team has identified a need for research to isolate the factors causing subalpine fir decline and to develop management strategies to counter its effects. The ID Team presented these recommendations to the Forest Supervisor with the conclusion that the Forest Plan is sufficient for managing the Routt National Forest.

Aerial surveys completed during recent years reflect an increase in insect and disease activity consistent with the aging condition of the forest. Damage and mortality due to disturbances such as windstorm, fire, and forest pests are escalating. While this is to be expected on the portion of the forest with low management intensity (i.e., wilderness areas, etc.), large scale damage could adversely affect outcomes, management options and expectations for the more intensively managed portion of the forest.

Special emphasis needs to be placed on continued monitoring of spruce bark beetle populations within the Routt Divide Blowdown. Even though the large blowdown that occurred during the fall of 1997 created a very large acreage of optimal habitat, numerous smaller events in higher risk stands could also trigger a spruce beetle epidemic. Monitoring completed during 2000 has led entomologists to a confident conclusion that an epidemic will occur. This probable epidemic has the potential to significantly change the characteristics of the spruce-fir vegetation type on the Forest, with several long-term implications related to the hydrologic, wildlife, timber, residential/forest interface, and recreation resources.

Populations of mountain pine beetle on the Routt National Forest are also continuing to escalate at dramatic levels, as evidenced by small, intense outbreaks in several pockets across the forest.

Responses to the Monitoring Questions

The Monitoring Questions listed in Chapter 4 of the Forest Plan respond to regulatory requirements and the goals and objectives stated in Chapter 1 of the Plan. They were designed to help determine how well the Forest Plan has been implemented. Several of the Monitoring Questions do not require annual evaluation and reporting. In response to these questions, a note identifies the year that evaluation and reporting will be completed. These questions involve situations that will take several years for trends to become established or discernable. Where data is displayed but no analysis is completed, the information was collected to ensure that it will be available for the scheduled analysis.

The information presented here is summarized from specialist reports compiled as part of the FY 2000 monitoring effort. The evaluations and recommendations submitted to the Forest Supervisor were prepared by the Monitoring ID Team.

Monitoring Question 1-1: Are long-term soil health and productivity being maintained?

During the past year, soil resource monitoring was conducted throughout the Forest. This work served two main purposes: 1) to test the Region 2 Draft Soil Health Assessment Protocol, and 2) to provide additional effectiveness monitoring for the Routt Forest Plan soils program.

General Conclusions:

As exhibited by the sale units that were surveyed, it appears that the use of "Best Management Practices"(BMP's) enables the Forest to meet Regional soil standards. Best Management Practices are State-defined practices designed to meet the goals and objectives of the Federal Clean Water Act. Noted problems include some road segments needing additional erosion and sediment control, several units with vegetation that may be inhibiting tree regeneration, and scanty coarse woody debris retention in a few units.

Most of the salvage units in the North Fork Salvage Analysis Area were harvested using conventional means, but skyline cable and helicopter logging systems were also used. Monitoring for soils included the following activities:

- BMP and mitigation monitoring.
- Ground cover transects.
- Soil microbial sampling.
- Hazard-Geist analysis.
- Snow depth monitoring.

Soil Resource BMP and Mitigation Monitoring:

The BMP's and mitigations prescribed in the North Fork EIS were largely derived from Forest Plan and Region 2 soil standards. Regional standards address soil erosion, compaction, puddling, displacement, and burning. Forest Plan standards include the Regional standards and the Watershed Conservation Practices Handbook guidelines. Effectiveness of the BMP's and mitigations implemented specifically to protect the soil resource are discussed in this report.

Results: The BMP's and Mitigations associated with the North Fork Salvage FEIS have been mostly effective in protecting the soil resource during salvage harvesting of the blowdown. Visual estimates, backed up by the monitoring of widely dispersed "erosion bridge" sampling, suggest that most of the salvage units are well within the limits of Region 2 Soil Standards, which require that detrimental soil conditions be present on no more than 15 percent of a project area. Units 19, 22, and 31 were the sole exceptions, with an estimated 20 percent detrimental conditions.

Ground Cover Transects:

Regional Standards require a specified amount of ground cover (60 to 70%) based on the erosion class hazard of the soils and whether monitoring takes place during the first or second year after disturbance.

Results: Effective cover in all units was greater than that required by Regional Standards. The percentage of cover ranged from 80 to 92, with an average of 87. Plant cover is low because the units were transected during the same season they were treated. Litter/wood cover is high due to the amount of fine slash being left on the sites and a target for coarse woody debris of 30-40 tons per acre. On the whole, ground cover results appear to coincide with unit evaluations related to the BMP's.

Soil Microbial Sampling:

This effort, though not required in existing Regional 2 protocols, is an initiative carried out by the Forest to judge its' utility. Microbial samples were taken in FY2000 and were sent to a private laboratory for assessment. The results have yet to be received.

Hazard-Geist Analysis:

This analysis is a statistically valid measure of the extent of detrimental soil conditions, such as soil compaction and displacement, that are present within an activity area. This analysis was performed for Unit 23 in the North Fork blowdown area.

Results: Detrimental soil compaction was present on about 13.5 percent of the salvage unit. This amount is within Regional Standards (15%) and substantiates the visual estimate for the unit that was made for the BMP portion of monitoring.

Snow Depth Monitoring:

Snow scour was identified as a concern in the North Fork Salvage Analysis EIS. In the blowdown areas snow may be blown off site and not accumulate as it does with undisturbed conditions. This results in less soil moisture being available for plant growth during the spring months. The effects of snow scour may be exacerbated by salvage harvesting, because less material will remain on the ground compared to unharvested areas.

Results: Results from the first two years of monitoring indicate that neither the blowdown, or salvage of the blowdown, have significantly decreased snow depth.

Conclusion: Monitoring during 2000 indicates that long-term health and productivity of the soils is being maintained. Site-specific monitoring data is on file with the Forest Soil Scientist.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-2: Are management activities maintaining or improving air quality including the Mt. Zirkel Wilderness?

Many of the fuel treatments that were planned on the Forest during FY 2000 were not accomplished due to the large wildfires that occurred in other western states. Forest personnel were committed to suppression activities on these wildfires, and were not available to perform the planned fuel treatments. Several burn projects were completed, however. On the Yampa District, 213 acres of pile burning was completed in the Upper Rock Creek area. On the Hahns Peak/Bears Ears Ranger District, 78 acres of pile burning was achieved in the Steamboat Springs Ski Area and the Buffalo Pass area. All the activities took place during fall, before snow depths became too great to achieve the desired results.

The wind direction from pile burning in Upper Rock Creek on the Yampa District did not disperse smoke into the Mt. Zirkel Wilderness. The SASEM air quality model was used to predict the effects of smoke dispersal for all the pile burning activities. All the burning was completed within good to excellent smoke dispersal conditions and none of the areas were impacted, including the Mt. Zirkel Wilderness.

The smoke dispersal that resulted from all the pile burning met the SASEM model predictions.

Conclusion: The projects monitored for air quality during 2000 met the modeling projections. Site-specific Burn Plans are on file at the Steamboat Springs office for additional information.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-3: How well are management activities maintaining watersheds in a healthy condition and meeting Colorado water quality standards?

Evaluate current conditions of watersheds for compliance with state water quality standards and review State list of impaired streams. The Routt National Forest has no streams that are listed as impaired according to the 1998 State 303(d) list. Although no streams are listed as impaired, the Colorado State Monitoring and Evaluation List identifies 23 stream segments on the Forest as having excess sediment. Monitoring was initiated on ten of those streams during the summer of 1998, and on an additional 11 streams during the summers of 1999 and 2000. Monitoring included evaluating physical stream characteristics using pebble counts, longitudinal profiles and cross-sections, evaluating biological health using macroinvertebrate sampling and shocking to determine biomass, and basic water quality measurements for temperature, pH, and dissolved oxygen. Initial evaluation of the data indicates that the water quality parameters meet State standards, however, data analysis is not complete for the other factors. During 1999, six reference reaches were surveyed to determine the physical and biological conditions. In order to compare the reaches in question, an additional eight reference reaches were surveyed during 2000. The Forest has worked closely with the Colorado Water Quality Control Division in developing a strategy to evaluate the condition of the streams in question.

Evaluate disturbance level of watersheds by comparison of current conditions with 1997 Watershed Health Assessment. No watersheds experienced disturbance activites that significantly changed the conditions from the 1997 Watershed Health Assessment. New disturbance activities occurred primarily in the North Fork of the Elk River watershed due to salvage operations following the Routt Divide blowdown, but this has not significantly affected the watershed conditions.

Review projects for compliance with the effectiveness of Forest Plan water and riparian Standards and Guidelines. Monitoring continued for the North Fork blowdown salvage project to evaluate the effectiveness of Forest Plan Standards and Guidelines, and to determine if mitigations identified during the NEPA process were implemented on the ground. A formal review was conducted with the Colorado Water Quality Control Division in September, which focused on the North Fork salvage area. Conclusions from the review include: 1) the EIS and project planning adequately addressed water quality issues, 2) implementation and effectiveness of BMP's met or exceeded the requirements for reducing erosion and protecting the soil, water, and aquatic resources, and 3) the documentation of implementation and effectiveness monitoring was excellent.

Conclusion: Monitoring completed during FY 2000 indicates that watersheds are in a healthy condition, including those within the Routt Divide Blowdown area. Monitoring of the BMP's implemented during the blowdown salvage operations has validated that they are effective.

No change indicated	X

Implementation change needed	
Change to Forest Plan needed	

Recommendations: Continue to monitor the effects of the Blowdown and related salvage activities. Monitor implementation of various projects to determine the effects due to other management activities.

Monitoring Question 1-4: Are insect and disease populations compatible with attainment of management area goals and objectives?

The results of the 2000 aerial surveys indicates that the majority of stands within National Forests in Colorado, which includes the Routt National Forest, are increasing in age and becoming more susceptible to disturbances such as insects, disease, windthrow, and wildfire. As these timber stands continue to mature, it is anticipate that there will be an increase in both the incidence and severity of these types of disturbance events.

Spruce Bark Beetle:

As discussed in previous years reports, with the occurrence of the Routt Divide Blowdown (October 1997), the spruce bark beetle (Dendroctonus rufipennis) became the agent with the greatest potential to cause wide spread tree mortality on the Routt National Forest in the near future. This wind event resulted in abundant spruce beetle breeding material throughout the spruce-fir forest vegetation type on the Hahns Peak and Bears Ears Ranger Districts. During the 2000 field season, the spruce beetle was just beginning to move from the blowdown material to infest live green spruce trees.

As noted last year, some spruce beetles were able to complete their life cycle in one year rather than the normal two years. One year spruce beetles were discovered during the summer of 2000 as well. One year spruce beetles have the potential to increase the spruce beetle population at a more rapid rate. The weather conditions for the past three winters were not severe enough to cause significant mortality to over-wintering spruce beetle populations. Therefore, the number of infested standing trees is expected to increase dramatically.

The scale of the Routt Divide Blowdown, the wide variety of blowdown patch sizes and the different conditions in these patches present the spruce beetle with a very significant opportunity to attack and kill standing spruce trees. With a susceptible spruce-fir forest and favorable weather, the spruce beetle may create landscape level disturbances by killing the mature spruce component of forested areas and making way for the new forests.

Management efforts can have local effects that will mitigate spruce beetle impacts to varying degrees, but we know of no way to stop a landscape-level spruce beetle epidemic once it has begun. Much of the spruce-fir forest in Colorado and Wyoming is mature to very old and is approaching the time when disturbances will likely result in renewed and regenerated forests. The context of the Routt Divide Blowdown is that it is but one of several places in Colorado and Wyoming where landscape scale spruce beetle outbreaks are becoming increasingly likely.

Monitoring spruce bark beetle populations in the vicinity of the Routt Divide Blowdown has included aerial and ground surveys, pheremone trapping, extent surveys and brood sampling. Aerial surveys, which were conducted in north central Colorado and south central Wyoming annually from 1996 through 1998, detected hardly any recent spruce mortality attributed to the spruce bark beetle. This indicated that

spruce beetle activity in standing trees has been at very low levels over a large area, including the blowdown area, from 1994 or 1995 onward.

The 1999 aerial survey found little activity in standing trees adjacent the blowdown, which indicated that most of the spruce beetle populations were either still within windthrown trees or had not infested the standing, green trees long enough (two years) for them to begin to fade. The aerial surveys in 2000 concluded that tree mortality from spruce beetle increased more than 7-fold compared to what was observed in 1999. Early conclusions from the spring 2001 aerial survey indicate a worsening situation.

Subalpine fir:

The most widespread damage agent detected again in 2000 in Colorado was subalpine fir decline. This decline is poorly understood, but it is thought that a combination of insects (the Western balsam bark beetle, Dryocoetes confusus) and disease (Armillaria spp. or other root diseases) play a role in tree decline and mortality. Nearly 600,000 trees were affected throughout the area surveyed in Colorado in 2000 by this decline. Dead subalpine fir holds its red needles longer than most other conifer species, so it is possible that these totals may be cumulative from the last 2, 3, or even 4 years. This decline, which is present throughout the western United States and Canada, is most concentrated in the northern half of Colorado. Since little is known about this decline, it is not possible to determine how much of the damage occurred this past year.

Mountain pine beetle:

Next in severity is mountain pine beetle (Dendroctonus ponderosae) in lodgepole, ponderosa, and limber pine. The following chart depicts the yearly two-fold or greater increase in mountain pine beetle mortality that has been occurring in Colorado since the mid-1990's.

In Colorado, this beetle killed over 275,000 trees covering approximately 140,000 acres in 2000. The number of trees estimated killed by mountain pine beetle in the counties coincident with the Routt National Forest include 65,000 trees in Grand County; 6,500 trees in Jackson County; 2,200 trees in Routt County and 420 trees in Rio Blanco County. In 2000 Grand County had the second largest amount of mountain pine beetle killed trees in Colorado.

In the East Fork of Grand County's Troublesome Creek, mountain pine beetle numbers have exploded from 500 trees killed in 1998, 6,000 in 1999, to over 19,000 in 2000. Increases in lodgepole pine mortality were predicted in the Routt Forest Plan as a result of increasing average age.

Next in severity, was Jackson County. The outbreak near Rand, between Buffalo Ridge, Green Ridge and Owl Mountain, continues to enlarge from an estimated 1,345 trees in 1998, 4,000 trees in 1999, to nearly 5,300 trees in 2000. In northern Jackson County, the outbreak along the east side of Independence Mountain from County Road 6 West extending north into Wyoming. The 2000 estimated total was 800 killed trees, which is similar to 1998's total, but down by a third from 1999's.

The mortality between King's Crossing and the East Sand Hills continued to be comprised of light, scattered, pockets (approxametly 170 trees).

Conclusion: Stands of trees on the Routt National Forest are aging to the point they are becoming increasingly susceptible to disturbances such as windthrow, insects and diseases.

Spruce Beetle: The Routt Divide Blowdown has created optimal conditions for a spruce beetle epidemic

on the Forest, and current beetle populations are increasing. If an epidemic should occur (and there is not much doubt that it will occur now), the spruce timber type in northwest Colorado, including the Routt National Forest, could change significantly. This situation would likely be incompatible with some forest goal and objectives.

The Bark Beetle Analysis Draft Environmental Impact Statement was issued August 2001 to consider reasonable responses to spruce and mountain pine beetle epidemics.

Subalpine fir: While more individual trees are succumbing to this pest than to others, little is known about this complex of insects and disease. Improved monitoring protocols are needed to assist measuring annual mortality and to enable the quantification of the agents' effects and potential. There is a need to complete research to verify the cause and to identify effective management techniques to counter its effects.

Mountain pine beetle: Damage to pine forests in Colorado, including those on the Routt NF, from this insect has been rapidly accelerating since 1994. There are currently large area epidemics occurring on the forest in the east Troublesome area and near Rand, Colorado. Other infestations on the Routt NF are currently of less severity, but are expected to grow in size and intensity. The current rate of growth reflects susceptible stand conditions and the need to implement appropriate management strategies.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Recommendations: Continue intensive and extensive monitoring of spruce bark beetle and mountain pine beetle populations. Continue coordination with Forest Service Research to test methodology to limit spruce beetle populations and reduce the risk of beetle epidemics in spruce stands and to promote research on subalpine fir decline. When the extent of the spruce beetle epidemic is better known, a Forest Plan amendment might be required because the Forest Goals and Objectives may no longer be compatible.

Monitoring Question 1-5: How is harvest unit size affecting landscape patterns across the Forest? (Coarse Filter Scale)

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. Information for FY 2000 , however, is being included here to ensure that it is available for future evaluation. Although no formal analysis will be done until 2003, the ID Team identified some trends worth noting at this time.

A copy of the Forest's vegetation data (RIS and GIS data attributes), as of January 2000, has been archived. This data will serve as a baseline for the initial comparisons that will be made in the 2003 Annual Monitoring Evaluation Report.

Data for both, the average and maximum size of units clearcut harvested during FY 2000 by Ranger District, are presented in the following table.

These will be included in the baseline data for use in the 2003 analysis. The large openings caused by the Routt Divide blowdown are not included in this analysis, but they do contribute to a diversity of patch sizes across the landscape.

District	Average Clearcut Size	Maximum Clearcut Size

	(acres)	(acres)
01 Yampa	13	40
03 Hahns Peak/Bears Ears	0	0
04 Parks	10	28

Observation: No units in excess of 40 acres were harvested during 2000, however, one unit was at 40 acres. The average size of clearcut units during FY 2000 was 15 acres.

Monitoring Question 1-6: Are habitats for threatened, endangered and Forest Service Rocky Mountain Region sensitive species on the Routt National Forest being maintained or enhanced? (Fine Filter Scale)

In order to address this monitoring question, a wide variety of projects analyzed during the NEPA process were documented using monitoring reports, specialist reports, Biological Assessments (BAs) and Biological Evaluations (BEs). It is important to note that due to the severe fire season that ocurred during the summer of 2000, the amount of field work and associated monitoring was less than during 1999.

As a result of the review of most recreation projects, it was determined that there would be "no impact" to any of the regional sensitive species or their habitat on the Forest, and "no affect" to any of the TE or P species or their habitat. The "Dome" area within the Sarvice Creek wilderness is still closed to protect nesting peregrine falcons, however, these birds have been delisted. More funding for this patrolling effort would be welcome.

Monitoring of Threatened, Endangered, Proposed, and Sensitive species continued in the Routt Divide Blowdown area. Most wildlife monitoring performed during 1999 occurred before any major salvage operations began, therefore, the data forms a baseline for post-blowdown effects on wildlife habitat. Future monitoring will also provide data to evaluate the effects of salvage operations on wildlife. Future monitoring is expected to provide valuable information about the long-term effects of salvage operations on both wildlife and supporting habitat . The Forest will continue to monitor and evaluate the amount and types of road use that occurs within the blowdown analysis area and the effects this use has upon elk habitat effectiveness.

Point counts were established within the blowdown area and adjacent spruce-fir stands to evaluate the effects on bird species that occur as a result of the blowdown and salvage logging. The 1999 and 2000 data was collected prior to salvage operations and reflects the effects of the blowdown, rather than effects of the salvage operations. Monitoring during 2001 and future years will be used to to clarify the effects of the blowdown, and also the effects of the salvage operations.

Exterior to the blowdown area, on the Yampa Ranger District, most survey work was done in conjuction with the East Gore Analysis Area. These surveys are essentially designed as tools to detect the presence or absence of goshawks and forest carnivores. Surveys for forest carnivores have been conducted in FY 2000 for the East Gore Analysis Area. The survey did not verify the presence of lynx, wolverine, marten, or fisher. Monitoring of this analysis area will continue during 2001.

Risk assessments were performed for proposed winter recreation activities that are not connected to the Routt Divide Blowdown, in order to evaluate if boreal owl, goshawk, marten, lynx, wolverine, and/or fisher or their habitat would be impacted. Effects analyses were discussed in terms of both duration and context/intensity (direct, indirect, cumulative; past, present and reasonably foreseeable). In addition, specific mitigation measures were recommended to reduce any potential adverse impacts to these species.

Boreal toad habitat, in some instances, required special mitigation measures to ensure maintenance of habitat. During the Red Dirt Allotment Analysis a concern about the health of riparian areas along certain sections of Red Dirt Creek prompted special mitigation orders to be considered during the NEPA process. Analysis on this project is ongoing.

The effects of salvage logging on boreal toad habitat will also be monitored and evaluated. Monitoring has occurred in several locations throughout the North Fork Salvage area, but no boreal toads were located. Species that were detected were Western chorus frogs and tiger salamanders. This data was collected before salvage operations began and will be used to establish a baseline for future, post-salvage analyses. The effects on boreal toads due to human recreational use occurring within the analysis area as a result of changes in road management will be monitored and evaluated. This will help determine any potential effects to boreal toad breeding areas.

The effects of travel management on the toad population is not monitored on the Yampa District. This may be a concern along FDR 100, which parallels Red Dirt Creek, because an adult was located along the creek during 1998. No active breeding location related to this siting was ever located, however. District biologists are aware that toads are in that area, and if future monitoring locates a breeding site near the adult, this issue/concern will be elevated.

Lynx dependency upon snowshoe hare as a food base has been well documented. Snowshoe hare habitat will be monitored in both treated and untreated blowdown units to validate habitat assumptions currently being utilized in wildlife specialist reports and for impact determinations. The types of recreational use that occurs in the area will be monitored and evaluated to determine the effects that this use has upon lynx habitat. Surveys to document the presence of forest carnivores (lynx, wolverine, marten and fisher) have been conducted, but only marten have been detected to date. Although there is suitable habitat for the lynx within the analysis area, no lynx have been detected.

A snowshoe hare monitoring plan has been developed to evaluate changes in hare populations due to management actions or the result of bark beetle activity. Monitoring transects have been established, which will be surveyed three times a year during the winter months. Data collection will occur during the winter of 2000/2001 and continue for the duration of the project, or longer if funds are available.

Field surveys were conducted during August, 2000 in the lodgepole pine stands that were identified in the Bark Beetle Analysis EIS (Alternative D). This was done to validate/invalidate the information in the RIS database relating to understory vegetation, and to evaluate snowshoe hare habitat. Although some understory trees were present in the lodgepole stands and some snowshoe hare pellets were located, the trees were not the appropriate height or density to provide suitable hare habitat during the winter. In addition, the pellets that were present apparently were the result of hares using the area in the summer.

Special use permits for recreation, especially winter activities, have been re-evaluated in terms of the effect upon lynx. Permits currently in use will establish baseline data for snow compaction activities, as stated in the Lynx Conservation Assessment and Strategy document. This is also consistent with the conservation measures prescribed in the Assessment. Other mitigation measures specific to these activities have been incorporated into the recreation permits.

Goshawk nest territories were monitored during 2000. Two of the nineteen known territories are associated with the North Fork salvage area. One territory was associated with an area of the blowdown that was actively being salvaged. This territory was active and the young successfully fledged. Mitigations associated with protecting this territory were effective. The other territory was occupied but

inactive this year – possibly due to disturbance associated with a recreational trail.

Surveys for northern goshawks are conducted annually across the Forest. Surveys are based on habitat suitability associated with a variety of proposed projects and timber sale areas. Annual monitoring of known nest sites has occurred since 1992 across the Forest. Annual goshawk monitoring consists of multiple visits to the nest stands during the breeding, nesting and fledging periods to determine occupancy, activity and success. Expanded nest searched are conducted in territories that contain inactive nests in order to locate new nest areas. Expanded nest searches consist of intensive transect surveys up to ½ mile radius from the most recently used nest. This method has been very successful in locating new nests and thus provides an accurate interpretation of territory activity and population fluctuation.

Annual monitoring of Northern goshawk nesting territories and surveys of new habitat will continue in order to evaluate trends in population and use of established reserve nesting stands.

A detailed GIS based habitat model is currently being developed for the Forest to identify suitable and high quality goshawk foraging and nesting habitat. This will allow biologists to more accurately predict the available habitat and estimate the potential population of goshawks on the Forest.

One goshawk nest was monitored on the Parks District during the 2000 field season for the Snyder Creek Timber Sale. This nest fledged two young in late July/early August.

The Spruce Divide goshawk nest site has been monitored for several years. An active timber sale began operations in 1997. The nest has been active in 1990, 1991, 1992, 1995, 1998, and 1999. This nest should continue to be monitored well after timber sale activity is completed to help determine what, if any, effect timber harvest has upon nest occupation and success. Approximately 2500 acres of suitable habitat was surveyed in FY 2000 for the East Gore Analysis. No nest sites were located, however occasional siting of adult birds did occur during survey efforts.

Surveys for boreal owl have been conducted annually for the past serveral years across the Routt N.F. during the breeding season. Numerous observations resulting from surveys indicate a strong presence. Consistent territorial activity is an accepted sign of an established breeding population (Hayward 1998). In order to assess the local population and begin a monitoring program to more fully understand the impacts of the blowdown, effects of salvage logging, and evaluate the effects of the impending bark beetle epidemic, a research grant was allocated to the Univeristy of Wyoming to help the Forest Service answer these questions and facilitate the monitoring program. Research will aid in the identification of occupied nesting habitat and habitat used by boreal owls in the blowdown in addition to other related research purposes. This research project began during the 1998 field season and continued thruough 2000. During the summer of 2000, at least three and possibly five boreal owl pairs successfully nested in the analysis area [Bark Beetle Anaysis] in nesting boxes. The Forest will continue to monitor nest boxes as a mechanism for population monitoring.

In order to assess the existing condition of boreal owl habitat and in order to predict effects due to the predicted bark beetle outbreak, a GIS-based habitat model was developed. The Routt N.F. worked with Dr. Greg Hayward and several graduate researchers involved in boreal owl work to develop the model.

Boreal owl surveys were completed in March and early April of FY 2000, within the Red Dirt geographical area. No boreal owls were located. The survey window was short and environmental conditions were not optimum for detection of singing male owls.

Monitoring for fisheries is based on the premise that primary production (population of macroinvertebrates) would be expected to increase as a result of the large amounts of woody debris added to the stream system. The Forest currently has one year of pre-blowdown data and two years of post-blowdown data. Results from this monitoring are not yet available. Future monitoring reports will show

the results, as they become available.

The Rocky Mountain Forest and Range Experiment Station established over 200 plots to collect data on coarse woody debris within the Routt Divide Blowdown. This data may be useful in determining more specifically, the appropriate level of debris to be retained for wildlife habitat and snow retention purposes. Pre salvage plots averaged 64 tons per acre. Only 13 of the plots were salvaged during 1999.

The post-salvage measurements made during 2000 averaged 47 tons per acre.

Conclusion - Based on discussions of effects/impacts and incorporating effective mitigation measures into decisions, it was determined that projects identified should not have significant detrimental impacts to Threatened, Endangered Proposed and Sensitive (TEPS) species. To conclude, habitats for those TEP and S species found on the Forest are being maintained. Road closures were determined to have a beneficial impact for many TEPS species, and would thus enhance habitat for many terrestrial species.

Projects that the wildlife biologist worked on for the Parks District were small, site-specific projects such as Newcomb Creek Restoration, Radial Mountain Travel Management Plan, various special use permits, Trail 1135, and lynx consultation. These projects did not affect habitat for TE&S species or for "Management Indicator Species"(MIS species) or for general wildlife species/habitat. An exception may be the Radial Mountain Travel Management Plan, which could benefit wildlife such as deer and elk, due to seasonal road closures and other mitigation measures.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-7: Are forest cover types and habitat structural stages (coarse filter as described in the FEIS on pages 3-107 through 3-110) being provided for across the Forest?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. A copy of the Forest's vegetation data (RIS and GIS data attributes) as of January 2000 has been archived. This data will serve as a baseline for the initial comparisons to be made in the 2003 Annual Monitoring Evaluation Report. The forest may pursue collecting this information through cooperative agreements with other organizations. One method for obtaining cover type and habitat structural stage information is to re-measure timber inventory plots, however, this method is expensive. Cover type and habitat structural stage change very slowly, making remote sensing a viable, cost-effective monitoring option as another potential method.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-8: How are management activities affecting late successional forest structure in management Areas 5.11 and 5.13?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003.

A copy of the Forest's vegetation data (RIS and GIS data attributes) as of January 1998 has been archived. This data will serve as a baseline for the initial comparisons to be made in the 2003 Annual Monitoring Evaluation Report.

Please refer to the FY 1999 M&E Report about a model developed to compare predictions of old growth suitability, using stand inventory data currently collected routinely on national forests.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-9: How are management activities affecting riparian habitats (including wetlands) on the Forest?

Note: Formal evaluation of this monitoring question will not occur until Fiscal Year 2003. However, 1999 and 2000 information is being included here to ensure that it is available for future evaluation. Although no formal conclusions will be drawn until 2003, the ID Team noted some trends worth documenting for future consideration.

The effect of management activities on riparian habitats was evaluated using field reconnaissance, and Proper Functioning Condition (PFC) surveys. PFC is a qualitative method used to evaluate the hydrologic, vegetative, and soil conditions of riparian areas to determine riparian health. Field reconnaissance was conducted for all management activities including timber sales, trails, roads, and range allotments. PFC surveys were conducted on range allotments which are currently being analyze during the NEPA process.

Field surveys found that the effects from timber management are primarily from past activities, and that current timber management activities are not affecting riparian habitats. Poorly located roads and trails, particularly those which were user built, are impacting isolated riparian areas. Monitoring of projects previously completed in the Pinkham Creek watershed indicates that riparian conditions are improving.

Perhaps the biggest effect to riparian habitats is the result of livestock grazing, particularly cattle. Project areas addressed during the summer of 2000 included the Troublesome allotment on the Parks Ranger District, the California Park, Slater, and Lost Park allotments on the Hahns Peak/Bears Ears Ranger District, and the Red Dirt allotment on the Yampa District. There were small areas in all of these allotments that were rated as “functional at risk.” These areas will be addressed during the pending Allotment Management Planning (AMP) process, and alternatives will be developed to improve the riparian condition. Changes in management were implemented on the Troublesome allotment in 1998, and field reconnaissance in 2000 indicated that riparian conditions are on an upward trend.

Follow-up monitoring was done on Grassy Run on the Parks Ranger District in 2000. This area had previously been identified as “functional at risk,” but fencing in the Grassy Run area has greatly improved this stream reach, and it is now considered to be in an upward trend.

Conclusion: Riparian problems related to grazing are analyzed during the NEPA process for different allotments. As a result, changes are being made to the type of grazing system, season of use, exclosures, and livestock numbers to address these concerns. Follow-up monitoring indicates that these measures are effective in moving the riparian habitats toward the desired condition. Implementation of watershed improvement projects is helping to improve riparian areas being affected by roads and trails.

No change indicated	
Implementation change needed	X
Change to Forest Plan needed	

Recommendation: Continue to monitor the effects of the Routt Divide Blowdown and related salvage activities. Monitor implementation of other projects to determine the effects of other activities.

Monitoring Question 1-10: Are stands adequately restocked within 5 years of final harvest treatment?

The Reforestation and Timber Stand Improvement Accomplishment Report is compiled annually.

for non-certification This report identifies all sites that received a final harvest five years previously. There were 782 acres of final harvest on the Routt National Forest recorded for 1995. Information from the FY 2001 database showed that 65 acres were not certified as stocked five years later. The following table displays the reasons:

Reason for Non-certification	Acres	Remarks
One clearcut unit was close to the minimum trees/acre. It is believed to have poor cone serotiny but able to fill in naturally without additional regeneration treatments.	11	Regeneration surveys are scheduled for FY 2001. Certification is expected, but if not, fill in planting will be scheduled.
Two group selection units were close to the minimum trees/acre requirements and the seedlings were not well distributed. Winter logging probably did not provide enough scarification.	32	Regeneration surveys are scheduled for FY 2001. The district expects these sites will fill in naturally without additional regeneration treatments. Certification is expected, but if not, fill in planting will be scheduled.
Two sites apparently did not have enough viable seed due to dwarf mistletoe.	22	Scheduled for full planting in FY 2001 with regeneration surveys in FY 2003

A review of the reforestation records indicated that some of the natural reforestation problems are related to winter logging in areas with elk sedge competition. Summer harvest operations ordinarily scarify the site, providing numerous areas where the mineral soil is exposed in the sedge and the seedlings can become established. The lack of scarification due to winter logging may not create enough site scarification to achieve full stocking by natural regeneration.

When a timber sale includes winter logging, the forest will determine where scarification is necessary for natural regeneration and include contract provision C(T) 6.42 Skidding and Yarding (Special Objectives) 11/98, with wording such as:

> *"On cutting units _____ which contain approximately _____ acres and as shown on the Sale Area Map, unless otherwise agreed in writing, a minimum of 50 percent and a maximum of 70 percent of the workable ground surface uniformly distributed over the unit area, shall be scarified down to bare mineral soil. Scarified ground is here defined as bare mineral soil in patches exceeding .25 feet by .25 feet." If the purchaser elects to work out side of the normal operation season in the winter, then the purchaser will be required to return to the unit the next summer to complete the scarification requirement. This scarification requirement will not conflict with the slash requirements of C(T) 6.43# - Felling Restrictions In Serotinous Lodgepole Pine Units (11/98) when included with lodgepole clearcut units.*

Success of this approach will be monitored.

Conclusion – Forest records currently indicate that 65 acres harvested in 1995 are not certified in the database as stocked. Corrective actions will be implemented in these areas.

No change indicated	
Implementation change needed	X
Change to Forest Plan needed	

Recommendation – Continue monitoring to ensure that regeneration meets the five-year requirement and that records are updated on a regular schedule to allow annual verification as part of the monitoring report. Monitor the success of natural regeneration in elk sedge, grass, and rocky sites.

Monitoring Question 1-11: Has timber suitability classification changed on any lands?

Formal evaluation for this monitoring question will not occur until the Fiscal Year 2008. A copy of the Forest's timber suitability database as of January 2000 has been made. This data will serve as a baseline for future comparisons in the 2008 Annual Monitoring Evaluation Report.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 1-12: What is the relationship between changes in habitat and population trends of the management indicator species?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. A copy of the Forest's vegetation data (RIS and GIS data attributes) as of January, 1998 has been archived.

This data will serve as a baseline for the initial comparisons to be made in the 2003 Annual Monitoring Evaluation Report.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 2-1: Do recreational opportunities respond to Forest users desires, needs, and expectations?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. . However, 1999 and 2000 information is being collected to ensure that it is available for future evaluation. Although no formal conclusions will be drawn until 2003, the ID Team noted some trends worth documenting for future consideration.

There were no sites scheduled for review during FY 2000 for this monitoring item, but the Hahns Peak/Bears Ears Ranger District did administer a survey of winter users on Rabbit Ears Pass, where conflicts between users has affected their satisfaction of experience. Responses to the surveys indicated that most users believe that the conflicts need to be addressed, and that the solution must be a personal responsibility of the individual users. As an example, several user groups developed a plan for the Buffalo Pass area, which is being policed by the users themselves. This concept may be expanded and implemented in other areas on the Forest. No change to the Forest Plan is needed at this time.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 2-2: Does the Forest infrastructure (travelways, roads, trails) facilitate attainment of desired recreational experiences, including access for a wide range of abilities?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. Monitoring Question 2-1 is also relevant to this question. The following tables summarize the Forest's inventory of accessible facilities as of January 2000. This inventory will be used to complete the evaluation scheduled for 2003.

Accessible Facility Type	Year 1 (1998)	Year 2 (1999)	Year 3 (2000)	Total
Developed Campsites (including access)	11 + 5 Toilet	2 +1 Toilet	0	13 + 6 Toilets
Developed Picnic sites (including access)	5 + 3 Toilets	1 + Trail	2	8 + 3 Toilets and 1 Trail
Granger-Thye Rentals	0	0	0	0
Trailheads (including toilets)	2 + 2 Toilets	4 Toilets		2 + 6 Toilets

Trails (access)	0	0	4	4
Administrative Offices	3	0	0	3
Special Uses:	-	-	-	-
Outfitter Guides	2	0	1	3
Resorts	1	0	0	1
Recreation Events	0	0	0	0
Organization Camp	0	0	0	0
Field Offices	1	2	0	3
Programs	1	0	0	1
Pier (Bear Lake)	1	Access trail	0	1 = access trail

One of the districts received comments from hunters with disabilities who are concerned that they are no longer able to use an OHV to go into the backcountry for hunting.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 2-3: How are recreational activities affecting the physical and biological resources of the Routt National Forest?

The forest is actively reviewing its recreation infrastructure and special use permits to determine effects to other resources and the need for changes and improvements. Most landscape level site-specific NEPA analyses include an evaluation of road and trail systems for improvement, decommissioning, or other activities. Examples include:

A Recreational Assessment analyzing the effects and opportunities to recreation resulting from the Routt Divide blowdown has been recently completed. Also, two trails, which were closed by the Blowdown, are currently undergoing site specific NEPA analysis. A decision will be made to either re-open, abandon or move them to more environmentally sensitive locations. The draft Environmental Assessment for the first analysis is scheduled to be published in July.

The Record of Decision for the Upper Elk River Access analysis decided to convert approximately four miles of the Diamond Park Road (FDR431), an existing jeep road, to a non-motorized trail with the motorized traffic re-routed to another road. The road surface will be ripped, the profile narrowed, and portions will be relocated to drier locations. This reconstruction, relocation and conversion to a non-motorized trail will reduce the current level of sediment being delivered to the North Fork Elk River from the current motorized recreational use.

Monitoring associated with the Calamity Pass Enduro event on the Parks Ranger District caused the District Ranger to refuse to consider applications for the event until the required stabilization, restoration, hardening and obliteration work previously committed to by the applicant is completed.

The Parks Ranger District is completing separate NEPA analyses of the effects to resources of motorized travel in the Radial Mountain Analysis Area and on the Arapaho Ridge Trail (FDT 1135). The Radial Mountain analysis will provide the basis for a decision concerning the development and maintenance of a network of motorcycle trails in the southeast part of the district on the trail system used for the Calamity Pass Enduro event. Motorized use has long been authorized on the Arapaho Ridge trail, but the Forest Plan revision changed the surrounding Management Area to a non-motorized prescription. The analysis will determine whether to eliminate motorized travel and make

the trail consistent with the surrounding land use allocation or to change the land use allocation and permit continued motorized use.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Recommendations: Continue to review recreation facilities and activities for the need to reduce effects to other resources.

Monitoring Question 2-4: How are the selected projects and programs affecting visual quality?

A permanent bridge was constructed across the North Fork of the Elk River during Fiscal Year 2000 as part of the Record of Decision for the Upper Elk River Access Environmental Impact Statement on the Hahns Peak/Bear Ears Ranger District.
The bridge allows access to the Diamond Park private in-holding and several timber sale salvage units. The 100-foot long bridge, with self-weathering steel span and railing and wood running surface, complements the natural surrounding forest when viewed from within the river corridor. The concrete abutments were stained with earthtone brown colors to blend with the shorelines. The site is located in Management Area Prescription 3.4 – Scenic Rivers, Designated and Eligible, with an adopted Visual Quality Objective (VQO) of Retention. As stated in the environmental consequences section for visual resources in the Upper Elk River Access Analysis (Supplemental Environmental Impact Statement), the bridge would not meet the Retention VQO, but would meet Modification when viewed from the river or the riverbank.

The revised Routt Forest Plan adopted visual quality objectives are located in the guidelines section. The guidelines are advisable courses of action that should be followed to achieve forest goals, but are optional. The deviations from guidelines were analyzed during the project and documented in the project decision, but did not require a Forest Plan amendment. The bridge was designed and built to meet the Modification VQO, which it did.

Several new CXT precast vault toilets were installed on developed sites of the Hahns Peak/Bear Ears, Parks, and Yampa Districts during the last two years, which replaced old leaking and inaccessible toilets. The new toilets are accessible to recreationists with disabilities. The Gunnison and Cascadian models with simulated wood walls and cedar roofs provide a positive Forest Service image and are appropriate for the Roaded Natural ROS setting. Concrete colors of the new toilets vary from light tan to taupe. The color of the walls and roofs should be darker (preferable dark brown) to harmonize and blend with the surrounding forest, and to meet the Visual Quality Objectives of Partial Retention and Modification.

Conclusion – The bridge project evaluated during FY 2000 met the assigned Visual Quality Objective. In the future, the Forest Landscape Architect will review the site and select the color for all new toilets prior to being ordered by the Districts. This will help to ensure meeting the Visual Quality Objectives.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 2-5: How are partnerships contributing to maintaining or enhancing recreation resource opportunities?

Reporting for this item during FY 2000 focuses on the Volunteer Program, one of the partnership efforts on the Forest. The Parks Ranger District campground hosts performed basic cleaning and maintenance and extensive visitor contacts. On the Yampa Ranger District, five campground hosts contributed 1,200 hours to provide information to visitors, and also performed light maintenance and cleanup work at six campgrounds and 16 dispersed camp sites.

Volunteers for the Hahns Peak/Bears Ears District performed a variety of recreation duties, such as being campground hosts, cleaning the Fish Creek Falls Recreation Area, and other providing information to visitors in the Mt. Zirkel Wilderness about the Leave No Trace program.

Recreation use surveys were performed by 97 people on the Winter Task Force, while others groomed and maintained snowmobile trails. Numerous volunteers performed trail maintenance, motorized trail construction, and other activities within the Mt. Zirkel Wilderness.

No change to the Forest Plan is recommended at this time.

Conclusion: Several shortcomings in our data collection and compilation methods, as well as future changes will result in variations in the data and cause difficulty in determining trends.

No change indicated	
Implementation change needed	X
Change to Forest Plan needed	

Recommendation: Develop and implement a stable system that provides meaningful ways to measure and report partnership accomplishments. This will be coordinated between the Ranger Districts and the Forest Recreation Staff Specialist.

Monitoring Question 2-6: Does the Forest provide interpretive experiences that describe ecosystem functions and the Forest Service mission?

More than 25,000 forest visitors were directly contacted through personal interpretation and environmental education programs on the Routt National Forest during 2000. More than 5,000 of these contacts were direct communication related to the Routt Divide Blowdown, anticipated beetle epidemic and the role of natural disturbances in a forest environment.

Other interpretive programs, including campfire programs, nature hikes, historical walks and archaeology presentations contacted more than 20,000 forest visitors. Forest Service information was also presented to visitors using various brochures, maps, trailhead signs, wayside exhibits, special events, table-top displays, Smokey Bear programs, Woodsy Owl programs, and school presentations.

The Routt National Forest is a leading member of Partners in Interpretation. This partnership focuses on interpreting the natural and cultural resources of northwest Colorado. Various programs were presented in cooperation with the following agencies and organizations:

The Routt National Forest.
Colorado State Parks.
The City of Steamboat Springs.
The Tread of Pioneers Museum.
The Steamboat Ski Area.
The Colorado Division of Wildlife.
Yampatika.
Steamboat Springs Chamber Resort.
Bureau of Land Management.
Nature Conservancy.

Members of the Routt National Forest interpretive team were honored as the Forest Service's Interpreter of the Year for 2000, receiving the National Gifford Pinchot Excellence in Interpretation Award. The 2000 National Bronze Smokey Bear Award was also presented to an interpretive employee of the Routt National Forest for work in wildland fire prevention, including interpretive planning and programs.

Conclusion: The Routt National Forest is providing interpretive experiences, focusing on opportunities that assist in communicating ecosystem functions.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Recommendations: Continue programs and partnership with other organizations. Provide more focus on interpreting the Forest Service multiple-use mission and increase the number of programs available on the Forest.

Monitoring Question 3-1: Are outputs of goods and services being produced at a rate consistent with the projections in Table S-2 of the FEIS?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. The forest will review outputs at year five (2003) to compare actual accomplishment to Forest Plan projections made in the revised Forest Plan.

The following table was derived from the Routt Forest Plan EIS (1997 Revision, Chapter S). It has been modified and annotated to display a comparison between outputs projected by the Forest Plan and what was actually accomplished during Fiscal Years 1998, 1999, and 2000.

The Forest Plan presents projected outputs for the anticipated ten-year planning period rather than on an annual basis. The projected outputs are neither minimum nor maximum targets. The data has been converted to an annual basis below to facilitate annual comparisons of outputs for monitoring purposes. These data will fluctuate annually as the forst budget fluctuates in response to annual constraints imposed by Congress and the Administration. The forest will review outputs at year five (2002) to compare actual accomplishment to Forest Plan projections.

Resource Program	Activity/Outcome	Units	Forest Plan Desired Condition Level	Forest Plan Experienced Budget Level	FY 1998 Level	FY 1999 Level	FY 2000 Level
Recreation	Developed Capacity Available / 1	PAOT-days	1,541	1,452	1,520	1,520	1,520
	Trails Available to Standard /2	Miles	601	538	590	555	555
	Trails Available-Total	Miles	820	810	852	829	940
	Developed Use	M Visits 3/	616	616	530	(9)	(9)
	Dispersed Use	M Visits	877	877	938	(9)	(9)
Wilderness	Wilderness Use	M Visits	98	98	110	(9)	(9)
Heritage Resources	Inventory Area	Acres/yr	6,348	6,532	1,375	5,703	7,936
Fish, Wildlife, TES	Inventory	Acres/yr	8	5	679	-0-	-0-
	Monitoring Projects	Projects	2	1	0	2	4
	Project Coordination	Acres	17,100	13,300	0	84,742	27,200
Grazing	Grazing - Sheep	Hd Mnth /4	174,400	137,300	150,700	149,168	152,138
	Grazing - Cattle	Hd Month	39,600	31,200	34,700	36,732	31,973

Rangeland Vegetation	Noxious Weeds	Ac Treat	385	303	1,871	1,871	1,145
	Rangeland Vegetation Inventory	Acres/yr	37,338	34,317	-0-	-0-	0
Forestland Vegetation	Volume Offered Chargeable Conifer (ASQ) /5	MCF/yr (6) MBF/yr	3,200 14,800	N/A N/A	1,102 5,097	1,999 9,245	1,479 6,842
	Volume Offered Chargeable Aspen (ASQ)	MCF/yr MBF/yr	1,200 2,000	N/A N/A	7.0 32.0	0 0	267 1,220
	Volume Offered - Total Sale Program (All wood products)	MCF/yr MBF/yr	5,200 24,050	3,600 16,650	1,901 8,792	2,131 9,856	2,242 10,367
	Harvest - Even age regeneration cut	Acres/yr	1,211	790	1,212	303	335
	Harvest - Even age non-regeneration cut	Acres/yr	245	169	53	16	0
	Harvest - Uneven age	Acres/yr	235	167	128	109	138
Resource Program	**Activity/Outcome**	**Units**	**Forest Plan Desired Condition Level**	**Forest Plan Experienced Budget Level**	**FY 1998 Level**	**FY 1999 Level**	**FY 2000 Level**
	Reforestation	Acres/yr	1,211	790	1,014	934	1,179
	Timber Stand Improvement	Acres/yr	1,027	1,019	1,823	1,086	461
	Forestland Vegetation Inventory	Acres/yr	107,856	28,235	40,486	13,124	9,955
Soil, Air & Water	Soil and Water Resource Improvements	Acres/yr	143	133	40	18	28
	Watershed Condition - Class I Watersheds	Wtrshds	85	85	55	55	55
	Watershed Condition - Class II Watersheds	Wtrshds	49	49	73	73	73
	Watershed Condition - Class III Watersheds	Wtrshds	0	0	0	0	0
	Water Yield from timber harvest	Ac Ft/Year	715	490	719	719	234
Fire	Fuel Treatment	Acres	1,682	1,609	2,338	786	296

Roads	Roads Maintained /7	Miles	1,500	1,448	500	500	617
	Road Construction	Miles/yr	16.2	9.3	5.9	0.1	2.3
	Road Reconstruction	Miles/yr	9.8	5.2	11.5	0.0	1.8
	Road Obliteration	Miles/yr	18.4	18.4	0.0	20.0	10.0
Trails	Trail Construction/ Reconstruction	Miles/yr	6	1	13.6	20.8	14.6

1. Recreation Developed Capacity Available has changed due to implementation of the new INFRA structure database, which automatically calculates capacity of developed sites depending upon opening and closing dates. This figure will probably fluctuate annually, depending upon different conditions that may affect these dates.

2. Trails Available to Standard have increased more than anticipated due to changes in program emphases on the Districts, state funding availability, and an identified need.

3. M Visits = 1,000 visits

4. Hd Mnth = head month; calculated by multiplying the number of animals by the period of occupancy.

5. ASQ = Allowable Sale Quantity.

6. MCF/yr = thousand cubic feet per year.

7. The Forest road system consists of approximately 1,500 miles. About one third, or 500 miles, are maintained each year on a three-year cycle.

9. The Routt National Forest has been selected to begin using a different process to collect recreation use data during FY 2001. It is unlikely that the data collected using this new process will not be similar to the data collected under the current system.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 3-2: Are costs of implementing programs occurring as predicted in the Table S-3 of the FEIS?

Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. The Forest Plan displays the activity, outputs, and budget at two different budget levels. The full implementation, or desired condition, budget level is relatively unconstrained and reflects the desired level of plan implementation. The experienced budget level is constrained to reflect current budget levels. The actual constraint was based on a 3-year average of funds allocated to the Forest for fiscal years 1992, 1993, and 1994. The actual budget will fluctuate annually in response to direction from Congress and the Administration.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 3-3: How are Forest management activities affecting local employment and income?

Note: Formal evaluation for this monitoring question will not occur until Fiscal Year 2003.

We will develop methodology to address this question. As a start, the Forest Service is currently developing a standardized approach for collecting recreation use information. In the meantime, the Forest has been verifying data from previous years.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 3-4: How well is the forest interacting and planning in cooperation with communities?

The Bark Beetle Information Task Force was formed in the Spring of 1999 to help residents of Routt County, and continues to have success at diseminating information to the public. This community-based group represents the Medicine Bow-Routt National Forests, Colorado State University Cooperative Extension, City of Steamboat Springs, Routt County, Steamboat Ski and Resort Corporation, the Steamboat Chamber Resort Association, Inc. and private citizens. The objective of the group is to help residents of Routt County and surrounding areas understand the potential effects of a beetle epidemic on purblic and private lands in the area.

The Forest is an active partner in the Routt County Wildland Fire Council. The group focuses on fire planning and wildland fire awareness. The Routt Winter Task Force is a community organization working with the Forest to address increasing conflicts between various winter uses in the backcountry. Cooperative work continues with the Forest and the Upper Elk River Community Planning Group to coordinate various land management plans into a comprehensive plan for North Routt County.

Conclusion: The Forest Service is actively working and planning with neighboring communities and organizations in all aspects of forest planning and implementation of projects.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Recommendation: The Forest performed well at interacting and planning with adjacent communities, therefore, no change to the Forest Plan is recommended.

Monitoring Question 4-1: Are there changes that have resulted in unforeseen issues that require Forest Plan amendment?

Formal evaluation for this monitoring question will not occur until fiscal year 2003. However, 2000 information is being included here to ensure its availability for future evaluation.

The Record of Decision for the Upper Elk River Access Environmental Impact Statement made a slight modification to the first vegetation Standard in Management Area 3.4 (scenic river corridor eligible or

designated). This non-significant amendment to the Forest Plan clarified the standard for salvage within the scenic river corridor (Amendment #1, May 27, 1999).

In the FY99 monitoring report we stated that the listing of the Canada lynx as threatened will likely result in a Forest Plan amendment. Most current direction (as of March 2001) states that the Rocky Mountain Region is amending Forest Plans in the Southern Rocky Mountain province of the Canada lynx that will consider the Canada Lynx Conservation Assessment and Strategy. A draft EIS is expected to be released in December of 2001.

President Clinton initiated the Roadless Conservation Initiative in October 1999. An FEIS was prepared and released in December 2000. A final rule was released in the Federal Register January 12, 2001. The final rule prohibits road construction, reconstruction, and timber harvest in IRAs (Inventoried Roadless Areas) because they have the greatest likelihood of altering and fragmenting landscapes, resulting in immediate, long-term loss of roadless area values and characteristics. Implementation of this order was subsequently suspended by administrative order.

On May 4, 2001, the Secretary of Agriculture announced a reexamination of the Roadless Area Conservation Rule, with an opportunity for public comment that closed on September 10, 2001.

In the interim the Forest Service has issued two Interim Directives, on July 27, 2001, reserving to the Chief of the Forest Service, with some exceptions, authority to approve timber harvest and road construction and reconstruction in roadless areas. Depending on the outcome of the reexamination of the Roadless Rule and pending litigation, there may be a future need to amend the Forest Plan to change Management Area Prescriptions.

The Parks Ranger District is analyzing the Arapaho Ridge Trail (Forest Development Trail 1135) that has long been open to motorized use, but is located in an area assigned to non-motorized allocation by the Forest Plan in 1998. The analysis will determine whether to close the trail to motorized vehicles or to amend the Forest Plan to allow continued motorized use. In April 2001 a DEIS that assesses and discloses the environmental effects of determining the future status of FDT 1135 went out for a 45-day comment period. A decision should be made sometime prior to the end of this fiscal year (FY01).

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 4-2: Are the standards and guidelines prescribed in the plan being incorporated in NEPA documents and implemented on the ground?

The Monitoring ID Team intensively reviewed several projects during FY 2000, in particular, projects associated with the Routt Divide Blowdown. The standards and guidelines in the plan are being appropriately incorporated into project planning and project implementation. No important changes have been identified, but some slight modifications are being made to the way Best Management Practices are implemented to make them more effective.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

Monitoring Question 4-3 - Is the Forest moving closer to the desired condition identified in the Forest Plan at the Geographic Area and Management Area scale?

Note: Formal evaluation for this monitoring question will not occur until Fiscal Year 2003. A copy of the Forest's vegetation data (RIS and GIS data attributes) as of January 2000 has been archived. This data will serve as a baseline for the initial comparisons to be made in the 2003 Annual Monitoring Evaluation Report.

No change indicated	X
Implementation change needed	
Change to Forest Plan needed	

LIST OF PREPARERS

The Annual Monitoring Evaluation Report for Fiscal Year 2000 was prepared by the Forest Planner and Interdisciplinary Team of the Medicine Bow-Routt National Forests. The following list displays the name and resource program of the Forest Leadership Team, and also the Forest ID Team members that contributed the information and evaluation for the Monitoring Items.

FOREST LEADERSHIP TEAM

NAME	FUNCTIONAL RESOURCE AREA
Mary H. Peterson	FOREST SUPERVISOR
John Ayer	Director - Business Management Group
Lynn Jackson	Director - Planning, NEPA/FOIA/Appeals
Lee Kramer	Director - Renewable Resources
Mike Murphy	Director - Program Support Group/Recreation

STAFF SPECIALISTS

NAME	FUNCTIONAL RESOURCE AREA

The ID Team was comprised of the following individuals:

Tommy John.	Soil Scientist
Denise Downie	Soil Scientist (Blowdown)
Gary Roper	Forester/Silviculturist
Kathy Rodriguez	Wildlife Biologist
Carol Tolbert	Data Coordinator RIS/GIS
Denise Germann	Public Affairs
Liz Schnackenberg	Hydrologist
Scott Cowman	Hydrologist (Blowdown)
Kirk Wolff	Air Resource
Jeff Tupala	Landscape Architect
Dave Harris	Ecology
Mary Sanderson	Recreation
Bill Schaupp	Entomologist (Blowdown)

CERTIFICATION

I have reviewed the Annual Evaluation Report for the Routt National Forest that was prepared by the Forest Interdisciplinary Team for Fiscal Year 2000. I believe that the results of Monitoring and Evaluation, as documented in this Annual Report, meet the intent of both, Chapter IV of the Forest Plan, and current Regulations (36 CFR 219.12(k).

The Forest ID Team and Leadership Team have not identified any significant changes in conditions or demands of the public that would change the goals, objectives, or outputs of the Forest Plan (36 CFR 219.10(g)). Therefore, I have determined that an Amendment to correct any identified deficiencies of the Plan is not immediately necessary.

I have also considered the recommendations made by the ID Team regarding the proposed changes to the Monitoring procedures or implementation methods, as described in this report. I concur that the recommended changes are necessary to improve the effectiveness of the Forest Monitoring Program or implementation of resource projects on the ground. These changes will be made by Forest personnel, as funding allows, and will comply with the appropriate analysis and documentation procedures of all laws and regulations, including the NEPA.

I concur with the findings of the 2000 Annual Monitoring Evaluation Report for the Routt National Forest. This is not an appealable decision, according to 36 CFR 215.7, "Decisions Subject to Appeal." Contact Stephen Nielsen at the Medicine Bow-Routt National Forests, 2468 Jackson Street, Laramie, Wyoming, 82070, or call (307) 745-2404, if you have any specific concerns, questions, or comments about this report.

/s/Mary H. Peterson — September 24, 2001

MARY H. PETERSON — Date
Forest Supervisor