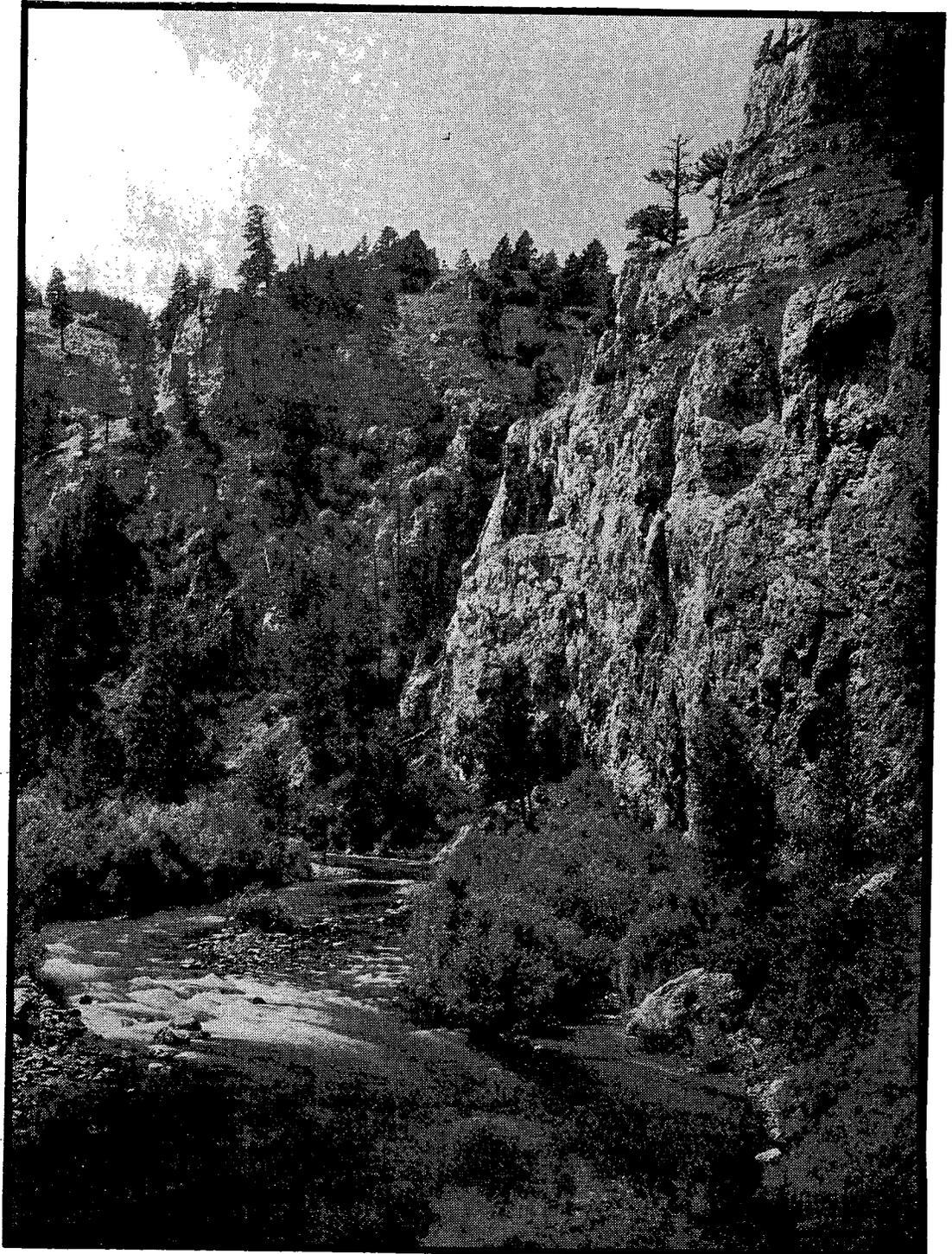


Lewis and Clark
National Forest
P.O. Box 869
Great Falls, MT.
59403



LEWIS AND CLARK NATIONAL FOREST PLAN

Monitoring and Evaluation Report



Belt Creek Canyon below Monarch in the Little Belt Mountains.

United States
Department of
Agriculture

Forest
Service

Lewis & Clark NF

P.O. Box 869
Great Falls, MT 59403
406 791-7700
FAX 406-761-1972

Reply to: 1920

Date: May 1994

Dear Forest User:

Enclosed for your review is the "FY 1993 Lewis and Clark National Forest Plan Monitoring and Evaluation Report". This report records our progress and accomplishments for our seventh year of Forest Plan implementation.

since our last Monitoring and Evaluation report, the following personnel changes have occurred:

Terry Knupp has joined the Forest Leadership Team as District Ranger of the Kings Hill Ranger District. Terry came to us from the Hungry Horse Ranger District of the Flathead N.F. where she was the Assistant Ranger.

Mike Enk is our new Fisheries Biologist, stationed in the Supervisor's Office in Great Falls. Mike transferred to the Lewis and Clark from the Flathead N.F.

Dana Field, our Forest Botanist, resigned and is now working for the Oregon Department of State Lands. We have not filled the Botanist position.

Jim Hertel, our Forest Silviculturist, retired this May. We are in the process of filling this position.

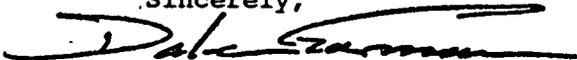
Also retiring in May, is Ron Wollan, Civil Engineering Technician in Great Falls.

George Panek, Forester at the Belt Creek Information Station, transferred to the Lincoln District of the Helena N.F. We have not filled the position George vacated.

Delores Heinen, Forest Purchasing Agent, retired this winter after 40 years of service on the Lewis and Clark.

Thank you for your interest in the Lewis and Clark National Forest and please contact me if you have any questions.

Sincerely,



JOHN D. GORMAN
Forest Supervisor

Lewis & Clark National Forest Forest Plan Monitoring Report

Fiscal Year 1993 SUMMARY

This summary capsulizes the full report of the Forest Plan Monitoring and Evaluation for the Lewis and Clark National Forest during Fiscal Year 1993 (October 1992 through September 1993). Our monitoring items are listed in Chapter 5 of the **1986 Lewis and Clark National Forest Land and Resource Management Plan (Forest Plan)**. Forest specialists monitor and report on 71 individual monitoring items. They evaluate their findings and make recommendations to the Forest Leadership Team.

Detailed information for each of the 71 items is disclosed in the full report.

In the full report, you will find three main sections. The Introduction includes a general discussion of the purpose of monitoring and the amendments that have been made to the 1986 Forest Plan. The second section outlines, in general terms, the decisions made in the Forest Plan. And the third section details each monitoring item, including the methods used in our monitoring, the findings from our monitoring efforts, and any recommendations for improving implementation of the Forest Plan direction.

MONITORING RESULTS

Recreation: Developed recreation use continues to exceed expectations in the Forest Plan. Dispersed recreation use seems to be leveling out with use less than predicted during the planning process. The wet summer of 1993 most likely was the cause of the small decline in developed and dispersed recreation on the Forest this year. Decreased funding in FY 1993 forced the Forest to again prioritize maintenance at developed recreation sites. Primary, heavy use campgrounds are being maintained more often than those less used. Recreation capital investment funds accomplished rehabilitation of South Fork Campground, as well as the construction of two trailheads at Beaver and Willow Creeks. Recreation Opportunity Guides for the Musselshell and Judith Ranger Districts have yet to be completed. Travel Plan violations have increase slightly, but Districts report increase is due to improved reporting rather than increased violations.

Public information and improved signing have been noted as needs on the Forest. Installation of such new signing has been taking place across the Forest.

Cultural Resources: The Forest continues to concentrate its efforts on inventorying and assessing potential impacts to cultural resources on site-specific project proposals. During FY 1993 no projects were initiated without consideration of cultural resources. Also, informational signs were installed to interpret a pictograph site on the Forest and the planning stage of interpreting an historic trail was completed. As part of the America's Great Outdoor Program, a Passport-In-Time project was completed as well. Also in FY 1993 a study to assess traditional cultural use of the RM-1 Unit was completed to supplement the EIS for oil and gas exploration.

Wilderness: Most prominent threats to preservation of the Wilderness resource include; spread of noxious weeds, degradation and overuse of popular trails and lakeside campsites, low numbers of naturally occurring fires, enforcement of Grizzly sanitation regulations, use allocation, and increasing need for wilderness education.

Wildlife: Emphasis on improved mapping and use of landsat technology is improving our data base on the Forest. Grizzly bear populations appear stable; all six BMUs are showing females with cubs. Sightings indicate that a lone wolf is utilizing the Sun River drainage on the Rocky Mountain Division, and a breeding pair of wolves are using lands east of the Forest boundary in the Sun River area. This pair produced four pups in April.

During FY 1993, the procedure to determine security levels for elk, developed jointly by the Lewis and Clark and MDFWP, was used on two major EISs; Smokey-Corridor and Running Wolf.

Bighorn sheep and mountain goat populations were not monitored by the MDFWP on the Rocky Mountain Front in FY 1993. No sheep were transplanted on the Forest in 1993. Sightings of lynx and wolverine are occurring on the Rocky Mountain Division. Wolverines

have been detected at one general location on the Jefferson Division as well.

The Forest completed a document that outlines the process and approach for inventorying and allocating old growth. This process will be used to complete the Forest wide inventory.

One pileated woodpecker was sighted on the Jefferson Division of the Forest. The Forest continued issuing the Animal Inn brochure, Be An Innkeeper in their firewood permit packages. This is an effort being made to educate and inform the public on the value of dead and down materials within the forest.

The overall condition of fish habitat and the condition of streamside shrub communities was evaluated on 40 miles of streams in the Sun River drainage to furnish baseline data for the Sun Canyon Range analysis. Six streams in the Little Belt and Castle Mountains were evaluated as well. Road construction, livestock grazing, and inherent natural erosiveness contribute to the levels of fine sediment present on these streams.

Non-structural habitat improvements are meeting or exceeding Forest Plan projections. Programs for sensitive wildlife, fish and plants have been initiated on the Forest.

Range: Grazing levels are within 2% of Forest Plan projections. Nonstructural range improvements are only 8% of those projected in the Forest Plan. This under accomplishment of range nonstructural improvements (prescribed burning) is causing a decline in forage production. Structural Range Improvements are 77% of the Forest Plan projection. The Forest has over achieved its noxious weed control projections again. This over achievement represents a higher commitment to noxious weed control resulting from the noxious weed analysis after the Forest Plan was approved. One allotment management plan (AMP) was completed in FY 1993. Progress on management plans has improved with the continuation of the Range Task Force. In FY 1993 analysis work was completed in the Rocky Mountain Front area of the Forest.

Timber: In FY 1993, an interdisciplinary sale review was conducted on the Mixes-Baldy Timber Sale on the Judith Ranger District. Review of this sale and other ongoing sales, indicate that the Forest's objectives for silvicultural management prescriptions are appropriate. No timber activities exceeded the 40-acre clearcut standard. The review group did feel that arranging snags and reserve trees into a group or patch configuration would have better met wildlife objectives. Restocking of previously harvested areas are generally progressing well. The Forest continues to harvest less acres than projected in the Forest

Plan. Thinning accomplishments continue to exceed our projections. The trend in both commercial and personal firewood removal seems to have leveled off.

Water and Soil: Monitoring results indicate that projects with a potential for impact on soil or water quality are being successfully reviewed assuring adequate protection of soil productivity and useability. Soil inventory collection and analysis was completed on 49,000 acres in FY 1993. Also in 1993, stream channel condition assessments were conducted on 18 streams in the Sun River drainage and 6 streams in the Little Belt and Castle Mountains. The results showed that several of the streams showed some sensitivity to grazing impacts. This information will be used to develop strategies for allotment management planning.

Of the projects reviewed for revegetation, most can be described as successful and complete. In the spring of 1992 a water quality monitoring station was established in O'Brien Creek above the municipal water reservoir. Analysis of the data collected from this station will be done after all proposed timber activity is completed in this watershed. Of the projects reviewed occurring in riparian areas, flood plains, and wetlands, results indicate that activities within these zones are being mitigated successfully to prevent impacts to soil and water resources. Of the 373 acres requiring restoration identified in the Forest Plan, over 100% have been accomplished.

Analysis indicated that some of the special use sites failed to meet the established public health testing requirements. This matter will be discussed with Forest managers and special use permittees in an effort to redeem this management and public safety responsibility.

Minerals: The FY 1993 target for minerals management was 37 cases. A total of 37 cases were processed. No Forest Service projects were determined to have an adverse effect on mineral operations. Five new Plans of Operation were reviewed for mineral activities in FY 1993. Eight drilling programs were conducted in the Jefferson Division of the Forest.

During FY 1993, work began on a Forest-wide oil and gas leasing analysis which will evaluate lands available for leasing and lease stipulations.

Lands: The condition of facilities authorized through special use permits is generally satisfactory. Ski area permits are regularly inspected before and during the ski season. The Lewis and Clark Forest issued several special use permits for a variety of activities. The FY 1993 Right-of-Way program contained five road easements, three trail easements, nine road ROW acquisitions and eleven trail ROW acquisitions. The

Forest Plan target for landline location is 26 miles per year. In FY 1993, the Forest was funded for and accomplished 17 miles or about 65% of the Forest Plan target.

Facilities: When considering the total miles of road constructed and reconstructed in both programs (Capital Investment Program and Purchaser Credit Program) during FY 1993, the output was 14% of that projected by the Forest Plan. This is outside the variability tolerance. It is estimated that there are approximately 1,843 miles of roads open to use by some form of motorized vehicle on either a seasonal or yearlong basis. The Forest Plan does not establish any target miles to be open to public motorized traffic.

The Forest Plan, as amended, programs an average of 14.0 miles of trail construction and reconstruction annually. In FY 1993, 9.5 miles of reconstruction work occurred.

Protection: In FY 1993, 70% of the sawtimber sold on the Forest was lodgepole pine. The Forest is continuing to breakup large concentrations of natural fuels. Insect and disease surveys indicate that the Western spruce budworm continues to build on the Forest. About 99,000 acres of visible Western spruce budworm defoliation was reported on Forest lands. Post timber sale reviews showed that the Forest is meeting regional standards for slash disposal. There were no known complaints about any prescribed burning project affecting air quality. The under accomplishment in

treating activity fuels is related to the timber harvest schedule. Because the backlog of timber to be sold on the Forest has been largely eliminated, it is anticipated that during the next three years of the Plan, the acres of activity fuels treated will be near the Forest Plan level. In 1993, the Forest had 2 wildfires which burned 1 tree and a 10'x10' spot. The total cost of fire suppression and protection in 1993 was \$520,000. This figure is below the 10-year average of \$590,000. During the first seven years of the Forest Plan, acreage lost to wildfires and fire suppression and protection costs were substantially above those projected by the Forest Plan.

Wild and Scenic Rivers: No project-level activities occurred along any of the nine eligible rivers or river segments which adversely impacted or degraded a river's qualifications and/or potential classification. Only two activities (restoration of Judith Guard Station, and maintenance and improvements of Smith River boat camps) changed the existing condition along two eligible rivers this past year. The boat camp improvements had a positive effect on the river's "outstandingly remarkable" recreation resource value (Smith River). The restoration of the historic Judith Guard Station had a positive effect on the Middle Fork of the Judith River's "outstandingly remarkable" cultural resource value. Fish population estimates collected by the Montana Department of Fish, Wildlife, and Parks tentatively indicate that two eligible rivers, the North and South Forks of the Sun River, meet the "outstandingly remarkable" fish criteria.

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I. INTRODUCTION

The **Lewis and Clark National Forest Land and Resource Management Plan** (Forest Plan) was approved in June 1986. Each year we monitor management decisions that have been implemented on the ground and report our findings. This report summarizes the monitoring and evaluation findings for Fiscal Year 1993 (from October 1992 through September 1993).

The purpose of forest plan monitoring and evaluation is to determine how well we have met our Forest Plan objectives and how we have applied the management standards and guidelines in the Plan. Our monitoring and evaluation process is outlined in Chapter V of the 1986 Forest Plan. Using this process, resource specialists have reported on 71 individual monitoring items.

Within the last seven years, sixteen amendments have been made to the 1986 Forest Plan. These changes have resulted from findings from our previous monitoring/evaluation reports and from several environmental analyses on site-specific projects.

These sixteen amendments include:

- **Amendment 1:** Incorporated recreation management for the Bob Marshall/Great Bear/Scapegoat Wilderness Management Complex. This amendment was implemented in 1987 by the adjoining Lewis and Clark, Lolo, Flathead, and Helena National Forests.

- **Amendment 2:** Verified those rivers meeting the two eligibility qualifications (free-flowing and containing at least one "outstandingly remarkable" resource value) under the Section 1(b) and 2(b) of the Wild and Scenic Rivers Act; assigned a potential classification to each eligible river as directed under Section 2(b) of the Act; and applied the appropriate standards to manage and protect each river. This amendment was implemented in 1989. Under this amendment, the following rivers met eligibility qualifications:

- Smith River - 11.8 miles scenic
- North Badger Creek - 7.3 miles scenic
- Dearborn River - 18.1 miles wild
- North Fork Sun River - 25.4 miles wild, 1.3 miles recreational

- South Fork Sun River - 25.5 miles wild
- North Fork Birch Creek - 6.6 miles wild
- Tenderfoot Creek - 4.6 miles scenic
- Green Fork of Straight Creek - 4.5 miles wild
- Middle Fork Judith River - 4.8 miles recreational

- **Amendment 3:** Made changes, adjustments and corrected typographical errors and omissions identified during the preparation and review of the FY 87 and FY 88 Monitoring and Evaluation Reports. This amendment was implemented in 1989.

- **Amendment 4:** Changed the Forest-wide Management Standard dealing with Reforestation (E-3) to comply with the Northern Region requirement for certification of regenerated timber stands. This amendment was implemented in 1991.

- **Amendment 5:** Changed the management area designation on 685 acres in the South Fork project area from Management Area B to Management Area C. This amendment was implemented in 1991.

- **Amendment 6:** Changed all eleven Region One Forest Plans to partition Allowable Sale Quantity (ASQ) into two non-interchangeable components - from inventoried roadless areas and from existing roaded areas. This amendment was vacated by the Secretary of Agriculture. He found that the Regional Forester had sufficient discretion to assure that Forest Plan direction is implemented in accordance with the standards and guidelines without resorting to the amendment process.

- **Amendment 7:** Changed the management area designation on 22,930 acres in the Spring Creek project area. Management Areas B, C, E, and G were affected. This amendment was implemented in 1991.

- **Amendment 8:** Recomputed the small business share governing the timber sale set-aside program in the Lewis and Clark Market area to 70% from 80%. This amendment was implemented in 1991.

- **Amendment 9:** Redefined Management Area M (Paine Gulch Research Natural Area) to include all nominated Research Natural Areas. Acres assigned to Management Area M will increase as areas are added. The amendment also removed the prohibition of boundary fencing on RNAs. This amendment was implemented in 1993.

Introduction/FP Decisions

- **Amendment 10:** Added monitoring items for Cultural Resources. This amendment will be implemented in 1994.
- **Amendment 11:** Introduced Weed Seed Free Feed policy for the Bob Marshall Wilderness Complex. This amendment will be implemented in July 1994.
- **Amendment 12:** Added a goal, objective, standards, and monitoring items to add emphasis to the Sensitive Species program. This amendment was implemented in 1991.
- **Amendment 13:** Added a more specific Forestwide objective, glossary item and Forest-wide Standards for cave management. These additions will ensure the Forest is in compliance with the 1988 Federal Cave Resources Protection Act. This amendment was implemented in 1993.
- **Amendment 14:** Corrects an error in the Forest Plan that showed an area stratified for Grizzly Bear management on the Rocky Mountain Front as Management Situation 2. The stratification has been corrected to show as Management Situation 1.
- **Amendment 15:** Changed the management area designation on 4,970 acres in the Spring Creek project area to more effectively protect elk habitat. Management Areas B, C, and G were affected. This amendment was implemented in 1993.
- **Amendment 16:** Changed the management area designation on 27,909 acres in the Smokey-Corridor project area and 1,957 acres in the Rocky Mountain High Ski Area. This change required the creation of a new management area (Management Area S). This amendment will be implemented in 1994.

Although the Forest Plans include management decisions that project well beyond the first decade of implementation, each Forest Plan will be thoroughly reviewed after 10 years. In preparation for this 10-year review and revision, we analyzed our progress at the midway point of five years. Through the Five-Year Review, we have determined whether additional changes are needed now, before the end of the first decade. The Five-Year Review was completed in December 1992.

II. FOREST PLAN DECISIONS

The Forest Plan is a compilation of decisions that guide our management of the Forest. In general terms, it contains three types of decisions:

■ **Goals, Objectives, and Desired Future Conditions** (pages 2-2 through 2-22 of the Plan) provide general direction for managing Forest resources.

■ **Standards** (pages 2-23 through 2-73) and **Management Direction** (Chapter III of the Plan) tell us *how* to put the plan into practice or *what* conditions we must meet while we implement the Plan.

■ **Management Areas** (described in Chapter III of the Plan) basically delineate the Forest into areas that are suitable and available for different types of management and resource production.

Given these major decisions, the Plan also includes a prediction of the average annual "outputs" produced by the Forest. These predictions are outlined in Table 2.1 (Plan page 2-10 and 11) and discussed in the Record of Decision.

The following pages contain reports for each monitoring item listed in the Lewis and Clark Forest Plan. The items are reported sequentially, as they appear in Chapter V of the Forest Plan.

RECREATION

A-1 Recreation Opportunity Spectrum Setting

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Recreation Opportunity Spectrum setting being implemented	Annually	+/- 10% of projected ROS setting

FINDINGS

Recreation Opportunity Spectrum settings by management area were established in the Forest Plan. The Plan projects an increase by 73,000 acres of "Roaded Natural" lands, with a decrease by the same amount of "Semi-primitive" lands over the next 50 years. This projection would average about 1,500 acres annually. These changes in ROS setting would occur because of road building in certain roadless areas. In FY 1993 a small portion (40 acres) of the Tollgate-Sheep Roadless Area was accessed for the Lower Dry Wolf Timber Sale and another 60 acres of the Tollgate-Sheep was affected by a thinning project. With approximately 3,300 acres of roadless areas affected by timber and road projects since 1987, there are substantially less than project-

ed in the Forest Plan. Also in FY 1993 the Galt land purchase was completed (see section I-2). Nearly one-third of the acres added to the Forest were roadless and increased the roadless inventory on the Lewis and Clark by 10,860 acres.

Other ROS setting factors include visitor management; social encounters; remoteness; visitor impacts; site and facility management; and access. These factors have either not changed from previous years (visitor management, site and facility management, remoteness, and access) or have changed insignificantly (social encounters, and visitor impacts). None of these factors have changed enough to result in change in existing ROS settings.

A-2 Recreation Direction Meets Visitor Expectation

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Direction meets expectation of visitor	Annually	Adverse comments or correspondence

FINDINGS

The following are concerns heard expressed by members of the public.

General Correspondence:

- Road closures associated with timber sale activity have generated a lot of public interest. A copy of a 650-signature petition stating that no more roads should be closed to motorized vehicles was given to the Forest as a public comment for the Smokey-Corridor Timber Sales.

This petition was not specific to the Smokey-Corridor Timber Sales, but had been circulated when the Forest Service began implementing road closures on the Kings Hill District in 1992 under the Moose Creek Timber Sales Final EIS.

Receptionist comments:

- Closure of significant amounts of private land to hunting this year caused many requests for

Recreation

information on how to access various parts of the Forest.

2. People often asked for trail information brochures that we were unable to provide. A handout exists for the Rocky Mountain Ranger

District, but nothing covers the Jefferson Division. Two trail handouts were recently created for the Crystal Lake and Thain Creek areas, but the remainder of the Division is not described.

A-3 Recreation Use

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Actual use of developed & dispersed recreation compared with projected use levels	Annually	+/- 25% variance yearly or +/- 10% over a 5-year period

FINDINGS

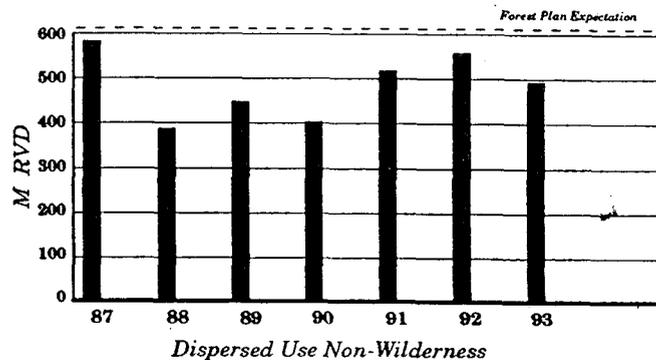
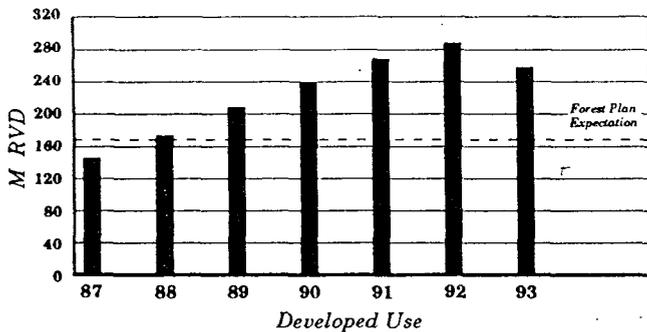
This year's use was as follows:

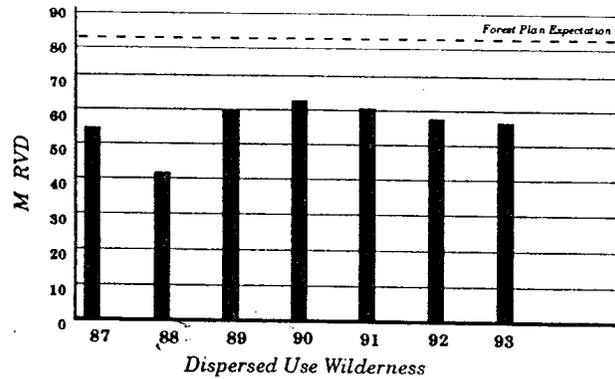
Developed Recreation: 266,000
 Dispersed Recreation: 497,400
 Wilderness Recreation: 58,000

Developed recreation decreased about 10% from last year. Recreation associated with camping and picnicking declined 9% from last year, mirroring one of the wettest summer seasons ever.

For dispersed recreation, there was a 12% decrease from last year, also reflecting the wet weather. This year State road use figures, as well as road use figures on certain forest roads were used to develop more reliable use figures for road-associated recreation. State Department of Fish, Wildlife, and Parks figures were again used to reflect hunting figures, and are considered very reliable.

This year's wilderness use declined 2% from last year, reflecting, again, the wet weather.





A-4 Condition of Developed Sites

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Recreation condition of developed sites	Annually	Less than acceptable standards, public safety hazards not corrected by 1990, poor conditions not corrected by 2005

FINDINGS

The physical condition of developed sites is largely a reflection of funding available in Recreation Operation and Maintenance and in Recreation Capital Investment. The Forest Recreation Operation and Maintenance budget for FY 1993 was 23% less than the previous year. Primary, heavy use campgrounds are being maintained more often than those less used. Service levels reflect the amount of public use, and determinations were made across the Forest as to which facilities would receive what level of maintenance. Safety hazards at developed

sites were being taken care of immediately when noted.

Recreation Capital Investment funding was received for the rehabilitation of South Fork Campground on the Rocky Mountain Ranger District, as well as for the construction of two trailheads at Beaver and Willow Creeks. Holiday Camp Trailhead, the primary portal into the Lost Fork of the Judith, was improved in cooperation with Charlie Russell Backcountry Horsemen, using Challenge Cost Share funding.

A-5 Recreation Opportunity Guide

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Recreation Opportunity Guide	Annually	Failure to complete by 1986

FINDINGS

Recreation Opportunity Guides (ROG) completion status has not changed since last year. However, trail brochures for the Snowy and Highwood Mountains, and an interpretive trail brochure for Crystal Lake were completed by the Judith Ranger District.

RECOMMENDATIONS

The Forest will make a determination on whether ROG information is the best way to inform the public about recreation opportunities or if trail and other brochures might meet this need.

A-6 Off-road Vehicle Damage & Travel Plan

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Off-road vehicle damage & Travel Plan effectiveness	Annually	Conflicts with Forest Management Area goals. Increase of 20 or more situations or variances

FINDINGS

This element is monitored by two items. The first item is the status of the Forest Travel Plan as it relates to Forest Plan goals. The Forest presently utilizes the Forest Travel Plan that was revised in FY 1988 specifically to implement the recreation settings in the Forest Plan. We anticipate the Forest Travel Plan will be updated and reprinted in FY 1994.

The second item is the number of Forest Travel Plan citations issued or the number of variances granted annually. Situations on the districts are as follows:

Rocky Mountain Ranger District - This year the district reported 57 violations to the Travel Plan, issuing 5 violation notices across the district. There was no trend suggesting problems with the Travel Plan. Increased reporting of violations reflected more aggressive reporting than the previous year coupled with District crews working in the field (able to observe violations and then report them), rather than an increase in violations, according to law enforcement personnel.

Judith Ranger District - District reported 28 violations to the Travel Plan, issuing 9 violation notices. The increase in violations reflected one loud party in the Highwoods where 9 violations were issued, and does not reflect a change in public support for the Travel Plan. Public support in helping catch violators continued to be good, suggesting Travel Plan support. The District has replaced or repaired its existing Travel Plan signing. There have been incidents where these have been removed, especially

in the Middle and Lost Fork Judith areas. Motorcyclists violating the Travel Plan continue to be a problem in the Big Snowy Mountains and in the Middle and Lost Fork Judith River area. A lack of adequate law enforcement personnel to cover large areas was reported.

Musselshell Ranger District - The District reported 4 violations with no citations issued. The District reports continued compliance with the Travel Plan in 1993 and no trends suggesting otherwise. They report the same problem with motorcycle/ATV use on trails on the west end of the Big Snowy Mountains as was reported last year, despite existing signing. The District made a concentrated effort to update and improve the clarity of Travel Plan signing in FY 1993 and will continue that effort into FY 1994.

Kings Hill Ranger District - The District reported 12 violations and issued 4 citations. Violations issued were less than the previous year and incidents reported were down. No problem areas were noted nor significant resource damage reported. There continues to be general acceptance of the Travel Plan by the public.

RECOMMENDATIONS

Continued emphasis on Travel Plan signing, and the updating of the Travel Plan in FY 1994 will provide the public with adequate information to comply with the Plan. No trends indicating significant non-compliance were noted. No significant resource damage was noted. No corrective action is needed.

A-7 Condition of Visual Resources

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Condition of the visual resource meets objectives in Forest Plan	Annually	Deviation from approved VQOs, ID Team review of environmental analyses

FINDINGS

Mixes Baldy Timber Sale was monitored for compliance with Visual Quality Objectives (VQOs). Not visible from any viewpoints identified as visually sensitive in the Forest Plan, nearly all harvest units met the VQO of Modification, but lacked adequate design concern for their appearance as viewed from Road 262. The Forest Plan does not adequately

address what VQO to meet from roads and other viewpoints not identified as visually sensitive. It only addresses the visually sensitive viewpoints. As a result, less sensitive viewpoints do not receive adequate visual consideration. This needs to be corrected.

A-8 Cultural Resource Protection

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Cultural Resource Protection - selected sites once/5 years	Annually	Less than 10% accomplishment/year

FINDINGS

The objectives for the management of cultural resources were partially met during Fiscal Year 1993. Several cultural resource sites were inventoried, evaluated, and protected during the survey of an estimated 1,566 acres of Forest land. The interpretation of one site was completed, and the planning and design stage for an additional interpretive site was also accomplished during this time period. An overview of the prehistory and history of the Forest has not been completed to date.

During FY 1993 no projects were initiated without consideration of cultural resources. Consideration included survey for cultural resources, input into the NEPA process on identified projects, and 36 CFR 800 compliance procedures. Twenty-eight cultural resource sites were identified, inventoried, and evaluated during the year.

Management standard A-7 specifies the nomination of eligible properties to the National Register of His-

toric Places. During FY 1993 no eligible properties were nominated to the National Register of Historic Places.

A study to assess traditional cultural use of the Badger-Two Medicine area (RM-1 Unit) was completed during FY 1993 to supplement the environmental impact statement for oil and gas exploration. This study may result in the nomination of a national register district in the RM-1 Unit.

Management standard A-7 also specifies interpretation and public education as necessary aspects of the cultural resource program; this standard was met during FY 1993. During FY 1993, informational signs were installed to interpret a pictograph site on the Forest and the planning stage of interpreting an historic trail was completed. As part of the America's Great Outdoor Program a Passport-In-Time (PIT) project was completed on the Forest during FY 1993. Passport-In-Time is a National Forest Service

Recreation

program which encourages public education through participation. Nine volunteers worked with Archeologists on the Forest conducting cultural resource survey and test excavations at a site on the Rocky Mountain Ranger District. The PIT project was co-sponsored by the Bureau of Reclamation pursuant to the Memorandum of Understanding between the Bureau of Reclamation and the Forest Service. In conjunction with the PIT project, and following the planning standard for public education, a wooden case (for both permanent and traveling displays) was constructed. Information relating to PIT and Plains Prehistory is currently on display at the Rocky Mountain Ranger District office. Restoration of the Judith Guard Station continued in FY 1993 with the help of a \$6,000 contribution. When completed the Guard Station will be used as a museum of early Forest Service history.

The monitoring requirements for cultural resources were partially met during FY 1993. While monitoring

of cultural resources was not undertaken as a specific task, several sites were reinspected during cultural resource field work. Monitoring requirements were re-evaluated during the five year review of the Forest Plan and more rigorous monitoring stipulations were proposed to improve future management of cultural resources on the Forest. These new monitoring items have been approved and will be implemented beginning in FY 1994.

Bob Marshall and Scapegoat Wildernesses (MANAGEMENT AREA P)

To date, no comprehensive cultural resource assessment on the evidence of man's activities and structures within the wilderness has been completed. One study, completed in 1990, documents the majority of the Forest Service administrative sites within the wilderness areas on the Forest.

WILDERNESS

B-1 Wilderness - Quality of Ecosystem

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Wilderness - maintenance of existing quality of ecosystem	Annually	Degradation of environment

This monitoring item was deleted from the Forest Plan under Amendment No. 3 because wilderness monitoring has been outlined in detail in the Bob

Marshall, Great Bear, Scapegoat Wilderness Recreation Management Direction (Forest Plan Amendment No. 1).

B-2 Bob Marshall-Great Bear-Scapegoat Management

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Bob Marshall-Great Bear-Scapegoat Management Direction	Annually	Failure to meet time table established in Appendix U of the Plan

FINDINGS

The monitoring results are presented in the annual Wilderness Report in Appendix A of this Monitoring Report.

B-3 Change in Roadless Inventory

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Change in Roadless Inventory	Annually	+ or - 10% projected change in roadless inventory

FINDINGS

A small timber sale, the Lower Dry Wolf Timber Sale, affected 40 acres of the Tollgate-Sheep Roadless Area. The Tollgate-Sheep was also affected (60 acres) by a thinning project. In addition, 1,770 acres have been added to the Box Canyon and 9,090

acres to the Crazy Mountains Roadless Areas as a result of the Galt land purchase. From 1987 to 1993, the Forest's Roadless Areas have seen a net increase of 7,605 acres. The new net Roadless acres are 1,009,838 on the Forest.

WILDLIFE

C-1 T&E Species: Grizzly Bear Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Grizzly Bear - maintain occupied habitat capacity	Annually	Any indication of downward trend in grizzly bear population

OBJECTIVES

Monitor the maintenance of suitable and occupied grizzly bear habitat to detect any indication of a downward trend in population.

Follow the goals and objectives set forth in the Wildlife/Fisheries Program Document for the Lewis and Clark National Forest.

METHODS

Biological evaluations were developed based on the goals, standards, and guidelines contained in the Forest Plan (pages 2-32 to 2-34 and Appendix H, I, J, K, and L). The grizzly bear cumulative effects model as described in the Forest Plan (Appendix L) was implemented.

Monitoring is conducted as recommended in the revised grizzly bear recovery plan. Population data collected includes females with young (2 or 3 year olds) and females with cubs of the year.

FINDINGS

Grizzly Bear Recovery Efforts

Monitoring efforts in accordance with the Grizzly Bear Recovery Plan continue to record sows with young (2 or 3 year olds) and cubs of the year. Results from 1987 to 1993 have demonstrated occupancy by sows with cubs in all six Bear Management Units (BMU) on the Rocky Mountain Front.

In FY 1993, monitoring efforts produced sightings of 5 sows with 9 cubs within three of the six BMUs, and

5 sows with 11 young within five of the six BMUs. For FY 1993 (see Table C-1a) six of six BMUs have been occupied by grizzly bear family units (females with young and females with cubs of the year). Five of six BMUs during a 3 year period (1991-1993) have had sightings of females with cubs. This year's sightings of two sows with cubs of the year in the Dearborn-Elk BMU, is the first time sows with cubs have been recorded in the BMU since 1988.

The Teton-Sun (TETSU) BMU and the Badger-Two Medicine (BADTW) BMU are the most consistent producers of sows with cub sightings. The Birch-Teton (BIRTE) BMU produces the most cubs. These findings may be a reflection of monitoring intensity, not bear use. The TETSU BMU is approximately 66% private land. MDFWP's problem grizzly bear specialist work on these lands may account for the high number of sightings within the TETSU BMU. The BMU that produces the least grizzly bear sightings is the Dearborn-Elk Creek (DEAEL). During the Rocky Mountain Front Studies, grizzly bears were most difficult to trap within this BMU. Reasons for these difficulties are unknown. The effects the Canyon Creek fire is having on bear use in this BMU is undetermined. There were three family units (either female with cubs or female with young) seen in the DEAEL BMU this past year. That was the most family units seen in any one BMU on the Ranger District for Fiscal Year 1993.

Table C-1a displays the trend information that has been gathered to date.

**Table C-1a TREND MONITORING INFORMATION FOR SOWS WITH CUBS OR YOUNG
GRIZZLY BEAR MANAGEMENT UNITS (BMUs)**

YEAR	BADTW (11)			BIRTE (15)			TETSU (18)			NORFO (17)			SOUFO (21)			DEAEL (23)		
	Fm	Cb	f/y															
1987	2	3	1/2	3	4	1/4	1	2	0/0	1	1	1/1	0	0	0/0	0	0	0/0
1988	0	0	0/0	3	8	0/0	1	3	1/2	0	0	0/0	1	2	0/0	1	1	0/0
1989	2	3	0/0	1	2	2/5	1	2	0/0	3	3	1/1	0	0	0/0	0	0	0/0
1990	2	3	0/0	0	0	2/4	1	1	1/2	1	2	1/1	1	2	1/2	0	0	0/0
1991	1	2	1/2	0	0	2/4	1	2	0/0	0	0	0/0	1	2	0/0	0	0	1/1
1992	2	4	0/0	1	3	2/4	0	0	2/2	0	0	1/2	0	0	1/2	0	0	0/0
1993	0	0	1/2	0	0	1/3	1	2	1/3	0	0	1/1	2	3	0/0	2	4	1/2

Fm=female grizzly

Cb=cub grizzly

f/y=female with young

BADTW = Badger Two Medicine

BIRTE = Birch/Teton

TETSU = Teton/Sun

NORFO = North Fork

SOUFO = South Fork/Beaver Willow

DEAEL = Dearborn/Elk Creek

Law enforcement efforts were continued to deter the illegal take of grizzly bears on the Rocky Mountain District and reduce the potential for food-conditioned and habituated bears. The District's Law Enforcement Officer, wilderness and campground guards, and others completed approximately 200 patrol days that included grizzly protection goals as a major focus.

A special order signed by the Lewis and Clark National Forest Supervisor during August of 1992, defined food and garbage handling requirements on the Rocky Mountain Ranger District. The District staff made a concerted effort to explain effective food and garbage handling methods to the public. A model food storage camp was erected and occupied on weekends from mid-August through September 30 by FS personnel at a major Wilderness portal to demonstrate food and garbage storage systems. More than 200 stock-users and hikers visited the camp.

Enforcement of the special order included issuance of 6 violation notices, 14 warning notices and over

100 verbal warnings. Compliance levels increased significantly over 1992.

Nuisance Bear Actions - In 1993, there were 5 problem bear incidents handled under the Rocky Mountain District's "Problem Bear Policy." At least 2 of these incidents, both close proximity sightings, involved grizzly bears. Warning signs were posted. There were less nuisance bear incidents in 1993 than any year since monitoring began (1988). The reason for the decline is unknown but two things that have contributed to the low number of incidents are a bumper buffaloberry crop and enforcement of the special order on food handling.

Two grizzly bears were killed by hunters in self-defense on the District in 1993. Both bears were large adult males with no history of problems with people.

Grizzly Bear Conservation Efforts

Biological evaluations were completed in response to 3 Forest management activities within

Wildlife

grizzly bear habitat (Management Situation 1). The activities were: 1) Revising the grazing plan for the Little Badger Sheep Allotment; 2) a prescribed fire to enhance winter range near Sawtooth Ridge, and 3) a timber harvest to restore berry shrubfields for grizzlies near Sawmill Flats. All three biological evaluations resulted in a beneficial effect or not likely to adversely affect determination for the grizzly bear.

Project Monitoring: To evaluate the effectiveness of buffaloberry shrubfield restoration projects a vegetation monitoring strategy has been implemented. Transects are used to measure buffaloberry production and ecodata plots are used to determine changes in vegetation.

For the 1990 shrubfield restoration, 2 buffaloberry production transects were established outside harvest units and 1 transect was established in each of the 4 units. Outside the harvest units, buffaloberry production has fluctuated markedly the past 4 years. Both 1990 and 1992 were poor production years. In 1991, there was a moderately high berry crop. 1993 was a bumper crop year with some refer-

ence shrubs producing over 20,000 berries. Resprout shrubs inside harvest units began producing berries for the first time in 1993. Berry production was higher inside harvest units than surrounding forest. Four ecodata plots have been established for this project. Two plots are inside harvest units and 2 plots are outside units.

The 1991, 1992 and 1993 shrubfield restoration projects contain 1 berry production transect and 1 ecodata plot in each of the 8 harvest units and 5 transects and 7 ecodata plots outside the units. There is extremely vigorous buffaloberry resprouting in the 1991 harvest units, though berry production has not begun yet.

RECOMMENDATIONS

Based on the lack of sightings of grizzly bears with cubs in DEAEL and NORFO BMUs, more effort needs to be directed at these BMUs during FY 1994 to document occupancy and/or breeding within these BMUs.

C-2 Gray Wolf, Bald Eagle, Peregrine Falcon Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Gray Wolf, Bald Eagle, Peregrine habitat capacity	Annually	Deterioration or continuing disturbance on more than 5% of suitable unoccupied habitat

METHODS

Evaluate Forest compliance with the gray wolf recovery plan (USFWS 1987). Monitor suitable bald eagle nesting habitat for re-occupancy according to methods described in Montana Bald Eagle Working Group (1986); monitor the distribution of wintering bald eagles. Survey historic and potential peregrine eyries for occupancy.

WOLF FINDINGS

ROCKY MOUNTAIN DIVISION

In 1989, the Lewis and Clark National Forest began a long-term study of wolf recolonization along the

Rocky Mountain Front. The goal of this study is to reduce opportunities for wolf-livestock conflicts by gathering and sharing information on wolf activity. The study's basic premise is that ranchers have a right and a need to know how wolves are using their lands and adjacent federal lands and that the federal government has a responsibility to provide this information. By providing information on wolf movements, private ranchers and National Forest grazing administrators can devise grazing strategies that minimize opportunities for wolf depredations.

The following objectives were developed to achieve the study's goal of reducing opportunities for wolf-livestock conflicts:

- 1) Determine seasonal movement patterns
- 2) Identify den and rendezvous sites
- 3) Describe seasonal diets
- 4) Evaluate interactions with livestock and people
- 5) Maintain strong working relationship with private ranches
- 6) Distribute findings to general public and scientific community

Between 1989 and 1992, the project focused on establishing the level of wolf activity on the Rocky Mountain Front and developing an open and constructive dialogue between ranchers and federal agencies involved with wolf recovery. During this period, the only resident wolves were a lone male and a pack in Dupuyer Creek that disappeared in March 1990. Numerous transient wolves were also confirmed.

In 1993, a breeding pair was discovered using lands between Sun River and Elk Creek, primarily east of the Forest Boundary. The male was radiocollared in February. This pair produced four pups in April; two of these pups were radiocollared in September. All six wolves survived the hunting season. The Forest Service regularly monitors this pack using radiotelemetry. Local ranchers are routinely posted on the movements and activity of these wolves. A detailed report documenting wolf movements, food habits, and interactions with humans and livestock was published and is available to the public.

A lone male wolf also continues to occupy its established territory in the upper Sun River drainage on National Forest System lands.

Intermittent wolf activity was also detected in the Teton and Dupuyer Creek drainages. However, there was no evidence of resident wolves.

Biological evaluations were completed for the gray wolf in conjunction with the same three projects discussed for the grizzly bear (grazing plan, timber harvest for grizzlies, and prescribed burn for elk). Determinations of "no effect" or "not likely to adversely affect" on the wolf and its habitat were made for all three projects.

JEFFERSON DIVISION

There were no wolf sightings recorded on the Jefferson Division for Fiscal Year 1993.

BALD EAGLE FINDINGS

USFS biologists cooperatively assisted USFWS and MDFWP biologists in completing bald eagle surveys during the month of January 1993. Participating in the **National Bald Eagle Survey**, Forest Service biologists reported a total of 47 eagles observed on January 8, 1993 (Midwinter Bald Eagle Survey):

43 Bald Eagle (Adults 25, Immature 18)
 2 Golden Eagle (Adult 1, Immature 1)
 2 unknown bald or golden eagles were observed along the Missouri River (National Transect #4).

A large nest on private land within the Missouri River corridor by Stickney Creek was sighted in October of 1992. This nest area was flown several times during the spring-summer season by the MDFWP but did not find the nest or see any active bald eagles in the area. This nest needs to be surveyed during FY 1994 to determine what is using the nest site and reported to the U.S. Fish and Wildlife Service and the MDFWP.

ROCKY MOUNTAIN DIVISION

MDFWP discovered an active bald eagle territory on private land 6-8 miles east of the Forest boundary on Cuniff Creek. This is the first nest that has been found near the Lewis and Clark National Forest not associated with the Missouri River corridor.

There were four observations of bald eagles on the Rocky Mountain District and three observations on nearby private and State lands. On National Forest System lands, observations were in the North and South Fork Sun River, North Fork Teton River, and Willow Creek drainages. The North Fork observation was in July, suggesting the possibility of a nesting pair. The other two National Forest observations were in October. East of the Forest boundary, bald eagles were observed in the Willow and Smith Creek drainages between February and June. Observations of bald eagles were recorded and added to the Forest data base. Management activities that could potentially affect wintering bald eagles (shrubfield restoration for grizzly bear, Sawtooth Ridge Burn, and grazing plan for Little Badger Allotment) were reviewed in accordance with Forest Plan direction.

Wildlife

JEFFERSON DIVISION

A Forest transect was completed on January 7, 1993 along the Musselshell River and Cottonwood Creek. This transect yielded 38 eagle sightings:

- 21 Bald Eagle (Adults 16, Immature 5)
- 11 Golden Eagles (Adults 6, Immature 5)
- 6 Unknown Eagles

PEREGRINE FALCON FINDINGS

There are currently no known active nest sites of peregrine falcons on the Lewis and Clark National Forest. Surveying responsibility of the historic peregrine falcon nest sites east of Great Falls was shifted to the BLM in FY 1993.

An observation of a single peregrine falcon above Whiterock Pass was reported in June. In 1991, a peregrine falcon was observed several miles south-

east of this site. There was also an observation of a single adult peregrine falcon on private land east of Augusta in February. This sighting was in a grass-land setting along small drainage ways.

RECOMMENDATIONS

Conduct a survey to determine if Haymaker Narrows (Musselshell Ranger District) is being used as a bald eagle winter roost site or nesting area. Survey the North Fork of the Sun River (Rocky Mountain Ranger District) to determine if a nesting pair is using the area.

Survey the Smith River for peregrines and potential nest sites.

Survey Haymaker Canyon and adjacent canyon habitat for potential peregrine hawk sights (Musselshell Ranger District).

C-3 Elk Winter Range Capacity

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Elk: winter range capacity (population level), sex and age ratios	Annually	Decrease of 5% or more in winter range capacity as measured by a 3 year running mean of elk population level, sex, and age ratios.
Elk: habitat effectiveness	Annually	Decrease of 10% or more in habitat effectiveness in any timber compartment on the basis of a 100% annual sample. The goal is to complete habitat effectiveness calculations for all compartments prior to the Forest Plan Revision.

METHODS

Information on elk population levels and sex age ratios were obtained from MDFWP progress reports, personal communications with MDFWP biologists, and research reports.

Elk habitat effectiveness ratings were calculated by the percent of the sub-compartment in cover and the road density (miles of open road per square mile).

FINDINGS FOR ELK POPULATION LEVEL

During FY 1992 the Lewis and Clark and MDFWP wildlife biologists developed a procedure to evaluate the effects of timber and road management on elk security areas. The basic format followed the Hillis Paradigm that was developed on the Lolo and Deerlodge National Forests. During FY 1993 the procedure to determine security levels for elk was

used on two major EISs; Smokey-Corridor and Running Wolf. Smokey-Corridor DEIS was published during the Fiscal Year. The results of the analysis showed that within the 89,000 acre analysis area only 12.7% was qualified to provide security areas for elk. This is far below the recommended level of 30% by the Hillis Paradigm procedure. After comments were received on the DEIS some additional evaluation was done, and a road management package was proposed to reduce the effects on fish, water quality, and wildlife. With these recommendations imposed, the security level would be increased to 14.3%, which is still far below the recommended level of 30%. The low levels of security cover within this area is because of all the past cutting practices. The preferred alternative did very little to reduce it below the existing level.

Some initial work has been completed to describe the existing condition for the Running Wolf EIS area. This area has had very little timber harvest in the past when compared to the Smokey-Corridor area. Analysis has not been completed for this area but preliminary data are showing that this area has an existing condition of about 25% using the same criteria that was applied to the Smokey-Corridor area. The Running Wolf project area presently is about 47,000 acres.

As the Forest continues to complete analyses for determining security levels for elk, it will be able to further refine the elk vulnerability model and establish some further long terms goals, objectives, and standards for elk management.

During 1993, existing condition information concerning elk was compiled for the Castle Mountains Grazing EIS analysis area. The Castle Mountains area supports about 218,000 acres of elk habitat

(70,000 acres of Forest System Lands). Elk seasonal ranges, roads, streams, cattle forage use, and other applicable attributes were mapped for the area using a Geographic Information System. Effects analysis will be completed during 1994.

FINDINGS FOR ELK HABITAT EFFECTIVENESS

Forest personnel continue to use a model to electronically compute elk effective cover based on data contained in the Timber Stand Management Record System (TSMRS). This model was used in FY 1992 to compute elk effective cover for the Smokey-Corridor project (77,000 acres) on the Kings Hill Ranger District. The results of the model were carried forth into the Final EIS for Smokey-Corridor. Road densities still continue to be computed within any of the analysis areas that are done. Road densities for the Smokey-Corridor project area were 2.5 miles per square mile. With the road closure package this density was reduced to 2.0 miles per square mile.

RECOMMENDATIONS

Continue coordination with the MDFWP on the development and implementation of the elk vulnerability process that was developed in FY 1992.

Coordinate with the MDFWP to divide the Jefferson Division into Elk Analysis Units. These units will be used to evaluate effects of timber sales on the elk resource. This will also aid in determining if the goals and objectives of the MDFWP's Elk Management Plan are being met.

Continue to coordinate with MDFWP on the Castle Mountains EIS project and other Forest activities requiring coordination in 1994.

C-4 Bighorn Sheep & Mountain Goat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Bighorn Sheep & Mountain Goat: Winter range capacity (population level), sex and age ratios	Annually	Decrease of 5% or more in winter range capacity as measured by a 3 year running mean of bighorn sheep and mountain goat population level, sex, and age ratios

METHODS

Data was obtained from MDFWP progress reports, research summaries, and contacts with knowledgeable individuals.

FINDINGS

Table C-4a displays the population trends of bighorn sheep on the Rocky Mountain Division for the area south of the Teton River and north of the Teton River. Information was not collected by the MDFWP for the bighorn sheep herds. Therefore the table shows "no data" collected. The area north of the Teton is scheduled to have another transplant during the winter of 1993-1994 from the excess sheep on Wildhorse Island in Flathead Lake.

Table C-4b displays the population trends for the Rocky Mountain goat. Due to lack of funds, MDFWP did not monitor mountain goat populations on the Rocky Mountain Front in FY 1993. This is unfortunate, because of the sharp decline recorded in FY 1992 for Hunting District 414. Without the 1993 data it is impossible to determine if the population declined or if there were some animals that were not counted during the 1992 survey. In Hunting District 415, the total population appeared relatively stable in 1992. Without the survey data for 1993 no new conclusions can be made on population trends within Hunting District 415.

A box with visitor monitoring cards was installed along the trail to Headquarters Pass and Our Lake to determine recreational use in occupied summer mountain goat habitat. Our Lake has been identified as a mountain goat viewing area in the Montana Wildlife Viewing Guide (Falcon Press) and a Forest Service brochure. Interpretive signs have been installed 3 miles below the lake. In 1993, 194 parties totaling 623 visitors filled out monitoring cards on

the way to Our Lake. Cards were not in the box for a 10-day period in August. The number of parties visiting Our Lake and not filling out cards was not determined. The average party size was 3.2 people. Visitors originated from Great Falls (35%), out-of-state (33%), local Montana communities (15%), distant (> 100 miles) Montana communities (9%), and Choteau (7%). Most (76%) parties stayed for only 1 day. Hiking (97%) was the predominant travel method recorded.

The dominant activities for visitors were hiking, wildlife viewing, and photography. Fishing and mountain climbing were also important. Most people learned of Our Lake from friends or relatives (52%). Publications also attracted visitors: Montana Hiking Guide (16%), maps (9%), RMF Wildlife Viewing brochure (2%), Montana Wildlife Viewing Guide (1%), and miscellaneous publications (7%). The Pine Butte Guest Ranch oriented 8% of recorded visitors to Our Lake. More than half (53%) of parties visiting Our Lake observed mountain goats. Nearly 1/3 of visiting parties saw 5 or more mountain goats.

The interpretive signs below Our Lake contained strong recommendations to avoid camping at Our Lake to minimize disturbance to mountain goats and alpine plants. Monitoring cards revealed that visitors disregarded this message and continued to camp at the lake. More than half the parties that camped, stayed at the lake. These findings led the Forest to sign a Special Order that prohibits camping in the Our Lake basin, effective May 1, 1994.

RECOMMENDATIONS

Continue to document individual sightings of mountain goats in the mountain ranges in the Jefferson Division.

Assess the appropriateness of further introductions of mountain goats or bighorn sheep in the Jefferson Division.

Recommend to MDFWP to reduce number of goat permits from 3 to 0 in Hunting District 414 due to lack of 1993 population data and a population decline in 1992.

Continue visitor use monitoring at mountain goat viewing site on Rocky Mountain District.

Table C-4a BIGHORN SHEEP POPULATION - Rocky Mountain Division.

MOUNTAIN RANGE	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Rocky Mtn South of Teton	908	582	1000	800	900	659	No Data			
Ewes	392	260		400	350	335	No Data			
Lambs	133	134		200	250	176	No Data			
Rocky Mtn North of Teton	127	73	79	90	115	104	No Data			
Ewes	34	25	29	37	60 ¹	45	No Data			
Lambs	23	5	7	12	29	23	No Data			
Total Rocky Mtn Division	1035	655	1079	890	1015	763	UNKNOWN			

¹ - 32 sheep were added to the population north of the Teton River during February of 1991.

Table C-4b MOUNTAIN GOAT POPULATION - Rocky Mountain Division.

MOUNTAIN RANGE / HUNTING DISTRICT	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Rocky Mtn HD 414	33	28	46	43	32	18	No Data			
Nannies	11	7	17	27	13	5				
Kids	7	2	6	5	3	2				
Rocky Mtn HD 415	56	52	73	58	90	77	No Data			
Nannies	23	18	31	44	48	34				
Kids	13	19	11	7	17	22				
Total Rocky Mtn Division	89	80 ¹	119	101	122	95	UNKNOWN			

¹ - Incomplete survey resulted from equipment failure. Data incomplete to determine population trend.

C-5 Other Big Game Species

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Other Big Game Species: Mule Deer population trend, sex and age ratios	Annually	Decrease of 10% or more in habitat capacity as measured by a 3 year running mean of mule deer harvest data and hunting success

METHODS

Data were obtained from MDFWP progress reports, research summaries, and contacts with knowledgeable individuals.

FINDINGS

During the past six hunting seasons, MDFWP restricted hunting seasons for mule deer in Hunting District 441 (north part of Rocky Mountain Front) to increase the percentage of bucks in this herd. On private and State lands, the first three weeks allow for antlered buck harvest only (no permit required). Permits are issued the last two weeks of hunting season: antlered (75) and antlerless (150). On National Forest lands, five weeks of antlered harvest is permitted.

The Hunting District 441 restrictions have been successful in gradually reversing the downward trend of mule deer buck numbers. The present buck to doe ratio is 25-30:100. During the past 2 years, there have been approximately 60 fawns/100 does. In 1993, the winter mule deer count declined from 3,300 in 1992 to 2,300 between the Teton River and Birch Creek. Factors that may have been responsible for this decline were poor winter weather in 1993 and an increasing mountain lion population (Gary Olsen, MDFWP, personal communication).

During FY 1993, no new developments (eg. roads or timber harvest) or habitat improvement projects have been initiated on National Forest lands within Hunting District 441.

C-6 Small Game

This monitoring item was deleted from the Forest Plan by Amendment No. 3, dated 1989.

C-7 Furbearers

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Distribution of lynx and wolverine based on annual sightings	Annually	No sightings reported for three years.

METHODS

Data was obtained from reported sightings of these species by individuals (both private and employees). Sightings are recorded in an electronic data

base and used in analyzing effects of proposed projects on their distribution, concentrations and use.

FINDINGS

Table C-7a ROCKY MOUNTAIN DIVISION SIGHTINGS

Year	Furbearer Data
FY 88	1 wolverine trapped
FY 89	1 wolverine sighted and 1 track observed
FY 90	8 wolverines and 1 lynx were observed
FY 91	9 wolverines were observed (3 animal sightings, 6 track observations). 11 lynx (2 animal sightings, 9 track observations).
FY 92	13 wolverines observations were recorded, (2 animal sightings, 11 track sightings). 11 lynx track observations were recorded, and 1 animal was trapped in Red Poacher Creek in the Badger-Two Medicine area. 5 bobcat track observations were recorded.
FY 93	3 wolverine observations: Live adult in Cave Creek, 2 track observations near Elk Calf Mtn. 11 lynx observations: Live observations of adults in Smith Ck and Ford Creek. Track observations in N. Fork Waldron Creek, Furman Creek, Wrong Creek, Waldron Creek, and South Fork Two Medicine River. 2 bobcat track observations: Jones Creek and Gibson Lake.

Furbearer observations increased after 1989 due to furbearer surveys and wolf monitoring. Based on track size and location, a minimum of 7 lynx and 2

wolverine were detected during survey work for 1993.

Table C-7b JEFFERSON DIVISION SIGHTINGS

Year	Furbearer Data
FY 88	6 wolverine sightings
FY 89	0 wolverines sighted
FY 90	November 14, 1989 one wolverine observed crossing road in front of pickup truck near O'Brien Park and July 24, 1990 one wolverine observed running down a rock slide near Lucy Park.
FY 91	2 wolverine detected on the Kings Hill Ranger District. Tracks were sighted again in O'Brien Creek and a live animal was sighted in Adams Creek. One set of lynx tracks were seen in the snow on the Jefferson Division in the headwaters of Lion Creek in November 1990.
FY 92	One wolverine sighted between Many Pines CG and Snowmobile Parking Lot on US 89.
FY 93	One set of wolverine tracks was sighted in Tenderfoot drainage. One wolverine was sighted in Belt Park during March 1993. No lynx sightings were recorded for 1993.

Wolverines have been detected at one general location on the Jefferson Division and the low number of

animals detected appears to indicate a limited distribution of adults despite suitable habitat.

C-8 Old Growth Habitat for Goshawk

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Goshawk active nesting territories	Annually	Decrease of 5% or more in active nest territories as measured by a 100% annual sample of known goshawk nest territories.

METHODS

The goal is to monitor all of the known territories each year to establish occupancy and production; and compare the results of undisturbed territories (no high levels of activity, i.e., logging, or oil and gas development) to territories with disturbance.

A computer program has been developed to track all nest territories as to their occupancy, production, and nest site characteristics.

A computer program has been developed to interact with the Timber Stand Data Base and identify timber stands that correlate to specified aerial photo interpretation types. The timber stands identified electronically and timber stands identified by standard aerial photo reconnaissance are mapped and ground truthed to determine whether they meet the definition of old growth forest, as defined in the Forest Plan (Glossary, page 14). As a result of this process, more acres are examined per project area than are designated for retention as old growth stands.

Old growth stands are selected to provide distribution across different habitat types and to maintain a minimum of 5% within a timber compartment. Using the parameters defined in the draft R-1 Goshawk Habitat Suitability, lower elevation Douglas-fir stands are prioritized and selected. Higher elevation timber stands are generally dominated by lodgepole pine with mixtures of alpine fir or spruce. These mixed stands are prioritized on the basis of their proximity to meadows, seeps, springs, streams, or other environmental factors which contribute to the diversity of plant and animal life beyond that visible in surrounding stands.

FINDINGS

Old Growth Inventory and Designation

The Forest completed a document that outlines the process and approach for inventorying and allocating old growth. This process will be used to complete the Forest wide inventory. Training sessions on completion of inventory forms were held for timber stand exam crews.

During the 1993 silvicultural inventory in the South Fork Two Medicine River drainage on the Rocky Mountain District, 208 acres of potential old-growth forest was identified using the Lewis and Clark's old-growth rating form. These lands represent 9% of the acreage inventoried in this drainage during FY 1993. The old growth type for almost all of these stands was cool, moist and wet habitat groups for subalpine fir-spruce forest cover types (8SAF). The largest patch was 90 acres.

Old growth habitat field validation was begun for the Ettien Ridge area within the South Fork Judith River. The Ettien Ridge project area is presently about 23,700 acres. By querying the TSMRS database, more than 200 forest stands were identified as potential old growth. Over 2,000 forested acres were inventoried in 1993 with 585 acres meeting Forest old-growth criteria. Old-growth analysis for the Ettien Ridge project will be completed in Spring 1994.

Table C-8a is a compilation of all the old growth forest acres that have been allocated since surveys have been completed, and displays the progress the Forest has made in achieving a Forest wide old growth forest inventory.

Table C-8a ACRES DESIGNATED AS OLD GROWTH 1988-1993

Ranger District	Project	Acres in Project Area	Acres of Old Growth ¹	Acres Allocated ²
Rocky Mtn	S.Fork-Two-Med		208	
Judith	South Fork Complex	23,300	2,422	2,422
	Running Wolf	45,800	3,580	3,580
	Ettien Ridge	23,700	585	
Musselshell	Mill-lion	6,200	1,027	1,027
	Spring Creek	36,400	4,415	4,415
	Little Snowles	13,000	1,900	1,900
Kings Hill	Small Sales(772-776)	53,200	4,653	4,653
	Moose Creek	20,800	1,697	1,697
	Smokey-Corridor	77,000	6,755	6,533
	TOTAL	299,400	27,242	26,227

¹These are the acres of forest that meet the criteria for old growth.

²Acres of old growth forest allocated for retention to meet Forest Plan Standards via a decision document (ROD, DN).

Goshawk Nest Territories

Two new territories were detected in FY 1993 for a Forest total of 28 known territories; 6 in the Rocky

Mountain Division and 22 in the Jefferson Division. The result of the goshawk monitoring completed from FY 1987 through 1993 is summarized in the following tables:

Table C-8b GOSHAWK (Nesting Territories - Rocky Mountain Division)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Nesting Territories	0	0	0	0	3	4	6			
Territories Monitored	0	0	0	0	1	1	0			
Territories Active	0	0	0	0	1	1	Unkn			
Fledglings Produced	0	0	0	0	Unkn	Unkn	Unkn			

Table C-8c GOSHAWK (Nesting Territories - Jefferson Division)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Nesting Territories	8	9	11	14	17	22	22			
Territories Monitored	3	7	7	9	10	16	10			
Territories Active	-	-	-	4	6	8	3			
Fledglings Produced	-	-	-	•	•	7	3			

* - Attempted to monitor, but data inconclusive.

RECOMMENDATIONS

Amend the Forest Plan to include the Regional Old Growth Forests Definitions. These definitions will

then be used to determine the amount of old growth forest within the Lewis and Clark National Forest.

C-9 Special Interest Species

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Special Interest Species: Golden Eagle & Prairie Falcon nesting territories	3 Years	Decrease of 10% or more in active nest territories as measured by a 100% annual sample of selected nest territories.

METHODS

The goal is to inventory and annually monitor a minimum number of nest territories each year so that in a three year period all nests of each species have been monitored. By completing this monitoring the Forest can obtain occupancy and nest production of all known nests.

Biologists recorded and mapped the location and date of sightings of golden eagle and prairie falcon in order to identify activity centers for suspected nest sites. Knowledgeable individuals were contacted for information on known nest sites. Surveys were conducted in suitable nest habitat and around existing nest sites to determine whether new nest sites had been developed. Nest territories were visited during the nesting season to determine the number of active nest sites and nest production.

FINDINGS

Limited monitoring of territories for golden eagle and prairie falcon took place in FY 1993.

On the Rocky Mountain Division, 37 golden eagle and 54 prairie falcon territories have been identified. In 1993, 2 golden eagle nest sites were monitored, neither were active. Monitoring of these nest sites was a required mitigation item for the Gibson Lake Trail Reconstruction project.

On the Jefferson Division, a total of 6 golden eagle and 20 prairie falcon territories have been located in past years. Of this total, all of the known golden eagle territories and 17 of the known prairie falcon territories were located and inventoried prior to the development of the Forest Plan. Three additional prairie falcon territories have been located since 1988 in association with other work. All of these known territories were active at the time they were originally surveyed and recorded. No new nests were recorded during 1993.

The known nest territories for these two species on the Jefferson Division are located in cliffs, primarily in limestone formations. Foraging occurs on nearby grasslands or other open vegetative types on the National Forest and adjacent private land. Very few of these territories are located in the vicinity of areas where recent timber harvest, road construction or other development activities have taken place or are planned in the near future. As a result, monitoring these territories has received low priority; and few of the territories have been checked during the last five years.

Summary of golden eagle nesting territories is as follows:

Table C-9a GOLDEN EAGLE (Nesting Territories on Rocky Mt. Division)

Description	Pre 1987	1989	1991	1992	1993
Nesting Territories ¹	37	37	37	37	37
Territories Monitored	-	11	0	3	2

¹ Includes territories on adjacent State and BLM Lands.

Table C-9b GOLDEN EAGLE (Nesting Territories on Jefferson)

Description	Pre 1991	1991	1992	1993	1994
Nesting Territories ¹	-	6	10	10	
Territories Monitored	-	0	1	0	

¹ Data is incomplete prior to 1991

Summary of prairie falcon nesting territories is as follows:

Table C-9c PRAIRIE FALCON (Nesting Territories on Rocky Mt. Division)

Description	Pre 1987	1989	1991	1992	1993
Nesting Territories ¹	30	53	54	54	54
Territories Monitored	-	6	0	0	0

¹ Data is incomplete prior to 1989

Table C-9d PRAIRIE FALCON (Nesting Territories on Jefferson)

Description	Pre 1991	1991	1992	1993	1994
Nesting Territories ¹	-	20	20	20	
Territories Monitored	-	3	2	0	

¹ - Data is incomplete prior to 1991

C-10 Cavity Nesting Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Cavity Nesting Habitat for Northern 3-Toed Woodpecker - percent optimum habitat	5 Years	Reduction in snags to below numbers needed to maintain a viable population level of woodpeckers in any timber compartment as measured by a three year running mean compared to the existing percent optimum habitat

METHODS

An annual Forest review of selected timber sales is conducted to determine effectiveness of snag management guidelines and timber sale administrative guidelines. Monitoring efforts focus on stands where snag densities may change due to management activities.

Cavity dependent species habitat was measured by examining the gain, loss, or no change status of

National Forest System acres of mature conifer stands.

Snag and nest surveys were conducted using the methods described in Morrison, et al. (1986) as modified to use monumented section corners as permanent reference points. Breeding bird plots were used to determine the presence or absence of avian species.

Wildlife

FINDINGS

Biologists have been recording pileated sightings for the past several years. They were not known to exist on the Forest at the time of Forest Plan preparation. The following are the observations of pileated woodpeckers in FY 1993:

ROCKY MOUNTAIN DIVISION

No observations of pileated woodpeckers were recorded. Four wood duck boxes installed in the Teton River drainage in 1989 were used by an unidentified duck species.

JEFFERSON DIVISION

An old pileated woodpecker territory just off of Road No. 487 on the South Fork of the Judith River at the lower edge of Smith Flats was checked on June 18, 1993. The area checked contained the ponderosa pine snag where pileated woodpeckers were observed in the Fall of 1991 and again in the Spring of 1992. No pileated woodpeckers were seen or heard calling in that area on the day that it was checked. Northern flickers were quite numerous in the general area.

On August 5, 1993 a pileated was sighted in the West Fork of Flagstaff Creek. This appears to be the same bird that was sighted in 1992 in the same general area.

Snag Management

The retention of snags is affected by the firewood cutting policy and the timber harvesting activities on the Forest. Section E-9 of this report displays the annual sale of firewood on the Lewis and Clark National Forest and discusses the general trends in the firewood harvest activities on the Forest.

During FY 1993 the Forest continued issuing the Animal Inn brochure, Be An Innkeeper, in their firewood permit packages. This is an effort being made to educate and inform the public on the value of dead and down materials within the forest.

Snag Management Monitoring

Snags were marked with wildlife tree signs in eight cutting units in the Central Park Timber Sale following clearcut harvest. This completes snag marking scheduled for this sale area on the Kings Hill Ranger District. Monitoring is scheduled to check the retention of snags following a period of permitted firewood cutting. Snag marking was completed during sale layout on the Clyde Park Sale, Judith Ranger District. Snags were marked (painted) as reserve trees in eight clearcut units and as leave trees in three seed tree harvest units.

Table C-10a displays the information gathered to date for snag monitoring on the Kings Hill Ranger District. There was no additional monitoring of the snags that were marked in FY 1992. Therefore, no additional results can be drawn from the monitoring that was completed and reported in the 1992 monitoring report.

Table C-10a MONITORING RESULTS FOR SNAG MANAGEMENT ON KINGS HILL RD

Sale Area	Stand #	Unit Size	# Snag Pre Logging	# Snag Post Logging	# Snag Post Firewd	Meets FP Std ¹	% Use by Wildlife
Last Chance Sale	77306014	25 A		9		N	89%
	77308014	33 A		11		N	45%
Wet Park Post/pole	71105028	13 A		6		N	17%
Quartzite-Moose	71108031	24A		9		N	11%
Central Park	78102045	34 A		47		Y	34%
	78102013	26 A		31		Y	19%
	78102010	32 A		111		Y	31%

Sale Area	Stand #	Unit Size	# Snag Pre Logging	# Snag Post Logging	# Snag Post Firewd	Meets FP Std ¹	% Use by Wildlife
Crossroads	77501017 78207069	36 A	196	145		Y/Y	41%

¹ Sale areas are within Lodgepole and subalpine fir zones which the Standard requires .7-1.0 snags/acre.

RECOMMENDATIONS

The Kings Hill District needs to follow up snag monitoring on the sales in Table C-10a to measure the effect of firewood gathering in these units.

Emphasize the maintenance of large dbh snags which are likely to stand longer than small diameter snags (Raphael and Morrison 1987). Consider a maximum allowable dbh for cutting standing dead trees for woodcutting in selected areas.

Continue to mark (sign or paint) and inventory the live or dead trees required to meet long term snag management objectives as part of the timber sale layout and specify the protection of snags/trees in the sale contract. Conduct a post-harvest inventory to quantify the proportion of marked trees retained and to monitor future woodcutting activity.

C-11 Aquatic Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Aquatic Habitat Condition/Quality (Cut-throat Trout, Brook Trout, Rainbow Trout)	3 years	Decrease of 5% or more in fish habitat capability based on predicted or actual changes in water quality or fish habitat parameters in any stream or lake

METHODS

Monitor impacts from management actions that take place on the Forest, such as timber sales, wild-fire, prescribed fire, and grazing.

contributing to adverse impacts. Five streams were negatively affected by cattle grazing: Cutreef Creek, Middle Fork Beaver Creek, Mortimer Gulch, West Fork Beaver Creek, and Willow Creek.

FINDINGS

ROCKY MOUNTAIN DIVISION

During 1993, 18 streams in the Sun River drainage were inventoried to furnish baseline data for the Sun Canyon Range analysis. Data collected included: species composition, riparian condition, channel type, substrate condition, size, velocity, unit types, bank damage, etc.

Of the 40 miles of stream inventoried, 2 miles were in poor condition with cattle contributing to adverse impacts; and 7 miles in fair condition with cattle

JEFFERSON DIVISION

The overall condition of fish habitat and the condition of streamside shrub communities were evaluated on six streams in the Little Belt and Castle Mountains on the Kings Hill and Judith Districts. Quantitative evaluations of spawning gravel conditions were not completed on any streams on the Forest in 1993.

The fish habitat and shrub communities that help form fish habitat evaluated in 1993 were all found to be in at least fair condition. One stream reach, which

Wildlife

was not found to support fish (due to naturally inadequate stream flows), was found to be in poor condition.

The effects of road building and culvert installations were evaluated on the South Fork of the Judith River and Cross Creek on the Judith District. Evaluations of road building and culvert installations associated with timber harvest in the South Fork of the Judith drainage indicated that best management practices were very successful at preventing sediment due to road construction from reaching streams. Evaluation

of sediment delivery associated with the harvest units could not be completed as the units have not yet been harvested.

RECOMMENDATIONS

Continue collection of data on the condition of fish habitat within grazing allotments. Improve grazing management on fishery streams in poor condition. Continue evaluation of stream gravel quality within various landtypes and disturbance levels throughout the Forest.

C-12 Habitat Improvement Outputs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
T & E Habitat Improvement Outputs	Annually	Identify a 10% decline in accomplishments in T&E habitat improvement outputs as measured over a 5-year average and compared with the level specified in the Forest Plan (p 5-11)
Wildlife & Fish Habitat Improvement Outputs	Annually	Identify a 20% decline in accomplishments in wildlife & fish habitat improvement outputs as measured over a 5-year average and compared with the level specified in the Forest Plan (p 5-11)

METHODS

Analysis of data provided in the Management Attainment Report (MAR) which included: MAR 37.1, 37.2, 38.1, 38.2, 39.1 and 39.2.

FINDINGS

All targets assigned to the Forest for FY 1993 were not accomplished. The burning acres that were planned were not able to be completed because of the unusual wet summer and the burn area did not reach prescription. See Table C-12a for values discussed in the following Management Attainment Report (MAR) items.

37.1 Wildlife Habitat Improvement (Acres): A total of 779 acres of wildlife habitat improvement was accomplished. Of this total, 382 acres were completed by the Partnership program, and 14 acres were accomplished with KV funds.

37.2 Wildlife Habitat Improvement (Structures): 9 structures were accomplished. Of this total, 2 structures were contributed via the engineering program (gates with timber sales), and 6 structures were accomplished with KV funds.

38.1 Fish Habitat Improvement (Acres): 71 acres were accomplished. Of this total, 21 acres were accomplished by the Partnership program.

38.2 Fish Habitat Improvement (Structures): 20 structures were accomplished. Of this total, 2 structures were accomplished with KV funds.

39.1 Habitat Improvement Threatened & Endangered (Acres): 210 acres were accomplished; 105 acres with appropriated funds, 105 acres by the Partnership program.

39.2 Habitat Improvement Threatened & Endangered (Structures): 1 structure was accomplished with KV funds.

Table C-12b displays the accomplishment for wildlife habitat improvement for the past seven years. The past trend is continuing and the Forest has exceeded the Forest Plan level in all MAR items except 37.2 (Structural improvement for wildlife) and 38.2 (Structural improvement for fisheries). A

wildlife/fisheries program document has been developed that provides for a more detailed account of the potential for habitat improvement on the Forest. The program document displays that there is an increase in potential habitat improvement targets over the original Forest Plan and with a different mixture of projects. Currently, the program document is what the Forest is working from when assigning targets to individual Districts.

Table C-12a FY 1993 TARGETS & ACCOMPLISHMENTS COMPARED TO FOREST PLAN

MAR Code	Description ¹	Unit of Measure	Forest Plan	1993 Target	Accomplishment
37.1	WLDL HAB. IMPROV APP 01	Acres	600	900	383
37.1	WLDL HAB. IMPROV APP 02	Acres			382
37.1	WLDL HAB. IMPROV APP 03	Acres			14
37.1	WLDL HAB. IMPROV APP 04	Acres			0
37.1	WLDL HAB. IMPROV APP 00	Acres	600	900	779
37.2	WLDL HAB. IMPROV APP 01	Struc	10	3	1
37.2	WLDL HAB. IMPROV APP 02	Struc			2
37.2	WLDL HAB. IMPROV APP 03	Struc			6
37.2	WLDL HAB. IMPROV APP 04	Struc			
37.2	WLDL HAB. IMPROV APP 00	Struc	10	3	9
38.1	FISH HAB. IMPROV APP 01	Acres	5	16	50
38.1	FISH HAB. IMPROV APP 02	Acres			21
38.1	FISH HAB. IMPROV APP 03	Acres			
38.1	FISH HAB. IMPROV APP 04	Acres			
38.1	FISH HAB. IMPROV APP 00	Acres	5	16	71
38.2	FISH HAB. IMPROV APP 01	Struc	25	16	18
38.2	FISH HAB. IMPROV APP 02	Struc			2
38.2	FISH HAB. IMPROV APP 03	Struc			
38.2	FISH HAB. IMPROV APP 04	Struc			
38.2	FISH HAB. IMPROV APP 00	Struc	25	16	20
39.1	T&E HAB. IMPROV. APP 01	Acres	100	200	105
39.1	T&E HAB. IMPROV. APP 02	Acres			105
39.1	T&E HAB. IMPROV. APP 03	Acres			
39.1	T&E HAB. IMPROV. APP 04	Acres			
39.1	T&E HAB. IMPROV. APP 00	Acres	100	600	210
39.2	T&E HAB. IMPROV. APP 01	Struc	0	0	0
39.2	T&E HAB. IMPROV. APP 02	Struc			0
39.2	T&E HAB. IMPROV. APP 03	Struc			1
39.2	T&E HAB. IMPROV. APP 04	Struc			
39.2	T&E HAB. IMPROV. APP 00	Struc	0	0	1

⁰¹ = FS funds (non-Challenge Cost-Share)

⁰² = Contributed (HRP programs) fund accomplishments for Partnership projects

⁰³ = KV funds

⁰⁴ = Carryover Dollars

⁰⁰ = MAR Code total

Wildlife

Table C-12b WILDLIFE HABITAT IMPROVEMENT

Description ¹	Forest Plan	1987	1988	1989	1990	1991	1992	1993	7 Year Average
Non-Structural (Wildlife Acres)	600	300	1400	900	1117	450	555	765	784
Non-Structural (Fish Acres)	5	2	0	10	16	0	40	71	20
Non-Structural (T&E Acres)	100	0	0	0	500	634	620	210	280
Wildlife Structures	10	0	0	3	2	7	8	3	3
Fish Structures	25	16	19	11	19	23	30	18	19
T&E Structures	0	2	0	0	2	0	0	0	1

¹ - Figures do not include KV accomplishments

RECOMMENDATIONS

Continue updating the habitat improvement portion of the Wildlife/Fisheries program document so that

it will become at least a 10 year habitat improvement program.

C-13 Oil & Gas Activity

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Oil & Gas Activity/Wildlife Monitoring - Rocky Mountain Front	Annually	Display the number of guidelines applied or not applied to projects that were accomplished for the fiscal year. This data can then be used to determine the cause of any decreases in populations that the RMF Guidelines were developed to protect.

METHODS

Examine major permitted activities in relation to the application of the Rocky Mountain Front Guidelines [(BLM, 1987) eg. gas/oil development, timber harvest, seismic operations, new road construction].

Front Guidelines have been applied during the past 2 years.

FINDINGS

No new oil and gas development projects were approved during the past year on National Forest System lands. Resource projects accomplished during the year were a shrubfield restoration timber harvest, trail reconstruction, and a prescribed burn. Table C-13a summarizes how the Rocky Mountain

In 1993, strict adherence to the Rocky Mountain Front Guidelines was not warranted for all projects. Coordination with MDFWP led to less stringent timing restrictions for lambing bighorn sheep and nesting raptors during the Gibson Lake Trail Reconstruction project. The revised restrictions enabled lambing bighorn sheep to move before any threats to lamb survival occurred. The reproductive success of nesting raptors was not jeopardized because nests near trail construction activity were not

occupied before or after trail construction began. The analysis for this deviation from the Rocky Mountain Front Guidelines was documented in the environmental assessment for the Gibson Lake Trail project.

Rocky Mountain Front activity guidelines for elk, bighorn sheep and raptors were not followed for the Sawtooth Ridge Burn because the short duration of the disturbance (1 day) precluded any adverse effects. The analysis for this deviation from the Rocky Mountain Front Guidelines was documented in the environmental assessment for the Sawtooth Ridge Burn.

On the Little Badger Allotment domestic sheep grazing occurs within designated mountain goat habitat. Rocky Mountain Front guidelines recommend removing sheep from mountain goat habitat. During the Little Badger Allotment analysis, it became clear that sheep did not use portions of the allotment that were critical for mountain goats. Lack of competition between these two species led to a decision to not follow the Rocky Mountain Front Guideline's sheep grazing recommendation. The analysis for this deviation from the Rocky Mountain Front Guidelines was documented in the environmental assessment for the Little Badger Allotment.

Table C-13a ROCKY MOUNTAIN FRONT GUIDELINES APPLIED

Year	Project Name	Species Affected	Guidelines Applied	Operation Window
1992	Beartree Timber Harvest	grizzly	All guidelines followed	July 1-Oct 15
1992	Ford Basin Burn	Bighorn/Elk	All guidelines followed except for a 1 day period affecting prairie falcon nesting habitat and elk and bighorn sheep calving/lambing areas.	
1993	Gibson Trail Reconstruction	grizzly, bighorn sheep, elk, raptors	Guidelines followed for grizzly. Not followed for wintering elk. Adjusted for lambing bighorns. Adjusted for nesting raptors.	Timing Window varies by year
1993	Beartree Timber Harvest	grizzly	All guidelines followed	July 1-Oct 15
1993	Sawtooth Ridge Burn	elk, bighorn sheep, raptors	Guidelines not followed for 1 day.	
1993	Little Badger Grazing Allotment	grizzly bear, mountain goat, elk	All guidelines followed except prohibition on sheep grazing in mountain goat habitat.	

C-14 Sensitive Wildlife & Fish

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Determine distribution of sensitive wildlife & fish species on the Forest. Monitor annual trends in wildlife & fish habitat and species populations.	Annually	Failure to record any information within a two year period.

METHODS

This monitoring item, along with C-15, was added to the Forest Plan by Amendment No. 12. Surveys of

the habitat are conducted to acquire population data on the species that are on the Lewis and Clark National Forest's sensitive species list.

Wildlife

FINDINGS

ROCKY MOUNTAIN DIVISION

Sensitive Fish

Nine streams on the Rocky Mountain Division were inventoried to evaluate the presence of purestrain westslope cutthroat trout. Cutthroat trout were collected from seven streams and sent to the University of Montana for genetic analysis. Results revealed that purestrain westslope cutthroat were present in two of these streams. In Green Gulch, there appears to be a population of hybrids in the lower reach and purestrain westslope cutthroat in upper reaches. Cutthroat in Badger Cabin Creek were previously classified as hybrids. However, 1993 genetic analyses revealed that fish in this stream are a genetically unique population of purestrain westslope cutthroat. Cutthroat in Lost Shirt Creek were previously classified as purestrain westslope cutthroat. However, the sample size used to make this determination was extremely small (3). Additional fish collected and analyzed in 1993 revealed that this population is hybridized. All the data collected to date is displayed in Table C-14b.

Sensitive Animal

Following completion of a 4-year study on harlequin ducks, the Rocky Mountain District initiated an annual monitoring program. All streams with breeding harlequins will be monitored every other year to determine any changes in population size and annual productivity.

The Rocky Mountain Front population is estimated at 40 breeding pairs, producing 7-18 broods annually. Poor reproduction years (1991) appear to be a product of heavy spring floods. The harlequin duck population on the Rocky Mountain Front is approximately 35% of Montana's total population.

In 1993, streams in the Badger Creek, Two Medicine River and Birch Creek drainages were systematical-

ly monitored. In May, four harlequin duck pairs were observed in North Badger and Badger Creek. South Badger was not surveyed due to high water conditions. No pairs were observed on the South Fork Two Medicine River. In August, three broods were observed on North Badger and one brood was observed on South Badger. The lower reach of South Badger was not surveyed. No broods were observed on Badger Creek.

The Birch Creek drainage was not monitored during spring. In August, two broods were observed on South Fork Birch Creek. No broods were observed on other streams in this drainage.

Although not systematically monitored, harlequin observations were obtained from the Sun River drainage. During early June, four pairs and six unpaired males were observed on the South Fork Sun suggesting at least eight pairs were present in May. In August, a minimum of three broods were observed on this stream. On the North Fork Sun, a minimum of three pairs and one unpaired male were observed in May and at least one brood was observed in August.

1993 was an excellent year for harlequin duck productivity. Between 1990 and 1992, there was an average minimum brood count of 3/year (range=0-6) in the Badger Creek drainage. The 1993 minimum brood count of four is above average. In the Birch Creek drainage, only one brood was observed annually between 1990 and 1992; in 1993 two broods were observed (Table C-14a).

Although the Sun River drainage was not systematically monitored, chance observations indicate excellent reproduction. When this drainage was systematically surveyed the average annual minimum brood count was 5.7 (range=4-8). Observing four broods while not looking for harlequin ducks suggests that a systematic survey would have produced a higher minimum brood count.

Table C-14a HARLEQUIN DUCK (Minimum Brood numbers on Rocky Mt. Division)

Drainage	1990	1991	1992	1993
Sun River	8	4	5	4*
Birch Creek	1	1	1	2
Badger Creek	3	0	6	4
Teton	0	0	1	0*

* Incidental sightings; no systematic monitoring

In 1993, a northern bog lemming inventory was completed with the Montana Natural Heritage Program in the Sun River drainage. Five sites were trapped. One site, Wood Lake, supports a northern bog lemming population. This is the easternmost population of this species in Montana. Less than 20 populations exist in the entire state. Other sites with potential for northern bog lemmings were identified for future sampling.

JEFFERSON DIVISION

Sensitive Fish

Cutthroat samples were taken from Eagle Creek in the Crazy Mountains to determine genetic purity.

Three streams on the Kings Hill District were surveyed to determine the presence of purestrain westslope cutthroat trout. Cutthroat trout were collected and sent to the University of Montana for

genetic analysis. The results have not yet been obtained from the University of Montana.

Additional cursory surveys were conducted in 1993 on eleven other streams throughout the Jefferson Division to determine general distribution of cutthroat trout. Evaluations were conducted in the North Fork of the Smith River Drainage, the Judith River Drainage, and the Belt Creek drainage within the Little Belt Mountains. Cutthroat trout were not found to be present in any of the streams. Samples still need to be collected from the South Fork of Willow Creek above Willow Creek Reservoir in the Castle Mountains to test for genetic purity of cutthroat trout found in that stream. Also, additional samples need to be collected from tributary streams within the Belt Creek drainage in both the Little Belt and Highwood Mountains.

A current summary of cutthroat trout testing completed on the Forest over the last 10 years is displayed in Table C-14b.

Table C-14b ELECTROPHORETIC TESTING RESULTS FOR CUTTHROAT TROUT

Drainage	Stream	Year Sampled	Location	Sample Size	Results*
Two Medicine	Lost Shirt Cr	93	T29N R12W S7	11	WectxRb
	Rowe Cr	93	T30N R13W S1&2	9	WectxRb
	unnamed cr	93	T30N R13W S2	12	WectxRB
	Sydney Cr	93	T29N R12W S17	6	WectxRb
	Sydney Cr	92	T29N R12W S17	7	WectxRb
	Lost Shirt Cr	92	T29N R12W S7	3	P
	Whiterock Cr	92	T29N R12W S3	7	P
	Summit Cr	92	Taken by State		WectxRb
	N.Fk Little Badger Cr	91	T30N R12W S25	17	WectxYctxRb
	South Fk Two-Med	84	T29N R12W S7	15	WectxRb
	Woods Cr	84	T29N R12W S7	10	WectxRb

Wildlife

Table C-14b ELECTROPHORETIC TESTING RESULTS FOR CUTTHROAT TROUT (continued)

Drainage	Stream	Year Sampled	Location	Sample Size	Results*
Badger	Badger Cabin Cr	93	T29N R12W S23	10	P
	Badger Cr	91/92	See district file	3	WscxbRb
	Badger Cabin Cr	92	T29N R12W S23	10	P
	Red Poacher	92	T29N R12W S23	10	P
	Limestone Cr	91	T29N R11W S29	4	WscxbYctbRb
	Lonesome Cr	91	T29N R11W S30	3	WscxbRb
	South Badger Cr	90/91	T29N R12W S25	13	P
	North Badger	85	T29N R12W S27/34	30	P
Lee Cr	84	T29N R12W S27	15	P	
Birch	Hungry Man Cr	92	T28N R10W S19	10	WscxbRb
Dupuyer	S.Fk Dupuyer Cr	91	T27N R9W S35	14	WscxbYct
	N.Fk Dupuyer	90	T27N R9W S22	14	WscxbRb
Teton	Green Gulch	93	T24NR9W S15&16	8	P
	Middle Fk Teton	92	T25N R9W S26	11	WscxbRb
	Waldron Cr	92	Taken by State		P
	S.Fk Waldron	92	Taken by State		WscxbRb
	Green Gulch	92	Taken by State		WscxbRb
	Rierdon Gulch	92	Taken by State		WscxbRb
	N.Fk Waldron Cr	90	T25N R9W S17	23	P
	N.Fk Willow Cr	90	T24N R8W S9	22	P
	E.Fk Willow Cr	90	State Collected	10	P
Cow Cr	90	T26N R8W S5	15	P	
Sun River	North Fk Ford	93	T19N R9W S11	10	WscxbRbxYct
	Little Willow	92	Sampled by State		WscxbRBxYct
Smith	Fourmile Cr	93	T9N R8E S21	10	Not yet analyzed
	W.Fk Cottonwood Cr	92	T8N R7E S23	10	P
	Adams Cr	90	T12N R7E S24	10	WscxbRb
	Daniels Cr	90	T12N R7E S11	2	P
	N.Fk Deadman Cr	89	T12N R8E S14	10	P
	Tenderfoot Cr	88	T14N R6E S30	5	WscxbRb
	Balsinger Cr	88	T14N R6E S20	36	WscxbYctbRb
	N.Fk Deep Cr	85	T15N R5E 19,20	30	P
	S.Fk Deep Cr	85	T15N R5E S31	15	Hybrid
	N.Fk Deep Cr	80	T15N R5E S20	29	P
Belt Cr	Pilgrim Cr	90	T15N R6E S3	7	WscxbRb
	Jefferson Cr	90	T13N R8E S2	10	P
	Logging Cr	89	T15N R5E S26	5	P
	Oti Cr	89	T5N R9E S29	5	P
Judith R	Dry Wolf Cr	90	T14N R9E S13	4	P
	Yogo Cr	88	T13N R10E S3	5	WscxbRb
	South Fk Judith	84	T11N R10E S9	30	WscxbYctbRb
Musselshell	Forest Lake	83	T6N R10E S26	26	WscxbYctbRb

* Note: P= Sample results contained no genetic material from rainbow or yellowstone cutthroat, WscxbRb= Rainbow hybridism
WscxbYct= Yellowstone cutthroat trout hybridism, WscxbYctbRb= Rainbow and yellowstone hybridism

Sensitive Animal

In FY 1993 a partnership was entered with the Montana Heritage Program to determine the species and type of use that Lick Creek Cave was receiving from bats. A spring survey was completed and a late fall survey was completed. The Forest is awaiting the report from the Heritage Program.

RECOMMENDATIONS

Continue testing cutthroat trout for genetic purity in streams throughout the Forest. Continue with cursory initial sampling to define distribution of cutthroat trout throughout the Forest.

Continue survey work for all of the sensitive animal species for which little information exists.

C-15 Sensitive Plant Program

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Determine distribution of sensitive plants on the Forest. Conduct demographic monitoring & taxonomic studies to assess population viability.	Annually	Failure to record any information in a two year period.

METHODS

Conduct surveys of the habitat to acquire population data on the species that are on the Lewis and Clark National Forest's sensitive species list.

FINDINGS

Sensitive plants are those species for which population viability is a concern, as evidenced by a significant current or predicted downward trend in population or habitat capability. In 1988 the Regional Forester approved the Region's first sensitive plant list, and in 1991 the list was updated. The updated list includes eighteen sensitive plant species known or reported to occur on the Lewis and Clark National Forest, eleven additional sensitive species that botanists suspect may occur on the Forest, and five "watch" species suspected to occur on the Forest. Watch plants are species which have similar viability concerns as designated sensitive species, but are not known to occur on National Forest lands anywhere in Montana.

Sensitive plants generally have very specific habitat requirements, having rather narrow ecological amplitudes. Habitats supporting the sensitive and watch species known or suspected to occur on the Forest have been classified into six categories: alpine, grassland, meadow, moist forest, riparian, and

scree. Sensitive plant species often occur within a narrow geographic range and/or special microhabitats within these broad habitat categories. The 34 species of sensitive and watch plants known or suspected on the Forest occur primarily in these habitats as follows: 18 species (53%) riparian, 5 species (15%) meadows, 4 species (12%) alpine, 3 species (9%) scree, 2 species (6%) each in grassland and moist forest.

Based on a ranking system assigned by the Montana Natural Heritage Program, peculiar moonwort is the highest priority sensitive plant species on the Forest. This species is considered critically imperiled both globally and statewide, and is being considered for listing under the Endangered Species Act. Also of special importance are the sensitive plants known in the state exclusively, or mostly, from the Lewis and Clark National Forest. The Forest has all or most of the known occurrences in Montana for the following six sensitive plant species: dwarf sawwort, leadville milkvetch, short-styled columbine, fuzziyspike wildrye, stalked-pod crazyweed, and northern rattlesnake-plantain .

A summary of the number of sensitive plant occurrences known or reported from the Forest and the status, monitoring studies and reports to date are listed in Table C-15a.

Wildlife

Table C-15a SENSITIVE PLANTS KNOWN OR REPORTED TO OCCUR ON THE LEWIS AND CLARK

Species Name	Population Status	Monitoring Studies	Reports Prepared
ROCKY MOUNTAIN DIVISION			
Austin's knotweed	2 occurrences on L&C, 8 in MT.	none	none
Blunt-leaved pondweed *	1 occurrence reported on L&C based on old collection, needs field survey. 5 in MT.	none	none
Dwarf saw-wort	8 occurrences on L&C, 8 in MT, pops are small.	none	none
Fringed onion *	1 occurrence reported on L&C based on old collection, needs field survey. 4 in MT.	none	none
Fuzzyspike wildrye **	2 occurrences on L&C (1 on D-1), 3 in MT, small populations.	none	none
Giant helleborine	1 occurrence on L&C, 17 in MT, pop. appears stable	none	none
Green-keeled cottonsedge	3 occurrences on L&C (very small), 19 in MT.	none	none
Leadville milkvetch	8 occurrences on L&C, 8 in MT, sparse distribution, pops appear stable	none	Status Review 1990
Peculiar moonwort	1 occurrence on L&C (very small), 2nd pop possibly extirpated, 7 in MT.	1 study, tracked since 1989	none
Round-leaved orchis	14 occurrences on L&C, 26 in MT.	1 study initiated 1989	Status Review 1988
Small yellow lady's slipper	6 occurrences on L&C (1 partly vandalized), 37 in MT.	none	none
Sparrow's egg lady's slipper	7 occurrences on L&C (all small), 22 in MT.	1 study 1988, fenced 1989	none
Stalked-pod crazyweed	4 occurrences on L&C, 5 in MT.	none	none
JEFFERSON DIVISION			
Fuzzyspike wild rye**	2 occurrences on L&C (1 on Jefferson), 3 in MT, small pops.	none	none
Missoula phlox	5 occurrences on L&C, 12 in MT, pops appear stable, taxonomic questions	none	Status Review 1991
Northern rattlesnake-plantain	35 occurrences on L&C, 36 in MT, may have been reduced by past logging & wildfire.	1 permanent plot tracked 1988-89. Studies initiated: 1991-2, 1992-2, 1993-2.	Status Review 1991, demographic monitoring in progress
Pink agoseris	28 occurrences on L&C, 41 in MT.	none	Status Review 1991
Short-styled columbine	11 occurrences on L&C, 11 in MT, narrow distribution.	1 demographic and 1 genetic study	none
Yellow springbeauty	6 occurrences on L&C, 38 in MT. May be removed from sensitive list at next revision.	none	Status review 1989

* These two species have been reported to occur on the Forest, but the occurrence is based on imprecise location information. Further surveys are needed to verify the occurrence on the Forest.

** Fuzzyspike wildrye is the only sensitive plant species known to occur on both the Rocky Mountain Division and Jefferson Division of the Forest.

Projects on the Forest that involve ground disturbance are evaluated for potential effects on sensitive plants. Projects which occur in areas that have a low probability of sensitive plant occurrence, as deter-

mined by pre-field habitat assessments, may not receive field surveys. Field survey accomplishments on the Forest are reported in Table C-15b.

Table C-15b SENSITIVE PLANT FIELD SURVEY ACCOMPLISHMENTS

Year	Project Areas Surveyed	Acreage Surveyed	New Populations Located
1991	Timber projects	1842	20
	Range projects	5	2
	Sensitive plant projects	1288	14
	Miscellaneous	185	4
	TOTAL	3320	40
1992	Timber projects	1120	6
	Range Projects	590	1
	Sensitive plant	783	7
	Research Natural Area	3161	0
	Recreation	103	0
	Land exchange	300	0
	Miscellaneous	21	0
	TOTAL	6078	14
1993	Timber projects	2664	11 revised, 9 new
	Range projects	285	8 revised, 6 new
	Sensitive plant proj	49	0 revised, 1 new
	Research Natural Area	270	2 revised, 0 new
	Wildlife	2	1 revised, 1 new
	Special Uses	5	0
	Minerals	2	0
	TOTAL	3277	22 revised, 17 new

Range

RANGE

D-1 Range Outputs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Range Outputs	Annually	+/- 10% of target

FINDINGS

Summary of Forest Plan 10-year average Range Management targets and actual accomplishment for FY 1987 through FY 1993 is as follows:

Table D-1a RANGE ACCOMPLISHMENTS

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Permitted Grazing Use (M AUM)	71.1	70.5	72.3	72.4	71.9	71.2	70.3	69.5			
Improvement Nonstructural (Acres)	1329	1999	2433	1607	562	402	550	110			
Improvement Structural (Structures ¹)	40	30	18	26.2	35.4	28	37.4	31			
Range Plans (Plans)	10	5	4	4	0	2	1	1			
Noxious Weed Chemical/Manual (Acres)	600	772	616	636	472	1062	1108	1067			
Noxious Weed Biological (Acres)		370	150	222	40	146	153	198			

¹Unit is "Structures". Fence and water system miles are doubled (1/2 mi.=1 structure).

M AUM = Thousand Animal Unit Month.

Permitted grazing use, Thousand Animal Unit Month (M AUM), in FY 1993 is within 2% of the Forest Plan projection and therefore requires no further evaluation. Permitted use is based on the grazing permits issued and estimates of recreation pack stock use before the grazing season begins. At the end of the grazing season the actual grazing use is gathered and reported. Actual grazing use in FY 1993 was 63.8 M AUM. The seven-year average actual use (1987 through 1993) is 61.4 M AUM.

Nonstructural Range Improvements in FY 1993 are less than 10% of the Forest Plan projected output of 1,329 acres per year for the first decade. There has

been a steady decline in non-structural improvement on the Forest since 1989. The four year average accomplishment in non-structural range improvement (1990-1993) is 406 acres per year, which is only 30% of the projected Forest Plan output in the first decade. Most non-structural improvement is prescribed burning to control trees and sagebrush that are invading or increasing on traditional grazing lands, thus reducing forage production for livestock. Under the present trend in under accomplishment of this activity, the Forest is rapidly falling behind and can expect declining forage production. Problems with overstocked range, as the forage

base for permitted livestock declines, will inevitably result.

Structural Range Improvements in FY 1993 (31) is 77% of the Forest Plan projection and is below the 10% variability that would require further evaluation. The seven year average (29 structures) is 72% of the projected Forest Plan output. Again, funding below the projected Forest Plan budget, has not allowed the Forest to accomplish the projected outputs. Continued funding at this level will result in under accomplishment in structural range improvement. Without these investments in range improvement during the first decade of Forest Plan implementation, the increase in permitted grazing use, that is scheduled in the second decade of the Forest Plan, will not be possible.

One allotment management plan (AMP) was completed in FY 1993. In FY 1993, the Forest has again under accomplished its projected goal. However,

the Forest made significant progress toward correcting the problem by completing field range analysis in the Rocky Mountain Front area of the Forest. See monitoring item D-4 for further evaluation and discussion of the new Forest schedule for range allotment planning.

Noxious weed control by chemical and manual methods in FY 1993 is 1067 acres, or 178% of the Forest Plan projection of 600 acres per year. The seven year average (819 acres) is 136% of the Forest Plan projection. This over achievement represents a higher commitment to noxious weed control resulting from the noxious weed analysis after the Forest Plan was approved, and subsequent Noxious Weed Control Final EIS of 1987 and Draft Supplement of November 1993. The Forest Plan did not specify a program of work using biological methods for noxious weed control. However, the Forest performed biological control on 198 acres in FY 1993.

D-2 Range Condition & Trend

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Range Condition	Annually	Acres of range in fair or less condition that have not shown any improvement in condition score during the monitoring interval (10 years).
Range Trend	Annually	Any acres in downward trend which were previously (at the last reading) stable or in an upward trend. Any acres in downward trend which still show a downward trend after another monitoring interval (10 years).

FINDINGS

There are 277 condition and trend studies on 239 range allotments on the Forest. Two of the 277 stud-

ies were established in 1993, but no other study locations were monitored. Summary of FY 1987 through FY 1993 range condition and trend studies are as follows:

Table D-2a RANGE CONDITION AND TREND (Each)

Description	Existing	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Condition/Trend Studies	277	0	28	8	4	0	0	2			
Allotments Monitored	239	0	12	4	2	0	0	1			

Range

RECOMMENDATIONS

The level of range condition and trend monitoring in FY 1993 is outside the Forest Plan Standard for this activity and further evaluation is required. Monitoring of range condition and trend is needed to determine whether vegetation impacted by livestock grazing is improving or deteriorating and to evaluate the effectiveness of range management practices. A much higher level of condition and trend monitoring is needed to meet the Forest Plan objectives and to enable range managers to evaluate their programs. Several years of subsequent re-readings of these studies is required to determine trend.

The Forest is converting to an ecosystem analysis methodology for monitoring, based upon similarity to the potential natural community. This conversion

will be done over a period of years as new allotment management plans are completed. A method of comparing the new ecosystem methodology to the former condition and trend methodology should be developed. The change in monitoring methodology should be addressed in the 10-year revision of the Forest Plan.

There are 37 permanent vegetation trend studies on 25 allotments, established in FY 1991, to monitor results of noxious weed treatment. Five of these studies, density transects, were monitored in FY 1993. It is recommended that noxious weed monitoring be established as a separate Forest Plan monitoring item.

D-3 Supply

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Supply	Annually	More than 1% reduction in suitable range acres from previous year. Cumulatively, any reduction of 3% or more in suitable range acres over a 5-year period.

FINDINGS

Suitable range on National Forest land within allotments in FY 1993 is 210,800 acres. The data was derived from the Forest Service Range Management Information System (FSRAMIS) data base. Reductions in reported suitable range has been a result of more precise range analysis and natural

succession from forage producing plant communities to tree dominated plant communities.

Summary of FY 1987 through FY 1993 suitable range acres reported is as follows:

Table D-3a SUITABLE RANGE (Thousand Acres)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Suitable Range	249.2	249.2	249.3	242.2	220.9	220.9	210.8			

D-4 Allotment Management Plan Status

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Allotment Management Plan Status	5-years	More than 10% of the allotment plans are outdated. On the average, plans approved more than 15 years ago (before 1978) are considered to be outdated.

FINDINGS

All 239 range allotments were considered in the FY 1993 report, including cattle, sheep, and horse allot-

ments, administrative pastures, special use pastures, and commercial packer grazing areas. A summary of the number of allotments and allotment management plans follows:

Table D-4a STATUS OF ALLOTMENT MANAGEMENT PLANS

Category	Number of Allotments	Percent of Allotments
Total allotments	239	100
Total allotment management plans	158	66
Allotments without plans	81	34
Outdated plans (approved before 1978)	80	33
Plans that will become outdated during this decade (approved 1978-81)	33	14
Plans scheduled to be completed during this decade (1994-96)	(49)	(20)
Total allotments outdated by the end of the decade (1996)	145	61

In FY 1993, the Forest accomplished one AMP for the Little Belt Creek Allotment on the Judith Ranger District.

The data in the summary table shows a major departure from the Forest Plan standard of "less than 10 percent of AMPs outdated." Projected outputs for AMPs in the Forest Plan are only 10 AMPs per year, compared to the 16 plans per year (239 plans in 15 years) that would be required even if there was no backlog of outdated plans. Neither the current level nor the projected level of planning can meet the Forest Plan standard of less than 10 percent of AMPs outdated.

To resolve this problem in future decades, and bring grazing management and planning into compliance

with the Forest Plan, a new allotment management planning process and organization was implemented in FY 1991 (revised October 1993). A 20 year schedule was implemented to complete new allotment management plans on all 239 allotments by the year 2010. Because of the time required to complete the process from resource inventory to allotment management plan, the first group of 19 plans from the revised process will be completed in FY 1994, with subsequent groups being completed annually thereafter. The new planning schedule, as revised in October 1993, should be addressed in the 10-year revision of the Forest Plan.

Summary of FY 1987 through FY 1993 range allotment management plan accomplishment and AMPs scheduled for completion (*) are as follows:

Range

Table D-4b ALLOTMENT MANAGEMENT PLANS (Each)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
New Plans	10 ¹	2	0	0	0	0	0	0	4*	3*	5*
Revision of Existing Plans		3	4	4	0	2	1	1	15*	12*	9*

¹ - Includes both new and revision of existing Allotment Management Plans.

RECOMMENDATIONS

Continue the schedule for range analysis and revision of the Allotment Management Plans with the use of the Forest Range Analysis team.

TIMBER

E-1 Silvicultural Prescriptions Meet MA Goals

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure silvicultural management prescriptions are best suited to management area goals with all resources considered	Annually	A departure from management prescription

METHODS

One timber sale is reviewed on-the-ground annually by an interdisciplinary team.

Units of the Mixes-Baldy Timber Sale are located in Management Area B. Silvicultural prescriptions called for one clearcut unit, two overstory removal units, nine seed tree units and four shelterwood units.

FINDINGS

An interdisciplinary sale review was conducted on the Mixes-Baldy Timber Sale on the Judith Ranger District in September 1993. The Environmental Assessment for the sale was completed in August 1988. After the appeal was resolved, the sale was offered for bids on March 30, 1990. Logging occurred during the Fall of 1991 and Winter and Spring of 1992. Blowdown trees from Units 4 and 6 were sold and logged in the summer of 1993.

The review group felt that the prescriptions were appropriate to meet Management Area B goals, although the arrangement of snags and reserve trees into a group or patch configuration would have better met wildlife objectives and probably provided better windthrow resistance. Best management practices were used for activities done in conjunction with the timber sale.

E-2 Prescription Selections

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure prescription not primarily chosen on basis of greatest dollar return or greatest timber output	5-years	Test management area outputs against those predicted

METHODS

Review of a large timber sale sold during the fiscal year.

sold as one sale (South Fork EIS). However, in developing the Spring Creek Timber Sales on the adjacent lands on the Musselshell District, it was found that having the Clyde Sale activity at the same time as Upper Whitetail, would provide additional displacement area for elk. Therefore, the sale was split. The actual data in Table E-2a only reflects the Clyde Sale. The Hoover Timber Sale will not be sold until FY 1996.

FINDINGS

The only large sale sold on the Forest in FY 1993 was the Clyde Timber Sale on the Judith Ranger District. Originally this sale was combined with the Hoover Creek Timber Sale and was scheduled to be

Timber

Table E-2a Predicted vs. Actual Timber Value

Timber Sale	Predicted Bid	Actual Bid	Predicted Volume and Harvest Acres	Actual* Volume and Harvest Acres
Clyde	\$96.31	\$306.00	5.1 and 573	3.0 and 234

*Clyde portion only

The Clyde Timber Sale consists of 11 harvest units. Eight are clearcut and three have seed trees marked. The clearcut prescription was chosen because there are no alternatives viable for treating these very old, decadent lodgepole pine stands.

Most clearcuts contain groups of reserve trees for visual and wildlife habitat benefits. Where other tree species were present, stands were individually marked.

E-3 Timber Openings

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure openings comply with size limits and are periodically evaluated for appropriateness	Annually	Unacceptable results of an ID Team Review

METHODS

One timber sale is reviewed on-the-ground annually by an interdisciplinary team.

values and fit the ground. From a landscape standpoint, they are much smaller than the patches that were created by historic processes. Consideration should be given so that future sales in the area will be arranged to expand these units to more closely resemble the historic patterns of the area.

FINDINGS

The 16 units in the Mixes-Baldy Timber Sale varied in size from 3 to 39 acres (average size of 16 acres). The small units are sensitive to visual and wildlife

A review of Forest Supervisor authority timber sales sold during FY 1993 shows that no cutting units exceeded the 40 acre limitation.

E-4 Timber Offered/ASQ for Decade

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure timber offered does not differ from allowable sale quantity (ASQ) for 10-year period	Annually	+/- 20% annually or +/- 10% over a five year period

METHODS

The ASQ is compiled in an annual Regional Report. The volume figures are obtained from the Timber Cut and Sold Reports.

FINDINGS

The allowable sale quantity (ASQ) is the amount of timber that may be sold from suitable forest lands during a ten-year period. It is usually expressed on

an average annual basis. The ASQ cannot be exceeded on a decadal basis. A summary of the ASQ sold for FYs 1987-1993 is as follows:

Table E-4a ASQ (Million Board Feet)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995
Allowable Sale Quantity	12.1	7.2	9.1	6.3	8.3	15.7	22.9	7.3		

During the first seven years of the Forest Plan, the Forest has sold about 91% of the average annual ASQ. Although annual variation has been greater than 20%, we are within the five year variability of 10%.

In addition to the ASQ, the Forest monitors its yearly timber program. The yearly timber program is an agreement between the Forest Supervisor and the Regional Forester based on yearly Congressional targets and appropriations. The total timber program for the Forest includes all timber products such as sawlogs, poles, posts, house logs, and firewood.

Credit for meeting the yearly timber program includes the volume sold and the volume offered for sale. During FY 1993, the Forest sold or offered for sale 9.9 million board feet (MMBF). Of this amount, 6.7 MMBF was current year sell, and 3.1 MMBF was offered in FY 1992 but actually sold in FY 1993. Tombstone Firewood was advertised in September 1992 and the bid opening was October 1992 and no bids were received on 60 MBF. Smokey-Corridor EIS was appealed for a planned volume of 6.0 MMBF. A summary of FYs 1987-1993 timber program is as follows:

Table E-4b TIMBER PROGRAM (Million Board Feet)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995
Annual Forest Sell Program (Target)	14.0	11.6	14.8	15.1	14.2	28.0	25.9 ¹	13.0		
Volume Sold	NA	7.9	8.8	4.5	5.0	16.1	23.6	6.7		
Volume Offered but not sold	NA	1.3		0.1	0.6	2.6	1.3	0.1		
Total Volume Credited		9.2	8.8	4.6	5.6	18.7	24.9	6.8		
Volume Appealed	NA	2.5	7.2	5.1	0.0	10.9	0.0	6.0		
Volume Sold from Previous FYs	NA		1.9	2.4	5.5	1.8	2.6	3.1		

¹ FY 1992 target includes planned carry-over volume of 10.5 MMBF. Differences in total volume figures are due to rounding.

E-5 Restocking

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure restocking is in progress within 5 years	Annually	Unacceptable results of an ID Team Review

METHODS

Stocking surveys are conducted on each Ranger District.

were either planted last Fall or are scheduled for planting in FY 1994.

FINDINGS

Stands receiving a final harvest cut from 1976 through 1988 (those stands harvested five or more years ago and since the adoption of the National Forest Management Act) have 91% of the acres satisfactorily stocked within five years. When only the stands from 1980 to 1988 are considered, the success rate is 99%. Downfall in the earlier years is primarily due to waiting for seedlings to reach a minimum height standard. Currently, 98% of all stands with final harvest from 1976 through 1988 are satisfactorily stocked. The remaining stands

The survey results indicate that a few of the stands planned for natural regeneration are not on trajectory. In most cases this is because first year exams have an inadequate number of seedlings or the site condition is questionable for plantation success. Those stands will be reevaluated at the time of the third year exam and a decision made then on whether or not additional treatment is needed.

In general, reforestation success on harvested lands on the Lewis & Clark National Forest has a high ratio of successful seedling establishment.

E-6 Acres Harvested

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure timber acres harvested are as projected	5 years	+/- 10% deviation over a five year period

METHODS

Data on acres harvested are excerpted from the Timber Stand Management Record System and from the Timber Cut and Sold Reports.

The Forest Plan projected that annual harvest would average about 1,800 acres of regeneration harvest and 210 acres of intermediate harvest. So far, average area treated is 1,137 acres annually. Silvicultural methods are 51% clearcut, 29% shelterwood, 2% selection and 18% intermediate. Volumes per acre realized are 11.2 MBF/Acre vs 7.0 MBF/Acre that was expected in the Forest Plan. Even with the emphasis on using methods other than clearcutting, it is expected that the acreage harvested will be less than predicted in the Forest Plan.

FINDINGS

Acres harvested in 1993 were 401 acres and the harvested volume was 5.6 MMBF. These numbers are below average due to the very wet summer that we experienced.

Summary of FY 1987 through FY 1993 timber volume under contract, acres, and volume harvested is as follows:

Table E-6a TIMBER UNDER CONTRACT AND VOLUME & ACRES HARVESTED

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995
Volume Under Contract (MMBF) ¹	-	29.1	26.4	21.9	22.7	26.8	30.1	27.4		
Acres Harvested ²	1,800	1,144	775	786	1,051	914	2,890	401		
Volume Harvested (MMBF)	-	20.3	13.5	14.9	10.5	12.7	22.0	5.6		

¹ Data for Volume Under Contract for 1987 through 1992 has been adjusted to include estimates for per acre material (PAM).

² Data for Acres Harvested for 1987 and 1988 have been adjusted based on updated Timber Stand Management Record System output.

E-7 Thinning & Silvicultural Accomplishments

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure accomplishment of thinning and other silvicultural treatments as projected in plan	5 years	+/- 10% deviation over a five year period

METHODS

Data for this monitoring item is obtained from the Regional Report from the Timber Stand Management Record System.

FINDINGS

The following table illustrates the accomplishment of timber stand improvement (TSI) and other silvicultural treatments:

Table E-7a TIMBER STAND IMPROVEMENT

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995
Silvicultural Exams (Thousand Acres)	28.0 ¹	45.3 ²	34.0	28.2 ²	37.3	35.4	14.6	9.4		
Reforestation (Appropriation \$) Acres	54	0	195	67	25	28	245	151		
Reforestation (K-V) Acres	270	0	0	0	0	0	50	190		
Site Prep. Natural (Appr. \$) Acres	-	217	30	25	92	10	0	0		
Site Prep. Natural (K-V) Acres	-	1064	490	590	190	0	0	0		
Site Prep. (Trust Funds)	-	44	39	84	144	284	0	0		

Timber

Table E-7a TIMBER STAND IMPROVEMENT (continued)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995
Site Prep. (Purchaser)	-	0	300	253	269	203	321	422		
Thinning (TSI) (Appropriation \$) Acres	200	443	441	307	268	329	186	216		
Thinning (TSI) (K-V) Acres	0	40	0	0	0	0	24	111		
Release Acres (Appropriation)	-	120	127	195	72	5	0	0		
Release Acres (KV)	-	85	12	0	0	0	0	0		

¹ - The Forest in FY 1988, in conjunction with Regional Objectives and Forest Plan Amendment Number 3, accelerated the stand examination program from 15.5 thousand acres to 28.0 thousand acres in order to complete the timber data base for use in Forest planning.

² - Figures revised from previous M&E Reports from the R-1 Silvicultural Accomplishments - TSI & Exams - 5-Year Average, 11/25/91

Most reforestation on the Forest is accomplished by natural regeneration. Assumptions in the Forest Plan were that about 1,420 acres would be regenerated naturally and 324 acres annually would be planted. The experienced average for the past seven years has been 854 acres of natural and 136 acres of planting. The percentage reduction of natural regeneration acres is about in proportion to the reduction in expected harvest levels. The reduction in planted acres is greater than the harvest reduction and is a reflection of the high natural regeneration success rates usually encountered on the Forest.

Total reforested acres should match the predicted acres as the backlog of sales is offered and harvested. Planted acreage will probably increase slightly above the recently experienced levels due to regeneration problems where only young ponderosa pine were left and to areas of Douglas-fir where western spruce budworm is currently impacting seed production.

Thinning accomplishment has substantially exceeded Forest Plan outputs. The Cross Creek burn (1970) and many of the young stands created by harvest in the late 1960s and early 1970s are showing evidence of reduced growth and thus are being thinned. Evidence from unthinned fire originated stands indicates that they do become suppressed and will require an extended period of time to produce merchantable products. It is anticipated that some harvest initiated stands will also become suppressed. Thinning of these stands will incur additional expense (proportional to the acreage previously planned), but will produce merchantable products and stand conditions that better meet other resource objectives in a shorter period of time.

Fuel treatments with brush disposal funds are tied closely to the acreage harvested in the past two years. Although there will be large fluctuations in individual years, average acreages should be achieved over the five year period (refer to P-5 Fuel Treatment Outputs).

E-8 Even-Age Harvest

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Ensure harvest by even-age management is compatible with resource values	Annually	Unacceptable results of an ID Team review

METHODS

One timber sale is reviewed each year by an interdisciplinary team.

and patches can better achieve resource values and help maintain biodiversity.

FINDINGS

The Interdisciplinary Review Team on the post-sale review agrees that even-aged silvicultural systems were appropriate to meet Forest Plan Management Area B objectives and the needs of these particular sites. They also agreed that in a number of cases, retention of reserve trees, individually and in groups

Even-aged silvicultural systems will provide greater forage production than uneven-aged systems and will provide more volume per acre and at less cost. The standards for wildlife cover and water quality are still being met in the area. The gentle terrain and past harvest patterns permit openings to still meet the visual management objectives of modification.

E-9 Firewood Removal

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Firewood Removal	Annually	Use increase exceeds 10% per year

METHODS

Data is compiled annually from the Timber Sale Cut and Sold Reports.

FINDINGS

In FY 1993, 1.7 million board feet of personal use firewood was removed from the Forest. Summary of FY 1987 through FY 1993 commercial and personal use firewood removal is as follows:

Table E-9a COMMERCIAL & PERSONAL USE FIREWOOD REMOVAL

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995
Commercial Firewood Permits Issued	78	44	73	57	40	22	16		
Commercial Firewood Sold (Cords)	3046	1410	2337	1914	1237	539	410		
Personal Use Firewood Permits Issued	1487	1023	1401	1205	1193	1127	1210		
Personal Use Firewood Sold (Cords)	6937	4611	6416	4324	3591	3209	3324		
Personal Use Firewood Removal (MMBF)	3.5	2.3	3.2	2.2	1.8	1.6	1.7		

Since FY 1991 there has been a leveling-off in the demand for firewood from the Forest. It is expected

that the use will probably continue at or near the current amount.

E-10 Suitable/Nonsuitable Lands

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Evaluate availability of lands classified as suitable/unsuitable	5 years	+/- 5% change in acreage

METHODS

The evaluation of land suitability for tentatively suitable lands and the further division of these lands into suitable forest land available for timber harvest is ongoing through project analysis and timber stand examinations. This data is entered into the Timber Stand Management Record System (TSMRS) to provide information for forest analysis.

reduction. These changes were made through Forest Plan amendments.

The timber stand examination process on suitable forest land provides an updating process for timber inventory. As more and more timber stands are examined we are better able to evaluate the status of the tentatively suitable lands.

FINDINGS

Project analysis has resulted in a change in suitable forest acres (those available for scheduled timber harvest) from 282,307 to 268,733 acres, about a 5%

During the last five years, 1989-1993, 124,680 acres of stand exam have been completed averaging 24,936 acres per year.

E-11 Projected Yields

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Projected yields	Annually	Standard error of 10% at 1 standard deviation

METHODS

The Forest established one new permanent growth plot and remeasured four existing plots during FY 1993.

of permanent growth plots. Each Growth Plot is to be remeasured on a 5-year interval to monitor growth and yield for treatments and/or conditions that exist on the forest. Summary of growth plot establishment and remeasurement is as follows:

FINDINGS

Efforts during the planning period (10-15 years) will be to continue the installation and remeasurement

Table E-11a GROWTH PLOTS (Number)

Description	1979 1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Plots Established	27	2	0	1	2	2	2	1	1			
Plots Remeasured	7	2	2	0	4	6	3	7	4			

When these Growth Plots were established, they were to be installed in stands that were scheduled for a timber activity within the next five years. Therefore, Growth Plots that have had their planned timber activity accomplished and remeasurement

completed have data only from one remeasurement.

Evaluation was done in FY 1993.

WATER & SOIL

The Forest manages watersheds and soil resources to maintain and/or improve water quality to meet State water quality standards. The Forest's goal is to manage both sediment and water yield to allow less than 1% over current levels as a result of Forest management activities.

The goals set forth by the Lewis and Clark National Forest Plan for soil and water are accomplished through several avenues. Watershed analysis and direction is included during the planning and implementation of management activities. Soil and water

conservation practices are prescribed as necessary to protect soil productivity and control non-point source water pollution. Best Management Practices (BMPs) are monitored to assure their application and effectiveness during and after project implementation. Restoration efforts work towards eliminating a backlog of soil and water restoration needs. Water quality sampling is used to monitor stream quality for comparison to State water quality standards as well as to assess the effectiveness of BMPs on Forest management activities.

F-1 Adequacy & Cumulative Effects of BMPs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Adequacy and Cumulative Effects of Project BMPs	Annually - 100% Sample	Projected deterioration of soil productivity or water useability

METHODS

All proposed projects which have potential for impact on soil or water quality are monitored through review of the project environmental documentation. This review ensures that adequate BMPs have been prescribed to maintain and protect existing soil productivity and water quality conditions. In the case of significant vegetation removal, a cumulative effects

analysis is also evaluated to predict increases in water and sediment yield as a result of the project.

FINDINGS

Table F-1a delineates the proposed projects which required review for adequate BMPs and possibly a cumulative effects analysis during FY 1993.

Table F-1a FY 93 PROJECT LIST REQUIRING REVIEW OF BMPs

Project Title	Scheduled Project Date	Review Completed
Rocky Mtn District 1. Gibson Lake Trail	1993	YES
Judith District 1. Harrison Crk Salvage Sale 2. South Burley Timber Sale 3. Highwood Access 4. Yogo Crossing 5. Running Wolf EIS 6. Ettien Ridge EIS	1992 1992 1994 1994 1994 1994	YES YES NO NO NO NO
3.Musselshell District 1. Little Snowies Fuel Treatment	1992	YES
Kings Hill District 1. Smokey Corridor Timber Sales	1992	YES

In each project reviewed, adequate BMPs were prescribed to meet water quality goals and State water quality standards. A cumulative effects analysis was conducted on two of the large timber sale projects. This analysis indicated, in each case, that reasonable land, soil, and water conservation practices, as

required by the State, would prevent deterioration of the soil and water.

These monitoring results indicate that projects with a potential for impact on soil or water quality are being successfully reviewed assuring adequate protection of soil productivity and beneficial water uses.

F-2 Revegetation

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Revegetation of temporarily disturbed areas & roads within five years	Annually - 75% sample 2 years after termination	Unacceptable results of an ID Team Review

METHODS

Revegetation efforts on temporarily disturbed areas and roads are monitored through Interdisciplinary Team reviews. These reviews are to be carried out on 75% of the revegetation projects for the purpose of evaluating revegetation success and the need for additional revegetation efforts. The reviews occur within two years after project termination.

FINDINGS

Table F-2a delineates the projects on each district which were reviewed during FY 1993 or require a future review for revegetation efforts. A majority of these reviews were made by individuals from the Interdisciplinary Team who conducted the NEPA analysis for the project, or by the Timber Sale Administrator responsible for implementation of the project.

Water & Soil

Table F-2a FY 93 PROJECT LIST FOR REVEGETATION

Project Title	Year Completed	Review Date	Comments
Rocky Mtn District			
1. 13-Mile T.S.	Seeded '91	1993	Reviewed 8/19/93, Grasses well established, debris and waterbars effective.
2. N.F. Ford Rehab	Seeded '91	1993	Reviewed 8/19/93, Recommend placing debris in key areas to divert and impede cattle movement.
3. Old Beaver Ck Road	Seeded '91	1993	Road effectively closed. Seeding successful.
4. Red Lake Rd Clos.	Seeded '91	1993	Road effectively closed. Seeding successful, Reviewed 8/19/93
5. Green Gulch TS	Seeded '91	1993	Needs final review.
6. Beartree Challenge			Needs Review in 1994.
7. Beartree Knockout			Cut but not treated. Needs review in 1994.
8. Beartree 93			Cut but not treated.
Judith District			
1. Harrison Ck Fire Rehab	Seeded '91	1993	Reviewed 8/13/93-Roads effectively closed. Culvert on lower road needs to be cleaned. Seeding sporadic.
2. Turkey Salvage TS	Seeded '91 and '92	1993	Needs second review in FY 94 Needs spot reseeded
3. Mixes Baldy TS	Seeded '92	1995	Needs final review in 1995
4. Placer Snow TS	Seeded '92	1993	Vegetation well established.
5. Bear Park TS		1995	Water bars need maintenance; will require seeding/reveg after 94 sale completion.
6. Smith Flat TS	Seeded '92	1994	Seeded by contractor-needs review
7. AMAX Drill Sites	Seeded '91	1993	Vegetation well established.
8. South Fork TS	Seeded '92	1994	Needs review FY94.
Musselshell District			
1. Galloway Blowdown TS	Seeded '91	1993	Vegetation well established.
2. Neil Creek TS	Seeded '91	1993	Vegetation well established.
3. Crazies Sec. 12 Road	1991	1994	Road stable. Reconst segment done-New const segment to be used in 93 to complete slash burning.
4. L.Park Road Clos.	Seeded '90	1992	Monitor in FY 94.
5. High Park Road Clos.	Seeded '90	1992	Vegetation well established.
6. Lion/Corral TS	Seeded '92	1993	Vegetation well established.
7. Loco Creek T.S.			Anticipate 94 logging.
8. Whitetail Salvage T.S.			Anticipate 94 logging.
9. Whitetail OSR T.S.			Anticipate 94 Harvest.
10. West Hopley T.S.			NEPA decision appealed, anticipate 94 Harvest.
7.Kings Hill District			
1. Geis Ck Core Drill	Seeded '91	1993	Completed.
2. Adams Ck Core Drill	Seeded '91	1993	Completed.
3. Newlan Ck Core Drill	Seeded '91	1993	Completed.
5. Central Park TS	Seeded '91	1993	No evidence of seeding success.
6. Junction Salv TS	Seeded '90	1992	If seeded, no evidence of success.
8. Crossroads TS	Seeded '91	1993	Waterbars only partially effective.
9. Corral TS	Seeded '91	1993	Firewood Cutting ongoing, Review FY94.
10. Holzheimer SU Rd	Seeded '91	1993	Completed.
11. Powerline TS	Seeded '91	1993	Completed.
12. Tree Cache TS	Seeded '91	1993	Waterbars only partially effective.
13. Divide Road	Seeded '91	1993	Vegetation well established.
14. Adams Ck Drilling	Seeded '92	1994	

Table F-2a FY 93 PROJECT LIST FOR REVEGETATION (continued)

Project Title	Year Completed	Review Date	Comments
15. Black Butte Drilling	Seeded '92	1994	Sold in 1992, No activity as of yet. Sold in 1992, No activity as of yet. Sold in 1992, No activity as of yet. Sold in 1992, No activity as of yet. Trench to be backfilled and seeded; needs review Trenches in old gravel pit, backfilled & seeded
16. Moose Ck Rd Oblit.	Seeded '92	1994	
17. Allen Park P&P Sale	Seeded '92	1994	
18. Piegan P&P Sale	Seeded '92	1994	
19. Picket T.S.			
20. Lone Tree T.S.			
21. Wolverine T.S.			
22. Graveyard T.S.			
23. DAV S.U. Waterline	9/92	1994	
24. Kennecott trenching	1992	1994	

At least 75% of the revegetation projects scheduled for review in 1993 were evaluated. Of the projects reviewed, revegetation efforts were for the most part successful and complete. In a few cases, seeding

germination was either poor or not successful. These areas will be reviewed again for revegetation success.

F-3 Water Quality in Municipal Watersheds

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Water quality effects of activities in municipal watersheds	Annually - all projects	Adverse water quality affects or violates water quality standards

METHODS

Activities which take place in municipal watersheds are monitored through water quality predictions, administrative reviews, and water quality sampling. The purpose of these monitoring efforts is to assure that reasonable land, soil, and water conservation practices were prescribed, the Best Management Practices (BMPs) were implemented and effective, and that no water quality impacts were incurred as a result of these activities.

FINDINGS

O'Brien Creek and Willow Creek are the two municipal drainages within the Forest. O'Brien Creek sup-

plies drinking water to the town of Neihart. Portions of several small timber sales were sold within the boundaries of the O'Brien Creek watershed. These are located high on the slopes and are not anticipated to have detrimental impacts to municipal water resources, however, effects will be monitored. No harvest activity took place in any of these sale areas during 1993, except the Powerline T.S.

Because of concern with regard to activities within the O'Brien Creek watershed, a water quality monitoring station was established in O'Brien Creek above the municipal water reservoir in the spring of 1992. Analysis of the data collected from this station will be done after all proposed timber activity is completed in this watershed.

Water & Soil

Table F-3a WATER QUALITY IN MUNICIPAL WATERSHEDS

Project Title	Municipal Watershed	Project Date	Scheduled Review
1. Powerline TS 2. Pickett TS 3. Lone Tree TS 4. Wolverine TS 5. Graveyard TS	O'Brien Ck O'Brien Ck O'Brien Ck O'Brien Ck O'Brien Ck	Completed in FY91 Sold in '92 Sold in '92 Sold in '92 Sold in '92	1993 Completed. See table F-2a See table F-2a See table F-2a See table F-2a

F-4 Riparian Areas, Flood Plains, and Wetlands

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Activities in riparian areas, flood plains, and wetlands	Annually - 50% of all projects	Unacceptable results of an ID Team review

METHODS

Activities in riparian areas, flood plains, and wetlands are monitored through administrative reviews. The purpose of these reviews is to verify that the contract and Best Management Practices are implemented as prescribed, and that BMPs are effective.

FINDING

Table F-4a delineates projects or activities implemented in riparian areas, flood plains, and/or wetlands. Reviews of these activities were conducted by ID Team members who had prepared the NEPA analysis, or by the Contracting Officer Representative responsible for the project's implementation.

Table F-4a FY 93 ACTIVITIES IN RIPARIAN AREAS, FLOOD PLAINS, AND WETLANDS

Project Title	Date Started	Date Completed	Scheduled Review	Project Status	Monitoring Comments
Rocky Mtn District Beartree Knockout 13 Mile TS Road		1992 1991	1993 1993	Cut but not treated. Completed	Needs review in 1994. See comments under F-2 for 1993 review.
Judith District Bear Park TS			1995	Harvest & erosion control to be completed by FY 95 No harvest in 1993	Road drainage moderately effective; project will require seeding upon completion.
South Burley	sold 6/92	roads done 92	1993		Reviewed roads 10/6/93. See table F-1a.
Deadhorse-Bluff TS		spec. rds done	1993	Harvest 1/2 done	Reviewed roads 10/6/93. Same as South Burley T.S.
Harrison Ck. Salvg	sold '92	done 1992	1993	Harvest completed	Temp. roads obliterated and seeded. Reviewed 10/13/93. Seeding sporadic.
Musselshell District Crazies Sec. 12 Road	1990	1991	Re- viewed 1992	Project completed	Reconst. segment near stream involved minor grading, minimal disturbance; rehab complete

Table F-4a FY 93 ACTIVITIES IN RIPARIAN AREAS, FLOOD PLAINS, AND WETLANDS (continued)

Project Title	Date Started	Date Completed	Scheduled Review	Project Status	Monitoring Comments
Kings Hill District Central Park TS Moose Mtn.		Seeded '91 1992	1993 1994	Completed Completed	see comments under F-2 Culverts and water dips installed in accordance with contract; review in 94 for effectiveness
Tillinghast TS		1992	No activity in 93		

Road drainage near riparian areas in one case could be improved, but generally, of the projects reviewed, the results indicate that activities within riparian zones are being mitigated successfully to prevent impacts to soil and water resources. The

above activities list indicates that at least 50% of Riparian areas, Flood Plains, and Wetlands monitoring, has been met, and meets Forest Plan Guidelines for Item F-4.

F-5 Other Effects

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effects of other activities on watershed conditions	Annually - 20% of all projects	Unacceptable management practices or land productivity

METHODS

Projects which are not located in a riparian zone or located within a municipal watershed, but still have potential to impact soil and water resources, are monitored through administrative reviews. The purpose of these reviews is to verify that the contract

and BMPs are being implemented as specified, and that BMPs are effective.

FINDINGS

Table F-5a delineates projects which required an administrative review.

Table F-5a FY 93 PROJECT LIST FOR OTHER ACTIVITIES REQUIRING REVIEW

Project Title	Proj. Beg & End Date	Review Date	Comments
Judith District Plantation TS South Fork TS	1994 End 1992	1996 1993	To be logged in FY 94. Reviewed under the FY 93 Integrated Management Resource Review.

Water & Soil

Table F-5a FY 93 PROJECT LIST FOR OTHER ACTIVITIES REQUIRING REVIEW (continued)

Project Title	Proj. Beg & End Date	Review Date	Comments
Musselshell District L. Park Mineral Exploration Mill-Lion TS	1990/1991 1991	1994 1993	Drill sites need additional rehab work Winter harvesting; on-going review by sale administrator. Some units seeded in 1992 are completed. IDT review of several harvest units; recommendations made for changes to portion of road for drainage structures.
Kings Hill District Sliderock TS Lonesome TS Coyote TS	1994 1991 In progress	1995 unscheduled unscheduled	No activity in 1993 No activity in 1993 Reviewed road in 1993

Results from the projects reviewed indicated that the contract and BMPs were implemented as planned, and potential impacts to soil and water resources were being successfully mitigated.

Several harvest units and roads in the Mixes Baldy Timber Sale on the Judith Ranger District were reviewed by an interdisciplinary team for contract compliance and BMP effectiveness. Salvage of blowdown in one unit during wet weather caused rutting and soil compaction and dozer operations

on steep slopes in another unit were the only problems noted.

These monitoring results indicate that projects are being carried out with acceptable management practices. In some instances, additional measures have been recommended to address watershed concerns. Table F-5a also lists projects which have not yet been implemented, but will require monitoring when they do become active.

F-6 Water & Soil Backlog

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Elimination of soil and water restoration backlog	Five Years	Less than 50% by 1990; less than 100% by 1995

METHODS

Progress in reducing the soil and water restoration backlog is monitored by tracking the number of acres restored by each Ranger District at the end of each fiscal year.

FINDINGS

Table F-6a delineates the restoration projects that were accomplished on each Ranger District during

FY 1993. Total acreage restored totals 79 acres for FY 1993 and 446 acres over the past 8 years. This accomplishment represents over 100% of the total 373 acres requiring restoration identified in the Forest Plan. This level of accomplishment indicates that the Forest Plan goal of 100% accomplishment by 1995 has been met.

Table F-6a RESTORATION PROJECTS ACCOMPLISHED IN FY 93

Project Title	# of Acres	Comments
Rocky Mtn District Lubic Ridge road Pipeline road	6 Acres 4 Acres	Drainage dips installed; road surface seeded and fertilized. Drainage dips installed; road surface seeded and fertilized; physical barrier installed.
Judith District Turkey Fire Rehabilitation Big Hill Exclosure Bear Park Jeep Trail Mowing Machine Jeep Trail Arrow Cr. Divide Jeep Trail Pohlod Cr. Jeep Trail N.Fk. Highwood Cr. Jeep Trail S.Fk. Highwood Cr. Jeep Trail N.Fk. Highwood Cr. Reroute	10 acres 2 Acres 1 Acre 1 Acre 2 Acres 3 Acres 2 Acres 2 Acres 2 Acres	Seeded areas affected by Turkey Fire Fence riparian area. Close old jeep trail, scatter debris on road, reseed. Close old jeep trail, reseed. Reroute water in boggy meadow back into creek.
Musselshell District Crazy Mtn. Rehab.	38 Acres	Water bars, Road closures, Ripping and seeding logging roads acquired with the Galt Land Purchase, also stream bank stabilization.
Kings Hill District Higgins Park Drainage Corral Cr. T.S.	4 Acres 2 Acres	Clean, repair, or replace existing drainage structures. Install drainage structures.

Table F-6b SOIL & WATER RESTORATION ACCOMPLISHMENTS (acres)

Description	Total Backlog	Pre 1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Soil/Water Restoration	373	21	26	10	109	57	50	94	79			

F-7 Water & Stream Quality

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Water and stream quality as affecting fish habitat and other uses: validation of estimations of sediment	Annually	Not meeting State or Federal water quality standards or significant (90% confidence) deterioration, by best available indexes

METHODS

Water quality as affecting fish habitat and other uses is to be monitored through water quality sampling of representative streams and intra-gravel sediment. This monitoring allows identification of

deterioration in water quality, assurance of effectiveness of BMPs, as well as validation of estimates on sediment yield.

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FINDINGS

Water Quality Sampling

Table F-7a lists the stations that were monitored during FY 1993, the period of record, and the variables sampled.

Table F-7a WATER QUALITY MONITORING FY 1993

Station	Date Initiated	Yrs of Record	Variables Sampled	Comments
Upper South Fork Two Medicine River	1987	6	Sed, Flow, Temp	
Lower South Fork Two Medicine River	1993	1	Sed, Flow, Temp.	
South Fork Judith River	1993	2	Sed, Flow	
Lower Hall Cr.	1993	1	Sed, Flow, Temp.	
Upper Hall Cr.	1993	1	Sed, Flow, Temp.	
O'Brien Creek	1992	2	Sed, Flow	Within municipal watershed for town of Neihart
Whitetail Creek	1991	2	Sed, Flow	
N. Fk. Sun River	1989	4	Sed, Flow	Taken out in Spring 93

The South Fork of the Two Medicine River, both upper and lower, South Fork Judith River, O'Brien Creek and Whitetail Creek stations were sampled with automatic ISCO suspended sediment samplers and flow level recorders. These stations were also sampled manually through width and depth integrated samples with a DH-48 and discharge measurements with a vertical axis current meter. Hand-sampling was conducted at the Upper and Lower Hall Creek stations using a DH-48 and vertical axis current meters to gather depth and width integrated sediment and flow level values.

The South Fork of the Two Medicine Creek station was established to acquire pre-project data in anticipation of Fina/Chevron Oil Exploration activities. Data collected at this station may also reflect impacts to soil and water resources from past land management activities within this watershed. The sampling devices on the South Fork of the Two Medicine Creek were washed out by flood level flows resulting from a rain on snow event in the spring of 1991 and was re-established in 1992. Battery and equipment problems at this station have resulted in limited sampling data for 1992. Due to equipment loss in 1991, not enough data was collected at this station during the month of peak flow

to make a valid comparison to the data from previous years.

Another station was established on the South Fork of the Two Medicine River this spring just below a new proposed Fina Oil Exploration stream crossing. This station along with the upper station established in 1987 will allow more accurate monitoring of any activities which may occur in this watershed.

The North Fork of the Sun River station was reactivated in FY 1989 to evaluate potential impacts to water quality resulting from the Gates Park fire. Operation of this station was a cooperative effort between the United States Forest Service (USFS), United States Geological Survey (USGS), Greenfield Irrigation District, and Bureau of Reclamation. The USFS and Bureau of Reclamation financially supported the USGS to maintain the gauging station. The Greenfield Irrigation District serviced the automatic suspended sediment sampler. Also during the fall of 1988 an aerial photo flight was made over Gibson Reservoir to map the bottom of the reservoir. A similar flight was flown in the fall of 1993 and the results of this flight will be analyzed along with the flight of 1988 to determine the amount, if any, of increased sediment to the reser-

voir from the Gates Park Fire. The USFS is ultimately responsible for analyzing this data along with the data collected from the sampling station. This station was closed down in the spring of 1993 as it was felt adequate data had been collected.

An automatic sediment sampler and recorder were established in the spring of 1992 in the O'Brien Creek drainage above the municipal water reservoir in order to assess whether small timber harvest activities in the upper watershed impacts the municipal water source. No harvest activity took place in 1992, providing an opportunity for collecting initial baseline data.

Automatic samplers and recorders were also established on Whitetail Creek and South Fork Judith River in 1992. These stations were established to

monitor timber sale activities in the drainages above these stations.

Both Hall Creek Stations were hand sample stations, with no automatic equipment available.

Results from the Upper and Lower Hall Creek, O'Brien Creek, South Fork Judith, Lower Two Medicine River, and Whitetail Creek stations are too limited at this stage to draw any conclusions. Results from the Upper Two Medicine and North Fork of the Sun Rivers will be analyzed as time and personnel permit.

Intra-gravel Sediment Sampling

In FY 1993 no sampling was done due to a lack of funds and personnel.

F-8 Stream Cover & Pools

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Riparian areas and streams: stream cover and pools	Annually	Significant (90% confidence) decline in condition

METHODS

Inventory of the condition of riparian areas and streams is presently conducted using the COWFISH model and shrub condition. Channel typing was carried out using the Rosgen Channel Classification System (Rosgen, 1985). Using topographic maps, aerial photos, and field observations, stream systems were broken down into reaches of similar characteristics. Quantitative measurements for stream typing were collected within selected representative subreaches. In addition, grazed riparian reaches were delineated and their condition assessed using comparisons with reference vegetation compositions for similar ecological conditions.

FINDINGS

Seventeen miles of fish habitat on the Rocky Mountain Front were evaluated in FY 1993 by the use of COWFISH methods. Approximately 40 miles of streams in the Rockies, 15 in the Little Belts, and 3 in the Crazyes, were inventoried during the 1993

field season to assess stream channel conditions. Approximately 2 of the 40 miles of fish habitat evaluated on the Rocky Mountain Ranger District were found to be in poor condition. Streamside shrub communities were found to be in at least fair condition along all miles of fishery streams that were surveyed in the Jefferson Division (Little Belt and Crazy Mountains) during the 1993 field season.

Streams were surveyed in two range analysis areas on the Forest; Sun Canyon Area and North Little Belts. Information that was collected will be analyzed in fiscal year 1994, and included in the EIS's for these projects.

Work continued on a Forest-level classification project started in 1990. Information gathered in FY 1993 on streams surveyed on both the Rocky Mountain and Jefferson Divisions will be used to describe and classify the current and potential condition of riparian areas, in the context of the geology and geomorphology of the valley bottom. The classification will provide a means to compare existing and

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desired condition in riparian areas, and prioritize areas for improvement. This classification will be used as a basis for riparian monitoring and in development of range allotment management plans. The

riparian reach sampling also serves to document baseline conditions of riparian sites. Classification and mapping of potential riparian conditions will continue in FY 1994.

F-9 Public Health

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Public Health - Water Systems	Annually - Monthly when in use	Violates State or Federal drinking water standards

METHODS

During FY 1993, 37 Forest systems and 8 Special Use systems were open for use. 36 of the Forest Service systems and 2 of the special use systems were tested and operated in accordance with State and Federal Safe Drinking Water Acts. For the remaining systems, required bacteriologic tests were occasionally not accomplished.

FINDINGS

An evaluation of the testing program revealed that the sampling and testing omissions for the Forest

Service systems was confined to one District. Further analysis indicated that most of the Special Use sites failed to meet the established testing requirements. The matter will be discussed with Forest managers and Special Use permittees in an effort to redeem this management and public safety responsibility.

Failure to conduct the testing as prescribed by Federal and State regulations could result in serious illnesses and/or closure of the systems.

MINERALS

The FY 1993 target for minerals management was 37 cases. A total of 37 cases were processed. Cases include Notices of Intent and Plans of Operations processed for hard-rock mineral activity and administration of those Notices and Plans; geophysical prospecting permits processed and administered; inventory, evaluation and reporting on geologic or mineral resources for program planning, land withdrawals, exchanges, and acquisitions; as well as technical evaluations and on-the-ground administration of mineral material (i.e. sand and gravel or stone) permits and plans.

The Forest Plan outlines monitoring requirements for minerals management. It addresses minerals re-

lated items to be monitored, the frequency at which such monitoring should occur, and the type of variance which would initiate further evaluation. Deviations from Forest Plan goals and standards may result in either referring problems to the appropriate line officer for improvement of management practice application; modifying a management practice as an amendment to the Plan; revising the schedule of outputs, or the cost/unit of outputs; or initiating revision of the Plan.

For Minerals, 5 items have been identified for monitoring. These and the results of monitoring for FY 1993 (October 1, 1992 - September 30, 1993) are provided below:

G-1 Effect of Mining Activities

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effect of Mining Activity	Annually - 100% of active operations on a monthly basis	Adverse effect of Forest Service project on mineral activities or revision or departure from approved operating plan

METHODS

This item includes monitoring effects of minerals activities resulting from the approval of Notices of Intent or Operating Plans for mineral activities that were conducted during FY 1993. According to the Forest plan monitoring requirements, 100% of all active operations are to be monitored on a monthly basis for either adverse effects of Forest Service projects on mineral activities or revisions or departures from an approved operating plan.

FINDINGS

No Forest Service projects were determined to have an adverse effect on mineral operations.

Prior to initiating ground disturbing activities, a mining proponent is required to submit a Notice of Intent, or in some cases, a Plan of Operation. These

instruments specify the nature of the proposed activities, the location and timing of any surface disturbing activities, and any necessary reclamation measures. During FY 1993, five new Plans of Operation (POOs) were reviewed for mineral activities. Environmental analyses were conducted for each proposal. All proposals were analyzed for compliance and consistency with Forest Plan goals, objectives, and management standards. Modifications or additions were made, if necessary, to ensure compliance with Forest Plan standards and to mitigate issues and concerns. In addition, some activities took place under Plans of Operation that were approved in a previous year during which the proposal was not completed.

Rio Algom proposed to drill six exploratory holes in the Spring Creek area in the south Little Belts on the

Minerals

Musselshell Ranger District. Later in the season, the company decided to drill only one of the holes, although approval was given for all proposed drilling. The drill site was in an area previously logged and accessible by an existing road.

Carl Berg proposed to open two caved adits in the Robinson Creek area, Castle Mountains, also on the Musselshell Ranger District. Approval was given to conduct operations at one of the caved sites; approval of proposed work at the second caved adit was awaiting State Historic Preservation Office response to National Historic eligibility of the adit and structures and received clearance late in the season.

Frank Frankovich submitted a Plan of Operations for nine exploratory drill holes in the Hensley Creek area in the Castle Mountains, Musselshell Ranger

District. All drill sites are located adjacent to existing roads. Only four of the sites were drilled in FY 1993.

Kennecott submitted a Plan of Operations to drill up to eleven exploratory drill holes in the Lake Creek Charcoal Gulch area on the Kings Hill Ranger District. Only three of these holes were drilled in FY 1993. One drill site required approximately 3400 feet of low standard road construction. In addition, Kennecott proposed to conduct geophysical resistivity surveys along three 1-2 mile survey lines in the Lion Creek area, also in the Little Belt Mountains.

Cominoco American Resources, Inc. submitted a Plan of Operations for six exploratory drill holes, and to re-enter and deepen one hole drilled in 1992. Three of the sites are located off Highway 89 in the Sheep Creek area, and the other three sites are along the Ranch Creek road. No new road construction was proposed. None of these sites were drilled in 1993.

Table G-1 FY 1993 Project List for Mining Activities

Project Title	Status	Comments
Rocky Mtn District D-1 No Mining Activities		
Judith District D-4 1. Vortex Mining -Yogo Crk. 2. Gamble Claims-Placer Creek 3. Bliss claims 4. Davis claims	Active under approved POOS Approved POO Approved POO Active under approved POO	Reviewed monthly during summer operations. Operations are primarily underground development work - in compliance with POO. No activity in FY 93 No activity in FY 93 Pick and shovel work in small area, all work done by hand
Musselshell District D-6 1. D&B claim 2. Rio Algom 3. Carl Berg 4. Frank Frankovich	Approved Notice of Intent Approved POO Approved POO Approved POO	No work done in FY 93 Single exploratory drill hole; site inspected during operations and operations in accordance with Plan. Approval given to re-open existing caved adit; no actual work taking place during inspections throughout season. 4 exploratory drill holes in Castle Mountains; sites inspected throughout operations and determined to be in compliance with Plan.

Table G-1 FY 1993 Project List for Mining Activities (continued)

Project Title	Status	Comments
Kings Hill District D-7		
1. Cominco Sheep Creek drilling	Approved POO	A total of 6 new drill sites approved, as well as deepening of one drill hole started earlier in 1992. No drilling done, however, in FY 93. Eleven drill holes proposed in the Lake Creek/Charcoal Gulch area, south Little Belts. Three of the holes were drilled. Passive operation consisting of electrical cable strung along surveyed line proposed in the Lion Creek area, south Little Belts.
2. Kennecott drilling	Approved POO	
3. Kennecott resistivity survey	Approved POO	

§ POO = Plan of Operation

G-2 Geophysical Prospecting

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effect of Prospecting	Annually - 100 % of active operations on a bi-weekly basis	Adverse effect upon surface resources or departure from conditions of the approved permit

This monitoring item includes effects from the issuance of prospecting permits (geophysical exploration). There were no geophysical prospecting per-

mits requested or issued for oil and gas exploration during FY 1993.

G-3 Drilling Effects

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effect of Drilling	Annually - 100% of active operations on a weekly basis	Adverse effect upon surface resources or departure from conditions of the approved permit

FINDINGS

This monitoring item focuses primarily on oil and gas drilling proposals.

The Final EIS on two exploratory drilling proposals (by Chevron USA and Fina Oil and Chemical Company) on the Rocky Mountain Ranger District was

completed in December, 1990. Following a public review period, a Record of Decision was jointly signed by the Lewis and Clark Forest Supervisor and the Bureau of Land Management, Great Falls Resource Area Manager approving, with conditions, Fina's Application for Permit to Drill (APD).

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Fifty-three appeals were received on the decision to approve Fina's APD. The Regional Forester upheld the decision to allow drilling on Fina's lease. Appeals filed with the Bureau of Land Management (BLM) prompted them to vacate their decision to allow the drilling until a review of effects of drilling was conducted. This review was completed and a Record of Decision (ROD) approving the APD was issued January 14, 1993 by the BLM. The ROD received concurrence by the Assistant Secretary of Interior.

A complaint was filed in U.S. District Court - Great Falls Division by a coalition of interest groups; in addition, Secretary of Interior Bruce Babbitt issued a one-year stay on all developmental activities, effective July 1, 1993. The Forest Service requested that the lawsuit be vacated as a result of the Secretary's decision.

The District Court Judge denied the motion to dismiss but stayed proceedings on the case until May 1, 1994.

A separate decision on Chevron's application will not be issued until evaluations and consultations necessary to fulfill our responsibilities under the American Indian Religious Freedom Act and Section 106 of the National Historic Preservation Act have been completed. An ethnographic study has been completed which evaluated traditional cultural uses of the Badger-Two Medicine area by Native Americans. As a result of that study, the Forest is evaluating the boundaries of a possible traditional cultural district in the Badger-Two Medicine. The next step in completing the Section 106 process will be to determine possible effects of the drilling proposal on the district.

G-4 Rehabilitation

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Rehabilitation of Disturbed Areas	Annually - 100% of activity on a weekly basis during rehabilitation. A final inspection will be made within 5 years after rehabilitation has been completed	Rehabilitation less than 90% of disturbed areas

Requirements for reclamation were established for each mining proposal and made part of the approved operating plan. Reclamation bonds were established for proposals, based on the costs which would be incurred to rehabilitate the area of pro-

posed activity. These bond amounts were collected prior to allowing any activity to take place, and retained until final reclamation standards are met. Mineral operations inspected for rehabilitation are listed in the table that follows.

Table G-4 FY 1993 Project List for Rehabilitation of Disturbed Areas

Project Title	Year Completed	Dates Reviewed	Comments
Rocky Mtn District D-1 No mineral-related reclamation			
Judith District D-4 1. Vortex Mine		10/93	DSL/Abandoned Mine Reclamation Bureau conducted evaluation of mineral development-related environmental concerns in Yogo Creek area surrounding Vortex operations. Samples taken from old settling pond area and tailing pile on claim, as well as stream sediment samples. Results of testing showed no detrimental environmental impacts occurring contributable to Vortex's operations.
Musselshell District D-6 1. Kennecott Checkerboard project 2. Kennecott Checkerboard project	1989 1990	1993 1993	Review of rehabilitation, including hole plugging, revealed all necessary rehab accomplished. Contouring, reseeding, and hole plugging accomplished at two drill sites; rehabilitation completed. Remaining \$600 of Kennecott bond held by DSL was released.
3. Rio Algom 4. Frank Frankovich	1993 1993	Sept, 1993 10/93	Partial release of bond (held by Department of State Lands - DSL) granted for adequate regrading and drill hole plugging of single exploratory drill hole. \$250 of bond remains with DSL until sites are stabilized with weed-free vegetation. Site to be inspected in 1994. 4 drill sites determined to be restored and holes sealed with according to plan. The mud pit at one site will be reviewed in 1994 to determine if additional backfilling is necessary. \$500 of reclamation bond is being held by DSL pending completion of grass seeding on access routes and pit rehab.
Kings Hill District D-7 1. Cominco American 2. Kennecott Core Drilling	1992 1993	1993 9/93	Previous sites evaluated for rehabilitation effectiveness; all previously drilled sites determined to have satisfactorily met reclamation standards and DSL requested to release all previously-held bonds. Three holes drilled; initial rehabilitation completed. Kennecott may re-enter one hole next year, in area which required new road construction. Additional inspections required in 1994.
3. Kennecott Resistivity Survey	1993	None	Anticipated negligible impacts; no specific rehabilitation measures required.

G-5 Mineral Availability

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Mineral Availability	Annually - 100% sample	Denial of more than 10% of proposed projects

METHODS

This item addresses the effect of renewable resource prescriptions and management direction on mineral resources and activities, including exploration and development. Denials of more than 10% of proposed mineral activities are to be reported.

FINDINGS

Statutory rights conferred with the General Mining Laws provide for access to mining claims for exploration and development. In some cases, proposals were modified to provide for better protection of Forest surface resources. All mineral proposals (some with operator-approved modifications) complied with established Forest Plan standards and guidelines; therefore, none were denied.

During FY 1993, work began on a Forest-wide oil and gas leasing analysis which will evaluate the impacts of leasing and post-leasing activities. Decisions to be made following the analysis include determining those lands available for oil and gas leasing, and of those available lands, which specific lands should be offered for lease (by the Bureau of Land Management) and under what conditions (in the form of stipulations to be put on a particular lease). In FY 1993, resource data information, such as wildlife habitat boundaries, landtype data, and Forest Plan information was collected and entered into the computerized Geographic Information Systems for use in the analysis. No new oil and gas leases are being offered until completion of this analysis, anticipated by October 1995.

GENERAL

I-1 Costs & Values

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Validation of costs and values used in Forest Plan	5 Years - 100% Annual Sample	In general, +/- 25%; however, very large cost items such as stump-truck costs would have a smaller degree of acceptable variability.

FINDINGS

As part of the Five-Year Review Process, the timber values and costs were reviewed. This review was in response to Forest Plan appeals submitted by the Montana Wilderness Association and National Wildlife Federation.

Timber values - The results of the review reveal that the average actual stumpage price earned on the Forest over the last six years (\$104/mbf) was less than half that used in the forest planning process (\$233/mbf). In 1992, the average stumpage prices for sawtimber on the Lewis and Clark rose dramatically--\$175/mbf. In 1993, it dropped slightly--\$141/mbf. In the next three years (1994-1996) of the Forest Plan, with the declining

availability of sawlogs and the increasing demand in central Montana, we see a continuation of the escalating sawlog prices.

Timber costs are very close to those used in forest planning and therefore no further analysis or adjustments need to be made.

RECOMMENDATIONS

The Forest recommends deleting this monitoring item, since the only available tracking system for validating costs/values is designed solely for the timber resource.

I-2 Emerging Issues

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effects of emerging issues or changing social values	Continuous	If issue cannot be dealt with under the Forest Information and Involvement Plan

FINDINGS

Public interest in the management of the Lewis and Clark National Forest continues to play a major role in the implementation of the Forest Plan. In addition to new projects and issues, several ongoing projects carried into Fiscal Year 1993. While each Ranger District was involved with several smaller scale projects requiring public involvement, the key

projects necessitating more extensive efforts because of the sensitivity of the issues involved were: Chevron/Fina Environmental Impact Statement (EIS) on Exploratory Oil and Gas Wells, Galt Land Purchase, Forestwide Range Inventory and Analysis and as always, the Timber Sale Program.

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Chevron/Fina EIS:

The Final Environmental Impact Statement for the Fina (Hall Creek) and Chevron (Badger Creek) Exploratory Oil and Gas Wells was released in November, 1990. More than 1200 people were mailed summaries or complete Final Environmental Impact Statements.

The Record of Decision approving the Fina project was signed on February 19, 1991, by the Lewis and Clark Forest Supervisor and Bureau of Land Management (BLM), Great Falls Resource Area Manager. Access to the Fina site would be from U.S. Highway 2 beginning in the NW 1/4 of Section 15, T30N, R13W, proceeding through sections 14 and 23, then, joining an existing jeep road to the well site.

The Forest Service received 53 appeals on the Fina decision. Two of the appeals were not timely, one was dismissed for lack of information, and the Regional Forester sustained the Forest decision to issue a drilling permit after review of the other 50 appeals.

The (BLM) also received several appeals of the decision. One of the issues raised with the BLM was their responsibility for evaluating impacts on surface resources associated with drilling on public lands, including National Forest system lands. The BLM asked the Interior Board of Land Appeals (IBLA) to delay their appeal process until the agency could review its responsibility for evaluating potential impacts of the drilling. As a result of the BLM request, the IBLA remanded the decision to the BLM to establish jurisdictional responsibilities. The BLM withdrew approval of the permit pending a review of surface environmental effects. Following the review, a BLM Record of Decision was issued January 14, 1993, approving the APD. The ROD received concurrence by the Assistant Secretary of Interior.

A complaint was filed with U.S. District Court-Great Falls Division by a coalition of interest groups with respect to the final administrative decisions approving the APD. The Department of Justice is representing the Forest Service and Department of Interior during this litigation.

A one-year stay on all developmental activities was issued by Interior Secretary Bruce Babbitt and went into effect July 1, 1993. The Forest Service requested that the lawsuit be vacated as a result of the

Interior Secretary's decision. The District Court judge denied the motion to dismiss but stayed the proceedings on the case until May 1, 1994.

A final decision on the Chevron application has not been made. An archival records search to determine whether the area has special religious significance for the Blackfeet Nation was completed and the Lewis and Clark National Forest commissioned a contract with Historical Research Associates of Missoula to conduct interviews with Native Americans to gather data on historical use of the RM-1 Management Unit.

The ethnographic study of the Badger-Two Medicine area has been completed by the contractor, and the Forest Service has consulted with Tribal officials and a boundary of a traditional cultural district has been determined.

Galt Land Purchase:

The purchase was divided into four phases with the first purchase being completed in FY 1991. The first purchase included 3,560 acres. The second purchase of 16,080 acres for \$3.9 million was completed in late winter of 1992 and a third purchase for 4,740 acres at \$1.01 million was completed in June, 1992. The last purchase of the remaining acres (14,531) occurred in February, 1993. District personnel are proceeding with watershed rehab work in previously logged areas.

Forestwide Range Inventory and Analysis:

In January, 1991, the concept of "block" or "ecosystem" range inventory and analysis for updating or revising Allotment Management Plans was approved by the Lewis and Clark Forest leadership team. Allotments were combined into study areas and prioritized for action.

A team of range conservationists began the analysis process in the Castle Mountains during the '91 field season. They completed field studies in the north Little Belt Mountains in 1992 and then moved to the Sun Canyon area in 1993.

After data compilation on the Castle Mountains, a scoping letter and news releases describing preliminary issues went to the public with a comment period closing September 8, 1993. Open houses were held in Harlowton and White Sulphur Springs on

August 25 & 26, 1993. Throughout the early phases of this study, members of the local grazing association attended ID team meetings and have participated in the alternative development. In October, a field trip was held for Congressional staffers, permittees and other special interest groups.

Timber Sale Program:

Little Snowies Vegetative Management & Public Access - Draft Environmental Impact Statement

A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on proposals to implement fire and timber management practices in the Little Snowy Mountains on the Musselshell Ranger District, and the public was asked to comment on the proposals. This study was expanded to include public access issues. Nineteen comments were received during the comment period.

The Little Snowies Vegetative Management and Public Access Draft Environmental Impact Statement (Draft EIS) was released in January, 1993. The public comment period was advertised and lasted until March 19. Public meetings were held in Harlowton, Billings, Roundup and Lewistown. Sixty-five individual letters and two petitions were received by the close of the comment period. Public comment and additional research resulted in the discovery of a county road on the north side of the Little Snowies that can be used for public access.

The Final EIS was released to the public September 10, 1993. One appeal was filed on the project.

Smokey-Corridor Timber Sales - Draft Environmental Impact Statement

A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on a proposal for four larger timber sales and several smaller sales in the area known as Smokey-Corridor on the Kings Hill Ranger District. The public was asked to comment on the project proposals by March 20, 1992. Eight comments were received by the closing date of the comment period.

The Draft Environmental Impact Statement for the Smokey-Corridor Timber Sales was available for public review and comment in July. Public meetings were held in White Sulphur Springs and Great Falls

in mid-August with the public comment period closing September 15. Seventy-seven comments were received and analyzed. The Final EIS will be released in January, 1994.

Lewis and Clark National Historic Trail Interpretive Center:

The Lewis and Clark National Historic Trail Interpretive Center was established by Public Law 100-552 on October 28, 1988. Congress specifically determined that the "historic significance of the travels of Lewis and Clark on the high plains and their portage around the Great Falls of the Missouri requires ... recognition and interpretation."

All environmental analyses were completed and decisions were signed by the Regional Director of Montana Department of Fish, Wildlife and Parks and the Forest Supervisor in December, 1990.

The Conceptual Design was presented for congressional review in February, 1991. Congress did not fund the project for Fiscal Years 1991-93; so the two remaining design phases were postponed pending future financing.

In an effort to elicit matching funds from governmental agencies, the community of Great Falls has established a nonprofit organization to raise local funding for the Interpretive Center. With former Governors Ted Schwinden and Tim Babcock as honorary co-chairmen of the fund raising effort, the Lewis and Clark Interpretive Fund, Inc., has organized into a three-prong approach (grants, corporate support and special projects) to collect funds.

Other Issues:

A. The Forest is in the center of a regional (eastern Montana) issue which revolves around increased public awareness and demand for access to public lands. In 1987, a Goal Statement was developed by the staff of the Lewis and Clark National Forest to promote public access to public lands. "It is the goal of the Lewis and Clark National Forest to provide equal access opportunities to all National Forest System lands except where the impact of public access to the unique resources of the area would be unacceptable. Where the cost of providing public access is greater than the anticipated public benefit, the lands will be scheduled for disposal by exchange or other land ownership adjustment pro-

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cess: The number and location of access points and type of access facility will be determined through analysis of the expressed public demand, environmental impacts, and cost of access for each individual situation."

B. In the summer of 1989, an analysis of Area Access Needs for the Highwood Mountains was initiated. Individual contact was made with all landowners adjacent to National Forest System lands and public meetings were held in FY 1990 to determine the type and location of access needed as documented in the Forest Plan. After a delay, public involvement on access proposals commenced in February, 1992. Public involvement activities resulted in 175 letters from individuals, 17 letters from organizations or agencies and 979 petition signatures.

A group of landowners on the west end of the Highwood Mountains petitioned Cascade County Commissioners to accept a restricted easement through their property to access the National Forest. The landowners are opposed to any change in the current primitive road. The Cascade County Commissioners postponed making a decision on the petition.

The EA for the Highwoods access study was released in May, 1993. The Decision Notice was announced the first week of September with the ap-

peal period ending October 21, 1993. Two appeals were received on the decision.

C. As a result of the November 23-24, 1990, Turkey Fire where private property was destroyed, the Lewis and Clark National Forest was involved in litigation. An investigation into the cause and origin of the Turkey Fire was conducted by fire investigators of the Forest Service, California Department of Forestry and Montana State Fire Marshall Bureau. All investigators concurred that the fire originated from slash piles which appeared purposely set, by person or persons unknown.

In a bifurcated trial on liability and damages, the Forest Service received an adverse ruling concerning liability. Forest personnel spent much of the summer preparing for the damage assessment phase of the trial which began October 5, 1993.

D. In March, 1991, a Notice of Intent to prepare a supplement to the 1986 Final Environmental Impact Statement for noxious weed control was published in the Federal Register. Also, letters were sent to 323 agencies, organizations and individuals. The comment period for scoping ended on March 31, 1991. Four comments were received. The Draft Supplemental Environmental Impact Statement was released in the late fall of 1993.

I-3 Land Allocations

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Evaluate lands identified as not meeting physical or biological characteristics used in initial allocations	Continuous	All changes will be evaluated annually

FINDINGS

Ground truthing and site-specific analyses conducted during implementation of the Forest Plan examines the findings of consistency for timber management and other decisions made in the Plan. This analysis has resulted in management area adjustments totalling 70,032 acres. This figure represents a 4% change in land allocations and is considered a minor modification. The numbers reflect the pro-

posed changes in management areas as recommended in the Little Snowies and Smokey-Corridor EISs (FY 1993 projects).

The following table shows the management area changes made as a result of project implementation analysis.

Table I-3a ALLOCATIONS OF MANAGEMENT AREAS AND ACRES

(Forest Plan, page 3-2) Management Area	1987 Acres	Change	1993 Acres
Management Area A	16,261	+13,582	29,843
Management Area B	330,838	-25,966	304,872
Management Area C	111,664	-24,554	87,110
Management Area D	24,456	No change	24,456
Management Area E	116,519	+8,051	124,570
Management Area F	352,746	+2,591	355,337
Management Area G	247,644	+13,135	260,779
Management Area H	31,778	-2,342	29,436
Management Area I	37,867	+16	37,883
Management Area J	11,100	No change	11,100
Management Area K	9,125	No change	9,125
Management Area L	16,112	No change	16,112
Management Area M	3,281	-546	2,735
Management Area N	41,838	No change	41,838
Management Area O	22,702	No change	22,702
Management Area P	384,407	No change	384,407
Management Area Q	51,834	No change	51,834
Management Area R	33,225	+96	33,321
Management Area S	0	+2,600	2,600
Management Area T	0	+12,980	12,980
Total Acres Modified		70,032	
Total Forest Acres	1,843,397		1,843,040

The changes in management areas have reduced the suitable forest acres (those acres managed for scheduled timber harvest) by 13,574 (from 282,307 to 268,733). This is about a 5% reduction. This small

change has not affected the annual allowable sale quantity (12.1 MMBF), nor has it had much effect on the long-term sustained yield of the Forest (23.8 MMBF).

I-4 Employment/Income Projections

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Validation of employment and income projections	5 Years	+/- 20% of predicted changes

FINDINGS

Currently, the Forest only has the ability to validate employment and income projections for the timber resource. The following table shows the employ-

ment and income projections used in the Forest Plan and the actual situation in FY 1993 (Table 3, TSPIRS).

General

Table I-4a EMPLOYMENT & INCOME COMPARISONS

Forest Plan	1987	1988	1989	1990	1991	1992	1993	7-Year Average
JOBS - 192	367	150	200	110	170	580	310	270
INCOME ¹ - 7,060	15,305	6,691	7,316	4,101	6,165	19,486	10,330	9,913

¹ - Income in thousands and in FY 1993 dollars

The 7-year average job (270) and income (\$9,913,000) projections are above the variability predicted in the Forest Plan. The 7-year averages are somewhat skewed due to the higher volume of timber harvested on the Forest (22.0 MMBF) in FY 1992. It is anticipated that the harvest level during the next three years will be above what was projected in the Forest Plan (14.0 MMBF/year) because of the large volume under contract and the high demand for sawlogs. Therefore, the income and jobs from timber harvest will continue to be above what was projected in the Forest Plan.

NOTE: For 1992 and earlier, the IMPLAN model used 1985 county level data, with employment mea-

sured in terms of full-time equivalents. The IMPLAN model was updated with the more current mill survey information in 1992. At the same time, the model was also made more comprehensive in terms of the definition of the timber industry, with the inclusion of woods workers that were not identified in the earlier model, and the inclusion of county roads and schools that receive funds from the 25% Fund payments to counties. These adjustments increased the employment and income figures per million board feet of timber harvest when compared to the information reported in TSPIRS in years prior to 1992.

LANDS

J-1 Compliance With Use Permits

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Compliance with use permits	Annually	Unacceptable results or deviation from permits

METHODS

The computerized Forest Land Use Report (FLUR) is used to prepare billings and gather information about the Forest's special use permits. Inspections of the recreation residences, ski areas, outfitter camps, special events, and resorts are conducted to ensure compliance.

FINDINGS

The Forest Supervisor has delegated authority for issuance and administration of special use permits to the District Rangers to the extent allowed in the Forest Service Manual.

The condition of facilities authorized through special use permits is generally satisfactory. Annually, the Rocky Mountain Ranger District inspects 25 percent of its recreation residences. Ski area permits

are regularly inspected before and during the ski season. For other special use permits, on-the-ground inspections are done primarily for health and safety issues and whenever specific problems arise.

Special use permits are generally current and in conformance with federal policy. The automated Forest Land Use Report (FLUR) program is maintained and updated by the districts with instruction and assistance from the Resource Section. Most of the bills are prepared in the Supervisor's Office using the FLUR program, then electronically mailed to the districts for review and issuance.

The Lewis and Clark National Forest administers the following special use permits:

Table J-1a SPECIAL USE PERMITS

#	Type of Permit
1	Organization Camp
1	Isolated cabin
167	Recreation Residences
5	Resorts
1	Target Range
56	Outfitter Guides
2	Ski Areas
1	Ski Activity
3	Cultivation
30	Livestock Area (Pastures)
11	Corrals
1	Sign
1	Solid Waste Disposal Site
1	Research Study
1	Weather Stations
1	Military Training Areas

Lands

Table J-1a SPECIAL USE PERMITS (continued)

#	Type of Permit
4	Cultural Resources
1	Construction Camp/Residence
1	Mineral Material Sales
1	Oil and Gas Pipeline
3	REA Powerlines
3	Powerlines
1	Railroad Right-of-Way
4	Department of Transportation Highway Easements
1	Road Easement
16	Road Permits
29	Communication Sites
1	Resource Monitoring Site
2	Telephone Lines
15	Irrigation Ditches
15	Water Transmission Lines

The Forest administers four Master Permits (one permit issued to one holder authorizing similiar uses forest-wide) for telephone and powerlines. Permit holders are Fergus Electric, Sun River Electric, US West, and Montana Power Company. The Forest also has a master permit to the Soil Conservation Service for their 29 snow survey sites forestwide.

During this fiscal year the following new permits were issued (or reissued):

- 24 outfitter guide permits of which:
 - 11 for hunting
 - 4 for river rafting
 - 9 for hiking/camping on Forest land
- 6 recreation residences
- 3 communication sites
- 6 water uses
- 3 cultural resource
- 4 private roads
- 3 corral
- 1 resort
- 3 livestock use areas
- 1 ski activity

In 1992 the Rocky Mountain District Ranger's decision not to reissue an outfitter-guide permit was appealed by the permit holder. The decision was upheld by both the Forest Supervisor and the Regional Forester. The permit holder took the case to court in 1993, and through settlement, the permit was reissued to a family member who bought the family outfitter/resort business.

The Forest is continuing its cooperation with the Montana Department of Fish, Wildlife and Parks in updating the Smith River Management Plan which was originally developed in 1988. Through a cost-share agreement the Forest contributes money for maintenance of NFS lands along the river.

The State accepts applications, issues permits and manages use on the Smith. In 1992 launches were regulated for commercial outfitters. Beginning in 1993, private floaters as well as commercial outfitters had to apply for permits to float the river. Launches were limited to nine per day (eight for private floaters and one for commercial outfitters). Starting this year, all parties had to declare their intended campsites at the put-in point as an effort to better distribute use on the Smith. This procedure seems to be generally acceptable since the quality of floats has greatly improved.

Ski Lift, Inc. requested an amendment to their permit to allow a concessionaire to rent snowmobiles at the ski area. This request was approved and there will snowmobiles for rent at the area during the 1993-94 season.

AT&T has applied for a permit across four forests for a fiber-optic line from Thompson Falls, MT to Cardston, Alberta. The proposed line would be along Highway 2 on the Rocky Mountain District. The Lewis and Clark was the lead forest for the cultural resource permit issued for this proposed project.

J-2 Right-of-Way Easements

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Right-of-Way Easements Accomplishment	Annually - 100% Sample	Less than 75% accomplishment of 5-Year Program

FINDINGS

The Forest Plan does not specify a level of accomplishment for the acquisition of rights-of-way easements. However, the Monitoring Section does refer to the Forest's 5-year program. The program for FY 1993 contained five road easements and three trail easements. Two of the road easements were to "perfect" title of existing easements. Neither of these were acquired. The remaining three planned road ROWs were acquired and an additional six road ROWs were acquired via a land purchase and a Small Tracts Act Interchange.

The three scheduled trail ROWs were acquired in Cottonwood Creek in the Big Snowy Mountains. Also, eight trail ROWs were acquired in conjunction with a land purchase in the Crazy Mountains.

Essentially, the Rights-of-Way program was accomplished. Case accomplishment tends to become more difficult as real estate prices rise and land is subdivided. In 1992 the General Accounting Office (GAO) issued a Briefing Report to a Congressional Subcommittee indicating that 14% of Federal lands have inadequate access.

Table J-2a EASEMENT ACQUISITIONS

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Conservation Easement	0	0	0	0	0	1	0			
Road R-O-W Program	4	7	4	4	4	4	5			
Road R-O-W Acquisition	3	1	2	2	1	0	9			
Trail R-O-W Program	1	1	0	0	1	2	3			
Trail R-O-W Acquisition	1	0	1	0	0	0	11			

J-3 Land Ownership Adjustment

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Land Ownership Adjustment Accomplishment	Annually - 100% Sample	Less than 75% accomplishment of 5-Year Program

FINDINGS

The Forest Plan does not specify a rate of accomplishment for this item except in the Monitoring Section where a reference is made to the Forest's 5-year Program. However, the Forest does not have

an established Land Exchange Program but rather relies on opportunities that are forwarded by proponents. Other opportunities to acquire tracts which

Lands

are desirable for National Forest System ownership are pursued as they develop.

The Forest Plan specifically states that "----it is not the intent of the Forest Service to pursue this direction (land exchange) except on a willing grantor

basis." For this reason, it would be very difficult to "lock-in" on targets for accomplishments. The Forest had no annual target with the Region in FY 1993. No exchange was attempted or accomplished in FY 1993.

Table J-3a LAND EXCHANGE (Acres)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Federal Lands Disposed	0	492.5 ¹	0	0	313	391	0			
Private Lands Acquired	0	399 ¹	0	0	158	373	0			

¹ - Corrects an omission in previous Monitoring and Evaluation Reports - Cady Land Exchange in the Little Belt Mountains

J-4 Landline Location

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Landline Location Accomplishment	Annually - 100% Sample	Less than 75% of the Forest Plan Target

FINDINGS

The Forest Plan target for landline location is 26 miles/year decadal average. In FY 1993 the Forest was funded for a target of 17 miles and accomplished 17 miles, about 65% of the Forest Plan target. For the first seven years of the Forest Plan's first decade, the Forest accomplished an average of 78% of its projected annual program.

The Forest has a total of 1,636 miles of property boundary. Of this, 305 miles have been posted to standard leaving 1,331 miles not posted. The Forest and Rangeland Renewable Resource Planning Act of 1974 (RPA) set the year 2010 as a goal for completing the posting of all National Forest bound-

aries. For this to be achieved on the Lewis and Clark National Forest an annual average of about 70 miles of accomplishment would be needed in the period 1994 - 2010.

Consequences of failing to achieve Property Boundary targets create trespass problems for the recreating public and the abutting landowners. In addition, management decisions may at times be compromised for lack of a posted National Forest boundary. Also, by deferring the property boundary job, valuable physical evidence attesting to the original corner location is being obliterated or lost forever to the forces of man and nature.

Table J-4a LANDLINE LOCATION ACCOMPLISHMENT (miles)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Landline Location	26	14	18*	25	21.5	23	24	17			

* - Corrections made to data reported in previous Annual M&E Reports

FACILITIES

L-1 Road & Trail Construction/Reconstruction

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Road and Trail Construction; local roads; trails; arterial/collector roads	Annually - 100% Sample	+/- 20% of programmed construction/reconstruction accomplished

FINDINGS - Roads

The Forest Plan, as amended, projects 20 miles per year for the Capital Investment Program and 13 miles annually for the Timber Management Program. This includes all miles, both construction and reconstruction in support of all resources.

In FY 1993 the Forest constructed 0.1 miles and reconstructed no miles for a total of 0.1 miles under the Capital Investment Program. Three old existing bridges were replaced in 1993. Under the Purchaser Credit Program 3.1 miles were constructed and 1.3 miles were reconstructed for a total of 4.4 miles of construction and reconstruction under all programs.

When considering the total miles constructed and reconstructed in both programs during FY 1993, the output was 14% of that projected by the updated Plan. This is outside of the variability tolerance.

When considering the average accomplishment for the seven year period (87 - 93) the Forest accom-

plishment in the Capital Investment Program is 56.9%; the accomplishment for the Purchaser Credit Program is 95% and the combined programs accomplishment is 72%. The reason for the under accomplishment in the Timber Purchaser Program is essentially tied to sales that fell behind schedule in the NEPA process. These sales will be backlogged into the FY 1994 program.

Shortfalls in the Capital Investment Program are the result of Regional prioritization and reduced road construction budgets at the National and Regional levels. Consequences of not meeting Forest Plan targets in this program primarily result in our inability to improve inadequate roads through relocation or reconstruction. Inadequacies include segments of roads that are difficult to maintain, road segments that contribute to water quality problems, and roads that provide a service level inconsistent with planned or existing use.

Table L-1a MILES OF ROAD CONSTRUCTED/RECONSTRUCTED

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Capital Investment Const	5.0	3.7	0.6	0	0	0	0.4	0.1			
Capital Investment Recon	15.0	29.7	16.1	13.6	9.8	5.1	0	0			
Timber Purchaser Const	4.0	0	2.3	0	3.1	17.4	19.8	3.1			
Timber Purchaser Recon	9.0	0	4.2	4.3	0	8.3	22.6	1.3			

Facilities

FINDINGS - Trails

The Forest Plan, as amended, projects an average of 14.0 miles of trail construction and reconstruction annually. In FY 1993, 13.1 miles of reconstruction work occurred using appropriated funds. Of these,

Morrissey-Nevada trails (3.6 miles) were reported already for FY 1992. Mileages by district, and projects accomplished, are:

Table L-1b TRAIL ACCOMPLISHMENTS FOR FY 1993

Description	Miles
Rocky Mountain Ranger District	
Gibson Lake II	1.7 miles
Upper W. Fk. Sun	3.0 miles
Prairie Reef	2.0 miles
Indian Creek	1.0 mile
Judith Ranger District	
Dry Wolf	1.8 miles

It should be noted that Gibson Lake II trail construction is a major project costing substantially more per mile than average because of the rocky nature of the work and the width of the trail. Although trail

mileage reported for FY 1993 is less than projected in the Forest Plan, funding levels this year were higher than ever before.

Table L-1c TOTAL TRAIL RECONSTRUCTION/CONSTRUCTION (miles)

Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
14.0	8.5	13.3	12.8	14.1	12.0	19.5	9.5			

L-2 Mile of Roads Open

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Miles of Roads Open to Public Use	Annually - 100% Sample	+/- 20% of target miles to be left open to public

FINDINGS

The Forest has 1,871 miles of system road. This mileage has been declining as a result of some road obliterations and a continuing review of the road inventory. The Forest Travel Plan resulted in the following summation of road restrictions and closures. On the Jefferson Division, approximately 27 miles are closed yearlong to all motorized use and another 260 miles are restricted seasonally for some

or all forms of motorized use. On the Rocky Mountain Division one mile is closed yearlong to all motorized use and 28 miles are restricted seasonally for some or all types of motorized use.

In summary, of the 1,871 miles of system roads on the Forest, 1,843 (98.5%) are open to some form of motorized use for at least a portion of the year. The Forest Plan does not establish any target miles to be open or closed to public motorized traffic.

PROTECTION

P-1 High Risk Stands

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure harvest emphasizes the removal of high risk stands for mountain pine beetle attack and that timber sales are located to break-up continuous natural fuel accumulations	5 Years	Unacceptable results of an ID Team review, or if less than 70% of timber volume is programmed from high risk mountain pine beetle stands

FINDINGS

In FY 1993, 70% of the sawtimber sold on the Lewis and Clark National Forest was lodgepole pine. Reviews of timber sale locations showed the Forest is continuing to break up large concentrations of natu-

ral fuels. Future planning is also emphasizing removal of lodgepole pine.

Summary of FY 1987 through FY 1993 removal of lodgepole pine stands is as follows:

Table P-1a REMOVAL OF HIGH RISK LODGEPOLE PINE (percent)

Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
70	90+	80	90	67	64	89	70			

Over the first seven years of the Forest Plan, lodgepole pine has made up about 79% of the sawlog volume sold on the Forest. This is above the 70% level envisioned in the Forest Plan. While the conversion of high risk lodgepole pine stands to seed-

lings on suitable forest land is at a pace set by the Forest Plan, there remains a high need to convert the very old, decadent lodgepole stands to younger, more productive stands.

P-2 Acres/Volume of Insect & Disease

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Acres and volume of insect and disease infestations	5 Years	Introduction of new insect or disease or spread of an existing insect or disease

FINDINGS

Insect and disease surveys conducted during the summer of 1992 (Note: aerial surveys are conducted each summer, but the report is not available until the following May) showed that the Western spruce

budworm continued to build on the Forest, but they had not reached their pre-1989 levels. About 99,000 acres of visible Western spruce budworm defoliation was reported on Forest lands (Montana Forest

Protection

Pest Condition and Program Highlights, Report 93-2). Other insects and diseases continue at endemic levels. This included 500 acres of mountain pine beetle infestation and 300 acres of Douglas-fir

bark beetle infestation. The planned yearly surveys are adequate to monitor insect conditions on the Forest.

P-3 Management Practices

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Management practices to ensure activities do not promote an increase in insect or disease organisms	Annually	Significant increase in insect and disease

FINDINGS

No significant increase in insect and disease organisms has been observed. Post timber sale reviews showed that the Forest is meeting regional stand-

ards for slash disposal and that trees damaged or blown down by wind are being removed in a timely fashion.

P-4 Prescribed Fire & Air Quality

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Assure prescribed fire meets air quality standards	Annually	+/- 10% beyond standard guidelines

FINDINGS

In FY 1993, the Forest burned 1,805 acres for slash disposal, natural fuel treatment, wildlife habitat improvement, and rangeland improvement. In order to meet prescribed fire parameters, some of the slash disposal was done in the winter outside of the fall

burning season. There were no known complaints about any prescribed burning project affecting air quality. Burning conditions and coordination, under a State of Montana permit, play a major role in meeting air quality standards.

P-5 Fuel Treatment Outputs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Fuel Treatment Outputs	Annually - 100% sample	+/- 25% of programmed targets

FINDINGS

In FY 1993, the Forest treated 833 acres of activity fuels (slash from timber harvest and road building) and 972 acres of natural fuels. The Forest Plan shows a target of 1,470 acres of activity fuels and

700 acres of natural fuels per year. Summary of FY 1987 through FY 1993 activity and natural fuels reduction is as follows:

Table P-5a ACTIVITY & NATURAL FUEL ACCOMPLISHMENT (acres)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Activity Fuels	1,470	1,713	1,201	1,053	737	533	328	833			
Natural Fuels	700	665	863	1,025	675	860	1,108	972			

During the first seven years of the Forest Plan, about 6,400 acres of activity fuels were treated. This is about 560 acres less per year than projected by the Plan. The under accomplishment in treating activity fuels is related to the timber harvest schedule, and the lag between selling a sale and harvesting it (see item E-6). One of the most important factors in managing activity fuels is that treatment be timely (allowing in most cases 1-2 years for firewood removal). If harvested areas are treated in a timely fashion, there is less risk of a catastrophic wildfire. In this regard, the Forest is treating activity fuels on a timely basis. Because the backlog of timber to be sold

on the Forest has been largely eliminated, it is anticipated that during the next three years of the Plan, the acres of activity fuels treated will be near the Forest Plan level.

During this time, the Forest treated about 6,200 acres of natural fuels. This is about 180 acres above the 700 acre yearly level envisioned in the Forest Plan. With the change to ecosystem management and the need to reintroduce fire into the ecosystem, we see the program expanding to 1,500-2,000 acres yearly.

P-6 Wildfire

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Wildfire Acres Burned	100% Sample Annually	+/- 25% above projected average annual wildfire burned acres

FINDINGS

The 1993 fire season started off looking serious after a very dry winter. However, the jet stream turned south over Canada bringing with it over 10 inches of rain (over twice the normal amount of summer precipitation). The 1993 fire season never got off the ground. In 1993, the Forest had 2 wildfires which burned 1 tree and a 10' X 10' spot. This was considerably below the 10 year average of 35 wildfires with 497 acres burned. The Forest dispatched the Chief Mountain Type I crew to the southwest in June, to southern California in September, to the State of

Montana Central Lands Office in October, and back to southern California along with 7 Montana Indian Firefighting Crews in late October. This was an all time low for crew dispatches. Two fires in the Bob Marshall Wilderness were into prescription under the Revised Forest Fire Management Plan. However, the rains put them out. Collectively, they burned less than ¼ acre.

Summary of 1987 through 1993 total wildfire acres burned is as follows:

Protection

Table P-6a WILDFIRE AREA BURNED (acres)

10-year average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
497	37	174,162	13	32,013	795	25	1			

P-7 Suppression & Protection Costs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Cost of Suppression and Protection Organization	5 Years	+/- 5% increase in real costs

FINDINGS

The total cost of fire suppression and protection in 1993 was \$520,000. This is below the 10-year average of \$590,000.

Summary of 1987 through 1993 suppression and protection costs is as follows:

Table P-7a SUPPRESSION & PROTECTION COSTS (Thousand Dollars)

10-year average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
\$590	\$379	\$6,361	\$273	\$1,684	\$2,648	\$484	\$520			

During the first seven years of the Forest Plan, acreage lost to wildfires, and fire suppression and protection costs were substantially above those projected by the Forest Plan. This situation resulted from very dry weather conditions in 1988, 1990,

1991, and 1992 and changing fuel conditions. About 90% of the acres burned and 75% of the costs come from fires which escaped initial attack and required the commitment of project resources.

WILD & SCENIC RIVERS

W-1 Effects on Eligible Rivers

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Project-level effects on eligible rivers qualifications (free-flowing and "outstandingly remarkable" resource values) and assigned potential classification (wild, scenic, recreational)	100% Sample Annually	Any action that would adversely impact or degrade an eligible river's qualification and/or potential classification

FINDINGS

No project-level activities occurred along any of the nine eligible rivers or river segments which adversely impacted or degraded a river's qualifications and/or potential classification. This determination was made by comparing activities that were implemented in or along eligible rivers with Forest Plan goal #11 and Forest Plan Management Standards W-1 (wild potential classification), W-2 (scenic potential classification), and W-3 (recreational classification). The rivers monitored for project-level activities were: Smith River, North Badger Creek, North and South Forks Sun River, Dearborn River, North Fork Birch Creek, Green Fork of Straight Creek, Tenderfoot Creek, and Middle Fork Judith River.

Restoration of the Judith Guard Station, located along the Middle Fork Judith River, continues during 1993. This activity was consistent with Forest Plan management standards assigned under a recreational potential classification. This activity had a positive effect on the river's "outstandingly remarkable" cultural resource value.

Activities occurred in 1991 which would affect some of the nine eligible rivers and could result in the addition of other Forest rivers meeting the eligibility requirements under the Wild and Scenic Rivers Act. One activity involved a field inventory of harlequin ducks on the Rocky Mountain Ranger District. This inventory gathered data related to harlequin duck habitat, population structure and numbers, and reproduction. Two years of inventory results indicate the presence of harlequin ducks, a Northern Region Sensitive Species, on some Forest rivers. This data

would be used in conjunction with the wild and scenic river eligibility criteria for an "outstandingly remarkable" wildlife resource value. Existing eligible rivers which may be determined to contain an "outstandingly remarkable" wildlife value include the North Fork Sun River, North Badger Creek, North Fork Birch Creek, and South Fork Sun River. Adding this resource value to existing eligible rivers would not change their potential classification but recognize another value of the river emphasized under the Wild and Scenic Rivers Act. Other rivers which contain harlequin ducks and need to be analyzed under the Wild and Scenic River's Act eligibility requirements are: South Fork Two Medicine River, Badger Creek, South Badger Creek, West Fork Sun River, Middle Fork Birch Creek, and South Fork Birch Creek.

Fish population estimates collected by the Montana Department of Fish, Wildlife, and Parks tentatively indicate that two eligible rivers, the North and South Forks of the Sun River, meet the "outstandingly remarkable" fish criteria. This resource data would be analyzed and could result in these two rivers being recognized for their fishery value.

The presence of the Shorthead Sculpin and Westslope Cutthroat Trout, both Northern Region Sensitive Species, in rivers on the Rocky Mountain Ranger District are being tested for genetic purity on the South Fork Two Medicine River, Badger Creek, South Badger Creek, and South Fork Dupuyer. The results of this testing, along with habitat quality and fish population numbers, could result in these rivers

Wild & Scenic Rivers

being recognized and/or added as eligible for their fishery value.

The Forest's Wild and Scenic Rivers Interdisciplinary team has reconvened to analyze the above resource data in relationship to the eligibility requirements specified under the Wild and Scenic

Rivers Act. The analysis necessary was not conducted during FY 1993 and most likely will not be performed in FY 1994 either. The analysis, when completed, may result in a decision that adds additional "outstandingly remarkable" resource values to existing eligible rivers and/or identifies new eligible rivers and their assigned potential classification.

IV. COMPARISON OF OUTPUTS, ACTIVITIES, AND BUDGETS

The following two tables compare the outputs, activities, and budgets with those projected in the Forest Plan.

Table I - COMPARISON OF PROJECTED OUTPUTS/ACTIVITIES BY TIME PERIOD

Output or Activity	Unit of Measure	FP 1st Decade	1987	1988	1989	1990	1991	1992	1993
Developed Use	M RVD	169	145	179	205	241	271	296	266
Dispersed Use	M RVD	86	54	42	60	64	63	59	58
Wilderness	M RVD	614	581	384	450	416	535	568	497
Non-wilderness	M RVD	614	581	384	450	416	535	568	497
Wildlife Habitat Imp	Acres	600	300	1400	1392 ¹	1262 ¹	450	1221 ¹	779
Fish Habitat Imp	Acres	5	2	0	10	16	0	40	71
T&E Habitat Imp	Acres	100	0	0	0	500	634	630 ¹	210
Wildlife Structures	Structures	10	0	0	6 ¹	4 ¹	7	8	9
Fish Structures	Structures	25	16	19	11	34 ¹	33 ¹	30	20
Permit Grazing Use	M AUM	71.1	70.5	72.3	72.4	71.9	71.2	70.3	69.5
Range Improvement	M AUM	71.1	70.5	72.3	72.4	71.9	71.2	70.3	69.5
Nonstructural	Acres	1329	1999	2433	1607	562	402	550	110
Structural	Structures	40	30	18	26	35	28	37	31
AMPs	Plans	10	5	4	4	0	2	1	1
Nox. Weed Control	Acres	600	772	616	636	472	1062	1261	1265
Total Vol. Sold	MMBF	14	7.9	10.7	6.9	10.5	17.9	26.2	9.8
Silvicultural Exams	M Acres	28.0	45.3	33.9	28.2	37.3	35.4	14.6	9.4
Reforest-Approp ²	Acres	54	217	225	92	117	38	245	151
Reforest-Other ³	Acres	270	1108	829	927	603	487	371	612
TSI-Appropriated ⁴	Acres	200	563	568	502	340	334	186	216
TSI-KV ⁵	Acres	0	125	12	0	0	0	24	111
Soil Inventory	Acres	2000	0	0	0	0	25000	46000	49000
Soil & Water Imprv.	Acres	45	29	10	109	71	50	94	79
Minerals Mgmt	Cases	160	154	134	250	108	94	38	37
Land Exchange	Acres	60	0	0	153	0	150	373	0
Landline Location	Miles	26	14	18	25	21.5	23	24	17
Road Construction	Miles	9.0	3.7	2.9	0	3.1	17.4	20.2	3.2
Road Reconstruction	Miles	24.0	29.7	20.3	17.9	9.8	13.4	22.6	1.3
Total Road	Miles	33.0	33.4	23.2	17.9	12.9	30.8	42.8	4.5
Trail Construction/ Reconstruction	Miles	14.0	8.5	13.3	12.8	14.1	12.0	19.5	9.5
Fuels Mgmt-BD	Acres	1470	1713	1201	1053	737	533	328	833
Fuels Mgmt-FFP	Acres	700	665	863	1025	675	860	1108	972

¹-Numbers differ from Table C-12b because KV accomplishments included in this table's total

²-Total of Reforestation and Site Prep. Natural Appropriated, see Table E-7a

³-Reforest-Other is the sum of Reforestation and Site Prep. from KV, Trust Funds, and Purchaser Work, see Table E-7a

⁴-Total of Release Acres and Thinning TSI Appropriated, see Table E-7a

⁵-Total of Release Acres and Thinning TSI KV, see Table E-7a

Comparison of Outputs, Activities, and Budgets

Table II - COMPARISON OF FY 1993 EXPENDITURES/ACCOMPLISHMENTS vs FOREST PLAN PROJECTIONS vs REQUESTED OUTYEAR BUDGET

Activity	Unit of Measure	¹ Budget in Forest Plan	² Outyear Request FP Level	³ Outyear Request Constrained	⁴ Actual Allocation
General Administration	\$\$\$	1276	1460	1410	1294
Fire and Fuels	\$\$\$	437	481	481	502
Fuels Mgt-FFP	Acres	700	700	700	1300
Timber	\$\$\$	774	1118	681	542
Tot Vol Offered	MMBF	14	19.2	13.7	13
Silv Exams	M Acres	28	19.2	8.3	7
Range	\$\$\$	533	710	492	533
Permitted Graz Use	M AUM	71.1	71	71	71.1
Range Imp Non-Struc	Acres	1329	400	200	145
Range Imp Structure	Structures	40	0	0	14
Range Res Plans	Plans	10	4	4	4
Noxious Weed Control	Acres	600	920	510	770
Minerals	\$\$\$	586	358	215	202
Minerals Mgt	Cases	160	41	41	37
Recreation	\$\$\$	678	905	500	445
Rec Developed Use	M RVD	169	N/A*	N/A*	N/A*
Rec Disp Use Wilderness	M RVD	86	N/A*	N/A*	N/A*
Rec Disp Use Non-Wild	M RVD	614	N/A*	N/A*	N/A*
Wildlife and Fish	\$\$\$	613	715	500	323
Wildlife Hab Imp	Acres	600	640	400	900
Fish Hab Imp	Acres	5	5	5	16
T&E Hab Imp	Acres	100	413	400	200
Wildlife Hab Struc	Structures	10	12	1	3
Fish Hab Struc	Structures	25	33	26	16
Soil, Air, Water	\$\$\$	211	335	285	197
Soil Inventory	Acres	2000	40000	37000	49000
Soils Improvement	Acres	45	74	50	50
Facility Maintenance	\$\$\$	149	210	72	73
Lands/Land Management	\$\$\$	144	195	75	61
Land Exchange	Acres	60	0	0	0
Land Status/Acq Admin	\$\$\$	205	20	37	22
Landline Location	\$\$\$	119	170	100	99
Landline Location	Miles	26	30	19	17
Road Maintenance	\$\$\$	506	530	330	251
Trail Maintenance	\$\$\$	370	400	250	250
Co-op Law Enforcement	\$\$\$	54	58	39	44
Reforestation-Approp	\$\$\$	75	46	32	65
Reforest-Approp	Acres	54	82	57	125
TSI-Appropriated	\$\$\$	38	58	46	50
Tbr Std Imp-Approp	Acres	200	230	180	203
Tree Improvement	\$\$\$	10	10	10	7
KV (Trust Fund)	\$\$\$	133	88	88	87
Reforest-KV	Acres	270	55	55	76
Tbr Std Imp-KV	Acres	0	24	24	111
CWFS-Other (Trust Fund)	\$\$\$	31	24	24	24
Timber Salv.Sale (Perm)	\$\$\$	42	130	97	455
Brush Disposal (Perm)	\$\$\$	31	53	53	35
Fuels Mgt-BD	Acres	1470	1100	1100	900

Comparison of Outputs, Activities, and Budgets

Table II - COMPARISON OF FY 1993 EXPENDITURES/ACCOMPLISHMENTS vs FOREST PLAN PROJECTIONS vs REQUESTED OUTYEAR BUDGET (continued)

Activity	Unit of Measure	¹ Budget in Forest Plan	² Outyear Request FP Level	³ Outyear Request Constrained	⁴ Actual Allocation
Range Improvement	\$\$\$	65	42	42	46
Recreation Construction	\$\$\$	61	N/A ¹	N/A ¹	74
Facility Construction	\$\$\$	0	N/A ¹	N/A ¹	0
Engineering Const Support	\$\$\$	596	630	450	240
Const-Capital Inv Roads	\$\$\$	686	N/A ¹	N/A ¹	244
Road Const/Reconst	Miles	33.0	33.0	20.0	4.5
Trail Const/Reconst	\$\$\$	174	N/A ¹	N/A ¹	83
Trail Const/Reconst	Miles	14.0	N/A ¹	N/A ¹	11.0
Total Budget	\$\$\$	8597			6248

All dollar figures are expressed in 1993 dollars (thousands).

¹Outyear targets for Recreation are requested using a different unit of measure (MPAOTs).

¹Requests for these items are not made in the Outyear Program.

The budget in the Lewis and Clark National Forest Plan¹ (June, 1986) was an estimate of the funds needed to implement the activities proposed in the Plan. Since that time many of the costs used in the Plan have changed. New activities and/or emphasis items, although authorized by the plan, have changed or expanded. Since the development of the Forest Plan we have additional and more accurate information on the real costs of resource support to timber, for example.

Each fall the Forest submits two outyear program requests (dollars and outputs) for the fiscal year two years in advance. One program outlines our budget needs to implement the Forest Plan², and the other requests a program for the forest within an assigned budget constraint³. The constraint is assigned by a higher organizational level and forces the forest to prioritize work within a limited budget. These program requests are combined with other forests in

the country and are eventually submitted to Congress as part of the President's Budget.

When Congress passes the Appropriation Bill, the dollars and targets are disaggregated to the forest level and the forest is left with a budget allocation⁴ and targets to execute. In all cases this ⁴Actual allocation may or may not resemble our outyear request. There are several reasons why the budget allocation we receive differs from the program we requested in the outyear process. The main reason for the difference is that Congress' decision on budgets and targets is influenced by more than just the President's budget submission. The following are examples of influences on Congress; committee members' interests, successful lobbying efforts, the overall size of the budget (and deficit), and the popularity or unpopularity of certain items in the budget. When this budget comes to us in the form of an Appropriation Act (a law) we are required to execute it as Congress has specified.

List of Preparers/Approval

V. LIST OF PREPARERS

The following individuals contributed to the development of the Monitoring and Evaluation Report for the Lewis and Clark National Forest for Fiscal Year 1993.

FY 1993 Monitoring & Evaluation Team

NAME	FUNCTIONAL RESOURCE AREA
Bonner Armstrong Bonnie Dearing William Duryee Dana Field Sam Gilbert Donald Godtel Aryss Hagen Lynn Johnson Ron Meyers Richard Newton Mark Nienow Wayne Phillips Dick Smith Robin Strathy Len Walch Ronald Yates	Zone Timber Public Information Officer Staff Officer - Engineering/Lands Botanist Zone Timber (Silviculturist) Wildlife Biologist Resource Specialist Program Analyst Civil Engineer (Roads & Facilities) Archaeologist Hydrologist Ecologist Staff Officer Land Management Planning Geologist Zone Fisheries Biologist Landscape Architect/Recreation

In addition, the report was reviewed by the following individuals:

NAME	TITLE
John D. Gorman John Greer David Fischer Jerry Dombrowske Larry Timchak William Fortune Terry Knupp	Forest Supervisor Forest Plan Implementation Group Leader Zone Staff Officer (Timber) District Ranger, Rocky Mountain Ranger District District Ranger, Judith Ranger District District Ranger, Musselshell Ranger District District Ranger, Kings Hill Ranger District

VI. APPROVAL

I have reviewed the annual Forest Plan Monitoring and Evaluation Report for Fiscal Year 1993 for the Lewis and Clark National Forest that was prepared by the Forest Interdisciplinary Team. I am satisfied that the Monitoring and Evaluation effort meets the intent of the Forest Plan (Chapter V), Forest Service Handbook 1909.12, and 36 CFR 219.

This report is approved:



JOHN D. GORMAN
Forest Supervisor

4/19/94
DATE

APPENDIX A

ANNUAL WILDERNESS REPORT TO CONGRESS
BOB MARSHALL WILDERNESS COMPLEX
Year 1993

I. CONDITIONS AND TRENDS

A. Current Condition and Trend of the Wilderness Resources

1. List the three most prominent threats to preservation of the Wilderness resource.
 - 1) Spread of noxious weeds beyond control
 - 2) Degradation and overuse of popular trails
Overuse of lakeside campsites/repeated use of campsites
 - 3) Low numbers of naturally occurring fires
2. Acreage adjustment (if any) due to boundary changes, or reassessment of the actual acreage total.

Acreage change(+ or -) **None**

3. Management Issues (Describe)

Resource **See I.A.1.**

Social **Enforcement of Grizzly sanitation regulations**

Other **Outfitter camp and service day management
Institutional/educational outfitting
Increasing need for wilderness education**

4. Social Trends (Describe)

Users **Increase in overall use. Fall and livestock use up. Plus llama use increase.
Day use fishing on the Blackfoot River increased dramatically.**

Other **Increased use of low impact techniques
Heightened awareness of wilderness legislation by the public.
Use allocation resolution**

II. ORGANIZATION AND TRAINING

A. Personnel

1. Number of Employees (Wilderness Management Positions)

	PFT	WAE	Seasonal
Previous year	11.3	4	13
Current year	10.1	4	22

2. Number of Person Years (Include All Resources)

Previous Year	34.6
Current Year	34.8

B. Budget - Actual dollars that reached the National Forest(\$M Dollars)

	Total (include all resources)	NFWM
1. Previous Fiscal Year	\$898.2	\$370.7
2. Current Fiscal Year	\$806.5	\$424.6

C. Management Method

1. Single Unit
2. Multi-Unit **Yes**
3. Other (Describe) **Coordinated management with formal charter**

D. Training - What Training Has Been Provided (Describe): **Wilderness Ranger education workshop, on job training for new employees, wilderness ed. for District employees.**

III. MANAGEMENT

A. Plans - Status

1. Approved Fire Management Plan? **Yes**
2. Allotment Management

Total Number of Allotments Within Boundaries	39
Total Number of Approved and Current AMPs	11 from 1982, 13 from 1967, No current plans

3. Forest Plan Direction Adequate? **Yes, Plan amendments are needed**
4. Wilderness Implementation Schedule Complete? **Yes**

B. Air Quality and Monitoring

1. Air Quality Monitoring Plan in effect? **Yes**
2. Identified Problems with Air Quality (Describe) **None Identified at this time. Base data only has been established for Air & Water**

C. Fire

1. Acres Burned

Natural Ignition	0
Planned Ignition	0

Wildfire 0

2. Trends

Number of Natural Ignitions 3
Number of Fires Suppressed 0

D. Mining

1. Active Mining Operating Plans 1
2. Number of Patented Mining Operations 0

E. Grazing

1. Livestock Grazing Use in Wilderness (AUMs)
Cattle/Sheep 0
Recreational Stock - Commercial 1170
Recreational Stock - Private 6611
2. Acres Grazed in Wilderness 50736
3. Condition of Range Resource (P/F/G/E) 50% - E; 40% - G; 5% - F; 5% - P
4. Trend of Resource (Up/Static/Down) 95% Static, 5% Down

F. Wildlife

1. Identified Vertebrate T&E Species Present (List) **Grizzly Bear, Ursus Arctos Horribilis; Bald Eagle, Haliaeetus Leucocephalus; Gray Wolf, Canis Lupis Irremotus; Peregrine Falcon, Falco Peregrinus**
2. Identified Vertebrate Sensitive Species Present (List) **Bull Trout, Salvelinus Confluentus; Harlequin Duck, Histrionicus Histrionicus; Westslope Cutthroat Trout, Oncorhynchus Clarki Lewisl**
3. Identified Plant T&E Species Present (List) **None Identified in the wilderness area**
4. Identified Sensitive Plant Species Present (List) **Pale Sedge, Carex Llvlda; Small Yellow Lady's Slipper, Cypripedium Calceolus Var. Parviflorum; Sparrow's-egg Lady's Slipper, Cypripedium Passerinum; Linear-leaved Sundew, Drosera Linearis; Green-kneeled Cottonsedge, Eriophorum Virldicarlnatum; Round-leaved Orchid, Orchis Rotundifolia**

G. Visitor Use

1. Wilderness Recreational Use Statistics
RVDs 168M

Visits 201M

H. Outfitter/Guide

1. Number of Special Use Permits **46**
2. Type of Service Provided (List By Type) **Horse oriented Outfitter/Guide operations and summer float trips**
3. Percent of Total Use Served By Permitted Outfitters **40%**

I. Use of Motorized/Mechanical Equipment

1. Administrative Use

Type of Equipment (Describe) **Helicopter to deliver materials and tools needed to replace an existing pack bridge**

Number of Approvals **1 Approval, multiple flights over 3 consecutive days.**

2. Other Approved Use

Type of Equipment (Describe) **Search and rescue helicopter-3 injured people flew out for medical care**

Number of Approvals **3**

J. Violation Notices

1. Most Common Type including warning notices: **Tree damage from tying stock to trees, use of wheeled cart, littering (food), human waste disposal**
2. Number Written **14**

K. Visitor Education (Describe)

1. Schools	900
Youth Groups	681
Campgrounds	460
In house	170
Outfitter/Clients	35
Skills Trail	36250
Demo Camps	760
Other	1700
Total	40956

3. Successes and Limitations: **The large number of people reached and, the quality and continuity of the message.**

L. Administrative Site Structures (Guard Stations, Lookouts, Other, Etc)

1. Total Number of Structures **62**
2. Needs Evaluation (Number Completed to Date) **4**

M. Inholdings

1. Number of Inholdings **1, 640 acres had previously been owned by Plum Creek. Exchange completed in last month.**
2. Total Acres of Inholdings **0**
3. Key Issues (Describe)

IV. RESEARCH

A. Current Research

1. Current Projects and Monitoring Efforts (Describe) **Water quality/soil sedimentation study; Fire ecology after 1988 fire; Wilderness resource and social encounters; Harlequin Duck and fish surveys; Whitebark Pine status; Air quality; Forest inventory analysis**
2. Completed Projects (Describe) **All projects ongoing**

- B. Future Research Needs (Describe) **Visitor use study to followup prior 1972 and 1983 studies, ecosystem analysis: Ponderosa Pine, Larch, Whitebark Pine; Exotic species; Threatened and Endangered species; Public involvement techniques; Baseline on plant and animal communities.**

V. OTHER

A. Issues (Describe)

1. Other Issues Needing National Attention: **Multi-resource funding, noxious weeds, wilderness education, ecosystem stewardship**

B. Accomplishments (Describe)

1. Of Interest Nationally: **Wilderness Education Program, a unified complex wide program that combines like messages, programs and materials**
Bob Marshall Wilderness complex noxious weed program.

- C. Other Comments: **Grizzly Bear sanitation strategy.**