



Lewis and Clark
National Forest



LEWIS AND CLARK NATIONAL FOREST PLAN

Monitoring and Evaluation Report



Fish Survey in Flagstaff Creek – Castle Mountains

United States
Department of
Agriculture

Fiscal Year 1999



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National Forest



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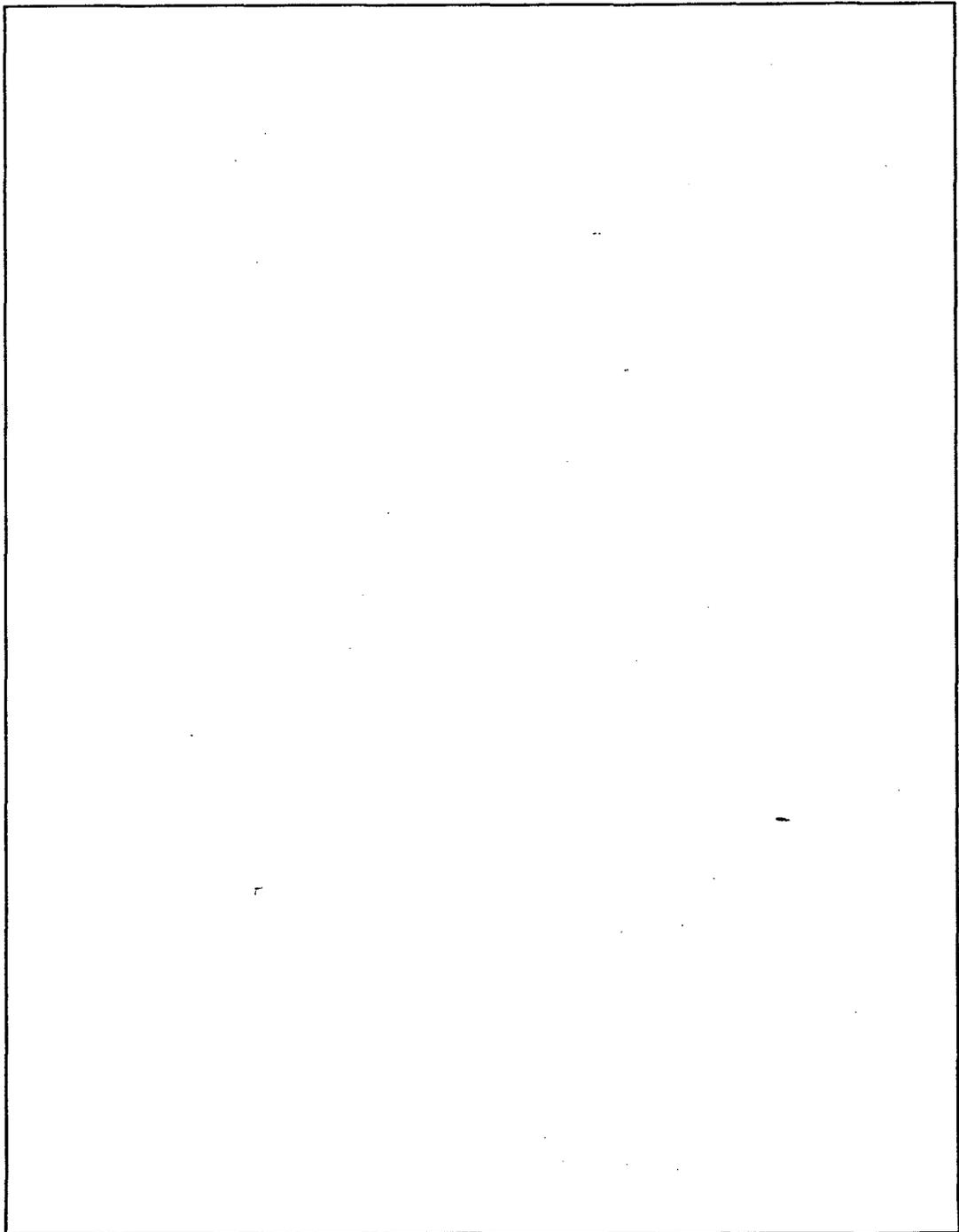


Lewis and Clark
National Forest



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NATIONAL FOREST PLAN

Monitoring and Evaluation Report



Fish Survey in Flagstaff Creek – Castle Mountains



United States
Department of
Agriculture

Forest
Service

Lewis and Clark
National Forest

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File Code: 1920

Date: January 2001

Dear Forest User:

Enclosed for your review is the Fiscal Year 1999 Lewis and Clark National Forest Plan Monitoring and Evaluation Report. This report records our progress and accomplishments for our 13th year of Forest Plan implementation.

Although monitoring has occurred on a continuing basis, our last published report was for FY 1994. This report contains an update of information since time. It also contains resource specialists' observations and recommendations based on 13 years of findings through site-specific analyses and other evaluations. Currently, "eastside" forests, including the Lewis and Clark, Helena, Gallatin, Custer, and Beaverhead-Deerlodge, are conducting an assessment of conditions and trends across a broad-scale to determine a need to change management strategies in light of changed conditions or new information. Monitoring results are being incorporated into this effort, which will lay the foundation for revising Forest Plans.

Thank you for your continued interest in the Lewis and Clark National Forest. We hope to enjoy you in the management of your National Forest System lands.

Sincerely,

RICK PRAUSA
Forest Supervisor



Lewis and Clark National Forest Forest Plan Monitoring Report

Fiscal Year 1999 SUMMARY

This summary capsulated the full report of the Forest Plan Monitoring and Evaluation for the Lewis and Clark National Forest during fiscal year (FY) 1999 (October 1998 through September 1999). Our last published monitoring report was released for the 1994 fiscal year, so this report also provides information for fiscal years 1995 through 1999. 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 77 individual monitoring items. They evaluate their findings and make recommendations to the Forest Leadership Team.

Detailed information for each of the monitoring 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 outlines 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 continues to increase annually, although accurate use figures are not presently available. A National Recreation Survey, scheduled to be initiated on the Lewis and Clark Forest in FY 2001, should provide more trackable use calculations. Use has been projected to be increasing in proportion to the increase in state population. Past annual estimates of recreation use may have been overestimated. Increased user conflicts between motorized and non-motorized recreational use has been identified. Campgrounds appear to be adequate in capacity, but many need reconditioning. Trail and road maintenance has lagged due to inadequate funding.

Heritage Resources: The Forest continues to concentrate on inventorying and assessing potential impacts to heritage (cultural) resources on site-specific projects and in gathering ethnographic information to understand traditional uses across the Forest. Since 1995, 174 sites were identified, inventoried and evaluated; fifty-four of these evaluations were conducted in FY 99. Eligibility is being sought from the Keeper of the Historic Register on properties in the Badger-Two Medicine area of the Rocky

Mountain District identified as having traditional cultural significance to the Blackfeet Nation. No projects were initiated without consideration of heritage resources

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

Wildlife: In FY99, the number of observed bears was at its lowest since the Forest began counting bears in 1987, although sows with cubs continue to occupy all six Bear Management Units on the Rocky Mountain District. During the 1999 season, a total of 18 bear fatalities occurred in the Northern Continental Divide Ecosystem. Two of these were from bear populations on or adjacent to the Lewis and Clark Forest. One sub adult male was killed by another bear while caught in a trap during a management action. A sub adult female was illegally shot on private land adjacent to the Forest. Enforcement of special Food Storage Orders resulted in a total of 80 reported incidents between 1995-99. A minimum of 101 nuisance bear incidents were reported between 1995-99. A majority of these were cases in which bears attempted to remove or damage property.

The Sawtooth wolf pack met its demise in 1997 when the last of the remaining

wolves were killed after they attacked and killed livestock.

No bald eagle nests have been documented on the Forest to date. In 1995, the Forest and the Peregrine Fund, Inc initiated a partnership to introduce peregrine back into the wilds of the Rocky Mountain Front. An artificial nest site was established and a total of 10 birds were successfully fledged between 1995-97. No wild nest sites have been found on the Rocky Mountain District to date, however. In 1999, one peregrine nest site was found on the Forest in the Smith River area.

Elk population levels defined in the Montana Department of Fish, Wildlife and Parks management plan are being met. Season on either sex were lengthened to control populations in some areas of the Castles and Little Belts, while quotas on cow elk were reduced along the Rocky Mountain Front to build populations levels.

Population monitoring of Rocky Mountain goat and bighorn sheep show population fluctuations; from a high of 1,035 bighorn in 1987 to a low of 282 in 1995, and from a high of 122 mountain goat in 1991 to a low of 10 in 1996. There has been no management implemented on NFS lands since 1987 that would result in any decline or increase in populations; fluctuations appear to be related to natural events or hunting regulations. Goat populations continue to grow in the Highwood Mountains and their range has expanded in the Crazy Mountains.

Nearly 175 miles of snow track surveys have been completed in the Little Belt

SUMMARY

Mountains since 1995. There appears to be a good population of wolverine. Lynx appear in low numbers; only 4 or 5 tracks have been recorded. Results of DNA analysis from hair snare study revealed only mountain lion and bobcat encounters.

The Forest continues to inventory for old growth forest; approximately 28% of the Forest has been inventoried, mostly in the Little Belt and Little Snowy mountains. More than 26,600 acres of old growth have been allocated for retention to meet Forest Plan standards. Although 100% monitoring of all known goshawk territories has not been accomplished during all years, additional nesting territories continue to be discovered.

The Forest has marked snags on 750 acres of cutting units since 1995. In 1998, a resurvey of all burned areas on the Jefferson Division revealed on black-backed woodpecker in one burned unit.

Through several large range analyses conducted over the past several years, additional aquatic habitats have been surveyed and inventoried. Approximately 410 miles of stream have been surveyed within allotments. At-risk or non-functional stream reaches have been identified, due in part to grazing impacts. New grazing plans are being phased in which incorporate measures such as reduced stocking or fencing to improve riparian conditions in these reaches. Monitoring of implementation of these plans and riparian conditions is crucial to ensuring progress toward fully functional stream systems and high quality fish habitat.

Thirty-seven streams have been identified as supporting 100% pure strain westslope cutthroat trout. Fluvial grayling were introduced into the South and North Forks of Sun River in 1999. Surveys for harlequin duck continue on the Rocky Mountain Division. Sightings on Sun River and Badger Creek were made in 1999.

A model has been developed using landtype information and known occurrences of sensitive plants to identify areas with high probability for the occurrence of sensitive plants. This information has been used in analyses of ground disturbing activities.

Range: Grazing levels and structural improvements have continued within Forest Plan projection. The completion of range plans has increased and is expected to continue at levels higher than Forest Plan projections for the next five years. Nonstructural improvement outputs are at 54% of projected; this should increase with implementation of new range plans, but could lead to decreased forage conditions and/or livestock use if continued. Noxious weed control continues at levels above Forest Plan projections because of the identification of more acres of infestation and increased noxious weed control budgets. No condition and trend studies have been monitored for several years, and reporting is currently provided as the status of range vegetation. The trend has been for acres of suitable livestock grazing to decline as more precise range analysis, encroachment and allotment closure. This trend is expected to continue, although range

improvements (water developments, prescribed burning) can curb this decline. More than the Forest Plan projection of 10% of allotment management plans are currently outdated (i.e. more than 15 years old). The current allotment management planning schedule has increased the number of plan completed and the percent of outdated plans has been decreasing.

Timber: Three formal interdisciplinary reviews of large timber sales (Deadhorse Bluff in 1995; Miller Gulch and Corridor, and Daniels/Kinney timber sales in 1999) were held during the FY95-99 period. Review of the Deadhorse Bluff, Miller and Corridor sales took place following the sale. Review of the Daniels/Kinney sale took place following layout but prior to harvest. The review groups felt that prescriptions were appropriate to meet management area goals.

Several harvest units in the Coyote Salvage and Tenderfoot Experimental Forest sales exceeded the 40-acre clear-cut standard, but were consistent with fire salvage direction and management strategy for experiment and monitoring. The environmental analysis for these sales considered the effects of larger openings and Regional Forester approval was granted.

Harvest over the past five years has averaged about 69% of the Forest's Allowable Sale Quantity (ASQ) of 12.1 million board feet. Ninety-nine percent of all stands with final harvest since 1986 are progressing toward adequate stocking or were certified as adequately stocked within 5 years of final harvest. Blowdown of seed trees

in Douglas fir stands and invasion of heavy grasses after lodgepole pine harvest are primary reasons for poor stocking in areas that failed to meet regeneration goals. Fire has caused delayed regeneration in some cases.

Through project analysis, land suitability classes, which identify stands suitable for timber production, have been refined. This has resulted in about a 6% reduction in lands deemed suitable for timber production, slightly above the Forest Plan variability threshold of 5%.

Water and Soil: Monitoring shows that all projects with potential for impact on soil or water are being successfully reviewed to ensure adequate protection of soil and water resources, but it is suggested that monitoring items concentrate more on effectiveness monitoring of Best Management Practices (BMPs). BMP reviews have shown that, for the most part, BMPs are being implemented as planned and effective in limiting soil and water impacts. Improvements can be made with regard to providing adequate road drainage and filtration zones, and ensuring that road drainage is routed away from live water. Minor departures have been recorded with regard to maintaining appropriate Streamside Management Zone (SMZ) widths.

The Forest has accomplished its backlog of soil and water improvement acres; a total of 561 acres were accomplished between 1995-1999, with 139 acres accomplished in 1999.

SUMMARY

Minerals: During FY99, 3 mining plans of operation and one mineral material proposal were reviewed. Environmental analyses were conducted for each. Mineral activity has slowed somewhat and is probably reflective of low metals prices, recent legislation, and closure of many mining operations throughout the state. Activity in recent years has centered on exploration in the Castle Mountains, although many mining claims in this area were relinquished in 1999. The majority of mineral operations have been conducted in accordance with approved plans. Reclamation needs to occur at one site. In addition, the Forest continues to work cooperatively with the Environmental Protection Agency to rehabilitate the Block P Mill Tailings site in the Little Belt Mountains. A draft plan is being reviewed.

In 1997, the Forest completed and Environmental Impact Statement and Record of Decision for oil and gas leasing on the Forest. Under the decision, no lands on the Rocky Mountain Division will be offered for oil and gas leasing during the next planning cycle (10-15 years). Leasing, with stipulations, will be allowed on the Jefferson Division, where it was shown that oil and gas activities are environmentally compatible with other resource values.

Lands: The Forest surveyed 16 miles of landline, about 61% of target. The Forest addresses land adjustment opportunities as they arise. An exchange of lands in the Tenderfoot area of the Little Belt Mountains is currently in progress.

Facilities: In 1999, the Forest initiated an inventory of deferred maintenance needs on roads, trails, and other facilities and investments. Low funding levels for road maintenance has hampered the ability to address road condition problems. During 1999, 5.3 miles of road were constructed and 12 miles were reconstructed under the Capital Investment and Purchaser Credit programs. The amount of roads constructed or reconstructed falls below that projected in the Forest Plan (9 and 24, respectively). In 1999, 11 miles of trail were reconstructed. This is also below the Forest Plan projection of 14 miles.

Protection: Lodgepole pine was the dominant sawtimber on 56% of sale volume. The Forest Plan emphasized removal of timber at high risk to insects and disease, usually lodgepole pine. Recent information suggests that dry forest, mixed conifer stands may be higher priority as the Forest has never experienced epidemic populations of mountain pine beetle in lodgepole stands. Mountain pine beetle in ponderosa pine and lodgepole pine are present but with levels ranging from 500 to over 1,500 acres; the highest year was in 1999 with 1,633 acres of affected trees. Mortality is increasing in ponderosa pine dominated stands as they become overstocked, (653 acres in 1999). Root rot is ever present with a high of 1,587 acres in 1995 to a low of 272 acres in 1998. With the exception of mountain pine beetle in ponderosa pine stands, these insects and diseases are at endemic levels creating diversity and are not a threat to the forest resources at these levels.

The number of fuels acres treated by prescribed burning per year has increased from 2,200 to over 6,000 acres as of 1999. The main increase is associated with prescribed burning of natural fuels to reduce potential intensity of wildfires and to improve forest health conditions. While there have been no reported complaints from prescribed burning, the potential for impacts is a concern to residents living near areas proposed for burning and there have been major smoke impacts from wildfires in Montana and Idaho over the past several years.

Record drought patterns across much of central Montana during the past 3

years has resulted in longer fire seasons. In 1999, 1,362 acres were burned from wildland fire. Suppression costs totaled nearly \$1.2 million.

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. A land exchange in progress in the Tenderfoot area would consolidate lands identified for potential classification as scenic under the Wild and Scenic Rivers Act.

TABLE OF CONTENTS

TABLE OF CONTENTS

I. INTRODUCTION 11

II. FOREST PLAN DECISIONS 12

III. INDIVIDUAL MONITORING ITEMS..... 13

A. RECREATION

A-1 ROS Setting 13

A-2 Recreation Direction Meets Visitor Expectation 14

A-3 Recreation Use..... 15

A-3a Developed and Dispersed Recreation Use Levels 1993-1996..... 16

A-4 Condition of Developed Sites 17

A-5 Recreation Opportunity Guide 18

A-6 ORV Damage and Travel Plan 18

A-7 Condition of Visual Resources 21

A-8 Cultural Resource Management (Identification & Protection)..... 21

A-9 Cultural Resource Management (Effectiveness)..... 22

A-10 Cultural Resource Management (Interpretation) 23

A-11 Cultural Resource Management (Inspection)..... 23

A-12 Cultural Resource Management (Program Effectiveness) 24

B. WILDERNESS

B-1 Quality of the Ecosystem..... 25

B-2 Bob Marshall-Great Bear-Scapegoat Management 25

B-3 Change in Roadless Inventory 25

C. WILDLIFE

C-1 T&E Species: Grizzly Bear Habitat..... 27

C-1a Trend Info. for Grizzly Bear Management Units..... 28

C-1b RMRD Food Storage Order Incidents for 1995-1999 29

C-1c RMRD Nuisance Bear Incidents for 1995-1999 30

C-1d Nuisance Bear Incidents by Year and Month 30

C-2 Gray Wolf, Bald Eagle, Peregrine Falcon Habitat 31

C-2a National Bald Eagle Survey..... 32

C-3 Elk Winter Range Capacity..... 33

C-4 Bighorn Sheep & Mountain Goat..... 35

C-4a Bighorn Sheep Population..... 35

C-4b Mountain Goat Population..... 36

C-5 Other Big Game Species..... 37

C-6 Small Game..... 37

C-7 Furbearer 37

C-8 Old Growth Habitat for Goshawk..... 39

C-8a Acres Designated as Old Growth 1988-19..... 40

C-8b Goshawk (Nesting Territories - Rocky Mountain Division) 41

C-8c Goshawk (Nesting Territories - Jefferson Division) 41

C-9 Special Interest Species..... 41

C-9a Golden Eagle (Nesting Territories - Rocky Mountain) 42

C-9b Golden Eagle (Nesting Territories - Rocky Mountain)..... 42

C-9c Prairie Falcon (Nesting Territories - Rocky Mountain) 42

C-9d Prairie Falcon (Nesting Territories - Jefferson) 42

C-10 Cavity Nesting Habitat..... 43

C-10a Monitoring Results for Snag Management on Kings Hill 44

TABLE OF CONTENTS

C-11	Aquatic Habitat	44
C-11a	Miles and Condition of Streams Surveyed by Range Analysis	45
C-12	Habitat Improvement Outputs.....	46
C-12a	FY99 Targets & Accomplishments Compared to Forest Plan	47
C-12b	Wildlife Habitat Improvement.....	48
C-12c	Wildlife Habitat Improvement.....	48
C-13	Oil & Gas Activity	49
C-14	Sensitive Wildlife and Fish.....	49
C-14a	Electrophoretic Testing Results for Cutthroat Trout.....	50
C-14b	Harlequin Duck (Minimum Brood Numbers on Rocky Mountain)	51
C-15	Sensitive Plant Program	52
D.	<u>RANGE</u>	
D-1	Range Outputs	54
D-1a	Range Accomplishments.....	54
D-2	Range Conditions and Trend	55
D-2a	Range Condition and Trent (Each).....	55
D-3	Supply	56
D-3a	Suitable Range (Thousand Acres).....	56
D-4	Allotment Management Plan Status	57
D-4a	Status of Allotment Management Plans.....	57
E.	<u>TIMBER</u>	
E-1	Silvicultural Prescriptions Meet MA Goals	59
E-2	Prescription Selections	60
E-3	Timber Openings	61
E-4	Timber Offered/ASQ for a Decade	62
E-4a	ASQ (Million Board Feet).....	62
E-4b	Timber Program (Million Board Feet)	63
E-5	Restocking.....	63
E-6	Acres Harvested	64
E-6a	Timber Under Contract and Volume & Acres Harvested	65
E-7	Thinning & Silvicultural Accomplishments	65
E-7a	Timber Stand Improvement	66
E-8	Even-Age Harvest.....	67
E-9	Firewood Removal.....	67
E-9a	Commercial and Personal Use Firewood Removal.....	68
E-10	Suitable/Nonsuitable Lands.....	68
E-11	Projected Yields.....	69
E-11a	Growth Plots (Numbers)	69
F.	<u>WATER & SOIL</u>	
F-1	Adequacy & Cumulative Effects of BMPs	71
F-2	Revegetation.....	72
F-2a	FY9 Project List for Revegetation	72
F-3	Water Quality in Municipal Watersheds.....	76
F-4	Riparian Areas, Flood Plains and Wetlands	78
F-5	Other Effects.....	81
F-6	Water & Soil Backlog	81
F-6a	Restoration Projects Accomplished in FY9	82
F-6b	Soil & Water Restoration Accomplishments (acres)	83
F-7	Water and Stream Quality	84
F-8	Stream Cover & Pools	85
F-9	Public Health.....	86
F-9a	Frequency of Testing and Percent of Tests with Acceptable Results.....	86

TABLE OF CONTENTS

G	<u>MINERALS</u>	
	G-1 Effect of Mining Activities	87
	G-1a Fy9 Project List for Mining Activities.....	89
	G-2 Geophysical Prospecting.....	90
	G-3 Drilling Effects	91
	G-4 Rehabilitation	92
	G-4a FY9 Project List for Rehabilitation of Disturbed Areas	93
	G-5 Mineral Availability.....	94
J.	<u>LANDS</u>	
	J-1 Compliance With Use Permits.....	96
	J-1a Special Use Permits	97
	J-2 Right-Of-Way Easements.....	98
	J-2a Easement Acquisitions	98
	J-3 Land Exchange (Acres).....	98
	J-3a Land Exchange (Acres).....	99
	J-4 Landline Location	99
	J-4a Landline Location Accomplishment (miles)	100
L.	<u>FACILITIES</u>	
	L-1 Road & Trail Construction/Reconstruction	101
	L-1a Miles Of Road Constructed	102
	L-1b Trail Accomplishments for FY 9	102
	L-2 Miles of Road Open	103
	L-2a Miles of Open Road by Management Area	104
	L-3 Road Decommissioning	104
	L-3a Road Decommissioning (miles).....	105
P.	<u>PROTECTION</u>	
	P-1 High Risk Stands.....	106
	P-1a Removal of High Risk Lodgepole Pine (percent)	106
	P-2 Acres/Volume of Insect & Disease	106
	P-3 Management Practices	107
	P-4 Prescribed Fire & Air Quality	108
	P-5 Fuel Treatment Outputs	109
	P-5a Activity & Natural Fuel Accomplishment (Acres)	109
	P-6 Wildlife	109
	P-6a Wildfire Area Burned (acres)	110
	P-7 Suppression & Protection Costs.....	110
	P-7a Suppression & Protection Costs.....	110
W.	<u>WILD & SCENIC RIVERS</u>	
	W-1 Effects on Eligible Rivers.....	111
I.	<u>GENERAL</u>	
	I-1 Costs & Values.....	112
	I-2 Emerging Issues	112
	I-3 Allocation of Management Areas and Acres	117
	I-3a Allocation of Management Areas and Acres	117
	I-4 Employment/Income Projections.....	118
	I-4a Employment & Income Comparisons.....	118

TABLE OF CONTENTS

IV. COMPARISON OF OUTPUTS, ACTIVITIES, AND BUDGETS..... 120

 TABLE I - Comparison of Projected Outputs/Activities by Time Period..... 120

 TABLE II - Comparison of FY 199 Expenditures/Accomplishments vs FP Projections vs. Outyear Requests...121

V. LIST OF PREPARERS..... 123

VI. APPROVAL 124

APPENDIX A 125

I. INTRODUCTION

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. This report summarizes the monitoring and evaluation findings for Fiscal Year 1999, but also reports findings since our last published monitoring report in 1994.

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 Forest Plan. Using this process, resource specialists are currently reporting on 75 individual monitoring items. Monitoring items have been added, revised, or deleted as new information has become available.

Within the last 13 years, twenty-one 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 of site-specific projects. Since our last monitoring report in 1994, Forest Plan Amendments 18, 19, 20 and 21 have been signed. These are outlined below:

- **Amendment 18:** Changed management area designation on 15,910 acres in the Running Wolf project area in the Little Belt Mountains. This change reduced the amount of suitable timber base (Management Area B) and

expanded acreage designated for mining (Management Area L) and for maintenance of Forest resources (Management Area G). About 200 acres previously in Management Area H (developed recreation) were assigned to MA B. This amendment was implemented in 1995.

- **Amendment 19:** Changed management area designation on 40,492 acres in the Castle Mountains as a result of environmental analyses conducted for the Castles Range Analysis. Management Areas C, D, E, G, H, and J were affected. It also established a new open road density of 2.5 miles per square mile for Management Area D in the Castles. This amendment was implemented in 1997.

- **Amendment 20:** Added the Big Snowies Research Natural Area. This re-allocated 3,145 acres from Management Area F (semi-primitive recreation) to Management Area M (Research Natural Areas). This amendment was implemented in 1997.

- **Amendment 21:** This changed Forest-wide management standards and management area prescriptions resulting from the oil and gas leasing decision. Management standard G-2 identifies stipulations needed to provide resource mitigation measures with respect to oil and gas leasing. Analysis conducted in the Oil and Gas Leasing EIS refined, changed, or added to these standards.

The Forest conducted a thorough review of our progress five years after the Plan implemented (1992). This review identified findings, some of which resulted in a need to change the Forest Plan,

I. INTRODUCTION

including Forest Plan monitoring items. This report contains recommendations by Forest specialists as a result of 13 years of monitoring and implementation. Recommendations were made as to whether the Forest Plan monitoring item provided an accurate measure of management prescriptions, outputs or effects, and if not, what would be a more accurate measure. Recommendations were made when monitoring resulted in identification of a need to change Forest Plan direction. The Forest is preparing to revise the Forest Plan. Currently, "eastside" forests, including the Lewis and Clark, Helena, Gallatin, Custer and Beaverhead-Deerlodge, are conducting an assessment of conditions and trends across a broad-scale to determine a need to change management strategies in light of changed conditions or new information. Monitoring results are being incorporated into this effort.

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

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 for the Plan.

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

III. MONITORING RESULTS

RECREATION

A-1 Recreation Opportunity Spectrum Setting

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Recreation Opportunity Spectrum setting being implemented	Annually	+/- 10% of projected ROS setting	No	No

FINDINGS

Recreation Opportunity Spectrum (ROS) settings are being implemented in line with Forest Plan management area direction. The Forest Plan projected an increase by 73,000 acres of "Roaded Natural" lands, with a decrease in the same amount of "Semi-Primitive" lands over the next 50 years. Changes in ROS settings from one setting to a more developed setting are typically the result of either 1) new road construction in a semi-primitive ROS setting or 2) change in travel plan restrictions from exclusively non-motorized trail use to motorized use. Additionally, in developed recreation sites, e.g. campgrounds, the introduction of artificial materials may "push" a site towards a more developed ROS setting if done on a large scale.

In the FY95-99 time period, new road construction averaged roughly 2 miles per year, according to Management Attainment Reporting. Most was associated with timber sale activity and occurred in areas already considered Roaded Natural, and, therefore, did not change existing ROS settings. Where construction occurred in Semi-Primitive ROS settings, it changed the setting to

Roaded Natural. Such was fully anticipated in the Forest Plan, and is in line with the Forest Plan Management Area prescriptions for the areas of involved road construction.

There have been little or no change in travel management wherein nonmotorized trails became designated motorized routes. Thus, existing ROS settings were maintained.

Concrete picnic tables have been installed during reconstruction in Mortimer, Aspen, Jumping Creek, and Kings Hill campgrounds. Additionally, the Forest almost exclusively has used high quality concrete toilets over the last 10-15 years because of their low maintenance costs. While the use of these "non-native" materials may be inconsistent with guidelines for Roaded Natural ROS settings, they were opted for because their low maintenance requirements met over-riding management needs. ROS settings were not changed by the use of these concrete facilities, but caution needs to always be taken to select materials that meet desired ROS settings.

RECOMMENDATIONS

Successful implementation of an ROS setting requires the recognition of effects site improvements can have on a setting. Roads, trails, site furnishing in the built environment, gates, fences, and other range improvements should vary in finish, color, kind of material, and refinement of design to reflect the desired ROS settings.

The Forest can improve in this area by identifying the existing/desired ROS settings whenever any changes in site improvements are planned. Upcoming national direction on how the built Forest Service environment should appear is forthcoming. Training on this direction is recommended for all Forest Service employees.

A-2 Recreation Direction Meets Visitor Expectation

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Direction meets expectation of visitor	Annually	Adverse comments or correspondence	No	No

FINDINGS

Developed Sites: Significant campground rehabilitation over the last five years is beginning to improve the condition of the Forest's campgrounds. Campgrounds fixed in this time period include Mortimer, Aspen, Jumping Creek, Many Pines, and Kings Hill campgrounds. Publics using the Forest's existing, minimal development level campgrounds seem to generally be satisfied with the facilities and movement toward the lower end of the development scale, although we're not really seeing or hearing people's comments that don't use our facilities. Maintenance levels of older campgrounds are not always adequate to keep facilities in good condition and reflect funding shortages in maintenance and operations. There are occasional requests for more developed facilities. Campgrounds are adequate in capacity to support existing and future use levels for some time. There is good support for campground rehabilitation efforts, including the

replacement of old smelly toilets. Most campground users accept Pack It In-Pack It Out policies. There is a desire by some campground users that the Forest provide firewood at those facilities. The cabin rental program is popular.

Road Maintenance: Complaints have been received about poor road maintenance and resultant chuckholes impacting recreationist vehicles. Lack of adequate road maintenance funding has been the problem, and is especially felt by recreationists using roads to access campgrounds. Some believe that chuckholes and ruts should not be fixed on primitive roads in order that user use levels don't increase.

Trail Maintenance: Lack of adequate trail maintenance funding has resulted in more trails needing reconstruction or heavy maintenance. We receive complaints from the public on washouts

RECREATION

and ruts in our trails. We also receive complaints about damage to trails caused when stock and motorized vehicles use trails when the ground is wet and easily impacted.

Travel Management: Mixed feelings exist within the public as far as how much and where motorized and nonmotorized use on and off trails should be permitted. Complaints have been received about the impacts to trails by motorized use, especially during the wet season (trail tread damage) or during hunting season (when motorized use can conflict with nonmotorized users). There is reluctance by some within the Off Highway Vehicle community to accept restrictions on areas and trails where they could previously use their motorized vehicles. We've received complaints about allowing motorized use within wilderness study areas.

Other: Outfitter-guide services appear to be adequate to meet public demand.

There is a desire among some to have more activity-specific brochures directing them to where they can pursue specific activities.

Legal access to the Forest is in demand, but our right-of-way acquisition program is limited in its ability to obtain desired access. Where we have existing access, there remains opposition by some to the gating of Forest roads to protect existing resources.

RECOMMENDATIONS

The Forest will continue to determine public expectations for our developed sites by learning both the desires and needs of the public that use and don't use our recreation sites or Forest. This could be accomplished with public meetings or with an "ad hoc" group of users we meet with occasionally. A revision of the travel plan is in process to identify any needs to change travel management to resolve resource concerns and conflicts between motorized and non-motorized recreationists. A review of the Forest access program is warranted to determine how it might be strengthened. Additional emphasis should be placed on trail and campground maintenance funding. Continue with the existing campground rehabilitation program.

A-3 Recreation Use

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Actual use of developed and dispersed recreation compared with projected use levels	Annually	+/- 25% variance yearly or +/- 10% over 1 5-year period.	Yes	No

FINDINGS

The use numbers shown below are in Thousands of Recreation Visitor Days (MRVDs). They reflect the method employed by the Forest Plan in calculating these values. Previous year's

calculations incorrectly accomplished this, and should not be used for any analysis. Figures are available only through 1996 because of recent changes in use reporting.

A-3a Developed and Dispersed Recreation Use Levels 1993-1996

Recreation Type	Forest Plan Projection (MRVDs)	1993 (MRVDs)	1994 (MRVDs)	1995 (MRVDs)	1996 (MRVDs)
Developed	189	237.3	333.8	377.2	378.6
Dispersed (non-Wilderness)	793	618	642	719	736
Wilderness	101	58	64.2	65.1	65.6

This information indicates that developed site usage is substantially greater than projected in the Forest Plan. Dispersed use levels are much closer to projected levels, while wilderness use is substantially below the projected level.

It should be recognized that use figures are best estimates only, and are not the result of statistically valid sampling techniques. At best, the figures above suggest a consistent increase in developed recreation, which includes campgrounds, picnic grounds, recreation residences, downhill skiing, resorts, and organization camps. Similarly, dispersed recreation is increasing, but has not exceeded projected levels contained in the Forest Plan. Wilderness use has been relatively flat.

A statistically valid Recreation Use Study will be conducted for all National Forests between FY 1999 and FY 2002. The Lewis and Clark National Forest will be surveyed in FY 2001. The figures for total

recreation use of the Forest will become available after September of 2002. The figures will represent the first study done to accurately portray use on the National Forests. In the past, with some exceptions, little time has been dedicated to taking use estimates on this or other Forests. This is common across most national Forests. The agency recognizes the difficulty in collecting accurate use figures and is making an effort to provide better use figures to Congress through a consistent sampling technique. Use figures obtained so far on other forests show that use is roughly half of previous agency estimates. If this is also the case on the Lewis and Clark, it may be that use is increasing at a rate substantially less than shown by the above figures, and probably at a rate more in line with the state's annual increase in population.

RECREATION

RECOMMENDATIONS

The variability that would initiate further evaluation is presently not possible to determine accurately for the Forest using past estimates of use. Instead, it is

recommended that the FY2001 Recreation Use Study for the Forest be used to determine that year's use, and compare that with anticipated use figures contained in the Forest Plan to see if variability requires further evaluation.

A-4 Condition of Developed Sites

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Recreation condition of developed sites.	Annually	Less than acceptable standards, public safety hazards not corrected by 1990, poor conditions not corrected by 2005.	No	No

FINDINGS

The Forest was successful in obtaining funds to reconstruct many of its campgrounds between 1995 and 1999. These included Mortimer Campground on the Rocky Mountain Front, and the four fee campgrounds along Highway 89 between Armington Junction and White Sulphur Springs. The Forest has installed more than 13 new concrete sweet-smelling toilets (SST) during the 1995-1999 monitoring period. We have had no identified public safety hazards within our developed sites, but there remains a large amount of maintenance and reconstruction work in campgrounds, most of which were constructed in the 1960's.

The Forest is participating in a national effort by the Forest Service to inventory its

entire "backlog" of maintenance that has been deferred because of lack of resources. This four-year effort began in 1999. One year of data has been entered. Once the inventory has been completed, it will be possible to document the kinds of facilities and the total amount of funds needed to maintain our developed sites to certain standards. These standards are based upon a national system entitled "Meaningful Measures".

RECOMMENDATIONS

Continue with the ongoing inventories of developed sites, as mandated by Congress.

A-5 Recreation Opportunity Guide.

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Recreation Opportunity Guide	Annually	Failure to complete by 1986	Yes	No

FINDINGS

The Forest elected to use other methods such as our Internet website, to reach a greater percentage of Forest users.

RECOMMENDATIONS

Delete this monitoring item, but provide more emphasis on developing "where to go" and "mountain range-specific" brochures or electronic information to

ensure the public has access to information on Forest recreation opportunities. During the 1995-1999 monitoring period, the Forest completed several recreation brochures, including the C.M. Russell Auto Tour; Hidden Basin Wildflower Trail, Crystal Lake Interpretive Trail, Lewis and Clark Mountain Biking Guide; and the Highwood Mountains Recreation Map.

A-6 Off-road Vehicle Damage and Travel Plan

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Off-road vehicle damage & Travel Plan effectiveness	Annually	Conflicts with Forest Management Area goals. Increase of 20 or more situations or variances.	No	No

FINDINGS

An analysis of off-highway vehicle use is currently being conducted for a 3-state area including National Forest and Bureau of Management lands in Montana, North and South Dakota. The Final EIS is expected to be released in 2001. The preferred alternative in the DEIS would restrict OHV use to existing roads and trails. The Forest is presently revising its Travel Plan to address resource and user concerns. Some of those concerns are documented below.

Off-road vehicle damage has increased significantly in the 1995-1999 reporting period. ATV use is the fastest growing motorized recreation activity on the Forest. Motorcycle and 4x4/Jeep use is relatively stable. Reports of motorized vehicle damage; travel plan effectiveness; social conflicts; and law enforcement violations, by ranger district are provided below:

Rocky Mountain R.D.

Damage: User created roads in Teton, Hannan, Home Gulch, Red Lake, McCarty Hill, and Willow Creek drainages from 4x4 users. Snowmobiles topping trees when snow depth is inadequate. Incursions of snowmobiles into wilderness in the Teton River drainage have been noted.

Travel Plan Effectiveness: Illegal snowmobile use in the wilderness as a result of improved capabilities of snowmobiles (more power, deeper cleats, etc.). Dual road use conflicts between snowmobiles and trucks on roadways during spring and fall. ATV and motorcycle use on roads is a safety issue where not permitted in Travel Plan.

Social Conflict between users: Greatest conflicts occur in the Badger-Two Medicine between the various users. Remainder of conflicts occur along major roads into the district and involve speed and illegal use of ATVs and motorcycles on these roads.

Law Enforcement Violations: The District reported 2 incidents and 2 warning notices regarding the use of Forest roads or trails and off-road vehicle use during 1999.

Judith R.D.

Damage: Heavy use of trails, as well as poor design of trails created decades ago, has resulted in erosion impacts along certain trails. They are not the result of illegal use in violation of the travel plan.

Travel Plan Effectiveness: The travel plan seems to be working well in the Highwoods, with few complaints about illegal motorized use. This occurs during

hunting season, when two or three complaints are received annually for the Shonkin area, where ATV use is reported. The Big Snowies generate more reports of ATV and motorcycle violations, and these occur primarily during the hunting season. In the Little Belts, the majority of Travel Plan violations occur in the Middle Fork Judith Wilderness Study Area. User-built trails by ATVers are a problem. Arch Coulee trail, Lost Fork trail, and Morris Creek trail are repeatedly used illegally by ATVers, despite efforts to barrier the trails to their use.

Social Conflict between users: Social conflict complaints are predominantly from the Middle Fork Judith Wilderness Study Area and the Big Snowy Wilderness Study Area. In the Middle Fork Judith, complaints are primarily from non-motorized users complaining about motorized users using the same trail, especially along the Judith River, where both user types are concentrated on the same trail. Complaints have been made about motorized use in the Big Snowies violating the Travel Plan. ATVs and motorcycles violate the Travel Plan along the perimeter of the Big Snowies. In the Highwoods conflicts seem minimal, possibly because users know that other kinds of users will be present.

Law Enforcement Violations: No travel plan violations or incidents were noted on the Judith Ranger District during FY99.

Musselshell R.D.

Damage: The district trail system has suffered from motorized use during the wet season, causing the need for one trail complex to be rebuilt after initial heavy investment in reconstruction. This has necessitated that the District place most

of its trail construction and maintenance efforts on just a few miles of badly impacted trails. User-built ATV trails are a concern and occur frequently. ATV impacts are a larger problem than those from motorcycles, but both contribute to resource problems.

Travel Plan Effectiveness: It is being adhered to with the exception of the ATV/motorcycle problem of numerous user-built trails and use of these vehicles on wet trails, resulting in significant trail damage. Lack of personnel to enforce the Plan is a concern. The current Travel Plan allows cross-country travel in many locations, which can lead to user-built trails occurring in some areas. Closing trails to motorized use can be ineffective if the surrounding land is open to motorized use.

Social Conflict between users: This is largely a hunting season issue between ATVs and foot traffic. Game retrieval with these machines, as well as incursion into non-motorized country during hunting season, creates conflict with nonmotorized hunters.

Law Enforcement Violations: No travel plan violations or incidents were noted on the Musselshell Ranger District during FY99.

Kings Hill R.D.

Damage: Impact areas include the Deep Creek drainage (motorcycles and ATVs); Dry Fork Belt Creek drainage (ATVs and user-built roads); Castle Mountain trails (motorcycles); Moose Park and Higgins Park (user-built roads); Miller Gulch (user-

built roads); Jefferson Creek (ATV use); and the Hoover Ridge area (motorcycles and ATVs).

Travel Plan Effectiveness: Restrictions are not being adhered to in many areas, particularly in terms of closed roads and restricted trails. The large number of violators makes law enforcement that much more difficult, and law enforcement resources are sparse. Cross-country travel in areas open to such use can result in user-created trails. Concern has been expressed that the travel plan is difficult to read, or doesn't effectively portray Forest Plan goals and desired future recreation conditions.

Social Conflict between users: ATV user conflicts occur during both the summer and hunting seasons and are centered in the Deep Creek drainage and the Pilgrim Creek drainage. Conflicts between motorcycle use and non-motorized users are limited mostly to the summer. Some hikers have expressed a desire for "quiet" trails. Some hunters perceive use of motorized equipment during hunting season as gaining an unfair advantage. Snowmobile/cross-country skier conflicts are centered in the area surrounding the Kings Hill Snowmobile Parking lot area. Dual use conflicts occur along the Strawberry Butte (Road 119) and Moose Creek (Road 204) areas and involve snowmobile and wheeled vehicle conflicts during the spring and the fall.

Law Enforcement Violations: The District reported 5 incidents regarding the use of Forest roads or trails and off-road vehicle use during 1999.

A-7 Condition of Visual Resources

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Condition of the visual resource meets objectives in Forest Plan	Annually	Deviation from approved VQOs, ID Team review of environmental analysis	No	No

FINDINGS

Visual Quality Objectives (VQOs) are determined for all projects requiring NEPA analysis, and are being met in accordance with the Forest Plan. The Forest landscape architect is involved in any large timber sale proposals or other management activities, and helps ensure that the scenery resource receives adequate consideration.

From 1995 through 1999, 186 regeneration harvest units (clearcuts, seed trees, shelterwoods, or final cuts) were cut across the Forest, according to ArcView GIS information. Only one occurred on the Rocky Mountain Ranger District. No regeneration units occurred in the Highwood Mountains, Big and Little

Snowies, and the Castles. Three units were cut in the Crazy Mountains, and the remaining 182 units were harvested in the Little Belt Mountains.

Of the 186 regeneration units, 97 occurred in landscapes viewed from visually sensitive (Sensitivity Level 1) roads and trails viewpoints as described in the Forest Plan, Management Standard A-8. Many of these units were reviewed in the field before and after harvesting. Others have been reviewed indirectly from aerial photos to determine whether they met Visual Quality Objectives contained in the Forest Plan. No substantial deviation has been noted.

A-8 Cultural Resource Management (Identification and Protection)

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Comparison between Forest projects which needed cultural resource consideration and Forest projects which received consideration of the cultural resources	Annually	More than 10% of projects out of compliance.	No	No

FINDINGS

Monitoring item A-8 requires a comparison between identified undertakings and the number of surveys conducted on an annual basis. Forest records indicate that from 1995 through 1999 no projects were initiated without consideration of cultural resources. Forest project lists are compiled annually and are reviewed by the Forest Archeologist. In addition, the NEPA quarterly report also lists proposed projects and the Forest Archeologist is regularly consulted on unplanned projects. Projects are considered by the Forest Archeologist to determine whether the proposed action constitutes an Undertaking (as defined in 36 CFR 800), whether the action requires survey for cultural resources, or whether the proposed action can be considered under the existing Programmatic Agreement for the management of cultural resources. Since 1995 no eligible properties have been nominated to the National Register of Historic Places, although a Formal Determination of Eligibility was sought from the Keeper of the Register in 1997 for properties identified as having traditional cultural importance in the

Badger-Two Medicine area. The Keeper requested that other considerations be taken into account prior to making a determination. This has been ongoing. From 1995 through 1999 one hundred and seventy-four sites were identified, inventoried, and evaluated (1995 - 35 sites; 1996 - 20 sites; 1997 - 32 sites; 1998 - 33 sites; 1999 - 54).

During fiscal years 1995 through 1999 the effects of 263 projects on cultural resources were considered. These considerations resulted in 194 surveys for cultural sites, several documentation of no adverse effects, and one adverse effect consultation. The remaining projects were considered pursuant to the existing Montana Programmatic Agreement. One summary data collection report, one ethnographic overview, two monitoring report, and four Passport-In-Time projects were completed by Forest Cultural Resources staff during this time period. A review of the completed surveys and data input indicate that monitoring item A-8 was met for FY's 1995, 1996, 1997, 1998, and 1999.

A-9 Cultural Resource Management (Effectiveness) -

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION
Effectiveness of cultural resource mitigation proposed during FY	Annually - 20% of sites	10% or more of the inspected sites impacted

FINDINGS

Inspection of identified sites in project areas is required in monitoring item A-9. This requirement was met during fiscal

years 1995 through 1999. During this period, ten sites, which had the potential to be impacted, were located in project

RECREATION

areas. Inspection of these sites during and after project implementation indicated that the anticipated impacts were successfully mitigated. One adverse effect to historic mining tailings was also documented in 1997. Consultation with the Montana State Historic Preservation Officer and the Advisory Council On Historic Preservation, as well as site monitoring, mitigated the effects of this adverse action.

Monitoring of previously recorded sites associated with proposed projects or in areas of completed projects was also conducted during the 1995 through 1999 Fiscal Years. During this period, more than 83 cultural sites were inspected for impacts from natural causes (erosion) or cultural causes (illegal collection/excavation, project impacts, etc.).

A-10 Cultural Resource Management (Interpretation)

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Interpreting, nominating, or protecting cultural resource sites	Annually - 100% sites	If sites have not been interpreted, or protected during the fiscal year	No	No

FINDINGS

Currently there are 453 sites recorded on the Forest. Of these, two have been interpreted, one has been listed on the National Register, one is a National Historic Landmark, two are currently being stabilized for interpretation, and several historic administrative sites have been maintained (preserved) using acceptable historic preservation

techniques. Since 1995 **nine** historic, administrative sites have been protected and two interpretive signs (interpreting Gibson lake trail) have been installed. Because several sites have been interpreted or preserved since 1995, the requirements of monitoring item A-10 have been met.

A-11 Cultural Resource Management (Inspection)

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Inspect interpreted sites for impacts caused by increased public awareness and visitation	Annually - 20% of sites	If an interpreted site was damaged as a result of interpretation	No	No

FINDINGS

Since 1995, the Forest Archeologist has conducted annual inspections of interpreted sites on the Forest. To date, only one of these sites has sustained damage as a result of increased public

awareness. In 1997 it was noticed that someone had carved his or her initials into one of the signs at 24TT006 (an interpreted pictograph panel in Sun Canyon). No additional impacts have occurred at this site since 1997.

A-12 Cultural Resource Management (Program Effectiveness)

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Effectiveness of Heritage Program and implementation of Forest Plan (assessment of inventory methods used to identify cultural resources)	Annually - 5% of surveys	If previously unidentified cultural resources are discovered in surveyed areas	No	No

FINDINGS

Since 1995, the Programmatic Agreement Regarding Cultural Resources Management on the Forests in Montana has ensured compliance with monitoring item A-12. As part of the Programmatic Agreement, all prescribed burn areas over 100 acres in size will receive a 10% preburn sample survey and a 20% postburn sample survey. This survey methodology has been successfully utilized on the Forest from 1995 through 1999. In 1995, 35 surveys for cultural resources were conducted. Four of these received post project surveys; 3 of the 48 surveys in 1996 received post project surveys; 1 of the 33 surveys conducted in 1997

received post project surveys; 4 out of the 36 surveys in 1998 received after project surveys; and 3 out of 42 surveys in 1999 received after project surveys. While the majority of post project surveys were associated with prescribed fire, occasional survey transects were placed through other previously surveyed project areas. The result of these monitoring surveys between 1995 and 1999 resulted in one previously undiscovered site. The post burn surveys conducted between 1995 and 1999 have successfully met the requirements of monitoring item A-12.

WILDERNESS

B-1 Wilderness - Quality of Ecosystem

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

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	Change Monitoring Item?	Change Forest Plan?
Bob Marshall-Great Bear-Scapegoat Management Division	Annually	Failure to meet timetable established in Appendix U of the Plan.	No	No

FINDINGS

The monitoring results are presented in the annual Wilderness Reports in Appendix A of this Monitoring Report for Fiscal Year 1997. The Bob Marshall-Great Bear-Scapegoat Wilderness Complex managers

were not able to do their normal monitoring in Fiscal Years 1998 and 1999 because of lack of budget. An analysis of the last five years of monitoring results is planned for late 2000.

B-3 Change in Roadless Inventory

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Change in Roadless Inventory	Annually	+/- 10% of projected change in roadless inventory	No	No

FINDINGS

As noted in the 1993 monitoring report, 10,860 acres were added to the inventoried roadless base as a result of the Galt land purchase in the Crazy Mountains. The 1994 monitoring report notes a net Roadless acreage of 1,009,838 on the Forest.

Since 1994, harvest activity authorized through the 1995 Running Wolf EIS and Record of Decision affected 1,600 acres in the Tollgate-Sheep Roadless Area. In 1996 through 1999, there were no projects that resulted in a change in inventoried roadless acreage on the Forest. **The new net acres of Roadless lands on the Forest is 1,008,238.** (Note: as information is generated using GIS spatial information, acres are likely to be revised based on more specific delineations).

The Forest Plan projected total inventoried roadless acres for the Forest for the first decade (1995) at 943,000. A

10% change in roadless acres projected by the Forest Plan for 1995 would be +/- 94,300 acres. Further evaluation would be initiated if the 1995 inventoried roadless acres fell below 907,932 or above 1,096,532. Current roadless acres indicate no need for further evaluation.

In October 1999, the Forest Service published a notice of intent to prepare an environmental impact statement addressing issues surrounding the protection of remaining roadless areas. Under the preferred alternative, road construction and reconstruction in remaining unroaded portions of inventoried roadless areas would be prohibited. Local managers would evaluate whether and how to protect roadless characteristics during forest plan revision. The rulemaking process is projected to be completed by December 2000.

WILDLIFE

C-1 T&E Species: Grizzly Bear Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Grizzly Bear - Maintain Occupied Habitat Capacity	Annually	Any indication of downward trend in grizzly bear population	No	No

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).

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

FINDINGS

Grizzly Bear Recovery Efforts

Monitoring efforts in accordance with the Grizzly Bear Recovery Plan we continue to record sows with young (2 or 3 year old) and cubs of the year. Results from 1987 to 1999 have demonstrated occupancy by sows with cubs in all Bear Management Units (BMU) on the Rocky Mountain Ranger District (RMRD) except the Dearborn-Elk BMU (Table C-1a). Whether the low count could be a result of the Canyon Creek fire of 1988 or the lack of surveying is unknown. The BIRTE (Birch Teton) and BADTW (Badger Two-Medicine) BMUs still continue to produce the most cubs, with the Teton BMU being the 3rd best producer of cubs.

TABLE C-1b. RMRD Food Storage Order Incidents, 1995-1999.

Year	Verbal Warnings	*Written Warnings	*Citations	Total Incidents
1995	6(1)	0	0	11(1)
1996	7(2)	0	2(0)	12(2)
1997	1	7(4)	2(0)	19(7)
1998	data not available at this time			
1999	0	6(0)	5(1)	38(5)
5 Yr Total	14(3)	13(4)	9(1)	80(15)

*Numbers in () are incidents in wilderness.

Data for 1999 do not indicate whether verbal warnings were issued when written warnings or citations were not issued.

Nuisance Bear Actions - Nuisance bear incidents are defined in the RMRD Problem Bear Management Guidelines as follows:

- Sightings: observation of a bear not engaged in a human or property interactions made at greater than 5 yards from the bear.
- Repeat Sightings: subsequent sightings made within a 5-day interval within 1/4 mile of initial sighting.
- Encounter: observation of a bear not engaged in a human or property interaction from a site that is less than 5 yard from the bear.
- Threatening Encounter: bear-human interaction in which the human perceives the bear to be in the initial stages of attack.
- Property Interaction: actual or attempted removal or damage of human property, excluding livestock, by a bear.
- Human Injury: death or bodily injury directly or indirectly produced by a bear.
- Livestock Depredation: death or injury of livestock directly or indirectly produced by a bear.

Between 1995 and 1999 there were a minimum of 101 nuisance bear incidents reported on the RMRD (Table C-1c). The majority of those reports (57) were property interactions, which may reflect the tendency of people to report damage rather than to report sightings or repeat sightings that do not involve harm to personal possessions or threats to life and safety. Many separate nuisance reports represented repeat incidents with individual bears. For example, one or two grizzly bears may have been responsible for up to 13 separate nuisance bear incidents in 1999. Most nuisance bear incidents were reported in July, August, and October (Table C-1d). This may reflect increased human presence on the forest during those months, and therefore increased opportunities for encounter with bears, rather than reflecting patterns of bear activity. The reported incidents may underestimate the number of actual incidents occurring on the RMRD, as not all incidents are reported or recorded, and some may be reported directly to Montana Fish, Wildlife, and Parks (MFWP) personnel who are responsible for any actions taken to aversively condition or remove offending bears.

Table C-1c. RMRD Nuisance Bear Incidents, 1995-1999.

Year	Species	Sighting	Repeat Sighting	Encountr	Threat Encount r	Property Interacti n	Human Injury	Livestck Depredtn	TOTL	Relocate	Removal
1995	Black	3	1	0	2	4	0	0	10	1	0
	Grizzly	1	0	0	0	0	0	0	1	0	0
	Unk	0	0	0	0	0	0	0	0	0	0
1996	Black	1	6	1	0	8	0	0	16	0	1
	Grizzly	4	4	2	1	5	0	0	16	0	0
	Unk	0	0	0	0	0	0	0	0	0	0
1997	Black	0	0	0	0	0	0	0	0	0	0
	Grizzly	0	1	0	0	1	0	3	5	0	0
	Unk	0	0	0	0	2	0	1	3	0	0
1998	Black	0	3	3	0	4	0	0	10	1	0
	Grizzly	1	0	0	0	0	0	0	1	0	0
	Unk	2	0	0	0	0	0	0	2	0	0
1999	Black	1	3	2	0	14	0	0	20	0	0
	Grizzly	0	0	0	2	15	0	0	17	0	0
	Unk	0	0	0	0	4	0	0	0	0	0
5 yr Total	Black	4	13	6	2	30	0	0	56	2	1
	Grizzly	6	5	2	3	21	0	3	40	0	0
	Unk	2	0	0	0	6	0	1	5	0	0
TOTAL		12	18	8	5	57	0	4	101	2	1

Unk = Unknown

Table C-1d. Nuisance Bear Incidents by Year and Month

Year	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1995	0	0	6	3	1	1	0	0	0
1996	0	0	1	18	3	2	4	1	0
1997	0	0	0	1	2	1	1	3	0
1998	0	0	0	18	2	0	0	0	0
1999	0	2	0	10	8	1	16	4	0
5 yr Totals	0	2	7	50	16	5	21	8	0

Grizzly Bear Conservation Efforts

Biological evaluations were completed in response to 7 Forest management activities within grizzly bear habitat (Management Situation 1) in 1998 and 1999. The activities were either wildlife improvement projects or projects in support of other resource activities (eg. trail construction, small timber sales, range management plans). All projects

resulted in a "not likely to adversely affect" or "No Effect" determination for the grizzly bear.

RECOMMENDATIONS

None at this time.

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

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Gray Wolf, Bald Eagle, Peregrine habitat capacity	Annually	Deterioration or continuing disturbance on more than 5% of suitable unoccupied habitat	Develop consistent M&E approach across Forests/ Regions	No

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 aeries for occupancy.

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.

WOLF FINDINGS

In 1989, the Lewis and Clark National Forest began a long-term study of wolf recolonization along the Rocky Mountain Front. The goal of the 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.

In 1993, a breeding pair was discovered using lands between Sun River and Elk Creek, primarily east of the Forest boundary. The male was radio collared in February. This pair produced four pups in April; two of these pups were radio collared in September.

During the spring of 1994, a confirmed depredation on a young calf occurred. This was followed by a probable depredation and 2 calves suffering broken legs due to cattle that were stampeded by the wolves. This prompted the U.S. Fish and Wildlife Service (USFWS) to remove and relocate two yearling wolves in Glacier National Park. Both of these wolves moved into Canada, one was legally shot in Alberta and one was legally trapped in Alberta. The alpha pair raised a litter of 6 pups during the summer of

Between 1989 and 1992, the project focused on establishing the level of wolf

1994, bringing the pack size to 10 wolves. The alpha male wolf shed his radio collar during late June or early July.

By the spring of 1995, the pack consisted of 6 wolves. Two additional yearlings were captured and radio collared to better track the packs activity. No pups were produced in 1995 even though there was activity at the den site. Reason for failure of production was not known.

In the spring of 1996 the female denned and produced pups. It was uncertain for a while how many pups were produced. In August the pack was seen killing a calf. Action was taken against the pack on August 29. The alpha female was shot and four pups were captured and sent to Yellowstone National Park. On September 8, another control action was taken against the pack for livestock depredation. One female was killed, one adult female was captured and collared, and an additional 6 pups were caught and transported to Yellowstone National Park. At the time there were 4 more pups that were seen of which one was caught and collared. This indicated that there were 14 pups raised in the pack this year. After

all the control action had taken place there were still 4 pups left in the pack. During the course of the winter of 1997 two pups died. In the spring of 1997 the two remaining pups again attacked and killed livestock. Control action was taken and these remaining two wolves were killed, thus ending the Sawtooth pack.

Survey work was completed in 1997 on the Rocky Mountain Ranger District. Most of the survey work was done in the wilderness. There was no confirmed evidence of wolves or pack activity. No specific work or surveys were conducted for wolves in FY 98 or FY 99.

BALD EAGLE FINDINGS

USFS biologists cooperatively assisted USFWS and MFWP biologists in completing bald eagle surveys during the month of January for the years 1995-1998. This survey route is part of the National Bald Eagle Survey to monitor the trend across the United States and the State of Montana. Table C-2.1 shows the results of the survey for the years of 1995-1998.

Table C-2a National Bald Eagle Survey

Year	Bald Eagle			Golden Eagle			Unknown	Total
	Adult	Immature	Subtotal	Adult	Immature	Subtotal		
1995	22	11	33	8	1	9	4	46
1996	16	15	31	0	0	0	2	33
1997	28	14	42	0	2	2	1	45
1998	27	9	36	1	0	1	3	40
1999	25	20	45	0	0	0	1	46

The Forest continues to survey or follow up on leads of nests, but to date no bald eagle nest have been discovered on the Forest. The MFWP continues to monitor all known nest sites in the State and the

Missouri river from Craig to Great Falls seems to be the most used area for nesting that is within the vicinity of the Lewis and Clark National Forest.

PEREGRINE FALCON FINDINGS

In the spring of 1995, the Forest and the Peregrine Fund Inc. initiated a partnership to introduce the peregrine back into the wilds of the Rocky Mountain Ranger District. A hacking site (artificial nest box) was placed on a cliff above Wood Lake. This site would be used for the next 3 years to release young birds, that were hand reared at the Fund's facility in Boise, into the wild. In 1995, six birds were placed in the hack box; five successfully fledged and departed from the hack site. In 1996, five birds were placed in the hack box with four successful fledglings. In 1997, four birds were released; only one was accredited with successful fledging. The reasons for poor success the final year were unknown. However, there was an adult peregrine seen with leg bands at the hack site interacting with the young falcon.

The hacking program has been completed and the Peregrine Fund no longer releases birds into the wild. The Forest is surveying for wild nest sites, but to date none have been found.

Survey efforts have included a partnership with Ralph Rogers to survey the Smith River. This was completed in July 1995 and again in 1997, with no success in locating any peregrine falcons.

In 1999, Ralph Rogers again surveyed the Smith River area in conjunction with monitoring for the BLM. One peregrine falcon nest was found on Forest Service land and the nest produced 3 young. This is the first recorded peregrine nest site on the Lewis and Clark National Forest.

RECOMMENDATIONS

Continue to do survey work to determine where any new nest sites are located and monitor the production of the nest on the Smith River.

C-3 Elk Winter Range Capacity

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Elk; winter range capacity (population levels), 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	Develop consistent M&E approach across Forests/Regions	at revision
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 Forest Plan revision.	Develop consistent M&E approach across Forests/Regions	at revision

METHODS

Information on elk population levels and sex:age ratios were obtained from MFWP progress reports, personal communications with MFWP 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 POPULATIONS LEVEL

Elk populations as defined by the state elk management plan are being met. The Department continued the either sex hunting season the last 9 days of the season in 1995, and it has been continued through to 1999. This season is targeted at reducing elk populations in some areas of the Little Belt/Castle elk management unit.

In 1998 the quotas on cow elk along the Rocky Mountain Front were reduced in order to build the population back to within the numbers that are required by the MFWP elk management plan. These same quotas remained in effect in 1999.

In 1998 the MFWP, through a purchase of an additional ranch, increased the area of the Judith Elk Game Range in the Little Belt Mountains. This purchase increases the game range to a total of 10,000 acres. Most of the elk that winter on this game range summer on the adjacent National Forest lands.

FINDINGS FOR ELK HABITAT EFFECTIVENESS

The Belt Creek Assessment was completed in March 1997. Elk security areas were examined for the area. The process that was established in previous years was applied. The area contains at least 30% security status with opportunities to increase this in some areas.

The Tenderfoot Experimental Forest project was analyzed in 1998. This area falls within Hunting District 413. Elk security analysis was completed on this area and was determined to be at 68% of the area. Harvest activities conducted for research purposes would reduce this to 67.8%. This reduction would not result in any adverse effects to the elk population for Hunting District 413.

In 1998/1999, the Dry Fork of Belt Creek project area was analyzed. This area lies within Hunting District 432. An analysis of elk security was completed and the area was determined to be at 19% for the Hunting District, and 54% for the Dry Fork project area. The project has not had a final decision made, so a final percentage has not been determined.

RECOMMENDATIONS

Continue to use the elk security model and incorporate it into the Forest Plan during the revision process.

C-4 Bighorn Sheep and Mountain Goat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	Develop consistent M&E approach across Forests/ Regions	At revision

METHODS

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

to be related to natural events or hunting regulations.

FINDINGS

Table C-4a displays the general population trends of bighorn sheep on the Rocky Mountain Division. There have been no actions implemented by the Forest since 1987 that would result in any decline or increase in the populations. Therefore, population fluctuations appear

Table C-4b displays the general population trends of the Rocky Mountain goat on the Rocky Mountain Division. There have been no actions implemented by the Forest since 1987 that would result in any decline or increase in the populations. Therefore, population fluctuations appear to be related to natural events, hunting regulations or management actions by the MFWP.

Table C-4a Bighorn Sheep Population - Rocky Mountain Division

Mountain Range	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Rocky Mtn south of Teton	908	582	1000	800	900	659	ND	630	142	425	345	434	432
Ewes	392	260		400	350	335	ND	168	90	175	ID	141	197
Lambs	133	134		200	250	176	ND	91	27	70		51	74
Rocky Mtn north of Teton	127	73	79	90	115	104	ND	ND	140	105	141	108	46
Ewes	34	25	29	37	60*	45	ND	ND	70	53	76	51	23
Lambs	23	5	7	12	29	23	ND	ND	27	31	29	31	13
Total Rocky Mtn Division	1035	655	1079	890	1015	763	ND	630	282	530	486	542	478

ND = No data, ID = Incomplete Data.

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

1995 was an incomplete count, only 2 Hunting Districts counted.

In 1999 there were 22 bighorn sheep from Sula, Montana that were released into the Deep Creek area to augment the herd. Of the 22, 21 were ewes and 1 was a ram.

Table C-4b Mountain Goat Population - Rocky Mountain Division

Mountain Range	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Rocky Mtn HD 414	33	28	46	43	32	18	ND	ND	35	10	3	19	19
Nannies	11	7	17	27	13	5			16	0	0	7	13
Kids	7	2	6	5	3	2			5	0	0	3	6
Rocky Mtn HD 415	56	52	73	58	90	77	ND	ND	32	ND	24	9	26
Nannies	23	18	31	44	48	34			17		11	4	16
Kids	13	19	11	7	17	22			4		5	4	3
Total Rocky Mtn Division	89	80*	119	101	122	95	ND	ND	67	10	27	28	45

ND = No data

* - Incomplete survey resulted from equipment failure. Data incomplete to determine population trend.
1996--Incomplete count.

The above table was designed to track the goat populations on the RMRD that are within the two hunting districts that allow hunting. However, the MFWP has been counting goats south of the Teton River since 1994. The results of these surveys show that on an average there were 26 goats (range 12-43) counted inside of the Sun River Game Preserve, and 15 goats (range 2-29) counted outside of the Sun River Game Preserve.

On the Jefferson Division of the Forest, the goat population continues to grow within the Highwood Mountains. This population was the result of goats expanding their range from Square Butte and Round Butte that lie to the east of the Highwood Mountains. In 1998, the first hunting season was conducted in the Highwood Mountains. Two permits for male goats were issued and both were filled. The minimum population in 1998 was estimated at about 40 animals by the MFWP.

The Big Snowies still support a small herd of goats. Population data are not available, however, the MFWP plans to collect population data in 2000.

During the 1995 to 1999 time period, goats appear to be expanding their range in the Crazy Mountains. Previously, the goats stayed on the Gallatin National Forest. However, there has been movement onto the Lewis and Clark National Forest and a legal goat was taken during the 1999 hunting season. Population figures are not known at this time.

RECOMMENDATIONS

This item needs to be reviewed and revised to reflect something meaningful in this data. It is difficult to project trends because the data is collected in an inconsistent manner and with varying degrees of effort.

C-5 Other Big Game Species

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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.	Develop consistent M&E approach across Forests/ Region	at revision

METHODS

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

Land and Cattle Company on the northwest corner of the Highwood Mountains. This ranch winters from 500-800 mule deer that then summer on the adjacent Forest Service system lands in the Highwood Mountains.

FINDINGS

In the past several years there has been a decline in the mule deer populations across the state. However, there appears to be a steady increase in populations in some areas. This has mainly been due to some mild winters. A 10,000 acre conservation easement was completed by the MFWP on the Harris

RECOMMENDATIONS

Work with the State to see if there is any meaningful way to monitor and record this information. If there is not, then delete this element.

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	Change Monitoring Item?	Change Forest Plan?
Distribution of lynx and wolverines based on annual sightings	Annually		Develop consistent M&E approach across Forests/ Region	at revision

METHODS

Data was obtained from reported sightings of these species by individuals (both private and public employees). Sightings are recorded in an electronic database and are used in analyzing effects of proposed projects on animal distribution, concentrations, and use.

FINDINGS

Snow track surveys have become a priority of field work for the winter months since 1995 on the Jefferson Division. 150-175 miles of survey have been completed on the Jefferson Division. It appears that there is a good population of wolverine in the Little Belt Mountains. They were previously thought to be rare. Lynx appear in very low numbers in the Little Belt Mountains. Only 4 or 5 tracks have been recorded since 1995.

In 1997 the MFWP established three long-term monitoring transects for furbearers on the Forest. Two were on the Rocky Mountain Ranger District; one on the Teton Road adjacent to the Teton Pass Ski Hill, the other in the South Fork of the Two Medicine River on Trail 101. The third transect was established in the Little Belt Mountains. These transects are run three times each winter; once each month from January to March.

The Teton Road transect consistently has lynx tracks crossing it while the Two

Medicine has some lynx and wolverine. Both of these routes are on groomed snowmobile trails. The Teton Road receives high use by snowmobiles. Based on these track recordings, it appears the Rocky Mountain Division has a much better lynx population than in the Little Belt Mountains.

The Little Belt Mountains transect is 17 miles long and is in a high snowmobile use area. This transect has revealed a high number of wolverine encounters and only one lynx track.

The Lewis and Clark NF was included in a National Canada lynx hair snare study. In the fall of 1999, 25 hair snare transects were established in the Little Belt Mountains. Thirty-eight hair samples were collected in 1999 for DNA analysis. Results of the DNA revealed that the only feline encounters were of mountain lion and bobcat. Because this is a national survey, these transects will be repeated in 2000 and 2001.

All of the location information has been entered into a GIS database to be used for analysis and display purposes.

RECOMMENDATIONS

Continue collecting data via snow tracking surveys and camera sets. Work with the Regional Office to help coordinate a wolverine study.

C-8 Old Growth Habitat for Goshawk

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	No	No

METHODS

The goal is to monitor all known goshawk nesting territories each year to establish occupancy and production, and compare the results of undisturbed territories (no high level 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.

Another 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 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

Table C-8a is a compilation of all the old growth forest acres that have been surveyed and allocated since the development of a standardized process that defines old growth and how it will be inventoried on the Forest. This process was developed following the 5-year review of the Forest Plan. It incorporates the Regional definitions of old growth. Table C-8a also displays the progress the Forest has made in achieving Forest-wide old growth forest inventory. 28% of the total Forest acres has been examined. The Little Belt Mountains and the Little Snowies have been the focus of the inventory because that is where most of the timber harvesting has taken and will take place. When one compares the acres of those two mountain ranges

(811,212 acres) to the acres of inventory, about 65% of these two mountain ranges have been examined. The Little Snowies

have been inventoried in total and allocation of old growth completed.

Table C-8a Acres designated as Old Growth 1988-1999

DISTRICT	PROJECT	PROJECT ACRES	OLD GROWTH ACRES (1)	ACRES ALLOCATED(2)
Rocky Mtn	S.Fk Two-Med		208	
Judith	S.Fk Complex	23,300	2,422	1,891
	Running Wolf	45,800	3,580	3,505
	Ettien Ridge	23,700	4,829	
Musselshell	Mill-Lion	6,200	1,027	1,027
	Spring Creek	36,400	4,415	4,415
	Little Snowies	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	6,900	6,256
	Tenderfoot	9,125	1,475	1,297
	Dryfork Belt Creek	40,700	4,672	**
	Belt Crk Assessmt	175,250	25,110	
TOTAL		524475	62888	26641

(1) Acres of forest that meet criteria for old growth

(2) Acres of old growth allocated for retention to meet Forest Plan Standards via decision document

**Dry Fork is still in decision making process

Goshawk Nest Territories

The result of the goshawk monitoring completed from FY 1987 through 1999 is summarized in Tables C-8b and C-8c. In 1996, three additional goshawk territories were discovered on the Jefferson Division and by 1997, two additional territories had been recorded on the Rocky Mountain Division. In 1998, the Forest conducted computer modeling for goshawk habitat. In conjunction with the neotropical bird

survey work, the Forest completed some goshawk calling surveys in the potential habitat as defined by the model. This was successful in discovering two new territories on the Jefferson Division in 1998 and one new territory on the Rocky Mountain Division. In 1999, three additional goshawk territories were identified on the Jefferson Division using the call playback method, and one new territory was discovered on the Rocky Mountain Division.

WILDLIFE

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

Description	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories	0	0	0	3	4	6	6	7	7	7	8	9
Territories Monitored	0	0	0	1	1	0	6	0	0	0	3	9
Territories Active	0	0	0	1	1	Unk	4	Unk	Unk	Unk	1	7
Fledglings Produced	0	0	0	Unk	Unk	Unk	1	Unk	Unk	Unk	2	3

Unk = Unknown

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

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories	8	9	11	14	17	22	22	22	22	25	25	27	30
Territories Monitored	3	7	7	9	10	16	10	13	7	14	24	27	30
Territories Active		-	4	6	8	3	3	4	0	4	1	10	10
Fledglings Produced		-	*	*	7	3	4	1	0	Unk	Unk	15	16

* - Attempted to monitor, but data inconclusive

The data are inconclusive as to total production and active territories because the 100% monitoring of all known territories has not been met during all years. As we continue to survey potential habitat, more territories being discovered.

RECOMMENDATIONS

It is recommend that the computer model for predicting goshawk habitat be further developed and validated to better predict the potential habitat. Additional survey work should be completed to detect whether there are active territories present.

C-9 Special Interest Species

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	Yes	Yes at revision

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 sites.

Biologists recorded and mapped the location and 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

The monitoring of these nest sites has been limited due to other priority work and limited funds. Generally these species nest on cliffs and little, if any, activity has taken place in the vicinity of these nest sites. They are generally undisturbed and require little monitoring to insure production or assess impacts.

A summary of golden eagle nesting territories is as follows:

Table C-9a Golden Eagle (Nesting Territories on Rocky Mountain Division)

Description	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories*	37	-	37	37	37	37	37	37	37	37	37
Territories Monitored	11	-	0	3	2	2	0	0	0	0	0

* - Includes territories on adjacent State and BLM lands

Table C-9b Golden Eagle (Nesting Territories on Jefferson Division)

Description	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories	6	10	10	10	10	10	10	10	10
Territories Monitored	0	1	0	0	0	0	0	0	0

* - Data is incomplete prior to 1991

Summary of prairie falcon nesting territories is as follows:

Table C-9c Prairie Falcon (Nesting Territories on Rocky Mountain Division)

Description	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories*	53	-	54	54	54	54	54	54	54	54	54
Territories Monitored	6	-	0	0	0	0	0	0	0	0	0

* - Data incomplete prior to 1989

Table C-9d Prairie Falcon (Nesting Territories on Jefferson Division)

Description	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nesting Territories*	20	20	20	20	20	20	20	20	20
Territories Monitored	3	2	0	2	0	0	0	0	0

* - Data incomplete prior to 1991

RECOMMENDATIONS

This information needs to be either collected or the monitoring item deleted if it is determined that these species need

not be monitored. This need may be determined through the development of focal species throughout the region.

C-10 Cavity Nesting Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Cavity Nesting Habitat for Northern Three-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	Develop consistent M&E approach across Forests/ Region	At revision

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 dependant species habitat was measured by examining the gain, loss, or no change status of National Forest System acres of mature conifer stands.

Breeding bird plots were used to determine the presence or absence of avian species.

FINDINGS

Retention of snags is still a concern within timber harvest units. Coordination at the Environmental Assessment phase is still important to insure snags are being marked during timber sale layout and how many is needed. In some cases the snags are marked with paint and in others they are signed with metal signs, designating them as wildlife trees. The forest has marked snags on 750 acres of cutting units over the past several years (1995-1999) after the completion of the

timber sales. In the future these acres can be revisited to determine the attrition of snags post-timber harvest.

Snag management is also being examined at the landscape level on the Forest. Table C-10 displays the total forested acres on the Jefferson Division and compares the amount of acres that have been harvested with acres burned by wildfire from the time period of 1940 to 1999. The percentage of acres treated with timber harvest or wildfire is a very minor component of the land base within the Jefferson Division. Based on acres harvested versus acres of forested habitat, the timber program on the Forest has affected only 6.5% of the forested habitat. While timber harvest has removed all or a portion of the snag habitat, natural fire has created 35,000 acres of snag habitat. These are gross acres and one cannot make a direct comparison of snags lost on 6.5% of the forest or snags gained on 4% of the forest. But it appears that the timber management on the Forest is having little affect on snag habitat on the Jefferson Division, therefore, very little effect to snag dependent species, especially when

wildfire has created snag habitat during the same time period.

In 1998, the Forest resurveyed all of the burns in the Jefferson Division for woodpecker use. This survey revealed the black-backed woodpecker in the Jefferson Division for the first time since it has been listed as a sensitive species.

Until last year, it had not been seen or heard in any of our burns. However, it was only located in one burn area. All the others that were surveyed failed to find any black-backed woodpeckers. It is uncertain whether this is a repeatable occurrence.

Table C-10a Snag Habitat on the Lewis and Clark National Forest

Division	Acres Forested	Acres Harvested	Acres Burned	% Acres Affected by Harvest/Burn
Jefferson	880,000	58,000	35,000	6.5% / 4%
Rocky Mtn	470,000		164,204	34%

RECOMMENDATION

It is recommended to continue to examine snags across the landscape and not on an acre basis. Try to figure out a better

way to sample for snags so that a more reliable picture can be painted in regards to snag habitat and modeling that habitat.

C-11 Aquatic Habitat

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Aquatic Habitat Condition/Quality (Cutthroat 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.	Develop consistent M&E approach across Forests/ Region	

METHODS

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

FINDINGS

Over the past 5 years (1995-1999) several large range analyses have been completed. In all of them, aquatic habitats were inventoried and evaluated, and fish distributions delineated. Condition of streambanks, riparian vegetation, channel

WILDLIFE

substrate and other characteristics were evaluated to determine impacts from grazing and, more recently, to rate stream reaches according to the Proper Functioning Condition (PFC) methodology. Achieving functioning condition is essential to providing good fisheries habitat. However, the goal for fisheries will often be to move riparian zones toward later successional stages (beyond PFC) which provide the best habitat conditions.

For the five range analysis areas, Table C11a displays the miles of stream

surveyed, miles of stream occupied by fish and species, and amount of habitat in an "at risk" or "nonfunctional" condition, due in part to grazing impacts. Livestock grazing on the Forest has a significant effect on fisheries habitat, often limiting trout populations or favoring non-native species. Limited budgets for permit administration and maintenance of range improvement structures, along with the difficulties of controlling livestock use in sensitive riparian areas, are major challenges facing range managers across the Forest.

Table C-11a. Miles and Condition of Streams Surveyed by Range Analysis

Project Name	Stream Miles within Allotments	Miles Surveyed ¹	Miles Occupied by Fish	% At Risk or Non-Functional	Miles Occupied by WCT ²	% At Risk or Non-Functional
Belt Creek Group	253	79	43	18% (7.9 mi)	26	17% (4.4 mi)
Sun Canyon Group	400	95	63	4% (2.3 mi)	7.4	15% (1.1 mi)
Judith Group	203	73	59	8% (4.9 mi)	31	6% (1.8 mi)
Musselshell Group	237	71	43	36% (15 mi)	10 ³	60% (6 mi)
Castles Group	4	42	32.4	29% (9.3 mi)	8.5	27% (2.3 mi)
North Little Belts Group	4	49	28	37% (10.4 mi)	14.7	28% (4.1 mi)

¹ Miles surveyed are typically those miles most accessible to livestock and vulnerable to grazing impacts.

² WCT = westslope cutthroat trout (greater than 90% genetically pure).

³ No WCT are present in this group but Yellowstone cutthroat trout are found in one stream.:

⁴ Information was not presented in similar format.

In all of the above range analyses, alternatives were selected to improve riparian conditions in at risk or nonfunctional stream reaches and to maintain other reaches in functioning condition. The new grazing plans are being phased in and only limited monitoring has been conducted to date to determine new condition trends. However, fisheries surveys continue to monitor status of westslope cutthroat trout (WCT) populations in many of these

streams and provide informal feedback to ranger districts regarding grazing impacts.

In 1999 the Forest was required to complete a deferred maintenance inventory of all habitat investments. A major portion of this inventory involved the conditions of our riparian exclosures established since the 1980's. What this inventory displayed is that the Forest has put up about 46,752 feet of fence (barbed wire, electric or jackleg) protecting 35,782

feet of stream or 1131 acres of riparian habitat. Some of these exclosures are on WCT streams, some are on other fisheries streams, and some are just riparian habitat protection for shrub dependent bird species and amphibians.

Forest, more funding and effort will be needed to systematically monitor changes in the condition of riparian areas and aquatic habitats. This information will be crucial to ensuring progress toward achieving fully functional stream systems and high quality habitat for fish and other riparian-dependent wildlife.

RECOMMENDATION As new grazing plans are fully implemented across the

C-12 Habitat Improvement Outputs

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

METHODS

Analysis of data provided in the Management Attainment Report (MAR) which included: MAR 37.2, 66.2, 68.3, 72.4, and 76.2.

FINDINGS

Most of the targets were met for FY 1999. However, there were several factors affecting the Forest's ability to accomplish the burning targets for both T&E species

and other wildlife. One was a very short burning window. Shortly after burning was initiated, the Region shut down burning because of air quality impacts from other wildfires. These burning targets will be accomplished in FY 00, weather permitting. Table C-12a reflects FY99 targets and accomplishments. Table C-12c reflects past year's accomplishments.

WILDLIFE

Table C-12a FY 1999 Targets and Accomplishments Compared to Forest Plan

MAR Code	Description	Unit of Measure	Forest Plan	1999 Target	Accomplishment
66.2	Wildl Hab Enhan- 01	Acres	600	1462	596
66.2	Wildl Hab Enhan- 02	Acres		600	225
66.2	Wildl Hab Enhan- 03	Acres			170
66.2	Wildl Hab Enhan- Total	Acres		2062	991
37.2	Wildl Structures- 01	Structure	10	0	0
37.2	Wildl Structures- 02	Structure			
37.2	Wildl Structures- 03	Structure			
37.2	Wildl Structures- Total	Structure			0
68.3	In Fish Strm Res- 01	Miles	No Measure	14	10
68.3	In Fish Strm Res - 02	Miles	in current		
68.3	In Fish Strm Res - 03	Miles	plan		
68.3	In Fish Strm Res - Total	Miles		14	10
72.4	TES Aqu Str Enh- 01	Miles	No Measure	5	0
72.4	TES Aqu Str Enh- 02	Miles	in current		
72.4	TES Aqu Str Enh- 03	Miles	plan		
72.4	TES Aqu Str Enh- Total	Miles		5	0
76.2	TES Terr Str Enh- 01	Acres	100	100	50
76.2	TES Terr Str Enh- 02	Acres		100	
76.2	TES Terr Str Enh- 03	Acres			
76.2	TES Terr Str Enh- Total	Acres		200	50

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

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

03 = KV funds

Total = MAR Code total

In FY95, the MAR items were changed both in description and unit of measurement. Table C-12b reflects the old MAR items and units of measure and Table C-12c reflects the new reporting MAR items. In the case of inland fish and TES aquatic items, there is no corresponding measure in the Forest Plan. At the time of Forest Plan development, these items were reported as 'number of structures developed'. Since then the unit of measure has been changed to 'miles of habitat improved'.

In examining Table C12b and C12c, one can track the accomplishments in relation to the Forest Plans projection. The Forest is meeting or exceeding the projected habitat improvement program with the exception of the wildlife structures. Opportunities for the construction of wildlife structures have not met Forest Plan expectations. The Forest has instead chosen to emphasize the non-structure part of the program and the benefits they contribute to wildlife.

Table C-12b Wildlife Habitat Improvement
Accomplished by Appropriated and Partnership Funding

Description	Forest Plan	1988	1989	1990	1991	1992	1993	1994	7 year Average
Non-Struct (Wildlife Acres)	600	1400	900	1117	450	555	765	960	878
Non-Struct (Fish Acres)	5	0	10	16	0	40	71	20	22
Non-Struct T&E Acres	100	0	0	500	634	620	210	239	315
Wildlife Structures	10	0	3	2	7	8	3	8	4
Fish Structures	25	19	11	19	23	30	18	6	18
T&E Structures	0	0	0	2	0	0	0	5	1

Table C-12c WILDLIFE HABITAT IMPROVEMENT
Accomplished by Appropriated and Partnership Funding

Description	Forest Plan	1995	1996	1997	1998	1999	5 yr Average
Wildlife Habitat Restored/-Enhanced (Acres)	600	416	903	485	485	846*	627
Inland Fish Streams Restored/Enhanced (miles)	Forest plan has no mile targets	14	3	4.75	4.75	10	7.3
TES Terr Hab Restore or Enhance (Acres)	100	0	200	250	250	170*	174
TES Aquatic Enhance (miles)	Forest plan has no mile targets	9	0	3	3.5	0	3.1
Wildlife Structures	10	2	1	0	1	0	.8
T&E Structures	0	1	1	1	0	0	.6

*Reflects 1998 acres accomplished in 1999.

RECOMMENDATION

Continue to emphasize the non-structure habitat improvement program for WL and TES. The Forest Plan may need to change in order to reflect the miles of

stream habitat that can be improved or restored to native cutthroat trout versus the structure target that is currently in the plan. This could be done at revision time.

C-13 Oil and Gas Activity

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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.	Yes	Yes

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].

gas/oil leasing analysis and decision, which determined that no new leases would be issued on the Rocky Mountain Division at this time.

FINDINGS

No new oil and gas development projects were approved during the past 5 years on National Forest System lands. However, in July of 1997 the Forest approved the plugging, abandonment and restoration of the 1-13 well in the Blackleaf Field. In 1997, the Forest completed a Forest-wide

RECOMMENDATIONS

It is recommended that this monitoring item be dropped because there will be no activity on the Rocky Mountain Division, plus there is really no monitoring or research examining all the parameters necessary to determine whether it was the result of oil/gas activity or something else causing a population decline.

C-14 Sensitive Wildlife & Fish

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Determine distribution of sensitive wildlife & fish species on the Forest. Monitor annual trends in wildlife & fish habitat and species population	Annually	Failure to record any information within a 2 year period	Develop consistent M&E approach across Forests/ Region	No

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.

FINDINGS

Sensitive Fish: For the past 5 years (1995-1999), a concentrated effort has been made to survey all Forest streams to determine the distribution of westslope cutthroat trout (WCT) and the genetic integrity of these populations. All of the information gathered to date has been entered into data bases and a GIS layer that displays the WCT distribution across the Forest. This information is being used in analysis of ongoing projects such as timber sales, revision of allotment management plans, road rehabilitation, habitat improvement programs, etc. The results of the genetic testing are shown in table C-14b. In the past 5 years the Forest has surveyed 71 stream sections, with a total of 957 genetic samples taken (includes replicate sampling of many

streams). Based on laboratory testing of these samples to date, more than 50 stream sections have been confirmed to support 90-100% pure WCT populations.

In this same time period, the Forest has been very active on the technical and steering committees established to provide direction for both federal and state programs involved in WCT management. A conservation agreement has been developed and signed in 1999 to protect all remaining WCT populations and begin restoration of imperiled populations throughout Montana. Projects to implement this agreement are now underway.

In conjunction with the surveys, habitat protection/improvement work and inventory for additional habitat improvement work has taken place. Invertebrate surveys and disease testing have been conducted on 5 streams to facilitate headwater extensions of WCT populations. Headwater extensions of WCT populations have already taken place on two streams resulting in 6 miles of additional occupied habitat.

Table C-14a Electrophoretic Testing Results for Cutthroat Trout

Year	# of Streams Sampled ¹	# of Genetic Samples	Streams with 100% WCT	Streams with 99-90% WCT	Streams with < 90% WCT
1995	9	79	8	0	1
1996	23	204	10	10	3
1997	14	112	9	4	1
1998	8	130	3	4	1
1999	17	43 ²	7	2	1
Total	71	957	37	20	7

¹ Some streams sampled more than once

² Complete laboratory results not yet available

WILDLIFE

In 1996 a barrier was placed in Chamberlain Creek in the Little Belt Mountains. The purpose of the barrier was to block migration of competing non-native brook trout into the stream. Subsequently, brook trout were removed from above the barrier by annual electrofishing. Monitoring has shown a dramatic increase in numbers of WCT in the absence of competition and predation by brook trout. Prior to the barrier, there were 43 WCT (>6 inches) per 550 yards of stream and 19 brook trout (>6 inches) per 550 yards of stream. After barrier construction and 4 years of brook trout removal by electrofishing, the WCT increased to 111 fish (>6 inches) per 550 yards and brook trout decreased to 5 fish (>6 inches) per 550 yards. Plans are being developed for 4 new permanent fish barriers to protect genetically-pure WCT populations in other streams from competition and hybridization with non-native trout.

In 1999 the Forest provided logistical and technical support for the introduction of fluvial arctic grayling into the South Fork and North Fork of the Sun River. This program was spearheaded by the MFWP and designed to meet the objectives of the Montana Fluvial Arctic Grayling Restoration Plan. The planting program will be continued in the years 2000 and 2001. Monitoring the success of this introduction is being carried out by the MFWP.

Sensitive Animals

Harlequin surveys continue to be conducted on the Rocky Mountain Division. The division has been divided in half and the Birch Creek/Badger complex is surveyed one year and then the Sun River drainage is surveyed the next year. The Teton River drainage has not been systematically surveyed since 1992. The results of the monitoring are displayed in table C-14a.

Table C-14b Harlequin Duck (Minimum Brood numbers on Rocky Mountain Division)

Drainage	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sun River	8	4	5	4*	4	0	7	0	7	1
Birch Creek	1	1	1	2	0*	1	0	1	0	0
Badger Creek	3	0	6	1	0*	4	0	1	0	1
Teton*	0	0	10	0*	0*	0	0	0	0	0

* Incidental sightings; no systematic monitoring

Snow track surveys have been completed for lynx, wolverine and fisher. See C-7 for this information.

Amphibians, Reptiles and Lemmings

In the summer of 1996, the Blackleaf area of the Rocky Mountain Front was surveyed by the Montana Heritage Program for amphibians, reptiles and bog lemmings. This was funded by the BLM, MFWP, and LCNF. A report was

produced. Species found in the survey were: tiger salamander, northern chorus frog, and Columbia spotted frog. Two reptiles were found: western terrestrial garter snake and the common garter snake. No bog lemmings were found and it appears that they are not present.

From 1995 to 1999, 47 amphibian habitat surveys were conducted across the Forest by the biological staff. Additionally, 88 incidental observations of amphibians

and reptiles were recorded during that same period. These surveys revealed that Columbia spotted frogs are the most common and widely distributed amphibian on the Forest, using a variety of streamside and lakeside habitats at elevations up to 7500 ft. Annual monitoring of key spotted frog-breeding sites in Belt Creek and SF Sun River drainages indicates stable populations of this species. The western terrestrial garter snake is also a very common riparian associate and the most abundant reptile across the Forest; it appears to be a frequent and effective predator of small fish in streams. The boreal toad, a sensitive species, has a limited distribution on the Forest, but successful breeding sites have been located most years in the Sheep Creek, Sun River and Teton River drainages. Because of concern over boreal toad declines in the western U.S., these breeding sites will be monitored annually to detect any die-offs or major population trends. Fisheries surveys have revealed the presence of several previously unrecorded populations of tailed frogs in streams along the Rocky Mountain Front. However, the species

has yet to be found anywhere on the Jefferson Division. The northern leopard frog, another sensitive amphibian species, has declined or disappeared from much of its range in Montana. On this Forest, it has only been found in the Highwood Creek drainage, where the population appears to be low. Historical distribution of leopard frogs in west central Montana is poorly documented, and some evidence suggests the species does not usually overlap with Columbia spotted frogs, which are common throughout the Forest.

RECOMMENDATIONS:

Continue to survey the Forest for distribution of sensitive species. This information needs to be added into the GIS system so that it can be readily used for analysis purposes in project planning. It is recommended that an access data base be designed and constructed to implement a monitoring program for amphibian breeding sites.

C-15 Sensitive Plant Program

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	No	No

WILDLIFE

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

Surveys for sensitive plants continue on all ground disturbing projects. Several things have occurred since the last reporting period. In FY 96 the conservation strategy for *Goodyera repens* was approved by the Forest Supervisor, Gloria Flora. Also, in conjunction with completing the oil/gas leasing analysis a sensitive plant model was developed by Wayne Phillips examining the known occurrences of plants in conjunction with landtype maps. This led to the Forest's capability to predict landtypes that had a low, moderate or high probability of supporting habitat for plants. This model is used to identify high potential areas for sensitive

plants in regards to ground disturbing activities.

In 1999 a new Regional Forester sensitive species list was issued. The Forest's list of plants changed slightly. The old list issued in 1994 had 28 plants known or suspected to occur on the Forest; the 1999 list has 28. The number of plants remained the same, but some plants were dropped and others added.

RECOMMENDATIONS

It is recommended that the plant atlas be converted to GIS layers within the next 2 years in order to make the information more readily available for project analysis.

RANGE

D-1 Range Outputs

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

Table D-1a Range Accomplishments

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Permitted Grazing Use (M AUM) ¹	71.1	70.5	72.3	72.4	71.9	71.2	70.3	69.5	72.7	72.4	72.5	73.7	73.3	68.7
Improvement - Nonstructural (M Ac)	1.3	2.0	2.4	1.6	0.5	0.4	0.6	0.1	0.5	0.1	0.1	0.0	0.3	0.5
Improvement - Structural (Structures) ²	40	30	18	26	35	28	37	31	46	40	38	43	28	62
Range Plans (Plans) ³	10	5	4	4	0	2	1	1	0	0	17	23	24	11
Noxious Weed Control (M Ac)	0.3	1.1	0.7	0.8	0.5	1.2	1.3	1.3	1.5	1.1	1.1	1.2	1.2	1.1

¹ M AUM = Thousand Animal Unit Month

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

³ Range Plans are for the 158 livestock grazing allotments (excluding packer, special use and administrative allotments)

FINDINGS

Summary of Forest Plan 10-year average Range Management targets and actual accomplishments for FY 1987 through FY 1999 are listed above. Outputs of Permitted Grazing Use and Structural Improvements have continued within Forest Plan projections. Completion of Range Plans has increased and is expected to continue at the higher level through the next five years, finally bringing this in line with Forest Plan projections (see D-4). Noxious Weed Control continues much higher than Forest Plan projections because of identification of more infested acres and increases in noxious weed control budgets.

Nonstructural Improvement outputs have been much below projections in recent years. The 13-year average has been 54% of projected. This under-accomplishment, if continued, will result in reductions in forage condition or in permitted livestock use. However, these outputs are expected to increase again as new range plans are implemented.

RECOMMENDATIONS

There is no accurate method of accounting or reporting free recreation livestock use. In addition, no other range output is related to free use recreation livestock. It is recommended that free use recreation livestock be excluded from Permitted Grazing Use output figures.

D-2 Range Condition and Trend

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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)	Yes	Yes
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).	Yes	Yes

Table D-2a Range Condition and trends (each)

Description	Condition/Trend	Allotments Monitored
Forest Plan		
1987	0	0
1988	28	12
1989	8	4
1990	4	2
1991	0	0
1992	0	0
1993	2	1
1994	0	0
1995	0	0
1996	0	0
1997	0	0
1998	0	0
1999	0	0

FINDINGS

There are 277 condition and trend studies on the 239 total range allotments on the Forest. Most these are on the 158 livestock grazing allotments rather than the packer, special use and administrative allotments. No condition and trend studies have been monitored for several years.

There are also 37 permanent vegetation trend studies on 25 livestock grazing

allotments to monitor effectiveness of noxious weed treatment. Of these, 4 were read in 1995, 2 in 1996, 1 in 1997, 1 in 1998 and 1 in 1999. Monitoring results indicate that leafy spurge density is substantially reduced at beetle release sites.

This monitoring report item should be changed because it does not reflect acres in condition or trend classes.

RECOMMENDATIONS

It is recommended that this monitoring item be changed to Status of Range Vegetation Acres currently reported in range databases. This will require that the Forest Plan monitoring item and the variability which would initiate further evaluation be changed. Status of Range

Vegetation Acres consists of reporting the number of acres in each of 3 categories for All Vegetation and Riparian Vegetation. These categories are: vegetation acres 1) meeting forest plan objectives, 2) moving toward forest plan objectives, 3) neither meeting nor moving toward forest plan objectives.

D-3 Supply

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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.	No	Yes

Table D3a Suitable Range¹

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Suitable Range (1000 Acres)	220.0	220.0	220.0	220.0	220.0	220.9	220.9	210.8	211.4	211.4	203.6	202.8	198.6	174.5
Percent Change (Annual)	-1.0	-0.0	-0.0	-0.0	-0.0	+0.4	-0.0	-4.6	+0.3	-0.0	-3.7	-0.4	-2.1	-12.1
Percent Change (5-year)	-3.0	-0.0	-0.0	0.0	-0.0	+0.4	+0.4	-4.2	-3.9	-3.9	-7.8	-8.2	-5.8	-17.5

¹ Suitable for grazing within allotments on National Forest land.

FINDINGS

Suitable range acres are for National Forest land within allotments (previous monitoring reports included waived private land). National Forest suitable range increased by more than 4,000 acres in 1994 because of a land exchange. However, the trend has been for acres suitable for livestock grazing to decline as a result of more precise range analysis, natural succession from grassland or open trees to closed tree cover vegetation, and closure of some old sheep allotments where sheep grazing is

no longer economical. This trend is expected to continue, as the allotment management planning process brings the statistics up to date with existing conditions. Range improvements (water developments, prescribed burning, etc.) initiated through the allotment management planning process are expected to reduce the decline in suitable acres and the resulting declines in carrying capacity.

RANGE

RECOMMENDATIONS

As the allotments are re-analyzed, the Forest Plan should be changed to more accurately account for acres suitable for livestock grazing.

D-4 Allotment Management Plan Status

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Allotment Management Plan Status	5 Years	More than 10% of the allotment plans are outdated. Plans approved more than 15 years ago are considered outdated.	No	Yes

Table D-4a Status of Allotment Management Plans

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Allotments ¹	239	239	239	239	239	239	239	239	239	239	239	234	235	237
Plans Outdated (Plans)	24	153	157	160	163	162	162	162	167	173	193	181	135	120
Plans Outdated (Percent)	10%	64%	66%	67%	68%	68%	68%	68%	70%	72%	81%	77%	57%	51%

¹ Includes grazing, packer, special use and administrative allotments

FINDINGS

The data in Table D-4a shows a continual departure from the Forest Plan standard of less than 10 percent of allotment management plans outdated. To bring allotment planning into compliance with the Forest Plan, a new allotment management planning process and organization was implemented in 1991. The allotment management planning schedule was revised in 1995 and provided for revision of allotment management plans on all allotments by 2005. The new process, organization and

schedule has begun to be successful in increasing the number of plans completed and reducing the percentage of outdated plans. The planning process is currently on schedule.

RECOMMENDATIONS

The Forest Plan establishes allotment management planning intervals of 10 or 20 years depending upon the management area. For simplification, the monitoring report has used an average of 15 years. The new allotment management planning process, based on planning for

large groups of allotments at the same time, has been very successful. Planning contiguous groups of allotments requires planning for allotments that are in several

management areas. It is recommended that the Forest Plan be changed to have all allotments with the same planning interval of 15 years.

TIMBER

E-1 Silvicultural Prescriptions Meet MA Goals

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Assure silvicultural management prescriptions are best suited to management area goals with all resources considered.	Annually	A departure from management area goals	No	No

METHODS

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

FINDINGS

During the period of 1995 to 1999, three formal interdisciplinary reviews were conducted on large timber sales. One review occurred in September 1995 on the Deadhorse Bluff Timber sale. The sale is located in Management Areas B and C. The silvicultural prescriptions called for 27 clearcuts (646 acres) and 5 seed tree units (121 acres). Modification due to sensitive plants and windthrow resulted in 620 acres of clearcut and 144 acres of seed tree cuts. The prescriptions, prepared by certified silviculturist, emphasized timber management with modifications for retaining additional trees (excess needed for regeneration) for visual objectives and snags. The majority of the timber was decadent with unmerchantable material. There was consideration for down and woody debris, degree of soil disturbance and control of dwarf mistletoe. The review team felt that these prescriptions were appropriate to meet Management Areas B and C goals.

The second was held in June of 1999 to review treatments completed on the Miller Gulch and Corridor Timber Sales on the Kings Hill Ranger District. Prescriptions were found to be appropriate for management objectives, but one unit on Miller Gulch Timber Sale did not have enough snags marked to meet Forest Plan standards. Fuel loading following the treatment was higher than anticipated and the slash treatment was changed to prescribed burning. Another unit retained more small trees than was identified in the prescription. The prescription could have done a better job of addressing small trees and slash treatment. As a result, a more esthetic view was achieved at the expense of tree growth and increased risk of damage to seedlings from western spruce budworm. Other units, designed to be screened from highway 89, met all objectives for regeneration and esthetics. On Corridor Timber Sale, some access was limited to existing roads. As a result, several skid trails or temporary roads were constructed across draws. Because of the winter logging, there was very little disturbance. No water quality problems

developed as a result of these prescriptions.

The third review was held in 1999 on the proposed Daniels/Kinney Timber Sale on the Kings Hill Ranger District. This project also emphasized regeneration cutting in older lodgepole pine stands, consistent with Forest Plan objectives for MA B. Prescriptions were written and layout supervised by a certified silviculturist. The review team felt that prescriptions were appropriate to meet objectives. Several boundary changes were recommended to meet riparian guidelines on westslope cutthroat streams.

A more recent emphasis has been on overall ecosystem health and moving vegetative conditions over large areas towards conditions that are more resilient to large-scale disturbance. This has

resulted in the planning of harvest and prescribed burn treatments not traditionally done on management areas not allocated to timber production. The treatments are planned recognizing the management area goals and integrates the concepts of ecosystem sustainability. An example is commercial thinning proposed in the Dry Fork of Belt Creek in MA- H, developed recreation emphasis. The treatment would maintain the recreation elements while improving ponderosa pine health and reducing fuel loadings. This action has been proposed but no decision has been made to implement it. The Belt Creek Landscape Assessment was prepared in 1996 to help in identifying opportunities to achieve healthier ecosystems within the context of the intended management area goals.

E-2 Prescription Selections

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

METHODS

Review of one large timber sale sold during the fiscal year(s).

FINDINGS

The Deadhorse Bluff Timber Sale review concluded that prescription choice was determined primarily by species composition and the decadent condition of the stands. Measures were taken which

in fact reduced the cost effectiveness but enhanced long-term resources. This included the marking and long term retention of leave trees resulting in a direct cost to the government and a reduction of immediate volume obtained from the stands.

A review of other larger timber sales indicated an economic analysis had been

TIMBER

conducted and documented in NEPA documents as one measure for comparing alternatives. No actions were selected solely because they provided the most timber or dollar return. Instead, the line officer has selected the management actions based on the best mix of returns relative to all resources areas. For example, in the Running Wolf Timber Sales Record of Decision, 1995, the rationale for the Forest Supervisor's decision included the benefits that commercial thinning would have in

creating a mosaic of vegetation patterns across the landscape and reducing catastrophic fires. Large diameter ponderosa pine were featured for leave trees with prescribed burning following harvest to restore fire processes. Neither of these activities maximizes volume nor revenues nor is least cost to the government, however they are considered the best action for managing these types of sites and does so in a cost efficient manner and provides wood products.

E-3 Timber Openings

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Assure openings comply with size limits and are periodically evaluated for appropriateness	Annually	Unacceptable results of an ID Team Review	No	No

METHODS

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

recommended that future sale design give greater consideration to larger units.

FINDINGS

The 32 units in the Deadhorse-Bluff Timber Sale varied in size from 9 to 40 acres (average 27 acres). The units were delineated based on timber type lines, past harvest, feasibility for tractor logging and were sensitive to visual and watershed values. They were consistent with the Forest Plan and Regional Guide direction for even-aged harvesting and keeping openings 40 acres or less. The timber sale review also noted the units are much smaller than the stands created by historic processes. The review team

The 28 sale units in the Daniels Kinney Timber Sale were all less than 40 acres. Many of these could not be enlarged because they fell next to previously harvested/regenerated stands.

A review of Forest Supervisor authority sales sold from 1995 to 1999 shows units in Coyote Salvage and Tenderfoot Sale to have cutting units which exceeded the 40-acre limitation. In the case of the Coyote fire salvage, five openings were created which exceeded 40 acres after the harvest of timber burned in the Coyote fire, 1996, and existing clearcuts. The environmental analysis considered the

effects of the larger openings. The public was notified and the decision to go with larger openings was consistent with direction for fire salvage as directed by the Forest Plan and Northern Regional Guide.

The Tenderfoot Timber Sale is located in the Tenderfoot Experimental Forest and was designed to test various management strategies in lodgepole pine. Two-story regeneration treatments were applied over large areas mimicking some of the

past fire patterns on the landscape. Although these units will have a heavier leave tree component than generally seen with regeneration harvest, two-story management is an even aged silvicultural treatment. Four treatment mosaics exceed 40 acres, ranging from 102 to 191 acres of harvest. The requirements of public notification and approval by the Regional Forester as directed by the Northern Regional Guide were met prior to a decision on this project.

E-4 Timber Offered/ASQ for Decade

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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.	No	Yes

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

National Forest, this is set at 12.1mmbf on an annual basis. Not all harvest counts toward this total. A summary of the sold timber that counts toward ASQ for the period 1987 to 1999 is included below

FINDINGS

The allowable sale quantity (ASQ) is the amount of timber that may be sold from suitable lands. For the Lewis and Clark

Table E-4a ASQ (million board feet)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
ASQ	12.1	7.2	9.1	6.3	8.3	15.7	22.9	7.3	1.7	1.4	8.5	12.5	6.6	13.0

Over the past 10 years, the Forest has sold about 81% of ASQ. Harvest over the past 5 years has averaged about 69% of ASQ. This is in part a reflection of harvesting on lands outside the timber

base to accomplish other resource management objectives and salvage. The item remains valid as a monitoring tool primarily as an upper threshold, rather than as a target. Forest Plan should

TIMBER

reflect the need to use harvesting in most management areas to achieve other resource objectives.

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 appropriations. The total timber program for the Forest includes all timber products such as sawlogs, poles, posts, houselogs and firewood. Credit for meeting the yearly timber program includes the volume sold, volume offered

for sale, and volume delayed because of appeals. During FY99, the Forest sold or offered 15.6 mmbf. Tenderfoot Timber Sale was originally planned to be sold in FY98 but was not sold until early FY1999. About 5.8 mmbf did not sell when originally offered. Most of this was actually sold soon near the end of the fiscal year and awarded soon after the end of the fiscal year and actually sold normally. A summary of FYs 1987-1999 timber program is as follows:

A summary of FYs 1987-1999 timber program follows:

Table E-4b Timber Program (million board feet)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Annual Forest Sell Program 1/	12.1	11.6	14.8	15.1	14.2	28.0	25.5	13.0	19.0	11.0	14.5	14.4	14.0	10.0
Volume Sold		7.9	8.8	4.5	5.5	15.9	25.0	9.5	3.3	3.4	10.0	15.0	5.6	9.8
Volume Offered But Not Sold		1.3*		0.1	0.6	2.6	1.2	0.1	0.2	1.3	1.2	.3	2.9	5.8
Volume Under Appeal		2.5	7.2	5.1	0.0	9.5	0.0	6.0	6.6	6.6	0.0	0.0	0.8	0.0
Volume credited in A previous year			(1.9)	(2.4)	(5.0)	(2.0)	(0.6)	(3.1)	(3.0)					

1/ FY92 target includes planned carry-over volume of 10.5 MMBF.
 1/ FY94 target includes carry-over volume of 6.0 MMFB for Smokey B.
 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	Change Monitoring Item?	Change Forest Plan?
Assure restocking is in progress within 5 yrs	Annually	Unacceptable results of an ID Team Review	No -	No

METHODS

Stocking surveys are conducted on each District.

FINDINGS

Re-stocking of harvested areas has been successful throughout most of the Forest. Based on the 1999 Reforestation Indices, 99.5% of all stands with a final harvest cut

since 1986 are progressing towards adequate stocking or were certified as adequately stocked within 5 years of the final harvest. Of these units, there were no failures five or more years after the harvest. Final harvests include clearcut, shelterwood or seed tree removal. A failure occurs when planned regeneration

fails to provide adequate stocking and an alternate treatment is applied.

The stands that have failed to meet the five-year time frame generally have required planting where natural regeneration had been the planned method. Blowdown of seed trees in Douglas-fir stands and the invasion of heavy grasses after lodgepole pine harvest are among the causes for all or portions of some units to have poor natural regeneration. When this occurs, there is a period from when the stocking survey indicates poor natural regeneration to the time necessary for procuring seedlings from the nursery that the five-year time period is exceeded. This is a low portion of the harvested units. With an extended regeneration time period, say 10 years in lodgepole pine and 15 to 20 in dry Douglas-fir, the units would probably exhibit adequate natural regeneration.

Additionally, events such as fires have caused a delayed regeneration period. There are 259 acres with harvests in 1992 and 1993 which were not adequately stocked within five years due to fire occurrences. The first is the Turkey fire with post fire salvage that resulted in clearcut treatments in 1992. Planting was delayed to allow natural regeneration to occur in as much of the area as possible. Where it was not adequate, planting was planned and occurred from 1994 through 1999. The Coyote fire of 1996 burned through some harvest units cut from 1992-93 resulting in mortality to established seedlings. Where the seed sources were inadequate, planting was planned and implemented in 1999. The results of both of these fires delayed the regeneration time period although stocking is expected to be on track after planting.

E-6 Acres Harvested

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Assure timber acres harvested are as projected.	5 years	+ / - 10% deviation over a five year period.	No	Yes

METHODS

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

FINDINGS

About 883 acres were harvested in 1999 for a volume of 5.4mmbf. The Forest Plan

projected that annual harvest would be about 1,800 acres per year. Over the past 5 years the area harvested has averaged 1244 acres. Acres harvested are expected to remain below Forest Plan expectations. It remains a valid monitoring item to ensure that harvesting over the long term is at a sustainable level. The volume per acre harvested

TIMBER

averaged 10.4 MBF/acre. The Forest Plan estimated about 7MBF/acre. With increases in intermediate treatments and two-aged treatments, the acreage harvested relative to the volume removed

will likely increase approaching Forest Plan levels.

A summary of FY 1987 through FY 1999 timber volume under contract, acres, and volume harvested is as follows:

E-6a Timber Under Contract and Volume & Acres Harvested

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Volume Under Contract (mmbf) (1)		29.1	26.4	21.9	22.7	26.8	30.1	27.4	17.5	11.5	12.1	20.1	6.7	15.6
Acres Harvested	1800	1144	775	786	1051	914	2809	401	1538	1096	1206	842	2195	883
Volume Harvested (mmbf) (2)		16.8	11.1	11.7	10.5	10.3	23.3	5.6	14.5	9.6	10.8	6.7	18.9	5.4

(1) Data for Volume Under Contract for 1987 through 1990 has been adjusted to include estimates for per acre material (PAM).

(2) Does not include personal firewood volume

E-7 Thinning and Silvicultural Accomplishments

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+ / -) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Assure accomplishment of thinning and other silvicultural treatments as projected in plan.	5 years	+ / - 10% deviation over a five year period.	No	At revision

METHODS

Data for this monitoring item is obtained from the Regional Report from TSMRS.

FINDINGS

The following table indicates accomplishment of timber stand improvement (TSI) and other silvicultural treatments.

Table E-7a Timber Stand Improvement and Other Treatments

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Plant/Seed acres (Appropriated \$)	220/211	0	195	67	25	28	245	151	253	148	373	134	59	304
Plant/Seed acres (KV \$)		0	0	0	0	0	50	24	48	12	53	0	68	191
Site Prep. Natural acres (Appropriated \$)	1250/1199	217	30	25	92	10	0	0	0	0	0	0	0	0
Site Prep. Natural acres (KV \$)		1064	490	590	190	0	0	0	9	0	0	0	0	0
Site Prep. Natural acres (other \$)		0	39	84	144	284	1292	358	4	374	0	0	855	0
Site Prep. Natural acres (Purchaser)		0	300	253	269	203	321	422	857	514	687	140	332	387
Thinning (TSI) acres (Appropriated \$)	200	443	441	307	268	329	186	216	178	348	98	85	525	15
Thinning (TSI) acres (KV \$)		40	0	0	0	0	24	111	140	127	0	0	0	0
Release acres (Appropriated \$)		120	127	195	72	5	0	0	0	0	0	0	0	0
Release acres (KV \$)		85	12	0	0	0	0	0	0	10	163	0	0	0

Most reforestation on the Forest is accomplished by natural regeneration. Assumptions in the Forest Plan were that about 1740 acres would be reforested on suitable lands annually during the first decade. About 18% (324 acres) would require planting, with the remaining 1420 acres being naturally regenerated. The experienced average for the past 13 years has been 187 acres of planting annually. Natural regeneration has been successful on an average of 750 acres. This equates to about 20% of lands regenerated were by artificial (planting) means. This is slightly above the expected rate. However, the acreage of regeneration needs are lower than that projected in the Forest Plan.

The Forest Plan projects 200 acres of pre-commercial thinning in the first decade. Since 1987, the forest has averaged 298

acres annually, which is above the projected level. This is expected to decline as a majority of the pre-1980s stands have now been thinned and other resource issues including the lynx conservation strategies affect thinning priorities.

The annual prescribed burning for composition and stocking control was projected to be 20 acres in the Little Snowies to control stocking levels in the ponderosa pine (FP-EIS, p. 4-57). The need for this type of treatment for natural fuels reduction and forest health across other forest types has become a major issue in recent years. The Forest has accomplished about 100 acres from 1994 to 1999 total, although planning is in progress for significantly more acres in future years.

E- 8 Even-Age Harvest

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Ensure harvest by even-age management is compatible with resource values.	Annually	Unacceptable results of an ID Team review	No	No

METHODS

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

reserve trees retained both individually or in groups or patches.

FINDINGS

The review of Deadhorse-Bluff and Daniels Kinney Timber Sales indicate that even-aged silvicultural systems were appropriate and met the objectives of Management Areas B and C. Clearcutting appeared to be optimum for units which were dominated by lodgepole pine and heavily infected with dwarf mistletoe. The review team agreed that in a number of cases, the prescription would better achieve resource values and provide greater biodiversity if there were more

All timber sales have had interdisciplinary involvement as core planning team members or, in the case of small timber sales, review by affected resources. The analysis included the effects of silvicultural treatment including even-aged management. Although there are many trade-offs in how any particular piece of land is treated, the treatment selected by the deciding official was determined to best meet the goals. Where clearcutting was selected, it was also determined to be the optimum treatment by a certified silviculturist considering all land management goals.

E- 9 Firewood Removal

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Firewood Removal	Annually	Use increase exceeds 10% per year	No	No

METHODS

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

In FY 1999, about .8mmbf of personal use firewood was removed from the Forest. A summary of FY 1987 through 1999 firewood removal follows:

FINDINGS

Table E-9a Commercial and Personal Use Firewood Removal

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Personal Use Firewood Permits Sold	1487	1023	1401	1205	1193	1127	1210	1050	1116	1418	1045	734	902
Commercial and Personal Use Firewood volume Sold (mmbf)	3.5	2.3	3.2	2.2	1.8	1.6	1.7	1.5	1.5	1.2	1.4	1.0	1.3

NOTE: 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	Change Monitoring Item?	Change Forest Plan?
Evaluate availability of lands classified as suitable or unsuitable	5 years	+ / - 5% change in acreage	No	No

METHODS

The evaluation of land suitability for tentatively suitable lands and the further division of these lands into suitable forest land available for timber harvests ongoing through project analysis and timber stand examinations.

production or non-suitable due to site conditions (ability to reforest etc). This information is maintained in TSMRS. Additionally, during NEPA analyses, management allocations are reviewed for appropriateness. Several projects have resulted in Forest Plan Amendments modifying the management area assignment. This has resulted in a reduction in lands deemed suitable for timber production.

FINDINGS

Project analyses have refined the land suitability classes which identifies stands that are tentatively suitable for timber

Suitable Acres identified in the Forest Plan
 Suitable Acres currently identified
 Change

282,307 acres
265,749 acres
 -16,558 acres (-5.9%)

E-11 Projected Yields

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Projected yields	Annually	Standard error of 10% at 1 standard deviation	No	No

METHODS

Establishment and repeated measurement of growth plots.

FINDINGS

Summary of growth plot establishment and remeasurement is as follows:

Table E-11a Growth Plots (numbered)

Description	Growth Plots Established	Growth Plots Remeasured
1979-1985	27	7
1986	2	2
1987	0	2
1988	1	0
1989	2	4
1990	2	6
1991	2	3
1992	1	7
1993	1	4
1994	0	3
1995	0	9
1996	0	2
1997	0	0
1998	0	0
1999	0	0 -

Growth plots are intended to evaluate how managed stands are growing over time; they are the primary tool we have for assessing the accuracy of yield tables used in forest planning.

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 measurement. Two growth plots are planned for the initiating harvest in the Smokey B timber sale, planned harvest in 1999.

Growth plot information is managed for the Region as a whole with like forest conditions combined regardless of the National Forest the information was collected on. Measurements on plots which duplicate conditions on other

Forests will not be continued as a result of Regional funding declines however previously collected data will be maintained for future use if needed. This will reduce the number of plots needed on the Lewis and Clark and projected by the Forest Plan. Currently, 12 plots are selected for continued measurement, and an additional 9 plots have data suitable for analysis but will not be re-measured. Over the next several years, it is anticipated that growth plot information, which has been collected will be analyzed for yield projections.

SOIL and WATER

F-1 Adequacy and Cumulative Effects of BMP's

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Adequacy and cumulative Effects of Project BMPs	Annually - 100% Sample	Projected deterioration of soil productivity or water usability	Yes	Yes

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 best management practices (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

Soil and water resources were evaluated through the following environmental documents: Castle Mountains Range Analysis (1997), North Little Belts Range Analysis (1997), Sun Canyon Range Analysis (1997), Belt Creek Range Analysis (1998), Judith Range Analysis (1998), L&CNF Oil and Gas Leasing (1997), Coyote Creek Fire Timber Sale (1997), and Tenderfoot Creek Experimental Forest Vegetation

Treatment Research Project (1998). Impacts on soil and water resources were determined to be within established guidelines and laws for all preferred alternatives.

RECOMMENDATIONS

This monitoring item is covered under the regulatory requirements of NEPA, NFMA and the Clean Water Act. All projects with the potential to impact soil and water resources are required to be evaluated through an Environmental Assessment or Environmental Impact Statement. Only alternatives that are not expected to significantly affect soil and water resources are chosen for implementation. This monitoring item does not provide any useful information beyond what is already produced through project level planning and analysis. Therefore, the recommendation is to drop this as a separate monitoring item during Forest Plan Revision. Revise Forest-wide management standards (pages 2-50 to 2-52) to reflect the above.

F-2 Revegetation

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

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 Project List for Revegetation

Project Title	Scheduled date of Completion	Review Completed	Comments
Benchmark1 Salvage	1997	1997	Project completed
Renshaw3 Salvage	1998		Sale awarded 10/24/97, no activity to date.
Whiskey2 Salvage	1998		Sale awarded 10/24/97, no activity to date.
Clyde Park	1996	1997	Sale completed and terminated.
Dead-Clyde	1998	1998	Sale completed and terminated.
Deadhorse-Bluff	1996	1997	Part of State BMP Audit in 1996
Divide Thinning	1998	2000	Closed
Dry Gulch	1996	1997	All contractual requirements met.
Dry Pole Sale	1996	1997	All contractual requirements met.
Hoover	1997	1998	Sale completed in 1998.
Running Wolf T.S.	1999	1999	Completed and closed
Russian Cr.	1995	1995	Sale completed and terminated.
South Burley	1996	1996	Completed and terminated.
Toll-gate Yogo	1997	1997	All contractual requirements met.
Crosswind Salvage	1997	1997	All contractual requirements met.
Foothills Salvage	1997	1997	All contractual requirements met.
Polecat	1997	1998	All contractual requirements met.
Smith Fire Salvage	1997	1997	One unit dropped, sale completed.
Spring Basin	1998		No logging at this time.
Upper Whitetail Cr.	1995	1996	All contractual requirements met.
West Hopley	1996	1998	Completed and terminated.
Flat Whiskey T.S.	2000		North half road construction in 1999. South half completed.

SOIL and WATER

Project Title	Scheduled date of Completion	Review Completed	Comments
Hensley Cr. T.S.	1999		Road completed; 1/3 logged.
Absaroka II	1996	1998	Sale completed and terminated.
Coyote Cr. T.S.	1997	1997	Completed and terminated.
Lakota I	1996	1999	Sale completed and terminated.
Little Moose T.S.	1996	1996	Sale completed and terminated.
Moose Head Salvage	1997	1998	Sale completed and terminated.
Moose Park T.S.	1996	1996	Sale completed and terminated.
Smokey B T.S.	1997	1999	Sale completed and terminated.
Corridor T.S.	1998		Logging completed; road maintenance remains.
Miller Gulch T.S.	1998		Currently logging.
Coyote Salvage T.S.	1997	1999	Sale completed and terminated.
Jefferson Salvage T.S.	1997	1997	Sale closed.
Hangman Salvage T.S.	1997	1997	Sale closed.
Tenderfoot Cr. T.S.	2000		Roads built; logging completed.
Anderson Select	1998	1998	Sale completed.
Eagle Post	2000		75% completed.
South Deadman	2001		99% completed.

An administrative review was conducted on the Deadhorse-Bluff Timber Sale on September 26-28, 1995. Part of this review evaluated BMP implementation and effectiveness. Specific management practices discussed included slash filter windrows, road surfacing adjacent to stream crossings, revegetation of disturbed areas and equipment operation in moist soil types (landtype 11). Observations indicate that BMP's were implemented as planned and were effective in reducing soil and water impacts. The only exception was one instance of improper discarding of waste oil. Recommendations include continue to use slash filter windrows, provide adequate cross drain spacing, and improve grass establishment by scarifying road surface and properly time seed applications. Additionally, moist soil conditions need to be adequately surveyed and documented through NFMA and NEPA analyses.

During the 1996 field season, 61 miles of road and 34 harvest units were monitored for soil and water impacts and BMP effectiveness. Portions of 10 road segments and 9 harvest units had potential for causing unacceptable soil and water impacts and were reviewed again with District personnel in 1997. Three of these road segments were addressed through the Dry Fork Vegetation and Recreation Restoration EA as road obliteration proposals. Except for two harvest units, all others appeared to provide adequate ground vegetation, slash and filter distance and do not contribute significant sediment or overland flows to stream systems. Of the two units of concern, one was harvested just prior to the review, so revegetation had not yet begun. The other unit was revegetated, but harvested prior to establishment of State Streamside Management Zone (SMZ) guidelines and did not have adequate filtering capacity near two channels. This unit was incorporated into

the Districts soil and water improvement program and addressed in 1998 by placing down woody debris on contour, upslope from the two channels.

During the 1998 field season, BMPs on six harvest units and adjacent road systems were evaluated by Forest personnel. For the most part, BMPs were implemented as planned and effective in limiting soil and water impacts. The exceptions were as follows:

1. Two temporary roads could have been built to a lower standard.
2. Drainage from one road segment was not adequate and did not provide adequate filtration zones.
3. One temporary road could have been better rehabilitated by providing more outsloping and slash scattered on the roadbase.
4. The terminal point of one section of road reconstruction, including one reconstructed crossing, appeared to be unnecessary. Road drainage and sediment is routed to the stream, however streamflow subsurfaces and is blocked by a natural earthen dam downstream.
5. Two landings were located on/near ephemeral draws.
6. Minor deviations from required SMZ widths were noted in two units, although surface flows or sediment did not appear to be routed to streams.

These exceptions resulted in minor deviations from standard application procedures and/or minor and temporary impacts to soil and water resources.

An administrative review was conducted on the Spring Creek Sale on October 7, 1999. This review evaluated BMPs in one harvest unit and the adjacent road system. For the most part, BMPs were implemented as planned and effective in limiting soil and water impacts. The exceptions were as follows:

1. Drainage from one road segment was not adequate due to outsloping on relatively flat grade that created a berm on the shoulder which confined surface flow to the roadway.
2. Road surface drainage was routed to two stream crossings.
3. One culvert did not conform to natural streambed slope.
4. The unit was prepped about the time the SMZ regulations were made law. An attempt was made to leave additional trees, but a few more should have been left in localized areas.

Most of these exceptions only resulted in minor deviations from standard application procedures. Only one resulted in minor and temporary impacts to soil and water resources.

During 1996 and 1998, BMPs were evaluated on the Forest as part of the State BMP Audit process. The 1996 audit was on unit 29 of the Deadhorse Bluff Timber Sale. Four BMPs had minor departures from standard applications, but still provided adequate protection for soil and water resources. Minor departures involved inadequate energy dissipaters at drainage structure outlets, equipment operation on steep slopes and inadequate SMZ width on slopes exceeding 35%. Two BMPs had minor departures from

SOIL and WATER

standard applications, and minor but temporary impacts to soil and water resources. One road segment intercepted subsurface flows which resulted in a soft roadbed requiring continual maintenance or improved drainage features. Equipment operation during slash treatment and site preparation did not minimize soil compaction and displacement because activities were not limited to dry or frozen soil conditions.

The 1998 audit was on unit 2 of the Moose Park Timber Sale. One BMP had a minor departure from standard applications, but still provided adequate protection for soil and water resources. This departure involved excess road surface material being placed in a ditch before a stream crossing and likely occurred as a result of snow plowing.

The 1998 State Audit also included a reaudit site on the Mill-Lion Timber Sale which was first audited in 1994. BMP departures noted in 1994 included minor sediment delivery to ephemeral streams from road surfaces and ditches and erosion resulting from poor stream crossing design and installation at one culvert. The 1998 re-audit identified that the road drainage problems had been fixed by maintenance actions, but the stream crossing problems were still evident. These problems could have been avoided by removing a large adjacent spruce tree during the initial construction activities. It was also noted that all six SMZ functions were preserved and no windthrow had occurred in the SMZ.

During June 1999, Lewis and Clark resource specialists and district personnel convened to review portions of Miller

Gulch and Corridor T.S. that had been harvested the previous winter. One objective of this review was to determine if soil and water protection measures (BMPs) were implemented and successful in protecting soil and water quality; specifically, stream crossing locations.

Proper 124 permits were obtained for all stream crossings, although flow at these locations was intermittent. At the first crossing, fill over the pipe has since collapsed in part due to ice and snow incorporated in the fill material. The fill could have been raised over the pipe to encourage surface drainage away from the culvert location. However, no evidence of surface runoff was observed on the approaches to this crossing, nor evidence of sediment deposition downstream. The fine native material used is easily transported and will be difficult to clear from the channel when the pipe is removed. If this structure was to be left in place for more than a season, use of coarse rock hauled in from another source to cover the pipe could have reduced the risk of fine material entering the stream. Some coarse material armoring the fine material was placed at the outlet.

At the second crossing, an 18" cnp was placed in a dry channel the previous January. Fill over the pipe came from a nearby stream terrace. Even though the locations for the crossing and the fill excavation were marked in advance, a miscommunication between the purchaser and his operator resulted in the borrow pit being too close to the stream. This is a deviation from State SMZ guidelines that prohibit equipment operation within the SMZ, which in this case is 50 feet from the edge of the channel. However, only a small portion of the borrow pit is located

within the SMZ and it has not resulted in any sediment reaching the stream. No soil movement from the borrow source was noted. Grass was sprouting from purchaser seeding. The material used as fill was coarser than the material used in the previous crossing and was well armored on the inlet. Again, this crossing could have been raised slightly to discourage runoff from draining to the culvert location. The culvert has been removed.

At the last two crossing sites, the stream was dry or frozen when crossed last winter and generally have ephemeral flow which do not require 124 permits. No culvert was placed in the existing road. Upon completion of use, a cross drain was restored and the Purchaser had seeded the disturbed area. Because of the season of use, this was the best crossing option; better than placing a pipe and pulling it out later. At the other crossing, the stream was dry, but quite incised. Snow and some debris was used to fill the draw and then skid across. It was not crossed by trucks. There was concern last winter that this debris could dam up runoff and cause damage downstream. Once the snow melted, there was no debris dam to worry about. No water has flowed at the surface even during runoff. Native vegetation is sprouting through the debris in many

places. None of the stream crossings are expected to cause any impacts to downstream water resources.

RECOMMENDATIONS

This monitoring item duplicates some information that may be documented under three other monitoring items F-3, 4 and 5. Revegetation of disturbed areas is required on activities in riparian areas, floodplains, wetlands and municipal watersheds. It is also a basic BMP that is usually required for a variety of activities, i.e., harvest, road obliteration or closure, and mining or drilling activities. The recommendation is to combine this item with items F-3, F-4 and F-5, into one item titled Forest Projects - BMP Monitoring. This single item would cover implementation and effectiveness monitoring on all project specific BMPs covered under FSH 2509 which includes BMPs for watershed management, recreation, vegetation manipulation, timber harvest, roads, trails, facilities, minerals, range management, fire suppression and fuels management. Revise Forest-wide management standards (pages 2-50 to 2-52) to emphasize BMP application, effectiveness and monitoring, but drop narratives related to specific items of revegetation.

F-3 Water Quality In Municipal Watersheds

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

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 Best Management Practices (BMPs) were prescribed, implemented and effective in reducing water quality impacts. O'Brien Creek and Willow Creek are the two municipal watersheds within the Forest.

FINDINGS

A water quality station was established on O'Brien Creek in 1992 to evaluate the effects of upslope timber harvest and road building activities on water quality. Suspended sediment and discharge data was collected during the spring and summer months during 1992, 1993 and 1994. Analysis of the data and evaluation of the sampling methodology suggests that the data cannot be used to draw valid conclusions about the effects of these activities on water quality. The reasons for this are due to the complex interactions between 1) annual variations in precipitation/run-off rates resulting in variations in surface and instream erosion processes (magnitude, frequency and timing), 2) annual variations in sediment storage, transport and delivery rates, 3) dilution of suspended sediment by tributary inflows, and 4) measurement uncertainty. Additionally, these complex interactions make it difficult, if not impossible, to differentiate between sediment related to present management from sediment related to past management and management related sediment from natural sediment.

Suspended sediment sampling is generally not a cost effective methodology for detecting trends associated with non-point pollution over time. Due to the temporal and spatial variability mentioned above, it is suggested that at least 5 to 10 years of both, pre and post monitoring are likely to be necessary to reliably detect a sedimentary cumulative watershed effect (NCASI, 1999). Pre activity monitoring was not possible in O'Brien Creek since significant timber harvest and road construction already occurred prior to the start of monitoring in 1992. Suspended sediment sampling is better suited for detecting differences in upstream/downstream conditions for a specific localized activity with a known point source of sediment, or for comparing sediment loads of hydrologically equivalent watersheds for the same period of time (MacDonald and others, 1991).

On April 25, 1995, personnel from the Lewis and Clark N.F. met with the Mayor of Neihart to review data obtained from the monitoring station and to discuss the possibility to discontinue this station. In lieu of a water quality station on O'Brien Creek, it was agreed that on-site field reviews of recent activities in the drainage would be adequate to address the concern of water quality impacts. The station was discontinued after the 1994 runoff season.

On August 17, 1995 Forest personnel met with the Mayor of Neihart to review recent management activities in the O'Brien Creek drainage and to discuss the potential implication of these activities on the municipal water supply for Neihart. Overall, there was agreement between all

present, that these recent timber harvest and road activities were located far enough upslope so that any potential sediment produced from the activities would be filtered before reaching the municipal water supply reservoir near the bottom of O'Brien Creek. However, the Mayor did request that no more timber harvest occur in this drainage.

RECOMMENDATIONS

See recommendations under F-1, F-2 and F-7. Revise Forest Plan Management Area Descriptions for MA-J (pages 3-49 to 3-52) to accurately define the MA-J boundary in O'Brien Creek and revise the direction to manage timber for the sole purpose of maintaining high quality water for municipal use.

F-4 Riparian Areas, Flood Plains, and Wetlands

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

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.

FINDINGS

The Castle Mountains Range Analysis FEIS identified four reaches that would be monitored to determine how effective the planned changes in grazing management are in improving conditions of degraded riparian areas. Two of these reaches are located in the Checkerboard allotment, one within an enclosure and one immediately below the enclosure. Another reach is located in the Bonanza allotment and the last reach is located in an enclosure in the Blackhawk allotment. Both enclosures were built in 1995.

Permanent cross-sections were established along each reach. Channel geometry and substrate data (pebble counts) were obtained at each cross-section site. Preliminary analysis of the data suggests some trends may be occurring as discussed below. However, additional statistical analysis of the data and data gathering in future years will be required to increase the certainty and statistical significance of these trends.

South Fork Bonanza, Blackhawk allotment, reach 33, not grazed. Eighteen permanent cross-section sites were established in 1995. Riparian enclosure fence built prior to monitoring in 1995. The reach was resurveyed in 1997 and 1999.

Visual comparison of the cross-section plots for 1995 and 1999 suggest the following; bankfull width has decreased

and bankfull depth has increased at 39% of the cross-sections, bankfull depth alone has increased at 28% of the cross-sections, bankfull width alone has decreased at 6% of the cross-sections and stable undercut banks alone have developed at 6% of the cross-sections. This accounts for 78% of the cross-sections. Additionally, floodplain elevations have risen slightly at nine of the cross-sections previously listed, while stable undercut banks have developed at another five of the cross-sections previously listed. Where an increase in bankfull depth was observed, the increase was due not only to downcutting, but also to an increase in the elevation of the bank. These changes have likely occurred because excessive bank trampling and over utilization of riparian vegetation by livestock has been eliminated. Riparian vegetation has increased in vigor and density, thereby improving bank stability and armoring, resulting in less erosion during high flows. More vigorous and dense vegetation has also increased sediment trapping capability, resulting in increased bank building, narrower channels and elevated floodplains. Elevated floodplains may also be the result of increased leaf litter and organic soil layer, and reduced soil compaction. The formation of undercut banks, again indicates a more vigorous and dense vegetation and associated rootmass. These changes in cross-section geometry suggest that the stream is becoming more stable and moving towards its potential stream type, i.e., a properly function "E" type stream. In contrast to the above, no change was observed at 11% of the cross-sections, while the remaining 11% indicated a major channel shift and the formation of a new channel.

The substrate data indicates a noticeable shift towards more coarse material for particle sizes less than 8-9 millimeters between 1995 and 1997. A slight shift, again towards more coarse material, occurred between 1997 and 1999, but probably is not significantly different between the two years. A shift towards more coarse substrate is likely the result of 1) decreased sediment load due to more stable banks, 2) instream sediment loss through floodplain deposition and bank building, and 3) increased sediment transport capacity through the reach due to increased velocities associated with narrower channels. Again, these processes and conditions are characteristic of properly function "E" type streams.

Bonanza Creek, Bonanza allotment, reach 38b - grazed. Eighteen permanent cross-section sites were established in 1996. The reach was resurveyed in 1997 and 1999.

In contrast to the reach discussed above where livestock have been excluded from the riparian area, lower Bonanza Creek is still grazed. Management prior to the 1998 season was under season-long management, while management in 1998 changed to a variable season system; 59 cow-calf pair for 30 days. Visual comparison of the cross-section plots for 1996 and 1999 suggest the following; bankfull width and bankfull depth have increased at 39% of the cross-sections, bankfull depth alone has increased at 6% of the cross-sections and bankfull width alone has increased at 6% of the cross-sections. Two percent of the cross-sections exhibited significant channel change in the form of braided or shifted channels. Upper bank erosion and sloughing has occurred at 17% of

additional cross-sections not accounted for above. This accounts for 83% of the cross-sections. Additionally, floodplain elevations have lowered slightly at 24% of the cross-sections. Where an increase in bankfull depth was observed, the increase was due solely to downcutting and not an increase in the elevation of the bank. These changes have likely occurred because bank trampling and high utilization of riparian vegetation by livestock has continued to occur. High flows have likely also contributed to the observed erosion, especially on the unstable undercut banks. Riparian vegetation is not providing adequate bank armoring, resulting in more erosion during high flows. Instead of trapping sediment and building banks, exposed bank soils are a chronic source of sediment to the stream system. These characteristics suggest that the channel exhibits both excessive lateral movement and downcutting and is therefore highly unstable.

A decrease in bankfull width and increase in bankfull depth was only observed at one cross-section. Undercut banks have developed at 33% of the cross-sections. However, in contrast to the South Fork reach discussed above, these undercut banks do not have root masses and are therefore unstable and continue to erode.

The substrate data indicates a noticeable shift towards more fine material for particle sizes less than 30-40 millimeters between 1997 and 1999. Slight changes that occurred between 1996 and 1997 are probably not significant. A shift towards finer substrate could be the result of 1) less stable banks, 2) bank erosion due to high flows, and 3) decreased sediment transport capacity through the reach due to decreased velocities associated with

wider, shallower channels. Again, these processes and conditions are characteristic of unstable streams systems.

Checkerboard Creek, Checkerboard allotment, reach 50. Eighteen permanent cross-section sites were established in 1996. The reach was resurveyed in 1997 and 1999. Prior to 2000, the pasture was grazed for 3½ months with 50 pair. The Castle Mountain EIS Decision was implemented in this allotment in 2000. This new management will consist of 180 pair for 3 weeks. The pasture will be rested one out of every five years.

The only data that has been analyzed for this reach is substrate data. Cross-section data will be analyzed and included in the next monitoring report.

The substrate data within and below the exclosure suggests a noticeable shift towards more coarse material between 1997 and 1999 although the shift is most dramatic within the exclosure. Slight changes that occurred between 1996 and 1997 are probably not significant. The reason for the shift towards more coarse material is not apparent at this time. A high intensity rain event that occurred within the Checkerboard Creek watershed in June 1997 and caused significant flooding along this reach may have had a significant effect on substrate composition. Additional years of substrate sampling and analysis of the cross-section data will be required to determine what trends are occurring along this reach.

Please refer to Monitoring Item F-2, Revegetation, for further information on projects that have the potential to impact riparian areas, floodplains or wetlands.

RECOMMENDATIONS

See recommendations under F-2. Revise discussions of riparian areas in the Forest Plan by including discussion of State

Streamside Management Zone laws and regulations and Proper Function Condition Assessment methodology and related policy.

F-5 Other Effects

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Effects of other activities on watershed conditions	Annually - 20% of all projects	Unacceptable management practices of land productivity	Yes	No

METHODS

Projects which are not located in a riparian zone or municipal watershed, or do not require revegetation, 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

Please refer to Monitoring Item F-2, Revegetation, for information on other projects that have the potential to impact soil and water resources.

RECOMMENDATIONS

See recommendations under F-2

F-6 Water & Soil Backlog

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

METHODS

Progress in reducing the soil and water restoration backlog is monitored by tracking the number of acres restored by

each District at the end of each fiscal year.

FINDINGS

Table F-6a identifies the restoration projects that were accomplished on the

Forest during FY 1995 through 1998. Table F-6b lists the acres accomplished by year.

Table F-6a Restoration Project List

Project Title	Acres	Comments
N. Fk Ford Cr.	1	Failed culvert removal.
Willow Cr.	4	Wood drop structure, fence and seed.
Little Willow Cr.	1	Failed culvert removal.
Mount Baldy drill sites.	6	Reseeded, mulch, and cover.
Mount Baldy Rd. access.	3	Road reseeding.
Upper Willow Cr.	20	Original photos and stream survey done in 1994.
Willow Cr. gully stabilization.	15	Fence and structures reconstructed.
Green Gulch Rd.	10	As identified in 5 year plan.
W. Fk. Flagstaff Cr.	15	Exclosure, on going monitoring.
North Crazies Rehab	3	As identified in 5 year plan, on going monitoring.
Spring Cr. Mines Rehab	1	As identified in 5 year plan.
Cottonwood Cr.	10	Riparian exclosure and willow planting.
Big Hill Cr.	34	Willow planting, Sikes Act Project.
Big Hill Exclosure	2	Willow planting in 1998.
Highwood Cr.	60	Willow planting, Sikes Act Project.
Crazies	0.5	Waterbar, machine and hand seed.
Crazy Mtn. Rehab	3	Waterbarred and seeded roads.
Haymaker	5	Waterbar, machine and hand seed.
Little Snowies Rd. Rehab.	10	Road obliteration and seeding.
Trail Cr. Spring	1.5	Spring exclosure, Sikes Act Project.
W.Fk. Checkerboard Cr.	22	Exclosure, ongoing monitoring.
W. Fk. Checkerboard Cr.	3	Emergency rehab for flood damage.
Haymaker Canyon	2	Bank stabilization, road relocation.
Minerva Cr.	10	RNA enclosure.
Whitetail Cr. Spring	2	Fenced spring area.
Spring Cr Campground	2	Restore stream crossing.
Flagstaff Cr Road	7	Riprap banks, close road.
Thorson Cattleguard	0.5	Restore drainage.
S. Fk. Bonanza Cr.	20	Willow planting in exclosure.
W. Fk. Checkerboard Cr.	22	Willow planting in exclosure.
Robinson Cr.		Willow planting in exclosure.
W. Fk. Flagstaff Cr.	15	Willow planting in exclosure.
Clara Burton Mine	5	Burn pit cover, fill pit/shaft.
Kent Gulch Mine	5	Close old mine pit.
Hamilton Mine	15	Rehab old mine shaft
Basin Cr Mine	1	Close old mine shaft.
Spring Cr. Erosion	5	Stream rehab, willow planting.
Haymaker Rd.	10	Erosion control work on road.
S.Little Belts Roads	20	Erosion control/waterbars.
Trail Cr. Roads	5	Erosion control/waterbars.
L Park Roads	5	Erosion control/waterbars.
Niel Cr. Roads	5	Erosion control/waterbars.

SOIL and WATER

Project Title	Acres	Comments
Bozeman Fk. Roads	15	Review road closure and seed.
Lion Cr. Roads	10	Waterbar and close alt. road tracks.
Green Mtn. Mine Rehab	6	As identified in 5 year plan.
Black Butte Cr.	10	Channel restoration and willow planting.
Virgin Cr.	1	Fence spring and plant native seed.
Blanding Cr.	1	Fence spring and plant native seed.
Crawford Cr.	2	Fence spring and plant native seed.
Rafferty Cr.	2	Fence spring and plant native seed.
Arrow Pk. Jeep Trail Rehab	1	Waterbar and seed closed jeep trail.
Harrison Cr. Trib Rehab	1	Reroute trib., to stabilize headcut.
Russian Cr. Rehab	2	Added debris, to disperse sediment.
Skunk Gul. Rehab	2	Waterbar and seed closed jeep trail.
Thain Cr. Exclosure	10	Fence and plant willow on 3/8 mi. of stream.
Alabaugh Cr. Rd. Rehab	7	Waterbar and drain jeep trail.
James Cr	5	Fence Riparian Area
Hall Cr	0.5	Fence spring and plant native seed
Grasshopper Cr	1	Fence spring and plant native seed
Forest Cr. Road	3	Waterbar and fill ruts in old logging road.
Block "P"	35	Emergency repair to settling pond. On going rehabilitation work.

Table F-6b Soil and Water Restoration Accomplishments (acres)

Pre 1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
21	26	10	109	57	50	94	50	129	133	61	116	112	139

Total acreage improved between 1995 and 1999 was 561 with 1107 acres improved over the past 12 years. The Forest Plan goal of 100% accomplishment by 1995 has been met.

RECOMMENDATIONS

The soil and water restoration backlog identified during the Forest Plan analysis in 1988 has been eliminated. This monitoring item should continue, but be re-titled as Soil and Water Improvement

Accomplishments. Typically in the past, only soil and water improvement funds (NFSI) were tracked under this monitoring item. However, all accomplishments, regardless of funding source, should be included here, if they truly restore or improve soil and water resources. Revise the Forest Plan by dropping statements related to soil and water backlog (pages 2-7, 2-50) and include discussion on improving water quality in Water Quality Limited Streams.

F-7 Water and Stream Quality

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

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 and water yield.

FINDINGS

Water quality stations were established on Whitetail Creek and the South Fork of the Judith River in 1992 to evaluate the effects of upslope timber harvest and road building activities on water quality. Suspended sediment and discharge data was collected during the spring and summer months from 1992 to 1995. Analysis of the data and evaluation of the sampling methodology suggests that the data cannot be used to draw valid conclusions about the effects of these activities on water quality. The reasons for this are due to the complex interactions between 1) annual variations in precipitation/run-off rates resulting in variations in surface and instream erosion processes (magnitude, frequency and timing), 2) annual variations in sediment storage, transport and delivery rates, 3) dilution of suspended sediment by

tributary inflows, and 4) measurement uncertainty. Although the data provided fair to good correlations between average daily discharge and suspended sediment loads (tons/day), these complex interactions make it difficult, if not impossible, to differentiate between sediment related to present management from sediment related to past management, and management related sediment from natural sediment.

Suspended sediment sampling is generally not a cost effective methodology for detecting trends associated with non-point pollution over time. Due to the temporal and spatial variability mentioned above, it is suggested that at least 5 to 10 years of both, pre and post monitoring are likely to be necessary to reliably detect a sedimentary cumulative watershed effect (NCASI, 1999). Pre-activity monitoring to determine natural or baseline conditions was not possible in either Whitetail Creek or the South Fork since significant timber harvest, road construction, wildfire and grazing already occurred prior to the start of monitoring in 1992. Suspended sediment sampling is better suited for detecting differences in upstream vs. downstream conditions for a specific activity with a known point source of sediment, or for comparing sediment

SOIL and WATER

loads of hydrologically equivalent watersheds for the same period of time (MacDonald and others, 1991).

Suspended sediment is just one part of the overall sediment yield within a watershed. Bedload is the other part and generally has the greatest channel impact and potentially the greatest, long-term water quality impact. Bedload may, or may not be correlated with suspended sediment and has similar inherent problems associated with data collection and analysis (NCASI, 1999). No intra-gravel sediment sampling was completed during the years 1995 through 1999.

For the reasons disclosed above, suspended sediment sampling was discontinued at the Whitetail and South Fork Judith stations after the 1995 runoff season. However, stream discharge is still collected at the South Fork station. This gauging station was originally established by the U.S. Geological Survey and maintained by them from 1958 to 1979. The Lewis and Clark N.F. restarted

the station in 1992 and assumed all operation and maintenance responsibilities.

RECOMMENDATIONS

Due to the complexity and uncertainty involved in sediment monitoring and analysis, it is recommended that this item be dropped and replaced with project specific monitoring that includes such methods as channel cross-section geometry surveys, pebble counts and photo points. It should also include accomplishments of general reconnaissance stream surveys that collect more visual and subjective information such as channel and bank stability ratings, substrate composition, riparian vegetation types, and fisheries habitat information on pools and cover. Revise the Forest Plan by dropping statements related to water and sediment yield limits (page 2-7) and validation (page 2-50).

F-8 Stream Cover and Pools

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

METHODS and FINDINGS

Relevant monitoring activities for this item are included in the discussion of fish habitat in section C-11, Aquatic Habitat.

RECOMMENDATIONS This monitoring item duplicates what is reported under C-

11, Aquatic Habitat Condition. It is recommended that this item be dropped as a separate monitoring item and that accomplishments and results be reported under C-11.

F-9 Public Health

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Public Health - Water Systems	Annually - Monthly when in use	Violating State or Federal drinking water standards	No	No

METHODS

Public water systems are operated in accordance with State and Federal Safe Drinking Water Acts, which require routine testing for bacterial contamination. Table

F-9 displays the total number of sites tested, the frequency of testing and percent of tests with acceptable results for the years 1995 through 1998.

FINDINGS

F-9a Frequency of Testing and Percent of Tests with Acceptable Results

YEAR	PUBLIC WATER SYSTEMS OPEN	ROUTINE TESTS REQUIRED	ROUTINE TESTS COMPLETED	PERCENT COLIFORM FREE
1995	38	210	190	91%
1996	37	258	258	97%
1997	36	214	207	97%
1998	38	228	228	96%

All required routine tests were completed for years 1996 and 1998. Testing was less than 100% of required for years 1995 and 1997. Between 3 and 9 percent of samples tested positive for coliform bacteria over all years. Appropriate steps were taken for all positive samples

including follow up sampling, chlorination and/or system shut down and signing.

RECOMMENDATIONS

The recommendation is to keep this monitoring item as is.

MINERALS

G-1 Effect of Mining Activities

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	No	No

METHODS

This item includes monitoring effects of mineral activities resulting from the approval of Notices of Intent or Operating Plans for mineral activities that were conducted during 1999, and updates monitoring reporting since fiscal year 1995. It also includes monitoring the effects other Forest Service approved projects may have on mineral operations. 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

A land exchange proposed in the Tenderfoot area includes land on which a mining claim is located. The Forest is attempting to resolve this issue through negotiations with both the claimant and the exchange proponent. It is desirable to have a consistent and equitable exchange of both surface and mineral rights on both acquired and exchanged lands.

Prior to initiating ground-disturbing activities, a mining proponent is required to submit a Notice of Intent (NOI) or a Mineral Plan of Operation (POO). 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 1999, 3 mining Plans of Operations and one mineral material proposal were received and reviewed. Environmental analyses were conducted for each proposals. 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 Operations that were approved in a previous year during which the proposal was not completed.

Mineral activity has slowed somewhat and is probably reflective of low metals prices and the fact that many companies are closing offices in Montana. In 1998, two Plans of Operation were submitted by Cominco American Inc. for a total of 14 exploratory drillholes in the Castle Mountains, Musselshell District. Seven of these holes were drilled in FY 1998. This is a continuation of exploratory activity that has taken place since 1993. No departures from the approved plan of operation were identified. These claims were relinquished in 1999, which reflects current low mineral economics.

In July 1999, the Forest received a Plan of Operation for expansion at the Yukon Mine on the Judith Ranger District. The plan outlined 3 years of expansion at the existing underground operations, including stockpiling of waste and ore material near the mine portal. The Forest approved a portion of the proposed expansion and is currently conducting an environmental review of the remainder of the proposal. Issues include water quality concerns associated with sulfide mineralization in the rock.

Mining is ongoing at the Vortex Mine near Yogo Creek on the Judith Ranger District. This is an underground sapphire mining operation. A Plan of Operation for continued underground operations and upgrades to surface facilities was submitted and approved in 1998.

Mining claims were located on the Rocky Mountain Ranger District in the Blackleaf/Muddy Creek area in 1996 and limited soil sampling and hand-held resistivity surveys were conducted in 1996 and 1997. No activity took place on these claims in 1998. In February 1999, Forest Service Chief Mike Dombeck announced a

two-year moratorium on new mining claims on the Rocky Mountain Front, which included about 405,000 acres within the Lewis and Clark and Helena forests. The moratorium provides time for the Forest Service to complete an environmental study of a longer-term mineral withdrawal. In September 1999, the claims in Blackleaf/Muddy Creek were dropped. There are presently no existing mineral claims within the proposed withdrawal area.

A proposal for removal of flagstone material was submitted to the Judith Ranger District in 1999. The area has been the site of a small-scale flagstone quarry for a number of years. The proponent proposes to remove the rock using mechanized equipment and haul the rock on pallets to a staging area for loading on larger transport vehicles. The District approved use of the site for both commercial and public use. The two types of uses were authorized in separate portions of the pit area.

No other plans of operation were received during FY 1999, but monitoring of operations under continuing plans was accomplished.

MINERALS

Table G-1a - Project List for Mining Activities, FY95-99

Project Title	Status	Comments
Rocky Mtn District D-1	No mining activities	Mining claims in Blackleaf area were dropped in September 1999
Judith Ranger District D-4 1. Vortex Mining - Yogo Cr. 2. Yukon Mine - Glen Davis 3. Paul Davis - Miners Creek 4. Bliss claims - Snow Creek 5. Canoy claims - Yogo Peak 6. Whitaker claims- Running Wolf	Active under POO in 1999 5-year POO approved in 1997. Amendment to plan submitted 7/99. Additional proposed activities include underground expansion and stockpiling of waste rock and ore material onsite. Pick and shovel operation, but had involved the use of a trailer on NFS lands Small scale placer operation Approved POO in 1998 Claimant deceased; had refused to submit NOI or POO; family has indicated interest in continuing activities on claims, no POO submitted yet	Development work conducted in compliance with approved POO. This is an underground operation; have been working with operators in regard to surface facilities necessary for operation; field visits to site in FY98 and IDT review in FY99. Claimant deceased; trailer and other equipment removed from site; bond to be released to next of kin Area reclaimed, bond released Ongoing hand pick & shovel work site visit in FY99 – no departure from plan. Need to determine appropriate surface use on claim(s)
Musselshell Ranger District D-6 1. FY98/99: Cominco core drilling. In FY99 Cominco requests (a) change in location of two previously approved sites; and (b) drilling of two additional core holes on Castle Mtns claims 2. Administrative Use Mineral Materials 3. Free Use Mineral Materials permit for building cornerstones. 4. Cominco geophysical exploration in Castle Mtns	7 exploratory holes drilled under approved POO in FY98. Additional drilling completed in FY99. Drilling completed and bond released by State Dept. of Environmental Quality for entire Castle Mountain project. 1,000 CY from Kent pit & 15,000 CY from High Park pit taken in FY99 Permit issued in 1997, completed Approved POO in 1997; activities completed	Cominco completed drilling operations, as specified in POO, in winter 1998/99. Reclamation, including plugging of water well for operations, was completed in 1999 and bond released. Material used on Whitetail & Spring Creek Forest Roads Stones were hand-picked Operations conducted in accord with plan

Project Title	Status	Comments
5. Cominco core drilling/ geophysical exploration in Big Snowies	Approved POO in 1997; activities completed	Proposed 1995 as exploratory core drilling. Proposal within wilderness Study Area. Plan altered due to budget/other factors to geophysical work. Completed in accord with plan.
6. Frankovich core drilling; Castle Mountains	POO approved and completed in 1996	No departure from plan
7. Administrative use mineral material	260 cy shale removed from Bear Park pit in 1996	Whitetail dispersed site; Park Summer Homes, Rd mtce
8. Frankovich core drilling; Castle Mountains	POO approved and completed in 1995	No departure from plan
9. Admin use mineral material	330 CY shale taken from pit in Kent Gulch - 1995	Used on Basin Ck FS bridge
Kings Hill Ranger District D-7		
1. Flinders - Villars Creek	POO approved in 1996	POO has expired; claimant sent certified notice to complete reclamation or submit new POO; no response.

G-2 Geophysical Prospecting

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Effect of Prospecting	Annually - 100% of active operations on a biweekly basis	Adverse effect upon surface resources of departure from conditions of the approved permit	Yes	No

This monitoring item includes effects from the issuance of prospecting permits (geophysical exploration). There have been no geophysical prospecting permits requested or issued for oil and gas exploration since 1987. Some interest was expressed in conducting a 3-D geophysical program along the eastern edge of the

Rocky Mountain Ranger District, but no proposal was ever submitted.

RECOMMENDATIONS

Oil and gas activities will not likely be emphasized as much during the next planning cycle due to the 1997 decision to not allow leasing on the Rocky Mountain

Division. While geophysical activities are not precluded under that decision, the likelihood of continued geophysical activity is not as high as it has been. This may not need to be an emphasis item for monitoring during Forest Plan revision.

G-3 Drilling Effects

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	Yes	No

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

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 BLM prompted them to vacate their decision to allow 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, the Secretary of Interior issued a one-year moratorium on all development activities, effective July 1, 1993. This stay has been extended until a review of historic property in the Badger-Two Medicine area is completed pursuant to Section 106 of the National Historic Preservation Act. Proceedings under the lawsuit have also been administratively terminated, but may be reopened "for good cause" by any of the parties to the suit.

No decision has been made on Chevron's APD. In February 1999, Chevron either reassigned or relinquished its leases in the Badger-Two Medicine area, including the acreage on which the APD was filed. The new lessee has not indicated their intention with regard to the drilling application.

In October 1996, McMahan-Bullington submitted an APD for a drilling site in the Muddy Creek area on the Rocky Mountain

Division. The proposed surface location for the well was outside the lease acreage, so a Special Use Application was filed with the Lewis and Clark National Forest for operations off-lease. The lease apparently transferred to Resource Management Associates (RMA) in 1998. RMA indicated they would assume responsibility for the drilling proposal. Additional information was requested in order for the BLM and Forest Service to analyze the drilling proposal. The information was not provided in the timeframes specified by the BLM, so the APD and Special Use Application were returned to RMA. The lease itself remains in effect. The lessee did not submit any additional information or requests in 1999.

No drilling proposals were received during the 1995-99 period.

RECOMMENDATIONS

Oil and gas activities will not likely be emphasized as much during the next planning cycle due to the 1997 decision to not allow leasing on the Rocky Mountain Division. While current drilling proposals are not affected, the likelihood of subsequent oil and gas drilling proposals is low. This may not need to be an emphasis item for monitoring during Forest Plan revision.

G-4 Rehabilitation

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	No	No

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 proposed activity. These bond amounts were collected prior to allowing any activity to take place, and retained until final reclamation standards are met.

The Forest has been working cooperatively with the Montana Environmental Protection Agency (EPA) and the Montana Department of Environmental Quality (DEQ) to address mine wastes at the Block P Mill Tailings site on the Kings Hill Ranger District in the Little Belt Mountains. Time-critical removal actions were taken by the Forest Service in 1995 to address

MINERALS

immediate concerns with the tailings impoundment and the threat of release of hazardous material from the site. These actions were designed to reduce overland flow of precipitation onto the tailings and to provide for additional storage capacity in the impoundments. The Doe Run Resources Company of Missouri has been identified as the responsible party for clean-up actions at the site. In 1998-99, the company conducted water quality assessments to determine the characteristics of surface and groundwater and the nature of associated metals contamination. An Administrative Order on Consent has been signed between Doe Run, the Forest Service and EPA for completion of an Engineering Evaluation/Cost Analysis (EE/CA) to identify long-term clean up actions at the site. A draft EE/CA has been submitted for agency and public review. A final EE/CA is

expected in winter 2000. The Forest Service and EPA, in conjunction with the Montana DEQ, will select an alternative for implementation. Final clean-up actions are anticipated to begin in the summer of the year 2001.

Several abandoned or inactive mines have been reclaimed over the past few years, too. The Montana Bureau of Mines and Geology has conducted an abandoned mine inventory on portions of the Lewis and Clark Forest and this information, as well as continuing inventory, will be used to identify abandoned mine sites that pose a human health or safety hazard and require reclamation.

Mineral operations inspected for rehabilitation are listed in the following table.

Table G-4a - FY95-99 Project List for Rehabilitation of Disturbed Areas

Project Title	Year Completed	Dates Reviewed	Comments
Rocky Mtn. District D-1			
1. Blackleaf #1-13 gas well	1997	10/97, 7/98, 8/99	Natural gas well plugged and area reclaimed; reclamation complete
Judith District D-4			
1. Skunk Gulch – Setter claims	1996	97,98, 99	Removal of old buildings, waste material from old mill site
1. Arsenic Creek AIM	1997	7/98	Removal of 50 tons of scrap metal, old buildings from abandoned mine site
2. Sawmill Gulch AIM	1999		Removal of 2 truckloads of scrap from abandoned mine site
Musselshell District D-6			
1. Cominco - YANK claims	12/99	summer 1999	Final reclamation accepted; bond released by State
2. Frankovich - Castles	1994	1995-98	Reclamation complete; use of existing cabin authorized
3. Spring Creek Inactive	1998	1998	7 sites, open pits/shafts backfilled

Project Title	Year Completed	Dates Reviewed	Comments
Mines			
4. Clara Burton Inactive Mines	1998	1998	30 ft deep pit w/ 1-200 ft deep vertical shaft at bottom, mechanical contract
5. Basin Creek Inactive Mine	1998	1998	Adit near dispersed campground; log cribbing door & fill closure
6. Hamilton Creek Inactive Mine	1997	1997-99	Claim owner voluntarily reclaimed by dismantling/removing workshed, 2 cabins, and other structures at FS request; finished 1999
7. Lucky Boy Inactive Mine	1997	1997-98	Vertical shaft was closed 1980's but settled out & reopened shaft; backfilled and leveled
Kings Hill District D-7			
1. Flinders - Villars Crk	1996	8/99	Final reclamation not complete; claimant sent certified letter notifying of need to reclaim
2. Peterson Inactive Mine	1997	9/98	Open adit near relocated road. Opening was mechanically collapsed and backfilled. Site visited in fall 1999 and is stable.
3. Green Mountain	1999	(summer 2000)	Numerous prospect pits and a collapsed shaft backfilled and revegetated

FINDINGS

Final inspections and determination of reclamation success will need to be completed on the remaining activities listed above.

G-5 Mineral Availability

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Mineral Availability	Annually - 100% sample	Denial of more than 10% of proposed projects	No	No

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

In 1997, the Forest completed an Environmental Impact Statement and Record of Decision for oil and gas leasing on the Forest. The Forest Supervisor decided not to offer oil and gas leases on the Rocky Mountain Division for the next planning period (10-15 years). Leasing, with stipulations, would be allowed in areas on the Jefferson Division where it was shown that oil and gas activities were environmentally compatible with other resource values.

This decision was appealed through the Forest Service administrative appeal process and the decision upheld at that level. A suit was brought forth by the Rocky Mountain Oil and Gas Association and the Independent Petroleum Producers of America. (The case was heard in U.S. District Court in Helena in February, 2000, and the Forest Service decision was again upheld; plaintiffs have now appealed to the Ninth Circuit Court of Appeals).

While lands on the Rocky Mountain Division remain available for oil and gas leasing, the no-lease decision of lands affects leasing of these lands for the next 10-15 years. Existing leases will continue, however, and proposals on those leases will be addressed.

In 1998, one Application for Permit to Drill (APD) on an oil and gas lease on National Forest System lands in Muddy Creek was returned by the BLM for incompleteness. A Special Use Application submitted to the Forest Service for an off-lease location for surface drilling facilities associated with that APD was also returned to the applicant. The lease remains in effect and its terms have been suspended.

The proposed Rocky Mountain Front mineral withdrawal would affect the availability of hardrock minerals during the withdrawal period (20 years). Little interest has been expressed in hardrock exploration on the Rocky Mountain Division, however.

No actions proposed under the general mining laws were denied during Fiscal Years 1995-1999, although additional mitigation or other environmental requirements may have been imposed. Most mineral material requests were small scale and were also approved.

LANDS

J-1 Compliance With Use Permits

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATED FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Compliance with use permits	Annually	Unacceptable results or deviation from permits	No	No

METHODS

The computerized Special Use Data System (SUDS) has been implemented on the Forest. This program is used primarily to prepare billings. It has not been as beneficial as the previous computer program (FLUR), but with each update, it seems to become a little more user friendly and useful in gathering information and records. Forms are now kept on the Internet and users go there to get the most recent forms rather than hard copy files that we used to use.

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 District inspects 25 percent of its recreation residences, and the Kings Hills District began inspecting their

recreation residences in 1999 and intends to have inspections performed on a regular schedule also. Ski areas are inspected before and during the ski season. Outfitter camps are periodically inspected and are generally unannounced. 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 electronic Special Use Data System (SUDS) is maintained and updated by both the Districts and the Resource Section in the Supervisor's Office. As we become more familiar with the program, maintenance and updates will be done at the district. All SUDS bills are prepared in the Supervisor's Office, sent electronically to the districts for review, then completed in the Supervisor's Office.

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

LANDS

Table J-1a SPECIAL USE PERMITS

#	Type of Permit
1	Organization Camp
1	Isolated Cabin
165	Recreation
65	Outfitter-Guide
2	Winter Recreation Resort
2	Cultivation
34	Livestock Use Area (Pasture)
1	Fence
10	Corral
2	Sign
1	Solid Waste Disposal Site ¹
1	Research Study
4	Weather Station
1	Military Training Area
2	Cultural Resource
1	Construction Camp
1	Mineral Material Sale
1	Oil and Gas Pipeline
3	REA Powerline
3	Powerline
1	Railroad Right-of-Way
3	DOT Easement
3	FRTA Easement
2	FLPMA Easement
22	FLPMA Permit
1	Microwave-Common Carrier
3	Microwave-Industrial
3	Private Mobile Radio Service
1	Broadcast Translator
1	Resource Monitoring Site
2	Facility Manager
4	Telephone Line
1	Communication Improvement
10	Irrigation Water Ditch
1	Irrigation Water Pipeline <12"
19	Water Transmission Pipeline <12"
3	Water Conveyance Easement

J-2 Right-of-Way Easements

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Right-of-Way Easements Accomplishment	Annually - 100% Sample	Less than 75% accomplishment of 5-Year Program	No	No

FINDINGS

The Forest Plan does not specify a level of accomplishment for the acquisition of rights-of-way (ROW) easements.

However, the monitoring section does refer to the Forest's 5-year ROW program.

Table J-2a EASEMENT ACQUISITIONS (Cases)

	1987	1988	1989	1990	1991	1992	1993**	1994	1995	1996	1997	1998	1999
Conservation Easements	0	0	0	0	0	1	0	0	0	0	0	0	0
Road ROW Acquired	3	1	2	1*	1*	0	9	3	0	1	0	0	0
Trail ROW Acquired	0*	0	1	0	0	0	12*	0	0	0	0	0	0

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

**5 Road & 9 Trail R/W's were acquired through the Crazy Mountain L&WCF Purchase in FY93

J-3 Land Ownership Adjustment

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Land Ownership Adjustment Accomplishment	Annually - 100% Sample	Less than 75% accomplishment of 5-Year Program	No	No

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. 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 are desirable for

LANDS

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 1999 and no purchase,

donation, Small Tracts cases or exchanges were accomplished in FY 1999.

The forest is continuing to pursue a land for land proposal by The Bair Ranch Foundation in the Tenderfoot area of the Little Belt Mountains and expects completion in FY 2001.

Table J-3a LAND ADJUSTMENT ACCOMPLISHMENTS (Acres)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Fed'l Lands Disposed	0	0*	491.91*	0.619*	0*	0*	704.34	0*	0.086	1.98	0	0	1152
Fed'l Lands Acquired	16.27*	0*	298.55*	0	0*	9,659.11*	10,074.72*	0	0	0	0	0	0

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

J-4 Landline Location

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Landline Location Accomplishment	Annually - 100% Sample	Less than 75% accomplishment of 5-Year Program	No	No

FINDINGS

The Forest Plan target for landline location is 26 miles/year. In FY 1999, the Forest was funded for 16 miles and accomplished 16 miles, about 61% of the Forest Plan target. For the first seven years of the Forest Plan's first decade, the Forest accomplished an average of 79% of its annual target.

The Forest has a total of 1636 miles of property boundary. Of this, 449 miles

have been posted to standard, leaving 1187 miles not posted. If 26 miles per year were to be achieved until the entire boundary was posted, it would take 50 years to complete the job. In the interim, many miles would need maintenance.

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 boundaries.

For this to be achieved on the Lewis and Clark National Forest, an annual average of about 100 miles of accomplishment would be needed in the period 1999-2010.

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 property boundary posting, valuable physical evidence attesting to the original corner location is being obliterated or lost to the forces of man and nature.

Table J-4a LANDLINE LOCATION ACCOMPLISHMENT (Miles)

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Landline Location	14	21*	26*	22*	23	24	17	22*	25	20	16	16	16

*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	Change Monitoring Item?	Change Forest Plan?
Road And Trail Construction; Local Roads; Trails; Arterial/Collector Roads	Annually - 100% Sample	+ / - 20% of programmed construction/reconstruction accomplished	No	No

FINDINGS

Roads: The Forest Plan as originally printed (Table 2.1, Lewis and Clark National Forest Plan, June, 1986) indicated that the Forest would accomplish 3.6 miles of arterial road and 13.0 miles of local road in the first decade of the plan. This is a typographical error. The figures were intended to indicate an annual figure relating construction and reconstruction. Further, these numbers were the miles anticipated to support the Timber Management Program in 1986 only.

The Forest Plan budget and projected targets were amended in April, 1989 (Lewis and Clark Forest Plan Amendment No. 3) to include all miles, both construction and reconstruction, in support of all resources. The amended numbers are 9.0 miles of new construction and 24.0 miles of reconstruction annually under both Capital Improvement and Purchaser Credit Programs.

In the period FY 1995-1999, the Forest constructed 13.1 miles and reconstructed 55.8 miles of roads in service levels 2 and above, for a total of 68.9 miles under both

Capital Improvement and Purchaser Credit Programs. When considering the total miles reconstructed and newly constructed in FY 1999 under both programs, the total is 5.3 and 12.0 miles respectively, or 52% of the aggregate of Forest Plan construction and reconstruction miles. By work function (reconstruction or new construction) the percentages are 62% and 50% of projected Forest Plan levels, respectively.

Referring to Table L-1 of this report, these totals fall outside of the range of variability at which further evaluation would occur. Even if the reconstruction of Sun River Road (7.1 miles) had proceeded as originally scheduled for 1999, the total work accomplished would have not reached the 80% of Forest Plan goals for road construction and reconstruction. A further review of this table also reveals that FY's 1987 and 1991 were the only two years in which the accomplished miles were within the variability standard.

During 1999, the Forest used monies outside of the Capital Investment and Timber Purchaser Credit Programs to reconstructed 4.2 miles of road using non-appropriated 10% funding, and

reconstructed 6.0 miles using non - agency disaster funds. Under all funding sources the total accomplished were 27.5 miles, or 83% of forest plan target as amended.

The average accomplishment for the thirteen year period from 1987-99, (65.1 miles of construction and 184.9 miles of reconstruction for a total of 250.0 miles) is 58% of the aggregate total given in the forest plan. By work function (construction or reconstruction) the percentages are 56% and 59%, respectively of the forest plan targets as amended. The reasons for the under accomplishment are programmed timber sales that slipped behind anticipated

schedules due to prolonged analysis, appeals, and litigation; short falls in anticipated Capital Improvement Program allocations related to Regional prioritization; and reduced road construction funding allocated from the national headquarters level.

Consequences of not meeting Forest Plan targets in this program area include: non-compliance with the Forest Plan; backlog of needed relocation and reconstruction of unstable and inadequate roads with continued soil and water quality impacts; transportation facility conditions continue to deteriorate; increased costs, and some service levels will continue to be inconsistent with that which was planned.

Table L-1a MILES OF ROAD CONSTRUCTED/RECONSTRUCTED

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Capital Investment/ Purchaser Credit Construct	9.0	3.7	2.9	0	3.1	17.4	20.2	3.2	1.5	1.0	3.0	1.5	2.3	5.3
Capital Investment/ Purchaser Credit Reconstruct	24.0	29.7	20.3	17.9	9.8	13.4	22.6	1.3	14.1	22.4	9.6	8.1	3.7	12.0

Trails:

The Forest Plan, as amended, projects an average of 14.0 miles of trail construction and reconstruction annually. In FY 1999, 11.0 miles of reconstruction work

occurred using appropriated funds. Funding levels have also affected the amount of trail miles that can be constructed or reconstructed.

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

Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
14.0	8.5	10.0*	12.0*	14.0*	11.0*	9.0*	13.6*	22.1*	12.5	11.5	2.1	1.4	11.0

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

L-2 Miles of Open Roads

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Miles of Roads Open to Public Use	Annually - 100% Sample	+ / - 20% of target miles to be open to public	Yes	At revision

FINDINGS

The Forest has 1,593 miles of system road. The total mileage has been declining as a result of road decommissioning and a continuing review of the road inventory. The Forest Plan identifies road management direction for various management areas. This includes defining whether an area will be managed for low, moderate, or high level of public access. Low level is defined as between 0.5 - 1.5 miles of open road per square mile of area, moderate as between 1.5 – 3.0 miles of open road per square mile of area, and high level is greater than 3 miles of open road per square mile. The following table shows a calculation of projected access level by management area, based on access direction and total square miles covered by that management area. For example, Management Area A covers approximately 66 square miles of the

Forest. Road management direction for MA A is to achieve moderate public access (1.5 – 3.0 miles of open road per square mile of area), which calculates to between 99-198 miles of open road. As shown in the table below, in most cases, actual road miles open yearlong and seasonally are closer to the low end of Forest Plan open road densities. This is largely due to the fact that not all areas are suited to roaded use, and site-specific analyses have resulted in closures of some roads no longer needed. These numbers are subject to change as better inventory information becomes available.

Roads analyses and travel and access planning will help determine appropriate service and use levels on Forest system roads. This may result in changes to the amount and level of use of the Forest road system.

Table L-2a Miles of Open Road by Management Area

Management Area	Access Level/miles of open road	Total Actual miles of open road (includes roads open yearlong and seasonally)
A	M = 99-198 miles	84
B	M = 711-1422 miles	592
C	L = 95-285 miles	258
D	L = 21-63 miles	8
E	L = 134-403 miles	142
F	minimum	97
G	minimum	142
H	H = >312	102
I	L = 18-63	28
J	minimum	3
K	minimum	9
L	H = 108	42
M	minimum	0
N	minimum	5
O	minimum	31
P	minimum	0
Q	minimum	0
R	minimum	-
S	H = >3 miles	2

L-3 Road Decommissioning

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Miles of Roads Closed to Public Use	Annually - 100% Sample	+ / - 20% of target miles to be closed to public	Yes	Yes

FINDINGS

The focus of the program is to accelerate decommissioning of roads no longer needed for the Forest Transportation System. Priorities are guided by the Clean Water Action Plan with emphasis placed on those roads having the most impact on watershed and fishery

resources and will be accomplished under the Interim Forest Road Policy.

Beginning in FY 1999, decommissioning occurred on the Kings Hill Ranger District, in three projects totaling 7.9 miles. Roads were closed using earthen berms, type 2

FACILITIES

object markers, slash placed on the roadbed, seed & fertilization and water

barring as needed. No conversion to ATV or other recreation use was made.

Table L-3a Road Decommissioning (miles)

Description	Forest Plan	1995	1996	1997	1998	1999
Road Decommissioning	0	0	0	0	0	7.9

PROTECTION

P-1 High Risk Stands

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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	Yes	Yes

FINDINGS

From 1995 to 1999, lodgepole pine was the dominant cover type on approximately 56% of the stands harvested. This is below the Forest Plan goal emphasizing lodgepole pine removal, however all harvesting was effective in breaking up continuous forest cover reducing fuels accumulations. Additional lodgepole pine harvest will be planned as previously

harvested drainages recover. Recent analysis indicates that the dry forest, mixed conifer stands may be higher priority as the Forest has never experienced epidemic populations of mountain pine beetle in lodgepole stands. Harvest has been increasing in stands dominated by Douglas-fir and ponderosa pine.

Table P-1a Removal of High Risk Lodgepole Pine (percent)

Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
14.0	70	90+	80	90	67	64	89	70	79	66	36	54	64

P-2 Acres/Volume of Insect and Disease

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Acres and volume of insect and disease infestations	5 Years	Introduction of new insect or disease or spread of an existing insect or disease.	No	No

PROTECTION

FINDINGS

Based on the aerial detection surveys conducted each summer from 1995 through 1999, there is a fairly constant presence of numerous insect and disease agents including Douglas-fir bark beetle, spruce beetle, and pine engraver, with generally less than 200 acres affected by each agent. Mountain pine beetle in ponderosa pine and lodgepole pine are present but with levels ranging from 500 to over 1,500 acres; the highest year was in 1999 with 1,633 acres of affected trees. Mortality is increasing in ponderosa pine dominated stands as they become overstocked, (653 acres in 1999). Root rot is ever present with a high of 1,587 acres in 1995 to a low of 272 acres in 1998. With the exception of mountain pine beetle in ponderosa pine stands, these insects and diseases are at endemic levels creating diversity and are not a threat to the forest resources at these levels.

Winter damage due to extremes in winter temperatures caused major damage to nearly 42,500 acres in 1997; this compares to the lowest year in 1996 with

1,439 acres with moderate to heavy damage. Although full mortality did not occur on all acres affected, the trees are weakened and become more susceptible to secondary insect infections or an increase in fire risk.

White Pine blister rust is known to occur in the whitebark pine and limber pine of the Forest although was not detected and acres affected have not been quantified. Blister rust poses a threat to the regeneration and overall health of future stands containing 5-needled pines. Additionally, defoliation of limber pine was noted for several years, although the causal agent, *Dothistroma septospora* was not identified until 1998. *D. septospora* is a needle blight fungus; and when coupled with blister rust poses a serious problem for the survival of both seedlings and established limber pine trees. Lodgepole pine in some areas of the forest continues to decline due to its age. The health of specific stands is impacted by heavy dwarf mistletoe as well.

P-3 Management Practices

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Management practices to ensure activities do not promote an increase in insect or disease organisms	Annually	Significant increase in insect and disease	No	No

FINDINGS

There has not been any significant increase in insect or disease agents as a result of management practices. Activities planned near root rot areas recognize the potential for root rot spread with partial cutting practices. There is a potential in

areas of winter damage that deferring management may cause an increase of secondary insects or disease in the future. Monitoring will be necessary to determine if and when management practices are needed.

P-4 Prescribed Fire & Air Quality

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Assure prescribed fire meets air quality standards	Annually	+ / - 10% beyond standard guidelines	No	No

FINDINGS

As displayed under P-5 the number of fuels acres treated by prescribed burning per year has been increased from 2,200 to over 6,000 acres as of 1999. The main increase had been associated with prescribed burning of natural fuels. These burns are used to reduce potential intensity of wildland fires, to control when burning takes place and to improve forest health conditions, (i.e. burn when fuels condition can be treated by under-burning) rather than waiting too long, when thinning or mechanical treatment will be needed before under-burning can be used to maintain lower fuel loadings. Air quality standards as monitored by Montana DEQ and coordinated by the Montana State Airshed Group, are used to manage the prescribed burning process. This group issues burning restrictions when smoke dispersion is poor or smoke accumulations may exceed

air quality standards. All burning is coordinated 24 hours in advance and the decision to issue burn restrictions is made by the program coordinator a working meteorologist and Montana DEQ.

There have been no reported complaints from prescribed burning, however during the past several years there has been some major smoke impacts from wildfires in Montana and Idaho which have affected the visibility, air quality and potential health of Forest users and local communities. During this summer the MT DEQ developed a forest fire smoke index to advise the public of health effects of smoke and when to take precautions. They issued 21 "very unhealthy" and 19 "hazardous" advisories for communities from Hamilton to Kalispell, Butte to Helena.

P-5 Fuel Treatment Outputs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Fuel Treatment Outputs	Annually - 100% Sample	+ / - 25% of programmed targets	No	No

FINDINGS

Much of the change in the fuels program, from the late 1980's to the present, is a result of projects being developed to respond to forest health objectives rather than to meet timber harvest objectives. The acres of activity fuels treatment have declined, however much of the need to break up large concentrations of heavy forest fuels or to remove high risk lodgepole pine or Douglas-fir stands is still evident.

As a result of coordinating with private landowners, adjacent communities and a

newly developed **National Fire Plan**, (requested by congress) there will be focus efforts and funding to reduce future wildland fire risk through fuels reduction actions. Coordination efforts with county officials, Montana DNRC, other agencies and local communities will be used to identify communities at risk from wildland fire. The community, fire protection agencies and individuals who need to protect their private property will develop potential fuels treatment actions and funding needs.

Table P-5a Activity and Natural Fuel Accomplishments (acres)

Description	Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Activity Fuels	1,470	1713	1,201	1,053	737	533	328	833	385	393	429	187	525	361
Natural Fuels	700	665	863	1025	675	860	1,108	972	1,215	1189	2300	2517	760	6009

P-6 Wildfire

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Wildfire Acres Burned	Annually - 100% Sample	+ / - 25% above projected average annual wildfire burned acres	No	No

FINDINGS

There has been a record drought pattern across much of central Montana during

the past four years, this has resulted in a longer fire season, above normal fire

occurrence and increased fire behavior resulting in large fires, which exceeded initial attack resources. On the average there have been one or two project fires per year requiring the assistance of an Incident Management Teams to control these complex fires. Any time fires exceed initial attack capabilities and require added personnel and equipment for control the costs quickly escalate and can easily surpass the normal or average suppression costs. The fire suppression funding for the L&C NF has been at approximately 65% to 70% of the most efficient level as analyzed through the NFMAS model. For the past 3 years protection expenditures have ranged

between \$800,000 and \$900,000 for the Forest fire suppression organization. Suppression costs have ranged from \$17,000 in 1997 to \$1,382,000 in 1999. The major cost for 1999 resulted from 2 fires which required an Incident Management Team. The Burned Point fire west of Augusta cost approximately \$745,000, and the Spring Creek fire southeast of Showdown cost \$510,000. In 1999, the Lucy Park fire just east of Neihart started on private land and required assistance from the Forest Service, including smokejumpers, retardant and two Montana Indian Firefighting crews. This fire cost about \$55,000.

Table P-6a Wildfire Area Burned (acres)

10-yr Avg	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
497	37	174,162	13	32,013	795	25	1	3,918	7	3747	13	234	1,362

P-7 Suppression and Protection Costs

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Cost of Suppression and Protection Organization	5 Years	+ / - 5% increase in real costs	No	No

FINDINGS

The findings for Item P-7 have been incorporated into the findings for Item P-6 and can be read above.

Table P-7a Suppression and Protection Costs (thousand dollars)

10-Year Average	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
\$590	\$379	\$6361	\$273	\$1684	\$2648	\$484	\$520	\$773	\$517	\$3543	\$818	\$1197	\$2253

WILD AND SCENIC RIVERS

W-1 Effects on Eligible Rivers

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Project-level effects on eligible rivers qualifications (free-flowing and "outstanding 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	No	No

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 Standard W-1 (wild potential classification), W-2 (scenic potential classification), and W-3 (recreational potential classification). The rivers monitored for project-level activities were: Smith River, North Badger Creek, North and South Fork Sun River, Dearborn River, North Fork Birch Creek, Green Fork of Straight Creek, Tenderfoot Creek, and Middle Fork Judith River.

Under the Tenderfoot Land Exchange, the Forest proposes to acquire private lands along the Tenderfoot Creek (T14N, R4E, sections 21, 22, and 23) adjacent to segments of the creek identified as eligible for scenic river classification. Acquisition of these lands will ensure that scenic values can be maintained.

Through the oil and gas leasing analysis, stipulations were developed to ensure protection of eligible rivers, consistent with Forest Plan direction.

Through site-specific analysis, additional information on identified and potentially eligible rivers is collected. A river suitability study may be completed as part of Forest Plan revision.

GENERAL

I-1 Costs and Values

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
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.	Yes	No

FINDINGS

The 1995 Forest monitoring report recommended 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	Change Monitoring Item?	Change Forest Plan?
Effects of emerging issues or changing social values	Continuously	If issues cannot be dealt with under the Forest Communications Plan	No	No

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 through fiscal years 1995-1999. 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: Forest-wide Analysis for Oil and Gas Leasing, Forest-wide Range Inventory and Analysis, Rocky Mountain Front Mineral Withdrawal, Lewis and Clark National Historic Trail Interpretive Center, and, as always, the Timber Sale Program.

Minerals:

Lewis and Clark National Forest Oil and Gas Leasing EIS: See item G-5

Chevron/Fina EIS: See item G-3

Big Snowies Exploratory Core Drilling:

In July 1995, Cominco American, Inc., submitted a mineral plan of operation for core drilling from one to six exploratory holes in Swimming Woman Canyon, Big Snowy Mountains. Proposed access would be via existing roadways, and proposed drill sites would be on existing roads. Some road maintenance was proposed to accommodate drill truck access. The proposed sites were within

GENERAL

the 1977 Big Snowy Montana Wilderness Study Act area. A public field trip was taken to the area in September 1995. Because of the Wilderness Study status, the Forest Service consulted with the Office of General Council as to the legality of this proposal. In August 1997, Cominco decided to withdraw their drilling proposal due to lack of exploration funds.

Rocky Mountain Front Mineral

Withdrawal: On February 3, 1999, Mike Dombeck, Chief, USDA Forest Service, announced a two-year moratorium on locatable mineral entry (hard rock mining) of 429,000 acres of National Forest System lands (NFS) in the Lewis & Clark and Helena National Forests to preserve the area for traditional cultural purposes by Native Americans, protection of threatened and endangered species, and preservation of outstanding scenic values and roadless character. The lands proposed for the withdrawal include all NFS lands in the Rocky Mountain division of the Lewis and Clark National Forest outside of existing Wilderness east of the Continental Divide and NFS lands on the Lincoln Ranger District of the Helena National Forest east and outside of the Scapegoat Wilderness. A notice was filed in the Federal Register February 3, 1999, which prevented the staking of new mining claims while an environmental analysis is completed to evaluate closing the area to entry under the United States mining laws for 20 years. The lands remain open to all other activities consistent with applicable forest plans and those related to the exercise of valid existing rights.

During a 90-day public comment period following Chief Dombeck's announcement, nearly 700 individuals, groups or agencies wrote concerning the

two-year moratorium. These names and addresses were included on the mailing list for the proposal to prepare an environmental impact statement (EIS) to remove NFS lands along the Rocky Mountain front from new mining claims for up to 20 years. A Notice of Intent to prepare an EIS was filed in the Federal Register June 4, 1999, which listed public meetings and a 30-day comment period on the 20-year proposal. Two public meetings were held - Choteau (38 in attendance) and Lincoln (14 in attendance). Nearly 300 comments were received by the end of the comment period, July 6, 1999. A final EIS is expected to be released in 2000.

Block P: See item G-4

Range:

Forest-wide 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.

The Castle Mountains comprised the first analysis area. The Draft Environmental Impact Statement (EIS) on grazing in the Castle Mountains was released August 11, 1995. The Section 8 process under the Public Rangeland Improvement Act was initiated under which a target group of specialists representing the University of Montana, the State of Montana, and Montana Riparian Association reviewed Forest Service information on the proposed action and associated issues. The Final EIS and ROD were released February 1997. Two appeals were

received from permittees. The decision was administratively upheld and was implemented in the 1997 field season.

A second environmental analysis on grazing for multiple allotments in the north Little Belt Mountains was initiated in June 1996. The Environmental Assessment (EA) for north Little Belt Mountains was released in August 1997. A Decision Notice for the EA was released in March 1998. Three appeals were received on the decision. The appeals were withdrawn following negotiations between the Deciding Official and appellants.

The third multiple-allotment analysis was initiated in the fall of 1996 for the Sun Canyon area. The EA for Sun Canyon was released June 1997, and the decision was signed in September. An appeal of the District Ranger's decision was filed by a permittee. The Forest Supervisor heard an oral presentation by the permittee, and the appeal was resolved.

The fourth environmental study of grazing allotments began in September 1997, for the Belt Creek area. The EA was released in February 1998. The Decision Notice was issued in June.

Another environmental study of grazing allotments in the Judith River area in the central Little Belt Mountains was initiated in April 1998. Nearly all of the Middle Fork Judith Wilderness Study Area is within the analysis area. An EA was released July 2, 1998, and the Decision Notice was issued in September.

An environmental study of grazing allotments within the Musselshell drainage of the Little Belt Mountains was initiated in June 1999.

Timber Sale Program

Smoky-Corridor Timber Sales -

Environmental Impact Statement: The Final Smoky-Corridor Timber sales EIS was released in January 1994. Twenty appeals were received on the final decision, of which, two were dismissed. The Appeals Deciding Officer reviewed the appeal record and affirmed the Forest Supervisor's decision.

On May 12, 1994, the Forest Service received a Notice of Intent to sue from several of the appellants. The complaint was filed July 18, 1994. A temporary injunction was issued on Smokey B Timber Sale December 22, 1994. A hearing on the injunction was held January 12, 1995, where attorneys presented oral arguments concerning the Smokey Corridor EIS. Judge Hatfield issued a ruling August 21, 1996, upholding the Forest Service on all counts. Litigants in the case appealed the ruling to the 9th Circuit Court of appeals and requested a stay of activities. On July 7, 1997, the Forest Service was notified that 9th Circuit Court of Appeals affirmed Judge Hatfield's ruling.

Running Wolf Timber Sales - Final

Environmental Impact Statement: The Draft Environmental Impact Statement for the Running Wolf Timber Sales was available for public review and comment in September 1994. The DEIS described five alternatives for management within the project area in the north central Little Belt Mountains. A Final EIS was released in May 1995. The EIS was appealed, however, the Regional Forester upheld the Forest Supervisor's decision.

GENERAL

Dry Fork Vegetation and Recreation Restoration - Environmental

Assessment: As a result of information gathered through a landscape assessment of the Belt Creek drainage, the Forest, in 1998, proposed timber harvest, prescribed burning and recreation site improvements in the Dry Fork drainage of Belt Creek. The objectives of the proposal were to improve tree stand structure and age class, using harvest and prescribed burning; to provide wood products while emphasizing ecosystem health; to reduce impacts to water and aquatic resources from roads and intense recreation use next to streams; and to provide a level of dispersed and developed recreation opportunities compatible with other resources. A scoping letter was sent to 376 individuals, interested groups and tribal officials, and two public field trips were conducted to the project area. An EA was released in September 1999, but in response to public requests, additional time was allowed for comment. Several meetings were held with local community members to discuss the proposal.

Lewis and Clark National Historic Trail Interpretive Center: Using the \$300,000 federal appropriation received in 1995, the Forest Service contracted with CTA Architects for architectural design and construction documents for the Interpretive Center building. By the Fall of 1995, partnership funds were raised and matching funds from Congress were appropriated. Construction of the Lewis and Clark National Historic Interpretive Center was completed in the fall 1997. A Grand Opening event was held on July 4, 1998. By May 5, 1999, the 100,000 visitor had been counted at the Center. Some remodeling occurred to improve safety

conditions and the ADA accessibility to the facility.

Programming at the Center has expanded with special tribal speakers and music programs provided on a regular basis. The education program has served approximately 6000 students from across the state.

A contract for the construction of a demonstration area along the banks of the Missouri River was completed and officially opened with interpretive demonstrations in early August 1999.

Total visitation for FY 99 was approximately 90,000.

Forest Plan Revision: In preparation for Forest Plan revision, the Lewis and Clark Forest, along with other "eastside" forests (including the Helena, Gallatin, Custer, and Beaverhead-Deerlodge) has been compiling data related to issues common to the forests in the broad geographic area. The forests will identify existing and historic conditions and trends related to water issues, vegetation, terrestrial wildlife species, recreation uses, and social and economic factors in order to identify resource concerns, opportunities, and determine need for change in management strategy. Depending on available funding, the Lewis and Clark Forest may enter into the formal Forest Plan revision process in FY2002.

Big Snowy Mountains Access: Public meetings were held in Lewistown and Billings in FY94 to discuss the appropriate level of public access to and within the Big Snowy Mountains. A total of 85 people attended the two meetings. In FY95, Montana Wilderness Association contacted the Chief of the Forest Service protesting a Decision Memo by the District

Ranger which allowed the improvement of access and the development of a trailhead in Cottonwood Creek of the Big Snowies. In the spring of 1995, a second round of public meetings were held in Lewistown and Billings. One hundred people attended these meetings. Also, ranger district personnel conducted summer field trips to show proposed access routes and recreational improvements.

Gallatin Range Consolidation And Protection Act: This Act authorized and directed the Forest Service to acquire inholdings within the Gallatin National Forest north of Yellowstone National Park. The Forest Service and the owner reached agreement on an exchange containing a mix of assets in Montana, including national forest lands, national forest timber and Bureau of Land Management lands. A series of public meetings were held concerning the proposal. The environmental analysis was completed and a report was submitted to Congress in September 1997. The exchange contribution from the Lewis and Clark National Forest was 1151 acres of land in Meagher and Cascade counties. The Forest Service notified permittees and adjacent land owners who may be affected by the exchange.

Bair Land Exchange: In 1996, the Lewis and Clark National Forest, University of Montana and Bair Company entered into a 3-party agreement to share information and develop courses of action to meet the goals of both the National Forest and the Bair Company for checkerboard ownership sections of land in the Lower Tenderfoot drainage, a tributary of the Smith River. The University provided information and analyzed tools to predict

future vegetative and other resource trends in the drainage; research and educational opportunities were provided for the school. Another part of the agreement was directed at a potential land exchange or purchase of Bair lands, as well as management opportunities.

In August 1997, public scoping was opened to gather concerns and issues of the potential exchange. Public concerns and issues will be incorporated into an environmental assessment.

South Fork-Sun River Burn: The Rocky Mountain Ranger District proposes introducing management ignited fire into approximately 10,000 acres of the Scapegoat Wilderness over five years. The proposal would accomplish two objectives - to create a more defensible Wilderness boundary to control wildfire and to restore the natural role of fire in the Wilderness complex. An initial public comment period began October 17, 1997. An interdisciplinary team included public concerns in the environmental analysis, expected to be released in early 2001.

Tenderfoot Experimental Forest: The Lewis and Clark Forest has been working with Forest Research to implement a research project in the Tenderfoot Experimental Forest. The proposal involves watershed management after vegetative treatment including logging and prescribed burning. Scoping for this proposal began in May 1997. An EA was completed in February 1998. Four appeals were received on the decision; two were dismissed. The Appeal Deciding Officer upheld the Forest Supervisor decision on the remaining appeals

I-3 Land Allocations

OUTPUT, MANAGEMENT PRESCRIPTION, EFFECTS TO BE MEASURED	REPORTING PERIOD	VARIABILITY (+/-) WHICH WOULD INITIATE FURTHER EVALUATION	Change Monitoring Item?	Change Forest Plan?
Evaluate lands identified as not meeting physical or biological characteristics used initial allocations	Continuous	All changes will be evaluated annually	No	No

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. Forest Plan Amendment #18 resulted in a change of management area designation on 15,910 acres in the Running Wolf project Area. Forest Plan Amendment #19 changed management designation on

40,492 acres in the Castle Mountains as a result of findings in the Castle Mountains Range Analysis EIS. Forest Plan Amendment #20 designated 3,145 areas in the Big Snowies as Research Natural Areas.

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	Net Change	1999 Acres
Management Area A	16,261	+13,582	29,843
Management Area B	330,838	-41,476	289,362
Management Area C	111,664	-51,261	60,403
Management Area D	24,456	+17,997	42,453
Management Area E	116,519	+13,113	129,632
Management Area F	352,746	-554	352,192
Management Area G	247,644	+30,242	277,886
Management Area H	31,778	-3,270	28,508
Management Area I	37,867	-79	37,788
Management Area J	11,100	-238	10,862
Management Area K	9,125	-1,209	7,916
Management Area L	16,112	+610	16,722
Management Area M	3,281	+7089	10,370
Management Area N	41,838	-580	41,258
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 Forest Acres	1,843,397	130,924	1,843,397

Land allocation adjustments totaling 130,924 acres have been made during implementation of the Forest Plan. This represents about a 7% change in land allocation and are considered a minor modification. The changes in management areas have reduced the suitable forest acres (those acres managed for scheduled

timber harvest) by 16,558 (from 287,307 to 265,749). This is about a 6% reduction of the total suitable forest land identified in the Forest Plan for forest production. 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	Change Monitoring Item?	Change Forest Plan?
Validation of employment and income projections	5 Years	+ / - 20% of predicted changes	No	No

FINDINGS

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

and income projections used in the Forest Plan and the actual jobs and income from the timber program (Table 3, TSPIRS).

Table 1-4a Employment and Income Comparisons

Forest Plan	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	13 Yr Avg
Jobs-192	367	150	200	110	170	580	310	650	360	400	270	630	208	339
Income ¹ -7,700	16,692	7,297	7,979	4,472	6,723	21,251	11,266	10,811	12,800	13,986	9,492	22,875	7,322	11,767

¹Income in thousands and in FY 1999 dollars

The 13-year average job (339) and income (\$11,067) projections are above the variability predicted in the Forest Plan. The 13-year averages are somewhat skewed due to the higher volume of timber harvested on the Forest in FY 1992 (23.3 MMBF) and in 1998 (18.9 MMBF). NOTE: For 1992 and earlier, the IMPLAN model used 1985 county level data, with

employment measured 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

GENERAL

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.

IV. COMPARISON OF OUTPUTS, ACTIVITIES, AND BUDGETS

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 of Activity	Unit of Measure	FP 1st Decade	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Developed Use	M RVD	189 ¹⁰	541	179	205	241	271	296	237 ¹⁰	334 ¹⁰	337	379	NA	NA	NA
Dispersed Use	M RVD	86	64	42	60	64	63	59	58	64	65	66	NA	NA	NA
Wilderness	M RVD	164	581	384	450	416	535	568	618 ¹⁰	642 ¹⁰	719	736	NA	NA	NA
Non-wilderness	M RVD														
Wildf Habitat Imp	Acres	600	300	1400	1392 ¹	1262 ¹	450	1221 ¹	779	1035 ¹	416 ⁶	906 ⁶	485 ⁶	485 ⁶	846 ⁶
Fish Habitat Imp	Acres	5	2	0	10	16	0	40	71	20	14 ⁷	3 ⁷	4.75 ⁷	4.75 ⁷	10 ⁷
T&E Habitat Imp	Acres	100	0	0	0	500	634	6301	210	120	0	200	250	250	170
Wildf Structures	Structures	10	0	0	6 ¹	4 ¹	7	8	9	20	2	1	0	1	0
Fish Structures	Structures	25	16	19	11	34 ¹	33 ¹	30	20	6	9 ⁶	0 ⁶	3 ⁶	3.5 ⁶	0 ⁶
T&E Structures	Structures	0									1 ⁹	1 ⁹	1 ⁹	1 ⁹	0 ⁹
Permit Grazing Use	M AUM	71.1	70.5	72.3	72.4	71.9	71.2	70.3	69.5	72.7	72.4	72.5	73.7	73.3	68.7
Range Improvment	M AUM														
Nonstructural	Acres	1329	1999	2433	1607	562	402	550	110	453	100	100	0	300	500
Structural	Structures	40	30	18	26	35	28	37	31	32	40	38	43	28	62
AMPs	Plans	10	5	4	4	0	2	1	1	0	0	17	23	24	11
Nox Weed Control	Acres	600	772	616	636	472	1062	1261	1265	1515	1100	1100	1200	1200	1100
Total Vol. Sold	MMBF	14	7.9	10.7	6.9	10.5	17.9	25.6	12.1	6.3	3.4	10.0	15.0	5.6	9.8
Silviculture Exams	M Acres	28.0	45.3	33.9	28.2	37.3	35.4	14.6	9.4	9.3	NA	NA	NA	NA	NA
Reforest-Approp ²	Acres	54	217	225	92	117	38	245	151	253	148	373	134	59	304
Reforest-Other ³	Acres	270	1108	829	927	603	487	371	612	914	526	740	140	400	578
TSI-Appropriated ⁴	Acres	200	563	568	502	340	334	186	216	178	348	98	85	525	15
TSI-KV ⁵	Acres	0	125	12	0	0	0	24	111	140	127	0	0	0	0
Soil Inventory	Acres	2000	0	0	0	0	25000	46000	49000	30000	0	0	0	0	0
Soil/Water Imprv.	Acres	45	29	10	109	71	50	94	50 ¹⁰	129 ¹⁰	133	61	116	112	139
Minerals Mgmt	Cases	160	154	134	250	108	94	38	37	38	31	28	19	26	37
Land Exchange	Acres (net)	60	16	0	-193	0	0	9659	9371	0	0	-2	0	0	1152
Landline Location	Miles	26	14	21 ¹⁰	26 ¹⁰	22 ¹⁰	23	24	17	22 ¹⁰	25	20	16	16	16
Road Construction	Miles	9.0	3.7	2.9	0	3.1	17.4	20.2	3.2	1.5	1.0	3.0	1.5	2.3	5.3
Road Reconstruct.	Miles	24.0	29.7	20.3	17.9	9.8	13.4	22.6	1.3	14.1	22.4	9.6	8.1	3.7	12.0
Trail Construction/	Miles	14.0	8.5	10.0 ¹⁰	12 ¹⁰	14.1	11 ¹⁰	9 ¹⁰	13.6 ¹⁰	22.1 ¹⁰	12.5	11.5	2.1	1.4	11.0
Reconstruction	Miles														
Fuels Mgmt-BD	Acres	1470	1713	1201	1053	737	533	328	833	384	393	429	187	525	361
Fuels Mgmt-FFP	Acres	700	665	863	1025	675	860	1108	972	1215	1184	2300	2517	760	6009

NA = Not Available at time of publication

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

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

³ Reforest-Other is the sum of Plant/Seed 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

⁶ Management Attainment Reporting (MAR) items changed in 1995; now reflects acres restored

⁷ New MAR item reflects miles of inland fish habitat restored/enhanced – no Forest Plan output

⁸ New MAR item reflects miles of TES aquatic habitat enhanced – no Forest Plan output

⁹ New MAR item reflects # of T&E structures – no Forest Plan output

¹⁰ Corrections made to previous report

IV. COMPARISON OF OUTPUTS, ACTIVITIES, AND BUDGETS

The following table shows the budget identified in the Forest Plan to implement Forest Plan direction, and the Forest's actual 1999 budget allocation. All dollars are reported in 1999 dollars.

Table II – Comparison of FY 1999 Budget Allocations vs Forest Plan Projections

Activity	Budget in Forest Plan	Actual 1999 Allocation
General Administration	1447	770
Land Management Planning	(was spread among other line items)	49
Inventory & Monitoring	(was spread among other line items)	246
Fire and Fuels	495	1470
Timber	878	793
Range	604	826
Minerals	664	181
Recreation	780	782
Wilderness	(included in Recreation)	166
Heritage	(included in Recreation)	62
Wildlife and Fish	703	334
Soil, Air, Water	239	183
Facility Maintenance	168	264
Lands/Real Estate Mgmt	164	50
Land Acquisition	232	23
Landline Location	135	97
Road Maintenance	574	327
Trail Maintenance	424	228
Co-op Law Enforcement	61	(no longer allocated to Forest)
Reforestation-Approp	85	161
TSI-Appropriated	44	0
Tree Improvement	11	0
KV (Trust Fund)	150	210
CWFS-Other (Trust Fund)	35	115
Timber Salv. Sale (Perm)	48	315
Brush Disposal (Perm)	35	21
Range Improvement	73	32.4
Recreation Construction	69	61
Engr Const Support	676	302
Total Budget	8794	8068

The budget in the Lewis and Clark National Forest Plan (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.

The Forest Service budget process has changed significantly in recent year as well but in all cases, when Congress passes the Appropriation Bill, the dollars and targets are disaggregated to the forest level and the forest is left with a budget allocation and targets to execute. This "Actual Allocation" may or may not resemble our budget request. There are several reasons why the budget allocation we receive differs from the program we requested in the out-year process. The

IV. COMPARISON OF OUTPUTS, ACTIVITIES, AND BUDGETS

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 member's' interest, 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.

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 1999.

FY 1999 Monitoring and Evaluation Team

NAME	FUNCTIONAL RESOURCE AREA
Bonnie Dearing	Public Information Officer
Harvey Hergett/Marilyn Woods	Engineer (Roads and Facilities)
Mike Enk	Fisheries Biologist
Don Godtel	Wildlife Biologist
Arlyss Hagen	Resource Specialist
Guy Schmidt	Transportation Planner
Tammy Cherullo	Archeologist
Mark Nienow	Hydrologist
Eldon Rash	Range Conservationist
Robin Strathy	Land Management Planning/Minerals
Jane Weber	Lewis and Clark Interpretive Center Director
Ronald Yates	Landscape Architect/Recreation
Steve Martin	Timber Management/Silviculturist
Lee Clark	Fire Management Specialist
Jenny Scheer	NEPA Coordinator/Writer-Editor

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

NAME	FUNCTIONAL RESOURCE AREA
Rick Prausa	Forest Supervisor
George Weldon	Deputy Forest Supervisor
Mike Munoz	District Ranger, Rocky Mountain District
William Fortune	District Ranger, Judith and Musselshell Districts
David Whittekiend	Acting District Ranger, Kings Hill District

VI. APPROVAL

I have reviewed the annual Forest Plan Monitoring and Evaluation Report for Fiscal Year 1999 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:



1/30/2001

RICK PRAUSA
Forest Supervisor

DATE

APPENDIX A

1997 ROCKY MOUNTAIN RANGER DISTRICT
BOB MARSHALL WILDERNESS REPORT

I. TRAIL ENCOUNTERS:

A. Planned Frequency:

As a minimum, trail encounters in Opportunity Classes 3 & 4 will be monitored annually. An intermediate level of monitoring requires that each trail segment be monitored at least twice per month in July and August and once per month September through November. Campsite encounters will be monitored on the same schedule.

B. Actual Frequency:

Monitoring occurred on a very limited basis in most OP Class III and IV areas primarily because of a lack of field personnel during August and September. Op Class I & II areas had very limited monitoring, most areas if monitored at all was once for the year.

Rocky Mountain Ranger District

OC	# Days Monitored	Encounters	Days Violated	% of Probability
1	0	0	0	0
2	25	5	2	92
3	40	31	7	83
4	44	90	12	73

OC III known trails that are often out of standard, Moose Creek and Wall were only monitored once each for the season. Trails, Dearborn River and Straight Creek were new trails that were constantly out of standard. It is believed the popularity of the CDNST caused to be consistently out of standard.

OC IV South Fork Sun and West Fork Sun trails continue to be above standard every time monitored in July, August, and early September.

C. Standard:

- OC 1 – 80% of encountering no other party.
- OC 2 – 80% probability of no more than 1 other party.
- OC 3 – 80% probability of no more than 3 or less parties.
- OC 4 – 80% probability of no more than 5 or less parties.

OC	Campsite Index Rating	Barren Core Standard
1	50	> 100 square feet
2	50	> 500 square feet
3	50	> 1000 square feet
4	50	> 2000 square feet

D. Inventory Results: Non-accomplished

OC	# Sites Visited	High Index Rating	% High	# Sites Exceeding BC Violation	# Sites Exceeding BC
1	0	0	0	0	0
2	0	2	0	0	0
3	3	14	3	21	14
4	5	54	5	9	7

II. CAMPSITE ENCOUNTERS:

A. Monitoring Frequency:

As a minimum, campsite encounters in OC 3 & 4 will be monitored annually. An intermediate level of monitoring requires that each trail segment be monitored at least twice per month July-August, and once per month September-November. Campsite encounters in OC 1 & 2 will be monitored as workload permits.

B. Standard:

Number of other parties camped within site or continuous sound of an occupied site:

- OC 1 - 80% probability of no other parties.
- OC 2 - 80% probability of no other parties.
- OC 3 - 80% probability of no other parties.
- OC 4 - 80% probability of no more than 3 other parties.

APPENDIX A

C. Monitoring Results:

OC	# Campsites Monitored	# Campsites Standard Exceeded	% Probability
1	0	0	0
2	0	0	0
3	14	1	93
4	32	3	91

III. CAMPSITE INVENTORY:

A. Planned Frequency: Inventory the entire area every 5 years (20% per year).

B. Actual Frequency: Lack of field personnel in August & September prevented any reinventorying.

C. Standards:

1. Identify campsites with site index ratings 50 or higher as Highly Impacted for all opportunity classes.
2. Identify campsites with Barren Core rating violations by opportunity class.

OC	Campsite Index Rating	Barren Core Standard
1	50	>100 square feet
2	50	>500 square feet
3	50	>1000 square feet
4	50	>2000 square feet

D. Inventory Results: Non-accomplished

OC	#Sites Visited	High Index Rating	% High	# Sites Exceeding BC Violation	% Exceeding BC
1	0	0		0	0
2	0	0		0	0
3	0	0		0	0
4	0	0		0	0

IV. HIGH IMPACTED SITE RE-INVENTORY:

A. Planned Frequency: Re-inventory Highly Impacted Sites annually.

B. Actual Frequency:

OC 1 & 2 - no known sites in these OC's.

OC 3 – 3 known sites, all were inventories & inspected in either 94 or 95.

OC 4 – 5 known sites, all were inventories & inspected in either 94 or 95.

C. Standard: Same as Section III, site index 50.

OC	# Sites	# Sites Visited	# Sites High	% High	# Sites Improved	% Improved
1	0	0	0	0	0	0
2	0	2	0	0	0	0
3	3	14	3	21	2	14
4	5	54	5	9	4	7

V. BARREN CORE SITES RE-INVENTORIED:

A. Planned Frequency: Re-inventory Barren core violations annually.

B. Actual Frequency: No inventory was accomplished.

C. Standard: Same as for Section III, C, 2, Barren Core Standards

D. Problem Areas:

Rocky Mountain Ranger District

Area	OC	Moderate	High
Moose Creek	3	0	2
Glenn creek	4	1	0
Reef Creek	4	0	1
Windfall	4	0	0
Red Shale	3	1	0
Upper W. Fork Sun	3	1	1

VI. NUMBER OF HUMAN IMPACTED SITES/640 ACRE AREA:

A. Standard:

OG	Number of Human Impacted Sites Permitted/640 Acre Area
1	1 permitted
2	2 permitted
3	3 permitted
4	6 permitted

B. Results of Inventory: No inventory conducted but from visual observations.

OC	# 640 Acre Areas Exceeding Standard
1	0
2	0
3	0
4	0

OC 3 - Red Shale, Halfmoon Park and Moose Creek continue to have impacted sites.
 OC 4 - West Fork Sun was the only area that did not show improvement.

VII. NUMBER OF HUMAN IMPACTED SITES ABOVE A PARTICULAR CONDITION CLASS/640 AC:

A. Standard:

OC 1 - No moderately or highly impacted sites/640 acres.
 OC 2 - No more than (1) moderately impacted site and (0) highly impacted sites/640 acre area.
 OC 3 - No more than (2) moderately impacted site and (0) highly impacted sites/640 acre area.
 OC 4 - No more than (3) moderately impacted sites and (1) highly impacted sites/640 acre area.

B. Results of Inventory: No inventory conducted but from visual observation.

C. Problem Areas:**Rocky Mountain Ranger District**

Area	OC	Moderate	High
Moose Creek	3	0	2
Glenn Creek	4	1	0
Reef Creek	4	0	1
Windfall	4	0	0
Red Shale	3	1	0
Upper W. Fork Sun	3	1	1

VIII NEW CAMPS:

A. Standard: Sites not previously identified in the inventory process as having received use.

B. Results of Inventory:

Fires of 1988 still show a definite change in use patterns on North Fork Sun, which may be due to the extensive areas of blow down. This does not seem to be true in the Scapegoat where the timber is not nearly as large. The old favorite campsites are all being used regardless if the area burned or not. Several new sites were also not along CDNST also in the Scapegoat.

IX. NATURALIZED/NO LONGER DISCERNIBLE CAMPSITE:**A. Definition:**

A campsite recuperated to the point where most visitors would not be able to distinguish that the site had been camped at. If the site still has a fire ring, visible pile of black coals, or evidence of tree damage, it should not be considered naturalized.

B. Results of Monitoring: None accomplished.

X. RANGE**A. Degree of Forage Utilization:**

OC 1 – No more than 20% of key species forage utilized.

OC 2 – No more than 20% of key species forage utilized.

OC 3 – No more than 50% of key species forage utilized except on big game winter range and grizzly bear habitat.

OC 4 – Same as OC 3.

B. Results of Inventory:

OC 1 - No known areas exceeding standard.

OC 2 - No known areas exceeding standard.

OC 3 - Moose Creek, Upper West Fork Sun and Halfmoon Park had sites that exceeded standard.

OC 4 - Lower West Fork - 3 sites, Forks of West & South Sun River, 2 sites and Windfall 1 site exceeded standard.

XI. SUMMARY:

Trail and campsite encounters monitoring were scheduled bi-monthly in OC III and IV, however, this was not accomplished because of lack of field personnel in August & September. Known problem areas continued to exceed standards nearly every time monitored.

The 1988 fire area continues to influence use of campsites on North Fork of Sun River, however, this doesn't seem to be true in the Scapegoat. CDNST is also appearing to influence use patterns particularly in the Scapegoat. Barren Core is not a problem and rehab work or a season of rest seems to correct the problem.

Human impact sites appear to be associated with the heavy use area and loop including South Fork Sun, West Fork Sun and Chinese Wall. Fragile Alpine plants and poorly drain erosive soils also contribute to the impacted sites under the wall.

XII. MANAGEMENT ACTIONS:

Continue the aggressive "NO" horses in campsite " signs in popular campsites along the three forks of Sun River. Encourage the use of only hardened sites in Alpine areas near the Chinese Wall.

The District will have to increase monitoring and patrol along CSNST as use continues to increase as it has in the past 2 years.

Weed spraying EA for the wilderness has reduced weed infestation along south & west forks of the Sun, but need to continue working with Range personnel to rid area of weeds.

Do everything possible to keep experienced people patrolling and monitoring in high use time period Jun 15 - September 15 annually.