United States
Department of
Agriculture

Forest Service

Beaverhead-
Deerlodge
National Forest

BEAVERHEAD-DEERLODGE

FOREST PLAN MONITORING AND EVALUATION REPORT

Fiscal Year 2007

Cover Photo: Maiden Creek, Dillon District, Reyer Rens, 2007

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Beaverhead–Deerlodge National Forest

Forest Plan Monitoring & Evaluation Report

Fiscal Year 2007

Introduction

This annual Forest Plan Monitoring Report provides an account of management activities and conditions on the Beaverhead-Deerlodge National Forest (BDNF) for Fiscal Year 2007 (October 2006-September 2007). During the transition from existing Forest Plans (1986 and 1987 respectively) to a single Revised Forest Plan, we have chosen to report on monitoring items which link the old Plans to the Revised Plan. This years report tracks annual implementation of objectives and standards proposed in the Revised Forest Plan.

The Revised Forest Plan is scheduled to be distributed early in 2009. Five years from implementation, a Comprehensive Evaluation Report will answer monitoring questions related to Forest conditions and effectiveness of the Revised Plan in reaching goals.

The table below provides a cross reference between the existing plans and the Revised Forest Plan (Draft at this printing) for monitoring items included in this report.

Table 1. Crosswalk for Forest Plan Monitoring Items reported on in FY06

Monitoring Topic	Beaverhead Item	Deerlodge Item	DraftRevised Plan Item
A. Forest Outputs and Accomplishments			
Watershed Assessments	-	-	3
Watershed Restoration	2-1	6-2	3
Noxious Weed Treatment	6-3	7-3	15
Timber sold/harvested	7-1,7-2	8-1	22
AUMs grazed	6-1	7-1b	22
Fuel Reduction	-	11-3,11-4	17
B. Insects and disease	9-1	11-1	16
C. Wildlife Management Indicator Species			
Elk	1-3	4-3	12
Goat	1-3	4-3	13(a)
Sagegrouse	1-6	-	-
Wolverine	-	-	13(c)
Mayfly	-	-	5
D. Riparian and Stream Function	2-3	6-1	4
E. Soil and Water Conservation Practices	3-3	-	6,7
F. Invasive Species (Noxious Weeds)	-	7-3	15
G. Economic effects Budgets	10-3	14-1	22
Jobs and Income	11-1	14-1	22

This report also includes a section titled **"Monitoring and Activity Highlights**" which shares information about relevant topics not required by any Plan monitoring item.

Monitoring and Activity Highlights for FY07

The following monitoring information is likely of interest to the public and Forest employees though it is not required by any Plan monitoring item.

Youth Forest Monitoring Program

A unique summer youth monitoring program, developed by the Helena National Forest, Montana Discovery Foundation, and Helena College of Technology was expanded to include the Beaverhead-Deerlodge Forest in FY07. The Youth Forest Monitoring Program (YFMP) was established in 1998 with three main purposes; encouraging high school students to pursue their interest in the sciences, promoting community awareness and involvement, and monitoring various aspects of forest health. For more information, see: http://www.fs.fed.us/r1/helena/outreach/ed.shtml. In 2007 there are 9 students from Helena, 3 from Lincoln, and 3 from Deer Lodge. This is Deer Lodge's first year for the program.

The Deerlodge YFMP crew installed plots on three noxious weed sites, four streams, two downed woody debris sites, and installed nine photo points to track insect infestations on the east side of the Deerlodge Valley in 2007: We provide YFMP monitoring data on several topics: insects and disease, , riparian stream function, downed woody debris, and invasive species .

Fischer Hair Snare Survey

Fisher are one of eight mammals on the 2004 Northern Region Sensitive Species list. The USFS Rocky Mountain Research Station, Missoula, Montana has initiated a region wide fisher hair snare survey, (Schwartz, 2006) which includes the Beaverhead-Deerlodge NF. The goals of this effort are; 1) delineate the geographic range of fisher within the Rocky Mountains; 2) determine which Rocky Mountain fisher populations have native genes and which fisher populations are comprised of reintroduced individuals; 3) index the abundance of fisher (e.g., minimum number of individuals alive) in each population through the use of DNA. Biologists on the Beaverhead-Deerlodge NF distributed snares, collected hair from the snares, and sent hair samples to the Research Station for genetic sampling. Also see more information at: http://www.fs.fed.us/rm/wildlife/genetics/pdfs/Fisher_Survey_Protocol.pdf.

A five square mile grid was developed based on local fisher biology. The goals of the survey are not to detect all individual fishers, but rather to detect populations of fisher. Assuming a non-overlapping home range, a small fisher population consisting of 3 females would occupy approximately 5 square miles. Only grids with 50% habitat were considered in order maximize survey efficiency and prevent surveying areas with a low probability of containing fishers. The BDNF contains 136 potential survey grids (map 1).

A hair snare consists of baited snare boxes (figure 1) that lure a fisher into the box and capture tufts of hair on wire brushes. Species and individuals are identified from the DNA from collected hairs. Additionally, the DNA information will be used to determine whether or not that individual is from a native or reintroduced population.

Based on preliminary data from the Rocky Mountain Research Station, where hair-snares were placed in known fisher locations for 21 days, single snare detectability was 0.39. That is, 39% of snares in known fisher locations detected a single fisher in a single session. Thus, running 4 sessions in a survey unit or placing 4 snares in a survey unit for one session is could provide a 97.7% of detecting a fisher, if fishers are present. To spread effort within the survey block snares were set 0.5 miles from each other.

Hair snares were deployed for approximately 21 days on the B-D during the summer and early fall. Snares were placed in microhabitat appropriate for fisher (structure, cover, riparian etc.). Survey grids were not randomly selected; rather grids were selected by the area biologist responsible for deployment. A total of 49 snares on 12 grids were deployed on the following districts: Dillon (4), Jefferson (9), Phillipsburg (20), Wisdom (4), and Wise River, (12) (map 2). Samples were then sent to the Rocky Mountain Research Station Genetics Lab for analysis. Each hair snare deployed was considered to have a survey effort of 120 acres.

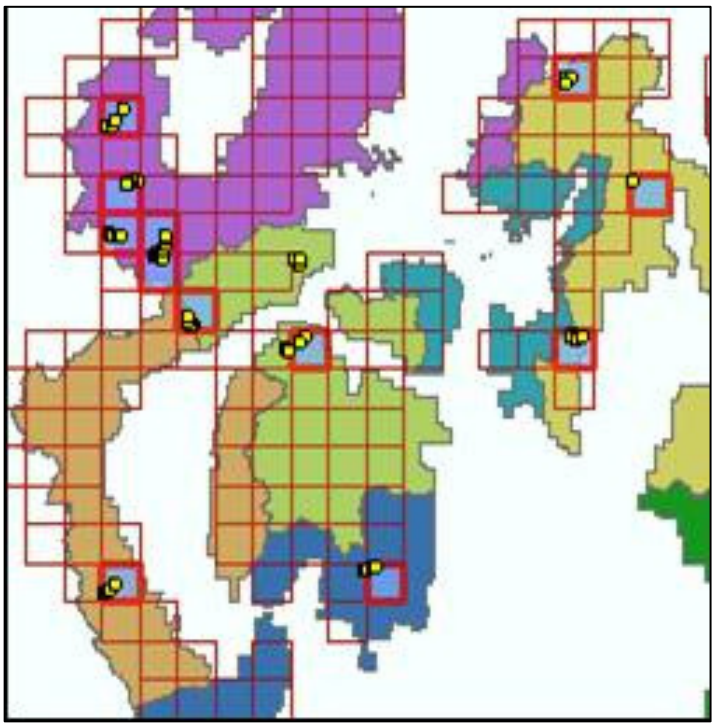


Figure 1. Hair snares deployed on the B-D

Thus far, 29 snares yielded hair samples. Of these samples, 8 have been analyzed from the Wisdom and Wise River districts. None contained mustilide samples (as of 7 November 2007).

Bat Surveys

The U.S. Forest Service Northern Region, in cooperation with the Montana natural Heritage Program, conducted bat surveys on Forest Service lands in Montana for the third year since 2005. Forty-five of eighty-seven sites established in 2007 were distributed across six Districts of the BDNF. The following information is extracted from a report

entitled “Bat Surveys on USFS Northern Region Lands in Montana: 2007” which is available in monitoring project files at the BDNF Supervisors Office and cited as: Lenard, S., P. Hendricks, and B.A. Maxell. 2009. Bat surveys on USFS Northern Region Lands in Montana: 2007. A report to the USDA Forest Service, Northern Region. Montana Natural Heritage Program, Helena, MT. 21 pp. plus appendices.

The purpose of the bat survey project is to gather information on the distribution and status of bats on Forest Service lands in Montana. During 2005, 57 sites were surveyed on selected National Forest (NF) Ranger Districts (RD). The 2005 field season provided information for areas previously without documented bat activity and resulted in numerous new county records for several species. In 2006, with an increased number of surveyors, 75 new sites were surveyed using both mist-net and acoustic sampling methods. A pilot project was undertaken following the 2006 field season to investigate bat detection probabilities for surveys using more than one detection method (mistnetting and acoustic sampling). During the 2007 field season, 87 new sites were surveyed: 59 acoustically, 28 mist-netted. Areas targeted for survey included RDs and/or backcountry areas of select RDs lacking any survey coverage. These included the Dillon, Jefferson, Madison, Pintler, Wisdom, and Wise River RDs of the Beaverhead- Deerlodge NF. See Table 2 for a list of sites on the BDNF and Figure 2 for a map of bat observations on the BDNF. Surveys in 2007 were located where bats would be expected to concentrate their activity while seeking food and water resources.

Surveys on the BDNF were completed in July and August. While the primary goal of the monitoring program is to document and reasonably predict bat presence across the landscape, the next level of inventory and monitoring should include equitable sampling from the entire breedng and post-breeding periods, especially late August and September. This will help define the breeding phenology of the bat fauna as well as aid in identifying sites and sample blocks in important breeding areas or significant passage sites.

The 2007 mist-net surveys resulted in 17 new district records. On the Beaverhead-Deerlodge NF those were: Madison RD – Long-legged Myotis; Wise River RD – Western Long-eared Myotis, Hoary Bat, and Big Brown Bat.

Table 2. Beaverhead-Deerlodge Bat Survey Sites, 2007.

Ranger District	Site name	Survey* Type	Species**
Dillon	Apex Sagebrush	A	Call analysis not complete
Dillon	Best Spring pond (July survey)	M	EPFU, MYEV
Dillon	Best Spring pond (August survey)	M	EPFU, LACI, MYVO
Dillon	Birch Creek Rock Cliffs	A	Call analysis not complete
Dillon	Caboose Water Tank	A	Call analysis not complete
Dillon	Cross Mine	A	Call analysis not complete
Dillon	Greenstone Mountain Mine	A	Call analysis not complete
Dillon	Stinson Mine	A	Call analysis not complete
Dillon	Trout Creek	A	Call analysis not complete
Dillon	Williamson Wood Canyon Upper	A	Call analysis not complete

Dillon	Williamson Wood Canyon Lower	A	Call analysis not complete
Dillon	Williamson Wood Canyon Middle	A	Call analysis not complete
Jefferson	Pipestone Cliffs	A	Call analysis not complete
Jefferson	Pipestone Rocks	A	Call analysis not complete
Jefferson	RD 442 Overlook	A	Call analysis not complete
Jefferson	RD 442 Pond	A	Call analysis not complete
Madison	Bear Creek Cabin	A	Call analysis not complete
Madison	Bear Creek Ranger Station	M	MYVO
Madison	Black Butte Cabin	A	Call analysis not complete
Madison	Black Butte Cliffs	A	Call analysis not complete
Madison	Cave Mountain Cliffs	A	Call analysis not complete
Madison	Mill Creek	A	Call analysis not complete
Madison	Shell Creek Cave	A	Call analysis not complete
Madison	Shell Creek Cliffs	A	Call analysis not complete
Madison	Smuggler Mine	A	Call analysis not complete
Pintler	Coal Creek Adit	A	Call analysis not complete
Pintler	Gerrity Cave	A	Call analysis not complete
Pintler	Mud Lake	A	Call analysis not complete
Pintler	Peterson Cave	A	Call analysis not complete
Pintler	West Fork Rock Creek	A	Call analysis not complete
Wisdom	Bloody Dick Pond	A	Call analysis not complete
Wisdom	Johnson Creek	A	Call analysis not complete
Wisdom	Nymphea Pond	A	Call analysis not complete
Wisdom	Twin Lakes	A	Call analysis not complete
Wise River	Anderson Cow Camp	A	Call analysis not complete
Wise River	Boulder Creek Scree	A	Call analysis not complete
Wise River	Canyon Creek, Maiden Rk camp	M	MYEV
Wise River	Jacobson's Creek	A	Call analysis not complete
Wise River	Jerry Creek	A	Call analysis not complete
Wise River	Lower Seymour Lake	A	Call analysis not complete
Wise River	Moose Park Pond	A	Call analysis not complete
Wise River	Moose Park ponds	M	EPFU, LACI, MYEV
Wise River	Picketts Pasture	M	MYEV
Wise River	Vipond Park Ponds	M	EPFU, LACI
Wise River	Willow Campground	A	Call analysis not complete

** A= acoustic recording M= in hand identification/mist net capture

** - species codes: ANPA (*Antrozous pallidus*, Pallid Bat), EPFU (*Eptesicus fuscus*, Big Brown Bat), LACI (*Lasiurus cinereus*, Hoary Bat), LANO (*Lasionycteris noctivagans*, Silver-haired Bat), MYCA (*Myotis californicus*, California Myotis), MYCI (*Myotis ciliolabrum*, Western Small-footed Myotis), MYEV (*Myotis evotis*, Western Long-eared Myotis), MYLU (*Myotis lucifugus*, Little Brown Myotis), MYTH (*Myotis thysanodes*, Fringed Myotis), MYVO (*Myotis volans*, Long-legged Myotis).

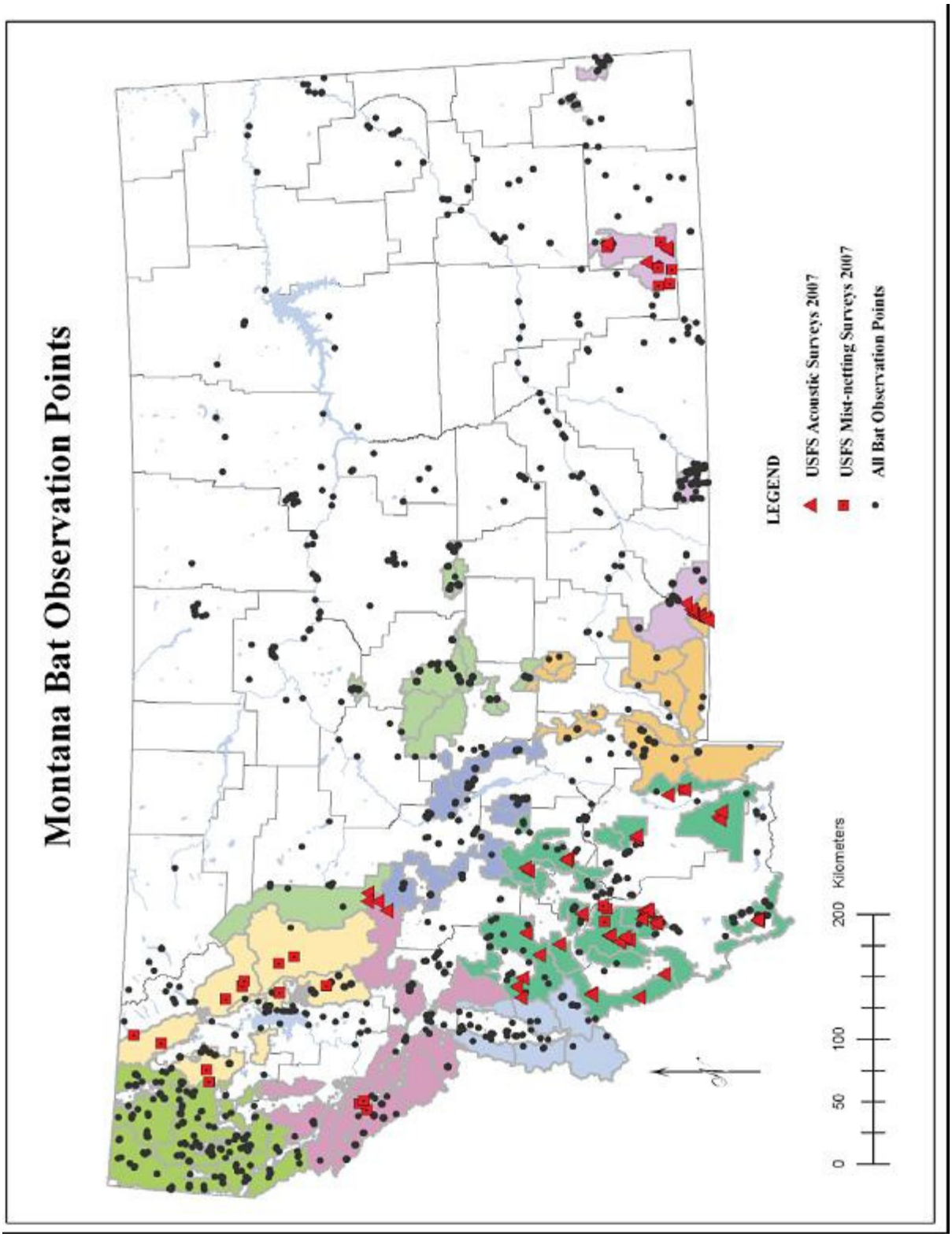


Figure 2. Map of bat observations in Montana in 2007

In all, ten species of bats, represented by 218 individuals, were captured by mist-net during mid June-late August 2007. Species captured included Little Brown Myotis (*Myotis*

lucifugus), Western Long-eared Myotis (*M. evotis*), Long-legged Myotis (*M. volans*), California Myotis (*M. californicus*), Big Brown Bat (*Eptesicus fuscus*), Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), Townsend's Big-eared Bat (*Corynorhinus townsendii*), Eastern Red Bat (*Lasiurus borealis*), and Pallid Bat (*Antrozous pallidus*); the latter two are the first of their respective species to be detected by any method during the first three years of the USFS Northern Region inventory. Call analysis on the 2007 acoustic surveys has not been completed at the time this report was prepared. Genetic analysis is needed to confirm tentative identifications of some *Myotis* taxa at several netting sites. No bats were detected at ten sites across the Northern Region, those are not included in the total number of site surveys for 2007.

The 2007 surveys filled important gaps in documented bat distributions in Montana, as well as on Ranger Districts formerly lacking any surveys. However, a summary of all existing Northern Region bat records continues to show large distribution gaps for all species, underscoring the need for additional surveys. In particular, large portions of the Bitterroot, Flathead, Gallatin, Kootenai, and Lewis and Clark National Forests lack records for any bat species or any recently documented activity. Up-to-date distribution maps for Montana's species can be queried and viewed with a variety of map layers on the Montana Natural Heritage Program's TRACKER website at: http://mtnhp.org/Tracker.

Beaverhead Settlement Agreement Monitoring

The Beaverhead-Deerlodge National Forest amended riparian management direction within the Beaverhead Forest Plan in October of 1997. A subsequent lawsuit sponsored by the National Wildlife Federation was settled in collaboration with several parties. As part of the Beaverhead Livestock Grazing Settlement Agreement, compliance with grazing standards are monitored and reported annually. Actions taken to implement the Settlement Agreement have only applied to the Beaverhead Districts (South Zone) of the Beaverhead-Deerlodge National Forest. The 2007 grazing season was the tenth year that allotments were monitored for compliance with the Beaverhead Forest Plan standards and guidelines as amended in October of 1997

Results:
Almost all of the allotments on the South Zone of the Beaverhead-Deerlodge National Forest were inspected (166 of 168 allotments). Most allotments were inspected numerous times prior to, during, and after the grazing season.

Table 3. Compliance with Grazing Standards by District

District	Total Allotments	Allotments That Met Standards	Allotments That Did Not Met Standards	Unknown
Dillon	**60**	**49**	**10**	**1**
Wise River	**18**	**10**	**8**	
Wisdom	**20**	**17**	**3**	
Madison	**68**	**60**	**7**	**1**
Total	**166**	**136**	**28**	**2**

Table 4. Forest Plan Standards Exceeded on Noncompliance Allotments

Forest Plan Standards Exceeded	Number of Allotments Exceeding Standard From Total of 28 Allotments
Management. System	12
Streambank Vegetation and Structural Damage	21
Upland Utilization	2
Riparian, Fisheries	21
Winter Range	1
Transitory Range	0

Of the 28 allotments where Forest Plan standards were exceeded, two were non-compliant in 2005, 2006 and 2007. The remaining 26 allotments were non-compliant for the first time in the last 3 years. As reported in the "2007 Forest Plan Compliance Summary" (file code 2210/2230), the 2007 grazing season was an average to below average year for forage production on most of the Forest. Upland forage utilization was generally acceptable. Livestock grazed riparian areas sooner than usual because of the hot July. July averaged 8 degrees hotter than the 30 year average. Most of the non-compliance was from impacts on riparian areas.

Enforcement - Forest Plan compliance forms were completed for 166 of the 166 allotments. These forms were made available to all affected permittees. Permittees on allotments judged to be out of compliance with Forest Plan standards during the 2007 grazing season have been contacted by District Rangers and corrective actions to resolve non-compliance problems have been developed. These corrective actions will be outlined in annual operating instructions for the 2008 grazing season. In some instances, corrective actions have meant that adjustments of grazing permits be made to resolve chronic non-compliance problems. In other cases, permittees have voluntarily reduced livestock numbers or seasons of use in an attempt to remain in compliance. Any adverse actions taken by the Forest Service are within the guidelines in the Beaverhead-Deerlodge Supplement to the Grazing Permit Administration Handbook.

Season of Use, Livestock Movement - This item is dealt with on an allotment by allotment basis. Projected livestock move dates are outlined in annual operating instructions for each allotment. In many cases actual move dates varied to some degree depending on resource conditions. The 2007 grazing season was an average to below average year for forage production on most of the Forest. Upland forage utilization was generally acceptable. Livestock grazed riparian areas sooner than usual because of the hot July. July averaged 8 degrees hotter than the 30 year average. Most of our non-compliance was from impacts on riparian areas. As during previous years lack of water was a factor in limiting livestock use of many of the pastures on the Forest. Some permittees turned onto their allotments late or removed livestock from the Forest allotments early and or went on with less livestock in an attempt to comply with Forest Plan use standards.

Education – Ranger District Rangeland Management Specialists continued to conduct individual permittee monitoring training sessions throughout the 2007 grazing season. The Madison District conducted a riparian monitoring workshop for permittees in cooperation with Montana State University Extension.

NEPA compliance – Completion of planned NEPA decisions is approximately three years behind the Settlement Schedule. The deviation from the planned schedule is due to unforeseen budget reductions, lawsuits, appeals, and increased data needs required to address soils, westslope cutthroat, and sage grouse issues.

Forest Project Accomplishments in FY07

The following list does not include planning, administrative or enforcement activities.

Aquatics:

Norton Creek (Butte Ranger District (RD)) brook trout removal
Upper Ruby River grayling restoration (Madison RD)
Madison River westslope cutthroat enhancement (Madison RD)
Tepee and Wigwam Creek (Madison RD) westslope cutthroat habitat enhancement
Ruby River headwaters beaver re-introduction (Madison RD)
Painter Creek (Dillon RD) fish barrier
Extend York Gulch (Wisdom RD) riparian exclosure
Divide Creek (Butte RD) off site water development for riparian protection
French/Thief Creek (Dillon RD) riparian noxious weed projects
Middle Fork Maiden Creek (Dillon RD) stream channel restoration

Vegetation and Wildlife:

Annual District weed prevention and maintenance
Pintlar District aerial spray project – Resource Advisory Group (RAC) project
Blacktail Ridge Road weed management – RAC project
Dyce Creek weed control – RAC project
Upper Alder Gulch weeds and grazing – RAC project
Olliffe fence removal and construction, Madison range Sikes Act
North Flints wildlife burn
Wisdom wildlife burn
Harvey Cabin thinning
McVey Creek sagebrush/grass treatment - cooperative
Wigwam Creek exclosure - cooperative
Swamp Creek noxious weed project - cooperative
Boulder Wyman fence construction
Fish Creek underburn
Arbor Day tree planting
Gather scion on ponderosa pine Plus trees
Chemical treatment of Douglas-fir beetle and mountain pine beetle
at various recreation sites and Anaconda Job Corps Center

Prescribed Fire:

Mt Haggin Burning – Cooperative project
Interagency prescribed burning at Horse Praire, North Black Canyon, Rocking K, Ram Mountain, SW Highlands, Dyce Creek, Hay Canyon, and Flint Creek

Timber Harvest and Fuel Reduction:

Grasshopper Stewardship project
South Butte fuel reduction
Meadow Creek fuels reduction
Homestake salvage and chipping
Low Sheep roadside salvage
Miscellaneous post and pole sales
Cow Fly salvage
KV post harvest noxious weed treatment

Recreation and Heritage:

Ross fork, Hopepipe II, and Deer-Bond-Estler trail reconstruction.
Sawtooth trail work and signing
Forestwide trail maintenance on 869 miles
Homestake and Little Boulder/Galena networks - cooperative
Canyon Creek charcoal kiln information signs
Coolidge historical building restoration
Crystal Park interpretive signing

Rangeland and Grazing:

Construction work on 80 rangeland structures
Noxious weed treatment described under vegetation projects

Mining:

Removal of mine wastes and mitigation at Morning, North Ada, Lady Leith, and Vindicator Mines
Mineral withdrawal of Crystal Park for recreation purposes

Bridge Construction:

Big Beaver Creek Bridge
Moose Meadow Creek Bridge (contract awarded)

Wildfire Suppression or Management:

Fire	Ranger District	Acres
Rat Creek	Wisdom	25,327
Pattengail	Wise River	15, 297
Wyman	Pintler	1,000
Signal Rock	Pintler	600
Fires 10-250 acres	All Districts	402

Fires <10 acres	All Districts	~80

Decisions - National Environmental Protection Act (NEPA) Accomplishments

Decision makers on the BDNF issued 1 Record of Decision, 6 Decision Notices, 20-Decision Memos and had 28 project analyses underway to meet the National Environmental Protection Act (NEPA) in FY07. Acronyms used in Table 5 and Table 6 include:

AMP	Allotment Management Plan
AWR	Alliance for the Wild Rockies
CDNST	Continental Divide National Scenic Trail
CDTS	Continental Divide Trail Society
DEIS	Draft Environmental Impact Statement
DM	Decision Memo
DN	Decision Notice
EA	Environmental Assessment
FEIS	Final Environmental Impact Statement
GYA	Greater Yellowstone Area
NEC	Native Ecosystems Council
POO	Plan of Operation
ROD	Record of Decision
SUP	Special Use Permit

Table 5. Projects in various planning stages in FY07

PROJECT NAME	DISTRICT	Stage of completion by the end of FY07
Northern Rockies Lynx Conservation	REGIONWIDE	**ROD 3/23/07**
Beaverhead-Deerlodge Forest Plan Revision	Forest	FEIS underway
Butterworth Private Road Use DM	**Butte**	**DM Completed 2/23/07**
CDNST - Fleecer to Seymor	**Butte**	**DN Completed 4/18/07**
CDNST - Leadville	**Butte**	**DN Completed 2/26/07**
CDNST – Nez Perce Gulch	Butte	Cancelled
Cullen and Lowland Water Development	Butte	Scoping Initiated 4/22/04
Elk Park VFD Fun Run DM	Butte	Cancelled
Mountain Top Assc Rd Use Permit DM	Butte	Cancelled
Norton Creek Trail #95 Relocation DM	Butte	Cancelled
O'Neil Road Use Permit DM	Butte	Scoping Initiated 01/23/06
Price Powder Salvage Sale DM	Butte	Scoping Initiated 03/27/06
Roadside Safety Tree Removal DM	Butte	CE - Notice 05/10/07
Thompson Park Salvage Sale	Butte	EA *ON HOLD*
Bear Creek and Lemhi Pass AMPs	Dillon	EA underway

Birch Creek Fuels Management DM	**Dillon**	**DM Completed 5/25/07**
Crystal Park Withdrawal Addition EA	Dillon	Notice 05/25/07
Estler-Deerhead trail mtce	**Dillon**	**DN Completed 03/28/07**
Kitty Fuels Reduction CE	Dillon	On Hold
Painter Creek Fish Barrier EA	**Dillon**	**DN Completed 04/11/07**
Westside AMPs	Dillon	EA comment period legal notice 08/07
Eva May Access Roads SUP DM	**Jefferson**	**DM COMPLETED 09/29/06**
Hanninen Plan of Operations	**Jefferson**	**DM COMPLETED 03/7/07**
Lockhart Meadows Post and Pole	Jefferson	Scoping initiated 06/26/07
O.T. Mining P.O.O. Amend Kit Carson	**Jefferson**	**DN COMPLETED 02/2007**
Overland Cataract Trail System Reloc EA	Jefferson	Cancelled
Toll Mt Salvage DM	Jefferson	Scoping 09/30/05
Ward Land Exchange EA	**Jefferson**	**DN Completed 12/12/06**
Whitetail Pipestone Travel Management EIS	Jefferson	DEIS 04/07/06, FEIS underway
Z Bar T Fuels CE	Jefferson	Scoping initiated 12/2007
Ben Uselman Road Use Permit CE	**Madison**	**DM COMPLETED 04/17/07**
Bruce Peterson Livestock Waterline CE	**Madison**	**DM COMPLETED 04/17/07**
Charles Rossiter Livestock Waterline CE	**Madison**	**DM COMPLETED 04/17/07**
Clark Outfitter Guide Permit CE	**Madison**	**DM COMPLETED 04/26/07**
Cutthroat Trout Habitat Restoration – West Gravelly Mountains DM	**Madison**	**DM COMPLETED 03/23/07**
Cow Fly Salvage CE	**Madison**	**DM COMPLETED 05/31/07**
Gary Garret Lakeshore Dam	**Madison**	**DM COMPLETED 04/17/07**
John Witte Diversion and Ditch	**Madison**	**DM COMPLETED 04/17/07**
Lobo Mesa Trail Reconstruction CE	Madison	Cancelled
Lyons Bridge Boat Launch	**Madison**	**DM COMPELTED 04/17/07**
Meadow Creek Fuels Reduction CE	**Madison**	**DM COMPLETED 12/20/06**
Madison Motor Vehicle Use Map EA	Madison	Scoping 07/07
Ruby River Grayling Spawning Habitat Restoration DM	**Madison**	**DM COMPLETED 10/10/06**
Smuggler Mine Exp. Drilling CE	**Madison**	**DM COMPLETED 05/03/07**
Snowcrest III Trail Reconst DM	Madison	Scoping 07/20/06
Wave Mine Dump Plan of Operations DM	**Madison**	**DM COMPLETED 10/2/06**
Anaconda Job Corp WUI Fuels Abatement CE	Pintler	Scoping initiated 03/26/07
Barton Spring Commercial Thinning DM	Pintler	Scoping 06/05/06
East Fork Post and Pole Sales EA	Pintler	Scoping initiated 2001
Holsten Minerals Exploration	Pintler	Scoping 05/12/05>

Maywood Ridge Communications Line Installation DM	Pintler	Scoping 03/07/06
Middle Fork Riparian Enhancement DM	**Pintler**	**DM COMPLETED 05/14/07**
Sand Basin Conifer Slashing/willow planting DM	Pintler	Est Scoping 09/06
Battle Mt Hazardous Fuels Reduction EA.	Wisdom	Scoping 09/06
Big Swamp Creek Post and Pole	**Wisdom**	**DM COMPLETED 04/10/07**
CDNST – Berry to Goldstone	Wisdom	Scoping 03/03/04
CDNST – Gibbons Pass to AP Wilderness	Wisdom	Scoping 07/07
American Mountain Man Rendezvous SU Permit	**Wise River**	**DM COMPLETED 06/22/07**
Boulder Sheep Creek Trail Bridge CE	Wise River	Scoping initiated 07/2007
Cannivan Gulch Exploratory Drilling	Wise River	Scoping Initiated 04/2007
Gold Creek Trail Rec. DM	Wise River	Estimated Scoping 07/2007
Jackpine Savages Snowmobile Club Permit Reiss.	Wise River	Scoping est. 09/2007
North Big Hole AMPs	Wise River	Scoping 02/18/04
Placer Creek Mining Exploration CE	Wise River	Scoping 04/12/07
Rocky Mt National Rendezvous SU Permit	Wise River	Cancelled
Sawmill Riparian Fence Modification CE	Wise River	Scoping 12/05/06
Swamp Creek Trail Reconstruction CE	Wise River	Oh Hold

Appeals and Litigation

Decision makers on the BDNF approved 16 projects that were subject to appeal in FY07. Of these, 6 decisions were appealed and 4 decisions were affirmed in favor of the Forest Service. Four of those projects went on to be litigated in the courts. They are listed below in Table 6. Since 1997, 66 of the 128 appealable decisions were appealed. Fifty of those were affirmed or dismissed.

Table 6. Projects on the BDNF appealed or litigated in FY07

Project name	Project type	Appeal Decision	Appellant	Litigated
Cow Fly Salvage	Vegetation management	Affirmed	NEC-AWR	YES
Price Powder Salvage	Vegetation Management	Affirmed	NEC	YES
Birch Creek Fuels Management	Vegetation Management	Affirmed	NEC-AWR	YES
Meadow Creek Fuel Reduction	Vegetation Management	Dismissed	NEC	YES
Fleecer CDNST	Trail Construction	Appellant Withdrew Appeal	CDTS	NO
O.T. Mining 2007 Plan of Operations	Mining	Affirmed	NEC-AWR	NO

Report by Monitoring Item

A. Forest Outputs and Accomplishments

Monitoring Question: Are Forest Outputs meeting targets and plan predictions?

Performance Measure: Number of plans, acres of treatment, board feet sold, AUMs grazed, acres burned or treated.

Results: We have summarized accomplishment reporting required by a number of separate monitoring items to simplify tracking. The brief discussion compares FY06 accomplishments to the forest target, if there was one, and evaluates the trend.

Table 7. Forest Outputs and Actual Accomplishments for Fiscal Years 2005-2007

Forest Outputs and Accomplishments	2005	2006	2007
Watershed Assessments (each)	0	0	1
Watershed Restoration (miles)	14 miles	21 miles	8 miles
Noxious Weed Treatment (acres)	7,636	6,017	5,001
Timber offered for sale (MMBF)	21.7	7.24	10.8
Livestock grazing (AUMs)	185,601	226,461	161,129
Fuel Reduction- WUI Acres treated	1,840	2,195	1,038
Total Acres Treated	5,273	4,898	12,360

Results: The following information for each activity was extracted from the Beaverhead-Deerlodge National Forest Final Accomplishment Certification Report, dated 8/15/07.

(1) Watershed assessments

- Pintlar Ranger District completed the West Fork Rock Creek Watershed Assessment. No target was assigned. In addition, the BDNF contributed funds for the East Deerlodge Valley Landscape Assessment in cooperation with a contract for the Watershed Restoration Coalition of the Upper Clark Fork. The Assessment will be completed in FY08.

(2) Watershed Restoration

- Eight miles of stream were enhanced for fisheries in FY07, there was no target assigned. Two projects were conducted in cooperation with Montana Fish, Wildlife and Parks. The first was restoration of grayling into the upper Ruby River with installation of incubator egg boxes. The second project was electrofishing removal of brook trout from one mile of Norton Creek to enhance westslope cutthroat habitat.
- In addition, projects done for the purpose of improving soil and water resources included riparian exclosures in York Gulch, off-site water development in Divide Creek, noxious weed work in the French/Thief Creek riparian areas, and stream channel re-establishment in Maiden Creek. These projects improved resources on 65 acres. Photos from the Maiden Creek project, Dillon RD, follow.

Figure 3. Maiden Creek diverting into Ditch prior to restoring original channel

Figure 4. Dam blocking ditch with water back in original channel. Seeding of banks to follow.

Figure 5. Planting caryx seedlings along dam and new channel banks, 5/30/07

Figure 6. Dam across channel after caryx planting is established, 7/12/07

- While the trend is down from 21 miles accomplished in FY06, miles of stream enhancement is difficult to measure, especially for a project like restoring a fish species. It is difficult to predict how far the grayling will move upstream in the upper Ruby River. For the purpose of reporting, an estimate of 6 miles was used.

(3) Noxious weed treatment

- Acres of noxious weeds treated = 5,001 acres. This was 133% of the Forest target.
- Trend is down from acres treated in FY05 and FY06, in part because of several personnel changes on Districts.

(4) Timber Offered and Sold

- Volume of Timber Offered and Sold =10.8 MMBF or 25,612 CCF. The assigned target was 49,500 CCF.

  (1.03 MMBF or 2,446 CCF of that volume was in Stewardship Contracts and another 4.2 MMBF of that volume was in Personal Use Post and Poles, Fuel wood Permits, Shrubs and Transplants)

- Volume of Timber Harvested = 6.32 MMBF or 14, 924 CCF. The Forest was not assigned a target for timber harvest.

- Acres of Timber Harvested = 920 acres. (414 acres on the Beaverhead zone and 506 acres on the Deerlodge zone).

- Trend is up from 7.24 MMBF offered in FY06.

(5) Livestock Grazing, Actual Use in 2007, in Animal Unit Months

Table 8. Actual livestock use in 2007 in Animal Unit Months

Type of Use	FY05	FY06	FY07
Cattle and Bison	173,937	217,917	153,710
Horses	838	917	457
Sheep	10,826	7,627	6,962
TOTAL	185,601	226,461	161,129

Source: USFS, INFRA data base, actual use by District

- Trend in actual use is down from FY05 and FY06. As reported in the "2007 Forest Plan Compliance Summary" (file code 2210/2230), the 2007 grazing season was an average to below average year for forage production on most of the Forest. Upland forage utilization was generally acceptable. Livestock grazed riparian areas sooner than usual because of the hot July. July averaged 8 degrees hotter than the 30 year average. Most of the non-compliance was from impacts on riparian areas. As during previous years lack of water was a factor in limiting livestock use of many of the pastures on the Forest. Some permittees turned onto their allotments late or removed livestock from the Forest allotments early and or went on with less livestock in an attempt to comply with Forest Plan use standards.

(6) Fuel Reduction

The data base of record (NFPORS) indicates a target of 9,403 acres (2,057 acres of that in wildland urban interface (WUI) for both units of the BDNF. This includes brush disposal, hazardous fuels and other fuels treatments.

- Acres of WUI high priority fuels treated = 1,038
- Acres non-WUI high priority hazardous. fuels treated =11,322

TOTAL = 12,360

- This is 50% of the WUI target and 154% of the non-WUI target. The Forest exceeded targets. Trend is up (double) for total fuel accomplishments in FY05, and FY06 but down for WUI treatments.

(7) Road Maintenance and Obliteration

- 961 miles of Forest roads were maintained in FY07. This includes 940 miles with FS fund and an additional 21 miles with non-FS funds (such as by counties, permitteees, timber purchasers, and other commercial operators).

- 1/2 mile of road was decommissioned (unauthorized roads)

Evaluation: Target accomplishment was variable in FY07. Several projects were accomplished where funding was provided but no target assigned, watershed assessment and restoration for example. Targets for fuel reduction and noxious weed treatment were exceeded. Targets for timber offered and sold were not met. An active wildfire season was the primary reason attributed to target shortfalls. The BDNF staff supported several large project fires (over 42,000 acres burned) on the Forest as well as supporting wildfires off-Forest. Primary staff responsible for target work were pulled from projects to assist with fire suppression and related tasks.

B. Insects and Disease

Monitoring Question: Are levels of insect and disease increasing to damaging levels as a result of management activities.

Performance Measure: Changes in acres infested by landscape, % change on the Forest compared to the Region

Results: Insect and disease conditions are monitored by the Forest Health Protection branch of USDA Forest Service State and Private Forestry and the Montana Department of Natural Resources Forestry Division using aerial flights. The Northern Region report on Bark Beetle Conditions (January 2008) is the source of the following information.

Hot and dry conditions in 2007 resulted in another very active year for wildfires, which affected visibility for aerial surveys. About 70% of the forested area surveyed in an optimal year were surveyed in 2007. Therefore, infestation levels recorded for most bark beetle species, excluding mountain pine beetle, showed declines across the Northern Region in 2007. For most of the Region, ground-collected data generally showed decreasing bark beetle populations; again with the exception of mountain pine beetle.

Decreases, at least in intensity, were recorded on the Beaverhead NF. There was about a 70,000 acre decrease on the Deerlodge NF; however, some of that decrease was a result of not flying all of the affected area. A map compiling the results of aerial flights from 1997 through 2007 is attached to this report as Appendix A. Ground collected data were obtained to supplement the aerial flights. One stand surveyed on the Deerlodge showed as many as 230 lodgepole pine trees per acre have been killed within the past 2-3 years. In that particular stand, it represents 69% of formerly live trees.

Table 9. Bark Beetle Infestations on the BDNF 2004 - 2007

Insect	Acres of "faders"in 2004	Acres of "faders"in 2005	Acres of "faders"in 2006	Acres of "faders"in 2007*
Douglas-fir beetle	9,866	43,900	11,100	4,307
Mountain Pine Beetle	120,017	274,900	334,030	290,507
Western Balsam bark beetle	24,975	88,300	54,700	22,000
Total	**154,792**	**408,900**	**399,830**	**299,121**

Source: USDA, FS, Region 1, Forest Health Protection Missoula Field Office, Ken Gibson, 2006
**Not all infested areas were flown in 2007*

Table 10. Western Spruce budworm Infestations on the BDNF 2004 - 2007

Insect	Acres infested in 2004	Acres infested in 2005	Acres infested in 2006	Acres infested in 2007
Western Spruce Budworm	37,000	61,000 10% of the Douglas-fir type	151,000 25% of the Douglas-fir type	200,000

Source: USDA, FS, Region 1, Forest Health Protection Missoula Field Office, Ken Gibson, 2006
**Not all infested areas were flown in 2007*

Acronyms used in the following District discussions include:

DFB: Douglas-fir beetle	MPB: Mountain pine beetle
WPB: Western pine beetle	LPP: Lodgepole pine
WBBBB: Western balsam bark beetle	PP: Ponderosa pine
WBP: Whitebark pine	LP: Limber pine
DF: Douglas-firSAF: Subalpine fir	ES: Engelmann spruce

Beaverhead Reporting Area

Dillon RD:

Forest Service-administered lands with District boundaries were not flown in 2007.
The western portion of the District has not been flown since 2005 when small scattered infestations were noted south, in the Tendoy Mountains and south and west of Dillon, from Lemhi Pass to Bannock Pass. In a more general pattern, from Jeff Davis Peak, south to Morrison Lake, scattered WBBB-killed SAF and minor amounts of DF, LPP and WBP.

District-wide in 2005 (last year for which we have data); 4,000 DFB-killed DF were recorded on about 1,800 acres; MPB-killed 6,100 LPP on almost 3,400 acres and 1,200 WBP on nearly 600 acres; and almost 10,000 SAF were killed by WBBB on 4,700 acres.

Wise River RD:

MPB-killed LPP was commonly found in the Pioneer Mountains, both west and north of Wise River. Most groups were relatively small and widely scattered, but a few very large polygons, ranging up to several thousand acres each, and averaging 2-3 trees per acre, were found in the vicinity of Fleecer Mountain. Smaller groups, but still significant ones, were found to the north towards Sugarloaf Mountain, and west of there towards Mount Haggin Wildlife Management Area. Further west, towards Anaconda-Pintler Wilderness Area, MPB-killed LPP and DFB-caused mortality was much more widely scattered and found in much smaller groups. Around Fleecer Mountain, large groups of DF, defoliated by WSBW, were noted. That damage, coupled with drier weather, could result in a resurgence of DFB populations.

For the areas surveyed, DFB-caused mortality was observed on less than 500 acres (almost 6,600 acres last year), where about 1,000 DF were killed; 1,200 SAF were killed by WBBB on about 330 acres (nearly 4,700 acres in 2006); and 36,000 LPP were killed on almost 13,600 acres—compared to 3,900 acres in 2006—by MPB. Lesser amounts of mortality were recorded on adjacent State and private lands.

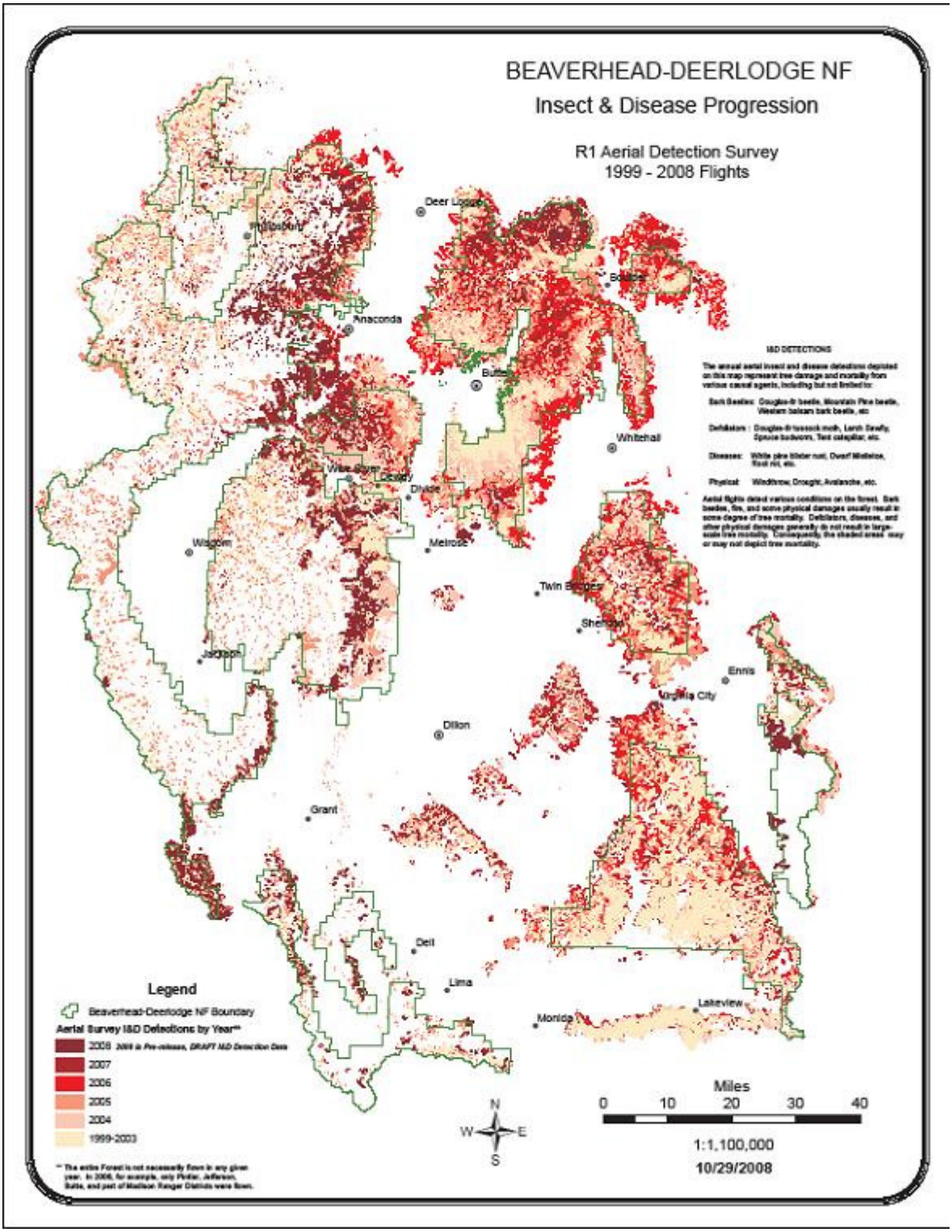


Figure 7. Region 1 Aerial Detection Flights 1999-2007 Beaverhead-Deerlodge NF

Wisdom RD:

Numerous small groups of DFB-caused mortality generally scattered throughout the West Pioneer Mountains, east of Wisdom. Most groups were less than 20 trees. That was the only portion of the District flown in 2007.

Wisdom RD was not flown in 2006. In 2005 scattered beetle activity was recorded throughout the Pioneer Mountains. Small groups of DFB-killed DF were concentrated in the north, with larger groups northwest of Wise River, and south towards Table Mountain. Significant amounts of WBBB-caused mortality and MPB-infested LPP were scattered throughout the District. Those conditions remained about the same this past year.

In the Beaverhead Mountains, west of Wisdom, many widely scattered, but generally smaller groups of SAF killed by WBBB and LPP infested by MPB were noted in 2005. DFB activity was also occasionally observed there, but down from past years. In the Anaconda Range to the north, larger groups of WBBB-killed SAF and MPB-killed LPP had been mapped. Those continued to expand somewhat.

Area-wide, almost 1,400 DF were killed by DFB on close to 650 acres (5,750 acres last year); 350 LPP by MPB on 110 acres (2,900 acres in 2006); and WBBB killed just over 1,000 SAF on 220 acres, where flown; 4,800 acres were reported in 2006.

Madison RD:

In the southern portion of Tobacco Root Mountains, many large groups of MPB-killed LPP were mapped from just north of Willow Creek, south to Granite Creek. Fader groups were generally scattered throughout the surveyed area. Heaviest concentrations were noted to the north and south of Smuggler Mine. In higher-elevation stands of WBP, MPB has killed significant numbers of trees, especially in the vicinity of Mount Bradley.

In the Ruby Range, west of Ruby River Reservoir, MPB was found killing groups of both LPP and WBP in generally small, but numerous groups. Fader groups ranged from about 10-80 trees each. WBBB was also found killing SAF in that area. To the southwest, in tributaries of Sweetwater Creek, MPB was found infesting small groups of LPP and WBP. WBBB was found there as well; and a few DF, killed by DFB were noted.

Throughout Gravelly, Greenhorn, and Snowcrest Ranges, southwest of Ennis, MPB was commonly found killing MPB and WBP; but in generally small, though numerous groups. In SAF stands, WBBB-killed trees were also quite commonly recorded. WBP mortality was particularly heavy in the Standard Creek drainage and near Black Butte. LPP mortality was heavies in the West Fork Madison River drainage. WBBB activity was especially pronounced in the Snowcrest Range. WSBW activity was also heavy in DF stands throughout the reporting area and could lead to increased DFB activity. The latter is now found at generally moderate to high endemic levels, particularly in the southern Gravellies.

East of Ennis Lake, from the Madison River south to Tolman Creek, MPB-killed LPP and WBP were commonly encountered. A few large groups of SAF, killed by WBBB were also noted. Most beetle-killed groups were small (10-20 trees each), but they were quite generally scattered throughout that portion of the Madison Range.

In the past few years, largest concentrations of WBBB-killed trees were mapped south and west of Ennis in the Ruby Range, throughout the Snowcrest Range, and southern end of the Gravelly Range. Total affected area on the District in 2007 was estimated at 5,500 acres (10,700 acres in 2006) on which an estimated 12,700 trees were killed. More than 77,000 WBP and another 57,900 LPP were killed by MPB on 21,300 acres (29,400 acres last year) and 22,600 acres (12,000 acres in '06), respectively. DFB killed about 3,300 trees on 1,100 acres (113 acres reported last year).

To the south, in the Centennial Range, on lands administered mostly by BLM, still significant amounts of SAF, DF, and WBP—and to a lesser extent LPP—have been killed by their respective bark beetle pests. Amounts have generally increased, except for a decline in WBBB activity, from levels recorded in 2006. Much of the DF in that area has been defoliated by WSBW and DFB activity, already at a high-endemic level, could increase. WBBB killed about 15,000 SAF on 5,900 acres (20,800 trees on 10,900 acres in 2006).

Deerlodge Reporting Area

Butte RD:

Only a small part of the Butte District was flown—between Butte and Homestake Pass. Very large polygons, covering most of the LPP in that part of the Forest were still heavily infested by MPB. Intensity varies from 1-20 trees per acre of faded trees (ones killed in 2006). Many of the beetle-infested stands south and east of Butte; and to the northwest, which were not flown, are experiencing slowly declining levels of infestation due to host depletion.

Ground surveys conducted there in 2007 showed the infestation on the District was still quite active although decreasing in some areas due to host depletion. In the Lime Kiln area, new attacks, for one 10-plot area, averaged 26 per acre in 2007; but 76 in another. Total beetle-killed trees per acre in those two areas were 153 and 127, respectively. In American Gulch, ten plots revealed high numbers of new attacks, averaging 52 per acre; and a total of 240 total dead trees per acre killed during the past 3 years. To the west, in German Gulch, where outbreaks were more recent, an average 70 trees per acre were killed in 2007, and 163 per acre more had been killed in the preceding two years.

District-wide, an estimated 276,000 LPP were killed on approximately 87,200 acres in 2006. Those estimates represented moderate increases from 2005 when more than 264,000 LPP were killed on about 69,800 acres. In 2007, while not all of the District was surveyed, those figures have been reduced to about 117,000 beetle-killed LPP on 22,600 acres.

Many of those infested areas, especially south and east of Butte, have experienced significant amounts of host depletion.

No DFB-killed DF were reported in 2007 in the areas surveyed. District-wide, DFB-caused mortality totaled 1,100 trees on 450 acres in 2005; but had been reduced to only 110 trees on 45 acres in 2006.

Jefferson RD:

Not all of the District was flown, but much of the LPP stands from the Continental Divide, east to the Boulder River were mapped. Most LPP stands in that area, and in the area near Hidden Lake and Elkhorn Peak, south to Whitehall, were still heavily impacted by MPB. Very large polygons, ranging in intensity from 1 to 20 faders per acre were mapped throughout the surveyed area. In the Bull Mountains, west of Boulder River, a few groups of MPB-killed WBP were observed. In the southern part of the District, northern portion of the Tobacco Root Mountains, numerous large polygons of MPB-infested LPP were recorded. For the most part, however, LPP stands in that area are not as heavily infested as they are farther to the north. To the south, intensity is generally one tree per acre or less. At higher elevations, WBP stands have also been infested by MPB. At several locations, WSBW defoliation was sufficiently heavy that bark beetle activity could increase in the near future.

Infestations on the District were the still most extensive on the Forest, increasing significantly in 2007. The infested area in this year was recorded at 150,300 acres; on which at estimated 754,000 LPP were killed. That same area had been reported as 119,600 acres in 2006; and 75,000 acres in 2005. An estimated 216,000 LPP were killed in 2005, but that number increased to almost 371,500 in 2006. Beetle-killed trees more than doubled in 2007. WBBB activity declined considerably, from about 1,500 SAF killed on 500 acres in 2006; to 350 trees killed on 120 acres in 2007.

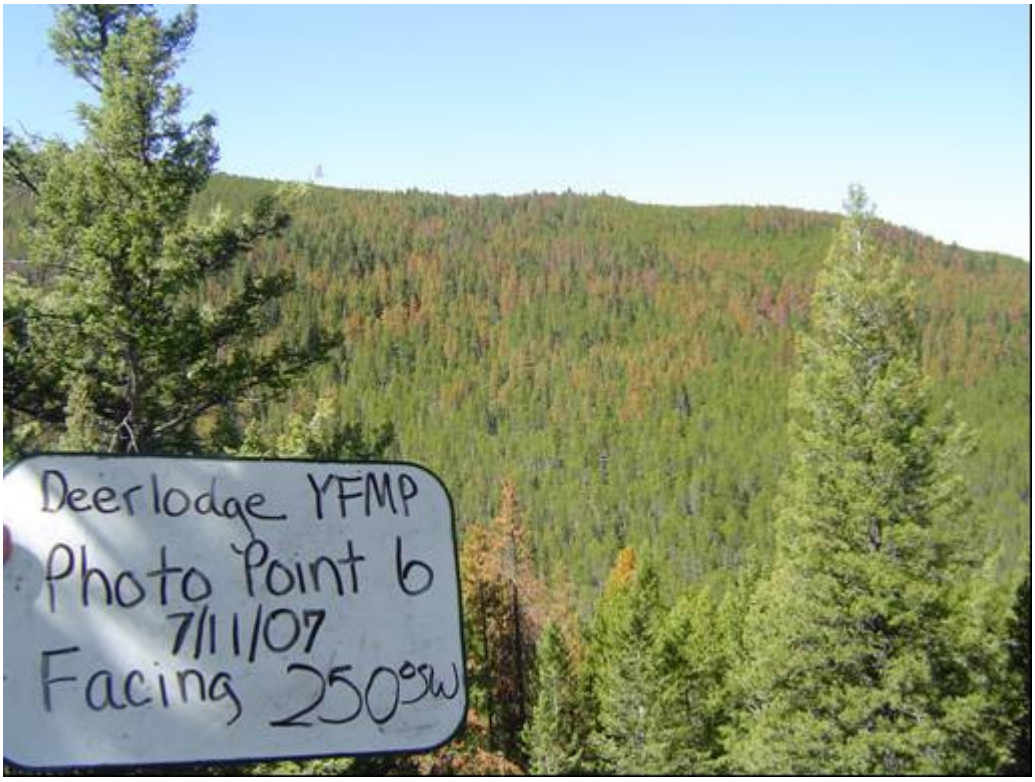
North of Boulder, on lands administered by both BLM and FS, MPB had killed numerous groups of PP and a few groups of LPP. Beetle populations there did not increase significantly.

Deer Lodge RD:

Deer Lodge RD was not flown in 2007. The 2006 report follows: MPB activity in LPP stands increased east of Deerlodge, especially near Sugarloaf Mountain, Black Mountain, and Orofino Mountain. West of Deerlodge, significant MPB-caused mortality in LPP stands was noted from Cup Lake, south nearly to Anaconda. Minor amounts of DFB-killed DF were noted in that general area as well.

MPB outbreaks on the District totaled about 12,400 acres in 2005, up to 15,000 acres in 2006. Approximately 22,000 LPP were killed last year, 42,400 in 2006. DFB- and WBBB-caused mortality was much less significant—found on about 170 and 40 acres, respectively.

Nine YFMP photo plots were installed to track visual progress of LPP killed by MPB on the east face of the Deerlodge Valley, concentrating around Orofino. An example photo point is included below. Photo points taken in 3 to 5 years will be compared to these baseline photo points to establish trends. Photo point data is in a computer file at K:\plan\fp_monitoring\fy_2007_fp_m&e.



Pintler RD:

The Pintler RD, likewise, was not flown this past year. We know MPB populations continued to increase in many locations. The following is from the 2006 report and likely represents on-going conditions: On the east side of the District, in Powell and Deerlodge Counties, several large areas of MPB-infested LPP were mapped within Dempsy Creek, Racetrack Creek, Lost Creek and Tin Cup Joe Creek, drainages and some of their tributaries. Ground surveys near Georgetown Lake indicated MPB populations are just beginning to build in LPP stands there. Only small amounts of DFB activity were noted, some just north of Anaconda; however, increased WSBW defoliation could easily result in increased DFB activity.

The southern portion of the District had only small spots of DFB and WBBB activity. Most of that was found in East Fork Rock Creek and Rock Creek drainages. To the west, there were once again, many small groups of DFB-killed trees located near Stony Creek. There were a few small areas where WBBB had killed a few SAF along Little Stony Creek and elsewhere in that general vicinity.

East of the Clark Fork River, areas heavily defoliated by WSBW were mapped. Those stands are likely to become more susceptible to DFB in the future. There were a few small groups of DFB-killed DF in that area. Throughout that area there were widely scattered, mostly small groups of LPP killed by MPB. DFB killed about 32,000 DF on almost 15,000 acres in 2005; however, those figures were reduced dramatically in 2006, to 4,200 DF on 1,180 acres. MPB accounted for 1,500 dead LPP (5,100 in 2005) and another 100 PP (370 last year) on a combined 1,100 acres (3,700 in 2005). WPB activity was noted on about 15 acres.

Evaluation*:*
The trend in infestations on the BDNF generally follows regional trends. The "Bark Beetle Conditions, Northern Region, 2007" (USDA, FS, Region 1, Forest Health Protection, Missoula Field Office, January 2008) concludes the warmer and drier than normal conditions in 2007 were favorable for bark beetles. Western Montana recorded the warmest year on record since 1934; and as the year drew to a close, much of the area was several inches behind "normal" in yearly precipitation. Drought effects that had shown signs of being overcome in 2005 and 2006 were once again manifest in the Northern Region. However, host depletion is having some effect on the populations of insects, too. Bark beetle infestations continue to move into new areas though the intensity of out breaks has declined markedly. Mountain pine beetle increased in the Region by 1%, on the BDNF it decreased by 14%. Again, only 70% of the normal survey area was flown so the numbers alone aren't indicative. Douglas-fir bark beetle declined by 38% both region wide and forest wide. Western spruce budworm is increasing.

The BDNF treated mountain pine beetle and Douglas-fir beetle infested trees on 389 acres around campgrounds and developed sites for public safety and site aesthetics. Twelve acres were treated for bark beetle around the Anaconda Job Corp Center.

C. Wildlife Management Indicator Species

(1) Elk

Monitoring Question: How are populations of elk changing?

Performance Measure: Population data for elk from Montana Fish Wildlife & Parks

Results: Data in Table 11 below comes from the Montana Fish, Wildlife and Parks (FWP) website and State Elk Plan. No updates were made by FWP to the 2003 data in 2004 or 2005.

Table 11. Montana Fish Wildlife and Parks Elk Objectives compared to Population Estimates

BDNF Hunting Districts	2005 FWP State Elk Plan Objective ± 20%	FWP 2003 Population Estimates ± 10%	FWP 2006 Population Estimates ± 10%	FWP 2007 Population Estimates ± 10%
210	2500	1043	952	1020
211	600	679	485	262
212	850	1100	1074	1494
213	650	401	689	484
214	200	309	270	284
215	1000	736	1144	1234
216	325 %	457	288	473
300	700-900%	615	1137	1450
302	550-700	399	736	956
311	2700	2096	3100	3000
318	500	366	383	535
319	1100 Max	1515	936	819
320 333	1000 for both	1130 549	942 470	745 477
321	None	No winter elk	No winter elk	No winter elk
323 324 327 330 Total	 Gravelly EMU Total = 7000	3119 3114 No winter elk 1830 (8063)	2682 2500 No winter elk 1132 (6314)	2265 1928 No winter elk 1116 (5309)
328	550-700	574	650	635
329	900 Max	582	683	727
331	1400 Max	1250	896	1085
332	900 Max	506	600	376
 340 350 370	 1600 combined for all	219 602 330 (1151)	557 268 192 (1017)	839 500 (1339)
341	600 Max	669	494	272
360	2200	4555	1914	1661
362	2500	1159	3629	3845
TOTAL	30,575	28,074	28,803 stable	28,482 stable

Evaluation: While some hunting districts have shown up and down fluctuations since the State's 2003 counts, the elk population Forest-wide meets State elk plan objectives within the 10% margin of error for population estimates. Since 2006 the State has increased either-sex elk harvest in southwest Montana in an attempt to reduce populations to meet population objectives for individual hunting units.

(2) Mountain Goat

Monitoring Question: Are management activities effectively protecting high elevation winter habitats for mountain goats (From Revised Forest Plan, published 1/2008)?

Performance Measure: Population data for goats from Montana Fish Wildlife & Parks and number of snowmobile entries into non-motorized high elevation units protected for goats.

Results - Data in the table below comes from the Montana Fish, Wildlife and Parks (FWP) website. No updates were made by FWP to the 2003 data in 2004 or 2005. Snowmobile entries into non-motorized allocations described in the Revised Plan were not monitored in 2007.

Table 12. Montana Fish Wildlife and Parks Mountain Goat Population Estimates

BDNF Mountain Goat Hunting Districts	FWP 2003 Population Estimates + 10% all ownerships	FWP 2006 Population Estimates + 10% all ownerships	FWP 2007 Population Estimates + 10% all ownerships
212	66 stable	45	30
222	25	25	7
223	44	40	40
312	150	150	80
320	100	100	80
321	75	75	10
322	60	60	15
324	**300** Madison Herd	**300** Madison Herd	**365** 70
325	"	'	70
326	"	'	80
327	"	'	55
328	"	'	40
331	80	80	50
Total	2100 stable - increasing	2075 stable	627 decreasing

Evaluation: While some hunting districts show stable or upward trends (Madison Range), many show a notable decline. This decline could be for a number of independent or related reasons: predation, recreation impacts, displacement/competition with big horn sheep, disease, drought, less early seral vegetation, or difficulty in obtaining an accurate count. In comments to the revised forest plan the State has confirmed declines in mountain goat

populations. They do not know the causes of the declines. Winter recreation impacts can be ruled out for hunting districts including the Anaconada Pintler Wilderness (HD 222,223).

Once the Revised Forest Plan is implemented, this item will also report on any winter disturbance of non-motorized high elevation allocations designed to protect mountain goats and wolverines.

(3) Wolverine

Monitoring Question: Are management activities effectively protecting high elevation winter habitats for wolverines? (Revised Beaverhead-Deerlodge Plan Draft Monitoring Item 13, no item in 1986/87 Plans)

Performance Measure: Population data for wolverine from Montana Fish Wildlife & Parks and other partners. Presence or absence of wolverines in high elevation habitats, number of snowmobile entries into non-motorized high elevation units protected for wolverines.

Results :

The Greater Yellowstone Wolverine Program, operated by the Wildlife Conservation Society (WCS), focused their winter trapping efforts in 2006-2007 in the Madison, Gravelly, and Centennial Ranges. Five wolverines, previously monitored, were re-captured and fitted with new implants and GPS collars. One den site was verified in the Gravelly Range. WCS personnel conducted aerial recreation surveys over the Gravelly and Henrys Lake Ranges on two occasions. Aerial photographs document snowmobile activity near the den site while it was active, (Inman, Robert M., K. H. Inman, M. L. Packila, and A. J. McCue. 2007. Greater Yellowstone Wolverine Program Update, December 2006-March 2007. Ennis, MT, USA.).

Montana Fish Wildlife and Parks (FWP) conducted an aerial flight survey of the Flint Mountain Range, mountain goat hunting districts 212 and 213, on March 29, 2007 following a fresh snowfall. As documented in biologist Ray Vinckey flight notes, "(w)olverine tracks were abundant in the central Flints. Unlike the goats, wolverine had covered extensive and linear distances in less than 48 hours. This movement may be related to the breeding season. The location of one track leading into a den was marked with a GPS".

Evaluation: Two new wolverine den sites were documented on the Forest in FY07. The den site in the Gravelly Range had documented snowmobile activity close by. This den site is located in an area proposed as "Winter Non-motorized" for protection of high elevation winter habitat in the Draft Revised Forest Plan. When a Record of Decision is issued for the Revised Forest Plan, the area will be closed to snowmobiles and monitoring of the closure effectiveness will begin.

A FWP survey in the Flint Range documented a den site. This survey was designed for wildlife population counts and did not attempt to also document winter recreation use. We do not know the location of the central Flint den, but the Draft Revised Forest Plan proposes several blocks of "Winter Non-motorized" in that range as well.

The State is evaluating trapping quotas for the wolverine.

D. Riparian Stream Function

Monitoring Question: Are stream and riparian conditions improving?

Performance Measure: Percent of stream channels functioning or in upward trend.

Results: Two stream monitoring efforts took place on the Forest in FY07. The Youth Forest Monitoring Project installed and monitored 7 stream transects on the Deerlodge District. In addition, the Forest hydrologist, fish biologists, and ecologist designed the forest-wide integrated stream function surveys program in preparation for the long-term monitoring to be proposed by the Revised Forest Plan.

(1) Youth Forest Monitoring Program:

The objective of YFMP stream monitoring is to determine overall stream health through a variety of tests: cross sections to test the changes over time, macro-invertebrates to reflect water quality (sediment levels in particular), pebble count to determine the different bed material in the stream, water chemistry, slope, and sinuosity. The YFMP monitored 7 sites on four streams on the east side of the Deerlodge Valley in 2007. Streams were selected on the following basis.

South Fork of Cottonwood Creek - several Forest Service specialists recommended the Orofino area due to its extensive mining history. The site on the South Fork was chosen because it was directly below a section of private ground that had been mined intensively. The streams in the Orofino area are important because they are spawning grounds for native Cutthroat trout.

North Fork of Cottonwood Creek - was also selected because of the extensive mining activity in the area. It is also an important stream for native cutthroat trout. This stream is also impacted by grazing and logging.

Baggs Creek - this stream site was selected because it is spawning habitat for native cutthroat trout and it is located in an area impacted by grazing, mining, and logging.

Middle Fork Streams -were recommended because of two grazing allotment areas that lie along the stream. The upper pasture has been rested since 1996 while the lower pasture has been grazed as recently as this year. Two surveys were located in the upper pasture and two surveys in the lower pasture to compare stream health and bank compaction.

Results:
Streams – Cross section, pebble count and macro-invertebrate data were collected on at least two transects for each stream site listed in table 13 below. The figures below display student results for one stream site, North Fork of Dry Cottonwood, as an illustration. The data provides a baseline to compare future monitoring of trends. The complete data set is available on spreadsheets located in the Supervisors Office on the computer K Drive at k/plan/fp_monitoring/fy07_m&E_report/YFMP. Mayfly or *drunella doddsii* is denoted as a management indicator species for aquatic health in the Revised Forest Plan, expected to

be published in 2008. This report includes all of the YNFP data on mayfly for each site in FY07 as a baseline for future data gathering.

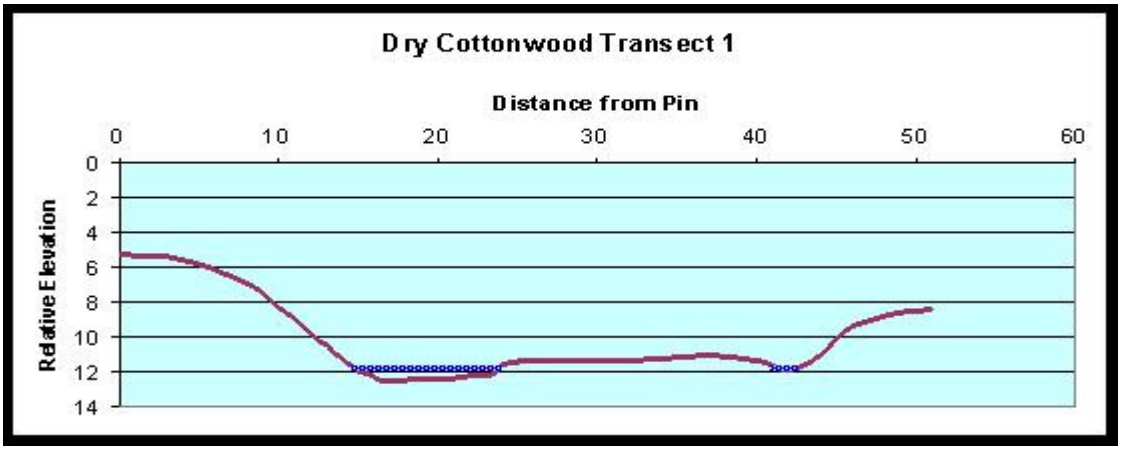


Figure 8. Cross section profile on North Fork Dry Cottonwood Transect 1

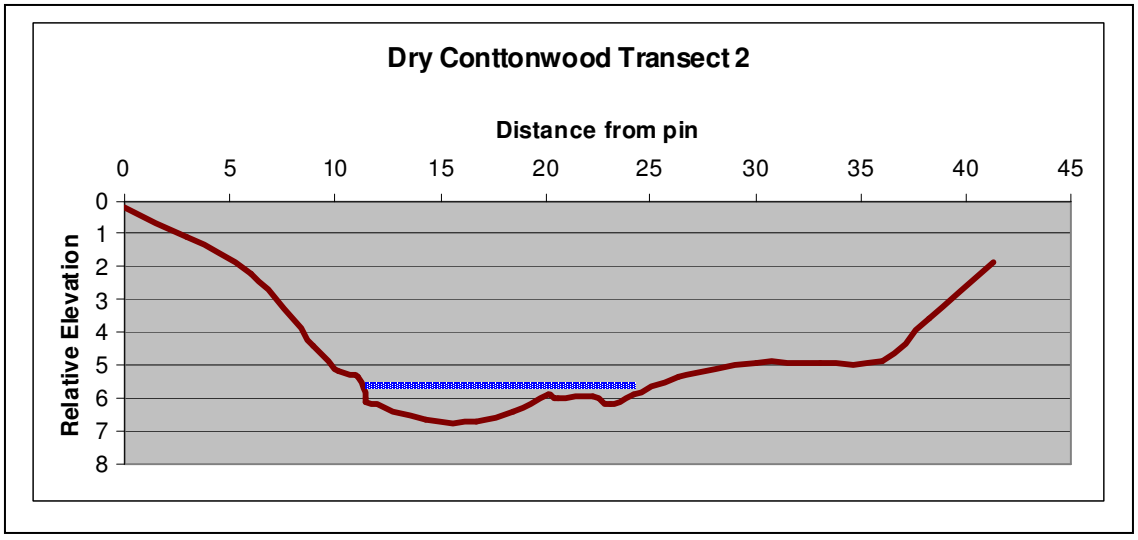


Figure 9. Cross section profile on Dry Cottonwood Transect 2

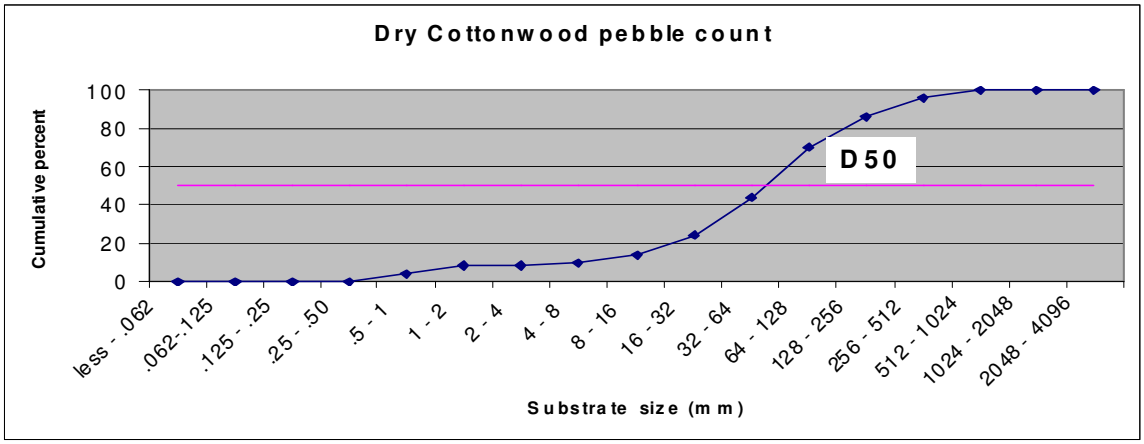


Figure 11. Pebble Count on Dry Cottonwood Transect 1

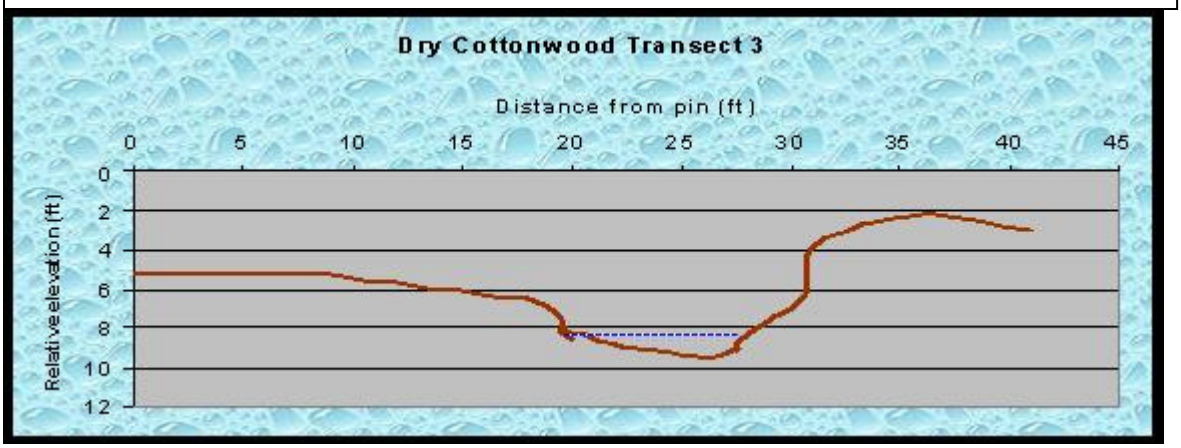


Figure 10. Cross section profile on Dry Cottonwood Transect 3

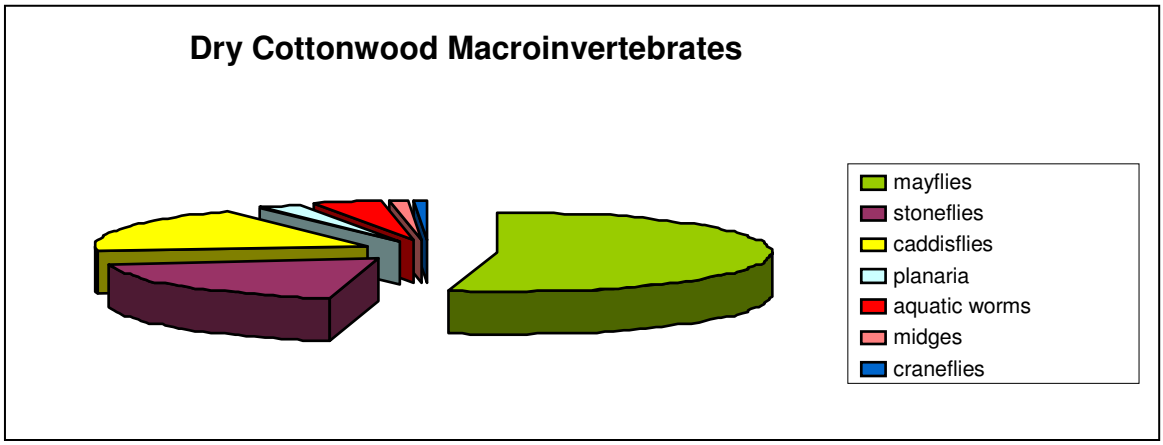


Figure 12. Macroinvertebrate profile on Dry Cottonwood Transect, as an average of 3 transects

Table 13. Number of Macroinvertebrates sampled per Site

Stream Survey Site	Mayfly	Stonefly	Caddisfly	Aquatic worms	Midges	Cranefly	Other
Baggs	56	5	33	4	1	1	0
North Fk Dry Cottonwood	86	3	6	2	1	1	1
Middle Fork 1	56	23	19	1	1	0	0
Middle Fork 2	47	30	17	4	1	0	1
Middle Fork 3	52	30	10	2	3	0	3
Middle Fork 4	51	60	3	2	4	0	0
South Fk Dry Cottonwood	55	21	19	4	1	1	3

Table 14. Water chemistry results from stream survey sites in Middle Fork

	Site One	Site Two	Site Three	Site Four
Criteria	**Grazed**		**Rested**	
Temperature ©	9.7	12.1	13.4	11.1
pH	8.8	8.6	8.8	8.7
Dissolved Oxygen	10.35	8.28	8.58	9.28
Conductivity (uS/cm)	80	68	57	55
% Saturation	91	75.4	82.1	79.4

Evaluation: The YNFP stream data is presented as baseline information to be compared with future data to establish trend in stream health. The BDNF plans forest health and fuel reduction projects on the east side of the Deerlodge valley in the near future.

(2) BDNF Integrated Stream Monitoring Project

BDNF hydrologists and range ecologists established up to 800 permanent stream transects across the Forest since the mid 1990's. These transects were generally installed with the objective of monitoring livestock impacts on low gradient streams with adjacent suitable grazing. Budgets and staffing have prevented us from rereading that ambitious number of trend transects. As part of the Forest Plan revision process, hydrologists, fish biologists, ecologists and range managers identified the need to incorporate riparian vegetation monitoring into trend studies, stratify the existing transects to provide the best trend information representative of a range of allotments, and include representative samples of non-grazed streams. In 2007, these specialists redesigned the stream monitoring program.

The monitoring program now has two facets which consider condition and trend:

1) What is the condition of riparian systems within suitable range forestwide regardless of whether livestock is present? A representative sample using a random selection protocol determines new candidate survey reaches that receive final field verification.

2) The second facet determines trend, and utilizes a random selection of existing stream survey sites. How do various livestock management systems affect riparian function in grazed areas across the forest?

The sample size includes a total of 250 riparian sites distributed normally across the forest on riparian areas with Rosgen C and E potential streamtypes. Sixty percent of these sites will address the first facet of the monitoring question (30 sites per year), and 40% will address the second facet (20 sites per year). Fifty sites will be measured annually, with a measurement frequency every 5 years. After 5 years time, the 150 condition surveys will also contribute trend data. If trend is not evident after 5 years, the cycle of repetition may be extended and more condition surveys completed. The Integrated Stream Monitoring Program will be implemented in full in 2008.

E. Soil and Water Conservation

Monitoring Question: Are best management practices being implemented during project work and are they resulting in protection of water quality and beneficial uses?

Performance Measure: Are best management practices being implemented and percent rated effective

Results: A Forest Best Management Practices (BMP) review was not scheduled in FY07, nor was a State of Montana BMP audit. There are no results to report that address this item directly.

The following discussion reports on soil and water conservation monitored in FY07 through other types of activities. Reclamation of several large abandoned mines and hazardous mine openings on the BDNF took place from 2005 through 2007. Monitoring of that reclamation work to assure protection of water quality and beneficial uses is scheduled to begin in 2008. The project work described below to set a baseline for monitoring, describing conditions before reclamation and post-reclamation. In addition, the Youth Forest Monitoring Project monitored coarse woody debris on the east side of the Deerlodge valley. See section (2) below.

(1) Abandoned Mine Inventory, Reclamation and Monitoring

Abandoned Mines Lands (AML)- are lands where inactive or abandoned mines are located on or near public land and the owner and/or operator can not be established, have no financial assets, and can not assist with the reclamation of these mine sites. There are large concentrations of AML sites in most mineralized regions of the BDNF. The types of mine waste present at abandoned or inactive mine sites generally include waste rock, mill tailings, and chemicals associated with the extraction of metals from ore. The BDNF began inventorying AML sites in the early 1990's and continues to inventory, assess, and add to the list of existing AML sites on the National Forest. The inventory of AML sites is used to assist with the prioritization, funding, and continued reclamation of AML sites that impact public lands on the B-D. Two issues associated with AML sites that impact public lands are: 1) the protection of human health and the environment, and 2) public safety issues related to hazardous mine openings (HMO) such as adits, shafts, open pits, and subsidence over buried mine opening

State and Federal laws require the cleanup of AML sites that impact human health and the environment. Mine wastes from historic mine sites, now considered to be abandoned mine lands, are often a threat to human health and the environment. Heavy metals associated with the mine waste often pose a risk to recreational users and to terrestrial and aquatic environments. Hazardous mine openings are also a risk to the public and wildlife that use public lands on the forest. The purpose for reclaiming these sites is to: 1) reduce the risks to human health and the environment from mine wastes, 2) eliminate the risks to the public and wildlife from HMO on National Forest lands and 3) comply with State and Federal laws.

The BDNF conducts all reclamation of mixed ownership AML sites in conjunction with reclamation activities on adjacent private lands, reclaimed by the Montana Department of Environmental Quality, Mine Waste Cleanup Bureau (MWCB) or the United States Environmental Protection Agency (EPA) using a watershed approach to reclamation. Reclaiming all AML sites within a given watershed allows cooperating State and Federal agencies to reduce threats to human health and the environment and is the most cost effective and efficient method to remediate water quality and HMO issues resulting from historic mining.

Reclamation Activity - The BDNF completed the reclamation of several AML sites considered to be a threat to human health and the environment because of water quality related issues between 2005 and 2007. The Jack Creek Tailings site was reclaimed in 2005 and the Lady Lieth mine was reclaimed in 2006. The reclamation of the Vindicator, Morning, and North Ada mines began in September 2006 with the remaining reclamation completed in 2007. These mine sites are in the Boulder River Watershed, a watershed that was designated nationally as a "priority" watershed for the reclamation of abandoned mine lands. Twelve miles of road reconstruction or new road construction was completed in the Cataract and Basin Creek watersheds in 2005 and 2006 to allow for waste removal from abandoned mine lands in these watersheds to the Luttrell mine waste repository.

The Beal Mountain Mine, located in the headwaters of German Gulch about 16 miles west southwest of Butte, filed for bankruptcy in 1998. The reclamation bonding funds have been exhausted and work still needs to be completed to find solutions to several issues that impact the German Gulch watershed. At the Beal Mountain Mine a bench-scale water treatment plant was installed, the reclamation of a drainage ditch on the north side of the heap leach pad was completed, and monitoring of surface and ground water was conducted to help determine the best alternative for the reclamation of this site.

Work was conducted at the Elkhorn mine beginning in 2005 to: 1) remove mine wastes around the remains of the Elkhorn Mill building, 2) restrict access to the underground workings, and 3) develop a conceptual plan for reducing or eliminating the flow of water from the mine.

- **Lady Lieth Mine**

  Location: Jefferson Ranger District west of Basin, Montana in Jefferson County. . The Lady Lieth Mine is accessible from Basin, Montana by Forest Service Road No. 1571 – Sec. 6, T7N, R6W (N46º 23' 29.48", W112º 16' 34.58"W)
  Year Completed: Ongoing
  Cost: $305,900

  Purpose of Project: The Lady Lieth Mine is in the Boulder River priority watershed. This removal is being taken to protect human health and the environment by limiting exposure to contaminants-of-concern, reduce the

mobility of contaminants, and mitigate impacts to the local surface and groundwater resources.

Work Performed: The reclamation of the Lady Lieth Mine included excavation, loading and hauling contaminated mine tailings from the stream banks and fluvial deposits adjacent to Jack Creek. Mine wastes were hauled to the Luttrell repository. The other work completed for this reclamation included backfill of excavated areas to construct a floodplain, construction of haul roads, improvements to existing Forest Service roads, and reconstruction of the streambanks.

Work on this site began in August 2006 and was completed that fall. Installation of a passive biotreatment cell to treat an adit discharge prior to entry into Jack Creek and reclamation of the existing haul roads is yet to be done.

Benefits: Water quality, soil, and vegetation communities are expected to improve following removal of contaminated materials and replacement with clean soils supporting native vegetation. Contaminated soil and water should no longer be a threat to human health and the environment. Scenery, hunting, fishing, and camping opportunities within the drainage should improve and the disturbed lands returned to multiple use. Monitoring will continue.

Figure 13. Dump H on the Lady Leith – Before Reclamation - 9/13/2006

Figure 14. Dump H on the Lady Leith – After Reclamation - 9/29/2006

.Jack Creek Tailings Removal

Location: Jefferson Ranger District, Jefferson County
Secs.13 & 14, T7N, R6W (N46º 21' 52.92", W112º 18' 29.09"W)
Year Completed: 2005
Cost: $562,209

Purpose of Project: The Jack Creek tailings are in the Boulder River nationally recognized priority watershed for abandoned mine reclamation. This

removal was taken to protect human health and the environment from releases of arsenic, copper, lead, zinc, and cadmium found in the tailings.

Work Performed: The reclamation of this site included excavation, loading and hauling contaminated mine tailings from the stream banks and fluvial deposits adjacent to Jack Creek, Jill Creek and a small tributary known as Janet's Spring Creek. Mine wastes were hauled to the Luttrell repository. The other work completed for this reclamation included backfill of excavated areas to construct a floodplain, construction of haul roads, improvements to existing Forest Service roads, construction of a diversion ditch to permanently route the flow of Jill Creek around a portion of the site, erosion control, and reconstruction of the streambanks.

Benefits: Water quality, soil, and vegetation communities were improved by removing contaminated materials and replacing with clean soils that will support native vegetation species. The contaminated land and water is no longer a threat to human health and the environment. Scenery, hunting, fishing, and camping opportunities within the drainage have been improved and the lands have returned to multiple use.

Figure 15. Jack Creek Tailings Before Reclamation - 7/25/2005

Figure 16. Reconstructed Stream Channel After Reclamation of Jack Creek Tailings- 9/08/2005

- **Beal Mountain Mine**

  Location: The Beal Mountain Mine is located in the headwaters of German Gulch in the Pioneer Mountains, Silver Bow County, Montana, about 16 miles west southwest of Butte and 10 miles southwest of Fairmont (Gregson) Hot Springs.

  The Beal Mountain Mine completed open pit mining operations in 1997 and gold recovery from the heap leach pad in 1999. With a filing of bankruptcy in 1998, and exhaustion of bonding funds to complete reclamation, the USDA-FS became the lead agency responsible for final mine closure. Removal actions at the site began in 2003 with a time critical removal action for active treatment of heap leach solution that continued through 2005. The Forest Service, working

with a technical working group (TWG), developed a draft EE/CA to evaluate closure options that is now out for public review.

Year Completed: 2006 **-** Ongoing
Cost: $244,640.46

Purpose of Project: The goal for this site is to close the mine and allow the area to return to its multiple use state. Although the majority of the mine property has been reclaimed, there are several on-going operational, maintenance, and reclamation requirements that need to be met for specific facilities before final closure is complete. There are also outstanding issues that potentially affect the environment that need to be addressed. These issues include the long-term geochemical reactivity of mine wastes (including both acidity and the release of selenium to the environment from several potential mine sources), geotechnical stability of the pit highwall and leach pad dike, infiltration of precipitation into the leach pad, and treatment and disposal of remaining heap leach solution.

The leach pad at the abandoned Beal Mountain Mining complex has shown a dramatic increase in the amount of contaminated water within the pad, which is believed to be the result of a leak in the leach pad liner system. The work conducted in 2006 was: 1) an attempt to identify where the leak in the leach pad was located using an indicator dye and monitoring ground water in the leach pad sumps, 2) repair the leak in the leach pad, and 3) conduct a bench scale Reverse Osmosis (RO) water treatment study. The RO study was done to help determine production rates, costs, by-product volumes, design, and source availability for developing an RO system to treat water in the leach pad at the Beal Mountain Mine.

Work Performed: Past studies determined that any future treatment of water at the Beal Complex will need to be accomplished by using a Reverse Osmosis (RO) process. A bench scale water treatment plant and study was conducted to take into account all factors pertaining to the site so that a full scale processing system could be implemented.

The leach pad currently contains about 35 million gallons of solution and has a capacity of 108 million gallons. Between November 2005 and July 2006, the leach pad gained about 30 million gallons of fluid, primarily a result of leakage through the leach pad cover. The leak in the leach pad cover was thought to be primarily from a drainage ditch on the north side of the leach pad. This drainage ditch was excavated and reconstructed in 2006 in an attempt to reduce or eliminate the large volumes of water leaking into the leach pad.

A drain ditch was constructed on the toe slope on the north side of the leach pad so observations could be made in the spring to determine whether ground water near the mill buildings or north of the leach pad was entering the leach pad.

Benefits: The work conducted in 2006 was an ongoing attempt to help determine the source of surface and/or groundwater entering the leach pad and how to treat this water if the leak can not be eliminated in the leach pad. The reason for doing this work is to help determine the preferred alternative for reclamation and final closure of this mine site so that it can be returned to the pre-mining, multiple use conditions of surrounding forest lands.

Figure 17. Construction of Beal Tailings Drain Ditch – 10/24/2006

- **Elkhorn Mine Phase I**

  Location: The Elkhorn Mine is located near the historic ghost town of Coolidge, about 25 miles south of the town of Wise River on the Beaverhead-Deerlodge National Forest in Beaverhead County, Montana.

  Sec.13, T4S, R12W (N45º 29'15.60", W113º 02'13.73")

  Year Completed: 2005 - Ongoing

  Cost: $138,230.11

  Purpose of Project: Monitoring determined there is a potential threat to human health and the environment from water discharging from the Elkhorn Mine adit, as well as a safety hazard resulting from unrestricted access to the underground workings through the lower 1000 level haulage adit. The Mine Adit is approx. 318' from Elkhorn Creek and approx. 900' from the Historic town of Coolidge and Pack trail.

  The purpose for conducting the Phase I site assessment was to provide data necessary to develop a conceptual plan for reducing or eliminating the flow of water from the mine and close the dangerous adit portal to entry by the public.

  To finish the Elkhorn Mine Site Investigation, Phase II, will require completing: 1) the rehabilitation of the lower 1000 level of the underground

workings to a distance of 500-1000 feet inside the mine; 2) the assessment of the geology and water quality in the 1000 level workings that were reopened in Phase I; 3) a conceptual design with the objective of developing a method that will be effective in eliminating or reducing the adit discharge from the 1000 level adit; and 4) completing a site investigation report. The report will summarize the reopening work, present data collected during the investigation, and present a conceptual design of the closure method proposed for reducing or eliminating the adit discharge from the 1000 level. It is estimated that it may cost as much as $198,000 to complete the reopening, and to conduct the Phase II assessment program.

Work Performed: Site preparations included improving the access road across the reclaimed mine waste rock dump to the adit portal as access for equipment and supplies; and constructing a small (30' x 40' x 5') sediment pond in the road below the adit's lined and armored surface water diversion ditch. This upper sediment pond was designed to serve as a primary settling basin for the adit discharge. Approximately 200 lineal feet of 10-inch PVC pipe was installed as an overflow for this pond that discharged water into a second existing sediment pond located further downhill, also below the adit access road. A ditch was constructed to divert water from the adit surface water diversion ditch to the upper pond for use during periods of active dewatering and underground construction.

Establishing a safe worksite at the portal involved several steps. Initially the loose rock and unstable talus blocks above the mine portal were brought down to create a more stable slope. Following this, the loose rock from the bedrock face into which the portal was driven (the brow) was removed with a scaling bar. This loose rock material from above the portal was then removed with a tracked excavator to expose the portal timber sets. The timber sets were found to be broken and sheared in places, and the bases of several of the posts that had sat in water were rotten. It was decided to remove the existing portal sets and clear out the portal opening to expose the adit. With the slope stabilized and loose material removed, the slope above the existing portal was covered with chain link mesh, woven together and held in place by wire rope cables. This chain link mesh prevented loose rock material from falling from overhead onto the portal worksite.

Lagged steel sets were set in place at the portal and two wooden helper sets were installed to transition from the steel sets to the old timber sets inside the mine. The drift was cleared by mucking and removing old timber sets and lagging for about 25 additional feet. New posts, caps and collar ties were installed and the five sets were cribbed and blocked to the back and ribs. About 30 cubic yards of material were mucked from the mine and wet timbers were removed from the muck. A slab of rock about 4' x 7' x 3' was barred down from the back and brought out to the portal area. The mine drainage was returned to its original diversion channel, the road berm was removed and the

site cleaned up. In all there were 25 feet of new stulls (five 5' stulls) with six steel sets installed near the portal area including the carriage set (approximately two outside of the brow and three inside the brow). In addition there were five new timber sets (including one helper set) installed in the workings that still need lagging.

Benefits: Water quality, soil, and vegetation communities will be improved if a way can be found to reduce or eliminate the adit discharge from the mine. The adit opening, a danger to the public, was closed with a locked gate.

Figure 18. Elkhorn Mine Adit Before Closure **Elkhorn Mine Adit After Closure**

- **Vindicator, Morning, and North Ada Mines**

  Location: Jefferson Ranger District west of Basin, Montana in Jefferson County. . The sites are accessible from Basin, Montana by Forest Service (F.S.) Road Nos. 172, 660, and 1571 - Vindicator (Southeast ¼, Section 12, T.7N., R.6W.), Morning (Northeast ¼, Section 18, T.7N., R.5W.), North Ada (Northwest ¼, Section 8, T.7N., R.5W.).
  Year Completed: Ongoing
  Cost: $675,000

  Purpose of Project: The Vindicator, Morning, and North Ada Mines are in the Boulder River priority watershed. This removal is being taken to protect human health and the environment by limiting exposure to contaminants-of-concern, reduce the mobility of these contaminants, and to mitigate impacts to the local surface and groundwater resources near these mines.

  Work Performed: The reclamation of the Vindicator, Morning, and North Ada Mines consists of: constructing new roads and improve existing access roads; excavating, transporting and disposing of approximately 9,675 cubic yards of waste materials to the Luttrell Repository near the former Basin Creek Mine; backfilling waste excavation areas; replacing and install culverts; disposing of debris; constructing French drains and diversion ditches; regrading, installing erosion control mat, and seeding, fertilizing, and mulching all disturbed areas.

Work on this site began in September. Most of the roads and culvert installations were completed this fall. Waste removal and reclamation of these mine sites will be completed in the summer of 2007.

Benefits: Water quality, soil, and vegetation communities are expected to be improved by removing contaminated materials and replacing with clean soils that will support native vegetation species. The contaminated land and water should no longer be a threat to human health and the environment. Scenery, hunting, fishing, and camping opportunities within the drainage should be improved and the disturbed lands will be returned to multiple use.

(2) Downed Woody Debris Monitoring

The Youth Forest Monitoring Project crew surveyed downed woody debris on two sites near Cottonwood Mountain on the east side of the Deer Lodge Valley to determine whether or not the Forest Service met its goals on a timber harvest or prescribed burn. These sites were suggested by the Forest Service soil scientist. Both of these sites were logged in 1969 as part of the Dry Cottonwood Sale, clearcut, then dozer piled and slash burned.

The purpose of the monitoring was to determine whether the Forest Service had reached its goals for the amount of Downed Woody debris on the ground after the timber harvest. Site one was logged earlier than site two. Forest cover on site #1 was restored and the majority of the woody debris was rotten while site two had little forest cover and most of the debris was still sound.

Table 15. Downed Woody Debris on two sites in the east Deer Lodge Valley

Size Class	Site #1 – Old Harvest Unit	Site #2 – Newer Harvest Unit
	Tons / Acre	Tons/Acre
0-.25	.10	.06
.25-1.0	1.42	.78
1-3	1.9	5.4
3+ sound	2.7	27.7
3+ rotten	7.7	6.7
TOTAL	13.8	40.6

Evaluation: The 1987 Deerlodge Forest Plan does not have a standard for maintaining downed woody debris following harvest. Recommendations in scientific literature for retaining woody debris range from 8-22 tons acre for our habitat types (Graham, et al., 1994). Over time woody debris accumulations on harvest sites where residual trees remain increase as dead trees begin to fall down. It is not surprising, then, to find that Site #2 has accumulated 40 tons per acres over the years. Site #1 was a clearcut with no residual stand, so woody debris is expected to decrease with rotting.

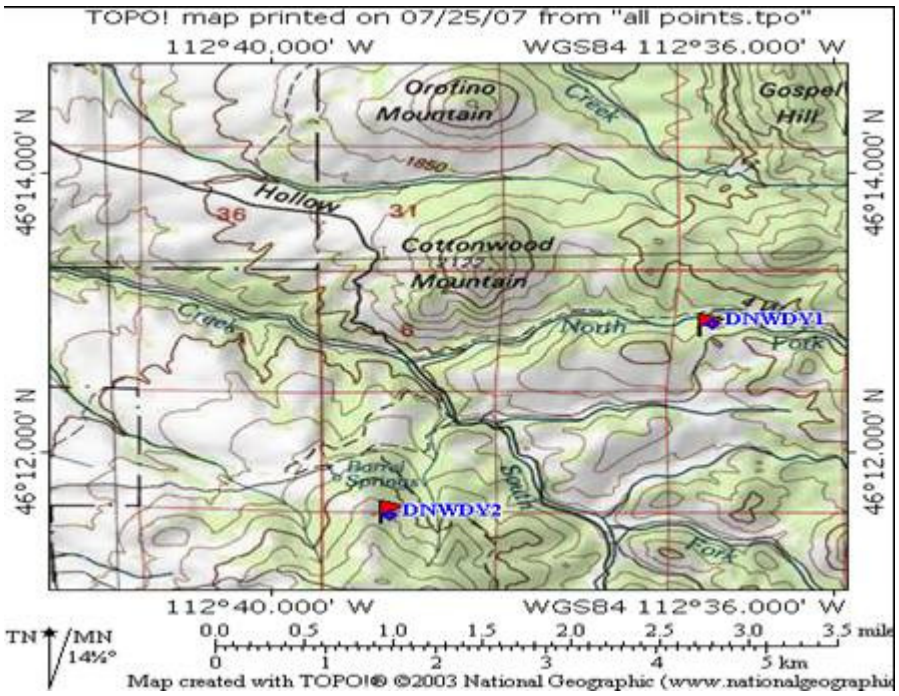


Figure 19. Location of YFMP downed woody debris plots.

(3). Project Soil Monitoring

Soil scientists collected data on the following projects to monitor effects of past activity in areas proposed for future treatment. Plots are established in units proposed for treatment to assess existing compaction and disturbance. Data collected is used to determine whether to include units in treatments, to prescribe type of treatment or mitigation, and to monitor effects of treatments in units selected for treatment. Sheep Creek Fire Salvage, an ongoing project, was the exception. Sheep Creek was monitored to assure activity was taking place under frozen soil conditions.

Table 16. Soil Monitoring Activity and Purpose in 2007

Project	Location	Monitoring Purpose	
Toll Mtn	Jefferson District	Document existing soil effects from past activities	Plots
Barton Springs	Pintler District	Document existing soil effects from past activities	Plots
Girl Scout Camp	Butte District	Document existing soil effects from past activities	Plots
South Rocky Beaver	Jefferson District	Winter logging effects, summer logging mitigation	Observation

Thompson Park	Butte District	Document existing soil effects from past activities	Plots
North Big Hole Allotments	Wisdom District	Document existing soil effects from past activities	Plots
East Fork Post and Pole	Pintler District	Document no past harvest in proposed units	Traverses
Battle Mtn	Wisdom District	Document existing soil effects from past activities	Plots
Sheep Creek Fire Salvage	Wisdom District	Document snow and frozen soil conditions	Point samples and observation
Price Powder	Butte District	Confirm the mapped soil types and to evaluate pre-existing soil impacts in the proposed treatment units.	Plots

Results:
Results from soil plots in the proposed Battle Mountain Fuel Reduction project area are available for this report. In October 2007, 15 units proposed for fuel reduction treatments were monitored for preexisting disturbance. Thirteen of the fifteen units had no detrimental disturbance; one of the units had 3.3% detrimental disturbance, and one unit had 6.6% detrimental disturbance. All detrimental disturbance noted was in the form of compaction.

Evaluation: This data will provide a basis for mitigating the impacts of proposed actions on soil quality.

F. Invasive Species

Monitoring Question: Are management actions preventing or controlling new and existing infestations of weeds?

Performance Measure: Change in acres of known noxious weed infestations. Number of new species and extent.

Results: Past noxious weed monitoring has tracked treatment acres. The noxious weed monitoring item in the Revised Forest Plan will examine the question from a different angle. Are ***acres infested*** by noxious weeds changing? We report on both below, as well as on site conditions reported by the Youth Forest Monitoring Program.

(1) Annual Treatment - Data is collected annually on the number of ***acres treated*** as required by the 1986 and 1987 Plans. Treatment information is presented in Table 17 below.

Table 17. Noxious Weeds treated on the BDNF, by Fiscal Year

Fiscal Year	2003	2004	2005	2006	2007
Acres Treated	3,600	8,004	7,635	6,017	5,001

(2) Acres Infested - The 2002 Beaverhead-Deerlodge Noxious Weed Control Final Environmental Impact Statement estimated that 23 species of noxious weeds infest 43,000 acres with an expectation of annual increases. Infestations by District were mapped in Appendix B to the Final Environmental Impact Statement and tabulated as in Table 18 below.

Table 18. Noxious Weed Infestations by District in 2002

Ranger District	Infestations along roads or accessible by ground	Infestations only accessible by air	TOTAL
Butte	2610	858	3468
Dillon	2363	299	2662
Jefferson	4140	5370	9510
Madison	3981	698	4679
Pintler	7834	9219	17053
Wisdom	3349	1146	4495
Wise River	980	165	1145
TOTAL			**43012**

Infested acres have been monitored annually since 2002 by Ranger District weed supervisors and range ecologists. That data currently resides in independent District data bases and maps. We were able to extract data in 2006 from the Dillon and Madison Ranger Districts, as indicated the FY 2006 Forest Monitoring and Evaluation Report. By 2008, the noxious weed data will be available for all Ranger Districts in the National Resource Information Systems (NRIS) data base. The table above provides a baseline to compare changes over the last 6 years.

(3) Site Conditions - Youth Forest Monitoring Program (YFMP), described in item D above, provided the Forest with data on weed infestations on three sites east of Deerlodge: Flume Gulch, Perk, and Pacific Mine. Three sites were sampled for plant canopy cover, ground cover, weed density and frequency. Photo plots were installed.

Pacific Mine site is a patch of leafy spurge. While the private ground west of the Orofino area is covered by this noxious weed, the YFMP team actually didn't find many areas infested on national forest. They thought this would be a good site to monitor because it was a fairly small and isolated patch that might be able to be controlled before it spreads.

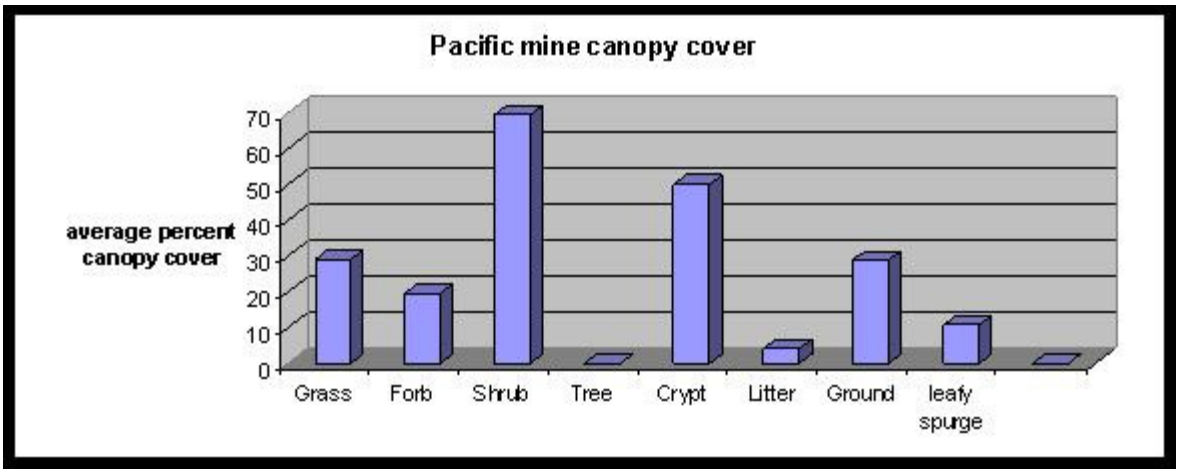


Figure 20. Percent canopy cover of leafy spurge on Pacific Mine site

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Flume Gulch is an area close to the road where yellow toadflax has begun to establish itself along the road and in a small disturbed patch of ground. It is an area that was fairly isolated and controllable and a useful place to monitor. There was also a lot of thistle in the area that was included in their survey.

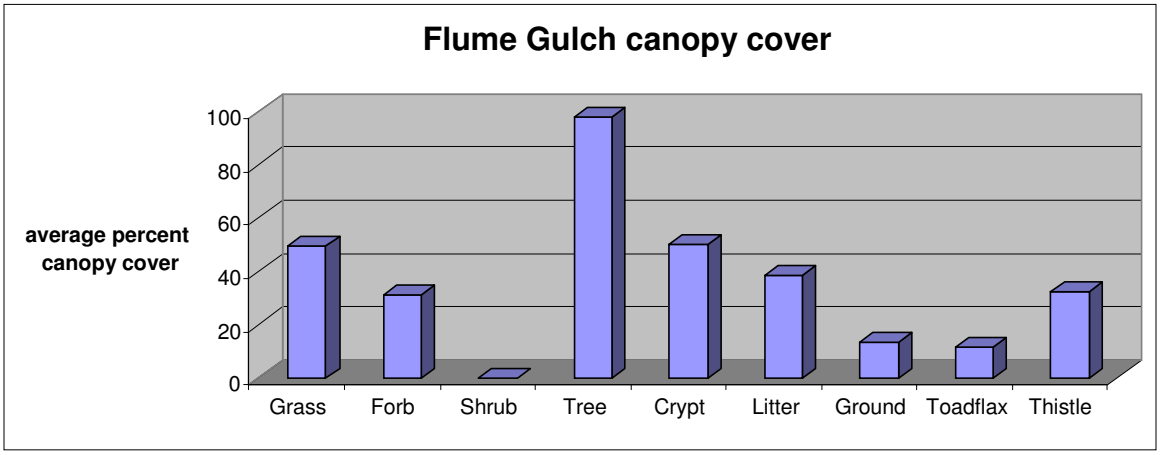

Figure 23. Percent canopy cover of toadlflax and thistle on Flume Gulch site

Perk site is a significantly larger area of leafy spurge spreading from the private land onto National Forest lands. The students felt this may be an interesting site because they found some spurge beetles on a few of the plants, but were unable to make a positive identification.

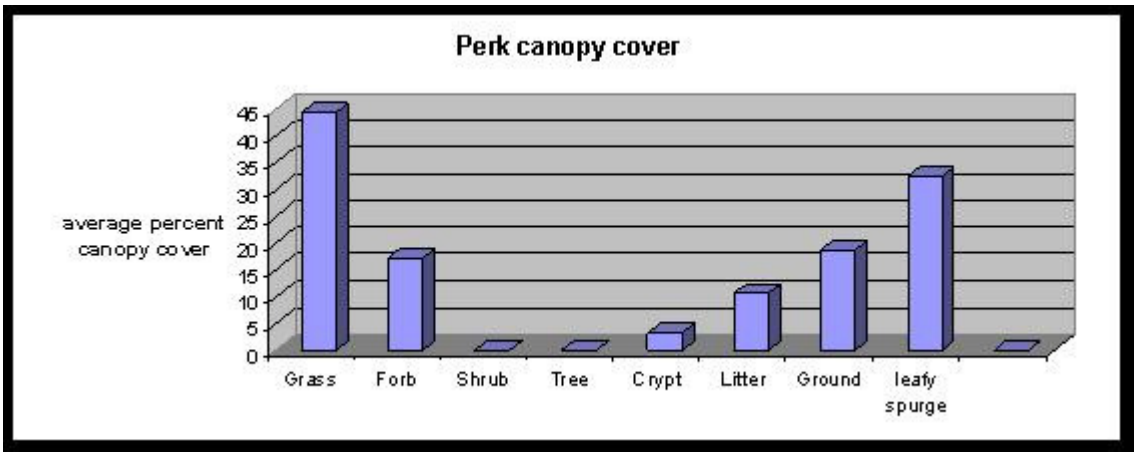

Figure 21. Percent canopy cover of leafy spurge on Perk site

Figure 22. Leafy spurge on Perk Photo Plot

The complete data set is available on spreadsheets located in the Supervisors Office on the computer K Drive at k/plan/fp_monitoring/fy07_m&E_report/YFMP.

Evaluation:

(1) Acres Treated - The BDNF exceeded their noxious weed treatment target of 3,750 acres by 133%. The trend in accomplishment is down over the last three years. To date, we have not been able to treat infestations of noxious weeds at the levels envisioned in the EIS. We have approximated the predictions of ground treatment but not aerial. For example, treatment in the selected alternative was estimated for approximately 6,500 acres of biological and ground treatment and 10,000 acres of aerial treatment for a total of

16,000 acres annually. Treatment since 2002 has ranged from a low in 2003 (3,600 acres) to a high in 2004 (8,004 acres) primarily because of budget constraints.

(2) Acres Infested - Noxious weed infestations are growing. Data from FY06 for the Madison District shows a 143% increase in infestations since the Noxious Weed FEIS data was published in 2002. In the face of this situation it becomes more important to retain full occupancy of sites by healthy and robust guilds of desired plants and limit sources of seed dispersal until weed infestations are much reduced.

(3) Site Conditions - The YNFP weed data is presented as baseline information to be compared with future data to establish trend in site condition and noxious weed control success.

G. Economic Effects

Monitoring Question: What is the status and trend of goods and services provided from the Forest?

Performance Measure: Quantities of goods and services produced from the Forest measured by animal unit months, board feet of timber, visitor use numbers, oil and gas leases, FS expenditures, county payments.

Table 19. Forest Outputs Monitoring Items from Old and New Plans

	1986 Beaverhead Plan	1987 Deerlodge Plan	Draft Revised Beaverhead-Deerlodge Plan
Monitoring Item	10-3 11-1	14-1	22

Results: Total budget spent (including unplanned events like fire suppression and one-time costs like fire restoration and land purchase) vacillated from $20,912,000 in FY04 to $27,856,000 in FY05, $20,377,000 in FY06 and $26,383 in FY07. Planned costs dropped from $21 million in FY05 to $17 million in FY06 and $16 million in FY07.

Table 20. Beaverhead-Deerlodge Actual 2007 Budget Expenditures by Budget Line Item compared to 2006

Budget Line Item	DESCRIPTION	2006 Budget Expenditures ($000)	2007 Budget Expenditures ($000)
BDBD	Brush Disposal	25	21
CMFC	Facilities	585	133
CWFS	Cooperative Work	30	300
CMRD	Rd Construction and Mtce	966	965
CMTL	Trail Construction & Mtce	1,006	1173
CWKV	Knudtson/Vanderberg Fund	489	144
WFPR	Fire Protection/Preparedness	2,741	2,814
WFHF	Hazardous Fuels	597	459
NFIM	Inventory and Monitoring	93	337
NFLM	Land Ownership	237	167
NFMG	Minerals and Geology	858	634
NFPN	Land Mgt Plans (Plan Revision)	439	258
NFRG	Grazing Management	826	861
NFRW	Recreation, Heritage, Wilderness	1,210	1,108
NFTM	Timber Sales Management	1,568	1,667
NFVW	Vegetation and Watershed	801	858
NFWF	Wildlife and Fish	592	481
RBRB	Range Betterment	112	97
SSSS	Timber Salvage	11	3
TRTR	Road and Trail Restoration	83	69

SPSP	Forest Health Action Programs	49	53
NF/WFEX	Grants/Agreements/coop	1,301	310
FDFD	Fee Demo	207	169
WFSU	Unplanned Wildfire Suppression	2,759	10,567
Admin	Administration (Cost pool, computers, facilities)	2,703	2,735
	TOTAL Without Wildfire Suppression	$17,618	$15,816
	TOTAL	$20,377	$26,383

**Source of data: Unit Status of Funds Report, USDA FS, BDNF,10/11/06*)

Forest Service budget expenditures were higher in 2007 than 2006 only when wildfire suppression was included. Calculations of Forest impacts on employment include wildfire suppression costs even though these are not allocated or programmed. Fire expenditures still affect the local economies. FY07 shows an increase in jobs and income over FY06.

Table 21 Employment by Program by Year (Average Annual, Decade 1)

	Total Number of Jobs Contributed				
Resource	FY03	FY04	FY05	FY06	FY07
Recreation	356	359	314	317	321
Wildlife and Fish	375	379	282	285	288
Grazing	96	92	105	121	86
Timber	287	155	241	165	170
Minerals	0	0	0	0	0
Payments to States/Counties	20	20	21	21	21
Forest Service Expenditures	497	522	564	480	531
Total Forest Management	1,630	1,528	1,527	1,389	1,416

The drop in recreation contributions to employment and labor income FY05-FY07 are a result of updated recreation visitation numbers provided by the 2005 National Visitor Use Monitoring (NVUM) survey on the Beaverhead-Deerlodge Forest. The survey technology was changed between the 2000 and 2005 survey to improve accuracy. We do not believe forest visitation changed, however the data is more accurate. (*USDA Forest Service. 2006.National Visitor Use Monitoring Results for BDNF. USDA, Forest Service, Region One, Missoula, MT. September 2006. 46 pp.*)

Table 22. Labor Income by Program by Year (Average Annual, Decade 1; $1,000)

	Total Number of Jobs Contributed				
Resource	FY03	FY04	FY05	FY06	FY07
Recreation*	$8,227.6	$8,309.9	$7,224.8	$7,297.1	$7,370.1
Wildlife and Fish*	$8,980.4	$9,070.0	$6,756.4	$6,824.0	$6,892.2
Grazing	$1,176.4	$1,140.4	$1,288.3	$1,505.7	$1,070.8
Timber	$7,276.2	$3,926.8	$6,121.3	$4,180.9	$4,309.1
Minerals	$0.0	$0.0	$0.0	$0.0	$0.0
Payments to States/Counties	$599.2	$607.1	$621.0	$626.9	$609.4
Forest Service Expenditures	$12,794.9	$15,342.0	$21,500.5	$15,727.9	$20,363.6
Total Forest Management	$39,054.7	$38,396.2	$43,512.3	$36,162.4	$40,615.3

Table 22 provides the distribution of jobs throughout the 8-county area influenced by BDNF management, as a context for changes in jobs and income displayed in tables 17 and 18. This data was compiled for the Forest Plan Revision Final Environmental Impact

Statement (January 2008). Employment attributable to BDNF forest management in FY03 was 3.5% of the 45,836 jobs available in the 8-county area. Labor Income attributable to BDNF forest management in FY03 was 3.1%.

Table 23. Role of Forest Service-Related Contributions to the Area Economy in Base year 2003

	Employment (jobs)		Labor Income ($ Thousands)	
Industry	Area Totals	FS-Related	Area Totals	FS-Related
Agriculture	3,485	223	$43,548.1	$4,106.9
Mining	771	23	$50,428.0	$20.6
Utilities	612	4	$65,701.3	$397.4
Construction	2,737	16	$79,833.8	$485.3
Manufacturing	1,430	86	$52,713.9	$2,619.2
Wholesale Trade	775	60	$26,140.4	$2,081.7
Transportation & Warehousing	939	24	$35,105.0	$875.3
Retail Trade	4,765	129	$107,269.1	$3,117.4
Information	683	8	$42,808.2	$424.2
Finance & Insurance	1,113	14	$33,651.5	$406.1
Real Estate & Rental & Leasing	1,145	36	$30,876.0	$888.9
Prof, Scientific, & Tech Services	2,994	34	$92,049.6	$900.5
Mngt of Companies	243	4	$10,981.0	$157.9
Admin, Waste Mngt & Rem Serv	1,315	17	$23,707.6	$285.3
Educational Services	300	6	$3,150.3	$57.9
Health Care & Social Assistance	5,049	59	$139,443.8	$1,695.5
Arts, Entertainment, and Rec	1,147	56	$17,193.8	$942.5
Accommodation & Food Services	4,570	305	$51,202.0	$3,657.3
Other Services	4,019	52	$51,283.1	$666.1
Government	7,744	472	$308,255.3	$15,140.5
Total	45,836	1,630	$1,265,341.8	$39,054.7
Percent of Total	100.0%	**3.5%**	100.0%	**3.1%**

Evaluation: Forest Service grazing outputs declined between 2006 and 2007 but all other activities and outputs increased, resulting in an increase in Forest Service related estimated employment and labor income. Forest Service expenditures saw the greatest increase primarily due to increased wildfire suppression costs. To put those increases in perspective, ***total*** Forest Service contributions to the FY03 base economy for the eight counties (Table 22) increased from 3.1% to 3.2%. This figure has been fairly stable the last 5 years.

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CITATIONS:

Inman, Robert M., K. H. Inman, M. L. Packila, and A. J. McCue. 2007. *Greater Yellowstone Wolverine Program Update*, December 2006-March 2007. Ennis, MT, USA.

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