

DEERLODGE NATIONAL FOREST

**FOREST PLAN MONITORING
AND EVALUATION REPORT**

FY 2003

Research

Deerlodge National Forest

TABLE OF CONTENTS

Item numbers that are missing in the Table of Contents appear in the Summary of Observations with an explanation.

SUMMARY OF OBSERVATIONS	57
REPORTING ITEMS	63
1-1, Recreation.....	63
1-2, Recreation.....	70
1-3, Recreation.....	71
1-5, Cultural.....	72
2.1, Roadless.....	73
4-1, Wildlife.....	74
4-2, Wildlife.....	75
4-3, Wildlife.....	76
4-4, Wildlife.....	77
4-5, Wildlife.....	79
4-6, Wildlife.....	79
4-7, Wildlife.....	81
5-1, Fisheries.....	82
6-1, Riparian.....	84
7-1, Range.....	86
7-2, Range.....	86
7-3, Range.....	87
7-4, Range.....	88
7-5, Range.....	89
8-1, Timber.....	89
8-2, Timber.....	93
8-3, Timber.....	95
8-4, Timber.....	96
8-5, Timber.....	97
8-6, Timber.....	98
8-7, Timber.....	100
8-8, Timber.....	102
9-3, Soils.....	103
11-2, Air Quality.....	104
11-3, Fuel Treatment Outputs.....	104
14-1, Adjacent Lands, Resources, Communities and Agencies.....	109
15-1, Emerging issues.....	111
15-2, All resources.....	112
16-1, Research.....	113

Deerlodge Summary

Deerlodge National Forest**SUMMARY OF OBSERVATIONS**Fiscal Year 2003

Table S-1. Summary of Monitoring Item Observation

1-1	Actual use and condition of developed recreation facilities	The Forest has transitioned from the RIMs data base to NVUM surveys of visitor use. The FY2000 data from the NVUM survey is provided here as a base for future trend and satisfaction information.
1-2	Spectrum of (dispersed recreation opportunities and uses	Recreation Opportunity Spectrum (ROS) mixes were recalculated for the Forest in 2003 using Geographic Information Systems technology.
1-3	ORV compliance and damage	A Statewide OHV Amendment in 2001 changed the way the Forest Service and BLM manage off trail vehicles use. Joint cooperative planning, signing, and enforcement between the Forest Service, Bureau of Land Management (BLM) and the Montana Department of Fish, Wildlife, and Parks continue.
1-4	Hunter recreation	Not reported in FY03
1-5	Actual condition of significant cultural sites	In 2003, 68 archaeological inventories were completed. As a result of these inventories, 30 new prehistoric and historic sites were located and recorded during 2003.
2-1	Change in the roadless resources	There were no changes in the road less resource in 1996.
3-1	Wilderness conditions	Not reported in FY03
4-1	Seasonal distribution, movement patterns, population structure and density of elk, mule deer, moose and mountain goat populations	Moose populations appear to be stable... Mule deer have rebounded from declines in the mid-1990s. White-tailed deer increasing, but this is primarily off-forest... All State elk management units that encompass portions of the forest have reached or exceeded State objectives
4-2	Evaluate habitat on the basis of topographic and physiographic features, vegetation and climate for elk, mule deer, moose and	No direct assessments conducted in 2003. Forest is undertaking road density analyses by elk/deer hunting districts to assess availability of fall "secure areas

Deerlodge Summary

	goat.	
4-3	Past, present, and future land use activities and their effect on the populations (includes livestock grazing, timber harvest, fire, vehicle use, mining and hunting).	No activities identified that posed any threat to the viability of any ungulate population.
4-4	Indicator species – Elk/mule deer habitat effectiveness (cover/forage, open road density, and livestock impacts on elk habitat potential) by elk security analysis areas.	Landscape level assessments have proven successful in evaluating existing and desired conditions. Forest is shifting to analysis based on State hunting districts to use a scale consistent with FWP management and reporting.
4-5	Indicator species – Bighorn Sheep habitat suitability.	Sheep herds have been rebounding from <i>Pasturella</i> mortality. Limited hunting permitted with the most hunting tags allocated in the South Flint Range unit by FWP. Highlands populations have rebounded from declines in the mid-1990s.
4-6	Indicator species for the following vegetative communities: Lodgepole Pine Mountain Grassland Evergreen Shrub Riparian a. Shrub B. Tree c. Wet Meadow d. Marshland	Indicator species are addressed in all environmental assessments and impact statements. Units have the capability to use GIS queries to address habitat distribution across the forest
4-7	Old Growth habitat	Old growth is addressed in landscape and project level NEPA assessments. Old growth by forest type exceeds plan standards at the Forest scale as determined by FIA data.
5-1	Pools formed by instream debris and fish numbers (Indicator species cutthroat trout)	To date, 301 westslope cutthroat trout populations exist in Forest streams. Conservation populations occupy about 1,280 miles – approximately 14% of historically occupied stream miles within the Forest.
5-2	Intragravel sediment and fish numbers	Not reported in FY03
5-3	Aquatic invertebrate populations	Monitored as part of 9-1

Deerlodge Summary

6-1	Streamside cover; willow communities; forage utilization, streambank trampling	By 2003, roughly 700 non-randomly sampled stream reaches have monitoring points established on the combined Beaverhead-Deerlodge Forest. Of these, 56% are functioning, 19% are functioning at risk and 25% are non-functional. See item 7-1 for discussion on forage utilization/streambank trampling
6-2	Riparian rehabilitation	Not reported on in FY03
7-1	Percent of available forage utilized by livestock	Of the 62,795 AUMs permitted, 54,143 AUMs were actually used.
7-2	Allotment Management planning and update	No range allotment management plans (AMPs) were completed in 1995, the Forest continues to focus efforts on revising AMPS on the Beaverhead portion to comply with the Beaverhead Lawsuit Settlement Agreement.
7-3	Weed infestations	The Deerlodge treated 2000 acres of noxious weeds with chemical spraying, pulling and biological controls.
7-4	Condition and trend of range	Range condition and trend are protected by utilization standards. Of the 57 allotments on the Deerlodge which were inspected, all but 5 complied with forage utilization standards.
7-5	Permit compliance	Grazing on 57 of 92 allotments on the Deerlodge were inspected, all but 5 complied with forage utilization standards.
8-1	Regulated volume prepared for sale	Volume offered for sale is within the Allowable Sale Quantity (ASQ). Total volume offered was 2.6 MMBF.
8-2	Timber assumptions: volume, condition, class, logging, acres harvested	Volume/acre yields are higher than Forest Plan estimates for timber sales which reduced the number of acres harvested.
8-3	Silvicultural assumptions and practices	Uneven and even-aged management satisfactorily applied to elk winter range and riparian areas. All stands are within current rotation age and culmination of mean annual increment (CMAI).
8-4	Size of openings	Size of openings increased where warranted on several projects.
8-5	Regenerated yield projections	In 2003, no growth plots were measured for this monitoring project.
8-6	Reforestation practices and assumptions	Regeneration obtained within 5 years of regeneration cut. Planting targets are being met.
8-7	Timber stand improvements and	Timber stand improvement thinning program has been reduced by 75% on the NF due to the listing of Lynx as

Deerlodge Summary

	assumptions	a T & E Species.
8-8	Lands suitable for timber production	No changes in allocations or evaluation of suitable lands conducted.
9-1	Compliance with local, State and Federal water quality standards	Not reported on in FY03.
9-2	Riparian rehabilitation projects	Summary not compiled for FY03.
9-3	Productivity changes in sensitive soils	Extensive monitoring was done on Georgetown Lake Fuels project prior to implementation – values were within acceptable ranges
9-4	Availability of water	Not reported in FY03.
10-1	FS allocations that may effect mineral activities	Not reported in FY03
11-1	Acres and volume of insects and disease	Not reported in FY03.
11-2	Air quality	Ambient air quality standards are not exceeded in Airshed 7. Airshed 5 has a non-attainment area in the vicinity of Butte, which typically exceeds the pm 2.5 or 10 standards.
11-3	Fuel treatment outputs	In general fuel treatments have remained fairly consistent across the Forest. The primary emphasis over the last 3 years for treatment has focused on the wildland urban interface.
11-4	Wildfire acres	17,089 acres burned in FY03, this is above the 7 year average of 12,148 acres.
11-5	Cost of suppression, protection organization	The most efficient level of fire suppression for the Beaverhead-Deerlodge N.F. for fiscal year 2003 was \$3,212,347.00.
12-1	Local roads in place and collector roads constructed	The Forest constructed 0.1 mile of new road, reconstructed 4.8 miles of existing road, and obliterated 3.0 miles of system or unclassified roads.
12-2	Road management	There are approximately 114 miles of National Forest System Roads closed year-round to standard highway vehicles, and 693 miles closed seasonally.
13-1	Planned unit cost compared to on the ground unit cost.	Not reported in FY03
14-1	Effect of National Forest management on land,	Management of National Forest lands continues to influence management of adjacent Federal and State

Deerlodge Summary

	resources, and communities adjacent to the National Forest	lands through cooperative ventures like travel management and fire management.
14-2	Effect of management on adjacent lands and effects of other Government agencies (State, Federal, Local) activities on the National Forest	Management practices of other government and private landowners have an effect on national forest management. Alterations of projects have been made.
15-1	Effects of emerging issues or changing social values	Emerging issues were described at length in the December 2002 Analysis of the Management Situation. Highlighted are: travel management, fire and fuels management and inventoried roadless area management.
15-2	Evaluate lands identified as not meeting physical or biological characteristics used in initial allocation	Allocation evaluation is taking place during Forest Plan Revision; a decision is expected in January 2006.
16-1	Determine needed research for National Forest Management	Research needs are periodically identified by each individual resource area and forwarded for regional or national assistance.

Deerlodge Summary

Recreation

Deerlodge National Forest

FOREST PLAN MONITORING AND EVALUATION
REPORTING ITEMSFiscal Year 2003

Monitoring Item:**1-1, Recreation**Activity, Practice or
Effect to be Measured:
Intent:Actual use and consideration of developed
recreation facilities.

Unit of Measure:

MRVDs, PACT.

Frequency of Measurement:

Annual

Reporting Period

9 years

Variability which would initiate further
evaluation:a. \pm 20% difference between projected and
actual use.
b. Capacity + 10%.
c. Loss of 20% of developed facility
capacity.**Monitoring Results:**

- a. Check projection of recreation visitor use to actual

Monitoring reports from both the Beaverhead and Deerlodge Forests in the mid 1990s show a more rapid increase in use in both developed and dispersed categories than predicted. Since then a new national system for monitoring recreation use was created. The National Visitor Use Monitoring (NVUM) project was implemented in 2000 responding to the need to better understand the use of, importance of and satisfaction with national forest system recreation opportunities. NVUM is based on actual surveys of individuals exiting the Forest following participation in a recreational activity. The visitor numbers should be more accurate than the previous estimates based on Recreation Information Management (RIM) system protocols.

The Beaverhead-Deerlodge Forest was included in the first 25% of forests scheduled for sampling. The five year cycle will be repeated here in 2005. The results of the BDNF NVUM survey will be comparable to all other forests in the nation and will provide our forest with base and trend information useful for managing demand for and quality of recreation opportunities.

Recreation

Besides visitation, the survey also tells us: gender, age and race/ethnicity distribution of forest visitors; zip code distribution of visitors, satisfaction of visitors at designated wilderness, and per person expenditures by activity and trip

The table below shows the visitor days projected in the Forest Plan compared to visits from the 2000 NVUM survey. The NVUM survey did not break out the Beaverhead or Deerlodge NF areas. We attempted to compare the projected visitation numbers from the 1986 and 1987 plans, but the plans didn't use all the same categories. A visit on the BDNF is roughly equivalent to 1 ½ visitor days.

Table 1. Recreation Use in Thousands of Recreation Visitor Days or Visits

Recreation Type	Forest Plan Projection of VISITOR DAYS Based on RIM	NVUM survey results in VISITS for 2000
Developed Use	Beaverhead 190 Deerlodge 310 Total 500	Total 389 visits
Dispersed	Beaverhead 366 Deerlodge 674 Total 1,040	Total 668 visits
Total Use	1,540 visitor days	1,057 visits

The NVUM survey results are presented below. Besides visitation, the survey also tells us: gender, age and race/ethnicity distribution of forest visitors; zip code distribution of visitors, satisfaction of visitors at designated wilderness, per person expenditures by activity and trip. This will become the new base for the Forest to monitor trends and visitor satisfaction.

Table 2. Number and percent of visitors by NVUM category in 2000

RPA category	NVUM category	% primary activity	# visitors **	#visitors by RPA category
Camping Picnicking, Swimming	Camping in developed sites	5	49,861	289,193
	Picnicking and family gatherings	13	129,638	
	Nature Study	0	-	
	General/other-relaxing, hanging out	8	79,777	
	Other non-motorized	0	-	

Recreation

RPA category	NVUM category	% primary activity	# visitors **	#visitors by RPA category
	(swimming, sports)			
	Gathering mushrooms, berries, firewood, ..	3	29,917	
Mechanical Travel & viewing scenery	Viewing natural features, scenery, flowers,..	3	29,917	109,694
	Viewing historic/prehistoric sites	4	39,889	
	Visiting a nature center, trail,..	0	-	
	Off-highway vehicle travel	2	19,944	
	Driving for pleasure on roads	1	9,972	
	Motorized water travel	1	9,972	
	Other motorized land/air activities	0	-	
Hiking, horseback riding, water travel	Hiking or walking*	2	13,448	12,617
	Horseback riding	0	-	
	Bicycling	0	-	
	Non-motorized water travel	0	-	
Winter sports	Snowmobile travel	3	29,917	99,722
	Downhill skiing or snowboarding	4	39,889	
	Cross-country skiing, snowshoeing	3	29,917	
Resorts	Resorts, cabins, other	6	59,833	59,833
Wilderness	Backpacking, camping in unroaded areas	0	6,495	17,300
	Primitive camping	1	9,972	
Wildlife - Hunting	Hunting - all types	24	239,332	239,332
Wildlife - Fishing	Fishing - all types	7	69,805	69,805
Wildlife Watching	Viewing wildlife, birds, fish, etc	16	159,555	159,555
		106	1,057,050	1,057,050

Recreation

** Based on Adjusted % to equal 100

- b. Monitor closeness of actual use to capacities.

As part of the NVUM survey, visitors rated their perception of how crowded the site or area they were recreating in felt to them. Table 3 below summarizes the perception of crowding by site type on a scale of 1 to 10 where 1 means hardly anyone was there, and a 10 means the area was perceived as overcrowded.

Table 3. Perception of crowding by visitors and site type

Perception of crowding	Overnight Developed Sites	Day Use Developed Sites	Wilderness	General Forest Area
10 overcrowded	0	3	0	3
9	0	0	0	1
8	0	1	1	8
7	23	2	0	7
6	7	7	12	7
5	0	8	0	13
4	23	29	2	12
3	1	9	0	14
2	24	16	1	20
1 hardly anyone there	21	25	84	15

From these results we can ascertain that 3 percent of those who used our day use developed sites and 3 percent of those who used the general forest area felt over crowded. The distribution of visitor's perception across this 1 to 10 spectrum will become more important as future surveys are completed. Shifts toward a perception of more over crowding will inform us about adequacy of facilities and changes in use and demand.

- c. Check if maintaining developed facilities to maintain existing capacity and standards.

Visitor satisfaction with recreation facilities and services were rated through the NVUM surveys. The survey information, while gathered at a specific site was generalized to overall satisfaction with facilities and services on the forest as a whole. Satisfaction at developed sites appears higher than satisfaction of visitors who visited the general forest areas. For them, cleanliness of restrooms, condition of roads and parking lots may be an issue. Again, this information is most valuable for establishing trends in demand and maintenance and adequacy of facilities.

Recreation

Table 4. Satisfaction of visitors at Day Use Developed Sites on the Beaverhead-Deerlodge National Forests.

Item Name	Item by percent response category by*					Mean ** Satisfaction Of visitors	Mean** Importance To visitors
	P	F	A	G	VG		
Scenery	0	0	0	43	57	4.6	4.6
Available parking	0	6	15	36	43	4.2	3.9
Parking lot condition	0	0	3	53	44	4.4	3.4
Cleanliness of restrooms	0	0	3	35	62	4.6	4.4
Condition of the natural environment	0	1	6	23	70	4.6	4.7
Condition of developed recreation facilities	0	0	3	60	37	4.3	4.4
Condition of forest roads	6	2	8	40	44	4.1	4.0
Condition of forest trails	0	10	11	17	62	4.3	4.1
Availability of information on recreation	0	10	14	26	50	4.1	3.1
Feeling of safety	0	0	0	40	59	4.6	4.4
Adequacy of signage	3	9	2	48	38	4.1	4.4
Helpfulness of employees	0	2	2	35	61	4.6	4.5
Attractiveness of the forest landscape	0	0	8	33	59	4.5	4.6
Value for fee paid	10	2	6	12	70	4.3	4.7

* Scale is: P= poor F = fair A = average G = good VG = very good

** Scale is: 1= not very satisfied /important 2 = somewhat satisfied/ important 3 = moderately satisfied/ important 4 = satisfied/ important 5 = very satisfied/ important

Recreation

Table 5. Satisfaction of visitors at Overnight Developed Sites Beaverhead-Deerlodge National Forests.

Item Name	Item by percent response category by*					Mean ** Satisfaction Of visitors	Mean** Importance To visitors
	P	F	A	G	VG		
Scenery	0	0	13	23	64	4.5	4.7
Available parking	0	0	6	8	86	4.8	4.4
Parking lot condition	0	0	13	23	64	4.5	4.3
Cleanliness of restrooms	0	10	0	2	88	4.7	4.6
Condition of the natural environment	0	0	11	14	75	4.6	4.7
Condition of developed recreation facilities	0	0	11	25	64	4.5	4.6
Condition of forest roads	0	0	2	16	82	4.8	4.6
Condition of forest trails	0	0	1	98	1	4.0	2.9
Availability of information on recreation	0	0	0	47	53	4.5	4.2
Feeling of safety	0	5	0	14	81	4.7	4.3
Adequacy of signage	0	10	0	34	56	4.3	4.4
Helpfulness of employees	0	0	0	0	100	5.0	4.8
Attractiveness of the forest landscape	0	0	0	14	86	4.9	4.9
Value for fee paid	0	1	1	11	87	4.8	4.4

* Scale is: P = poor F = fair A = average G = good VG = very good

** Scale is: 1= not very satisfied /important 2 = somewhat satisfied/ important 3 = moderately satisfied/ important 4 = satisfied/ important 5 = very satisfied/ important

Table 6. Satisfaction of visitors in General Forest Areas on Beaverhead-Deerlodge National Forests.

Item Name	Item by percent response category by*					Mean ** Satisfaction of visitors	Mean** Importance to visitors
	P	F	A	G	VG		
Scenery	1	2	1	18	78	4.7	4.5
Available parking	4	0	24	22	50	4.1	3.2
Parking lot condition	4	2	40	28	26	3.7	2.6
Cleanliness of	11	0	12	38	39	3.9	3.7

Recreation

restrooms							
Condition of the natural environment	1	4	8	19	68	4.5	4.7
Condition of developed recreation facilities	3	0	19	42	36	4.0	3.8
Condition of forest roads	7	20	23	26	24	3.4	3.9
Condition of forest trails	0	6	8	56	30	4.1	3.7
Availability of information on recreation	0	2	18	52	28	4.0	3.2
Feeling of safety	1	1	2	39	57	4.5	3.5
Adequacy of signage	0	1	10	44	45	4.3	3.8
Helpfulness of employees	0	0	5	46	49	4.4	4.0
Attractiveness of the forest landscape	1	2	1	26	70	4.6	4.8
Value for fee paid	0	0	15	30	55	4.4	4.5

* **Scale is: P = poor F = fair A = average G = good VG = very good**

** Scale is: 1= not very satisfied /important 2 = somewhat satisfied/ important 3 = moderately satisfied/ important 4 = satisfied/ important 5 = very satisfied/ important

Evaluation: Because of the shift from visits to visitor days, it is very difficult to assess if actual use varies more than 20% from projections made in the Forest Plans. Because NVUM has been adopted nationwide and offers a much superior statistically supported methodology, this will become the new base for the Forest to monitor trends and visitor satisfaction. The 5-year survey is being repeated on the Forest in 2005. Trends in visitor use, spending and satisfaction should be available to us late in 2006.

Recreation

Monitoring Item:

1-2, Recreation

Activity. Practice or
Effect to be Measured:

Spectrum of dispersed recreation
opportunities and uses.

Intent:

Insure maintenance and enhancement of a
wide variety of ROS mixes.

Unit of Measure:

Acres

Frequency of Measurement:

Annual

Reporting Period

1 year

Variability which would initiate further
evaluation:

± 10% of projected base by ROS preference
type

Monitoring Results:

The distribution of recreation opportunity spectrum classes was mapped in conjunction with Forest Plan Revision efforts in 2003. Figures displayed below are for the entire Forest and by Landscape for the Deerlodge unit of the Forest. At this time, the acres have not been calculated using the same land base used in previous monitoring reports, so a direct comparison of shifts in percent cannot be made. The DEIS for Forest Plan Revision will disclose changes in classes from inception of the Forest Plan in 1987 until the present.

Table 7. Summer Recreation Opportunity Spectrum (ROS) Classes (M Acres).

	Primitive	Semi Primitive Non-motorized	Semi Primitive Motorized	Roaded Motorized	Rural
Forestwide	5%	28%	29%	36%	2%
Boulder River	0%	4%	25%	65%	5%
Clark Fork Flints	0%	19%	17%	61%	3%
Jefferson	0%	13%	35%	51%	1%
Upper Clark Fork	0%	0%	33%	54%	13
Upper Rock Creek	12%	29%	29%	28%	1%

Evaluation: At this time, ROS acres have not been calculated using the same land base used in previous monitoring reports, so a direct comparison of shifts in percent cannot be made. The DEIS for Forest Plan Revision will disclose changes in classes from inception of the Forest Plan in 1987 until the present.

Recreation

Monitoring Item:

1-3, Recreation

Activity, Practice or
Effect to be Measured:
Intent:

ORV (Off Road Vehicle) compliance and
damage
a. Insure travel plan updates are realistic,
understandable and enforceable.
b. Travel Plan adequately protects the
resources and meets assigned
prescriptions of the Plan.

Unit of Measure:

Varied

Frequency of Measurement:

Annual

Reporting Period

1 year

Variability which would initiate further
evaluation:

Review indicates unacceptable resource
damage from CRV use, an unenforceable
situation, or use conflicts with management
goals for the Management Area.

Monitoring Results:

a. Insure travel management plan updates are realistic, understandable and enforceable:
In 2001, the Forest Service Northern Region and Bureau of Land Management Montana State Office issued a Statewide Plan Amendment for off-highway vehicle area designations on public lands administered by the two agencies. This amendment limits cross country use of OHVs. The Beaverhead-Deerlodge Travel Plans, last published in 1996, have been amended to reflect this change, but have not been re-published. In addition, the Deerlodge Forest Area Travel Map has a 1998 addendum as an insert. This insert clarifies areas closed to wheeled motorized vehicles allocated as A4 in the Deerlodge Forest Plan. These changes were well advertised and are attached as addendums to each copy of the Travel Plan that is sold, but the likelihood that addendums are not kept with the travel map and misunderstandings or lack of compliance occur is higher. Revision of the Forest Plan is underway. It is highly likely that travel management will change when the new Forest Plan is finalized. Publishing a new travel map which reflects the changes will be a priority once the Record of Decision is signed.

b. The Travel Plan adequately protects the resources and meets assigned prescriptions of the Plan: Travel planning in the Whitetail Pipestone area was reinitiated in FY03 and had not been completed as of the end of FY04. Other changes in travel are being considered as part of Forest Plan Revision. Alternatives will consider various levels of motorized and non-motorized allocations for both summer and winter users.

Evaluation: Review does not indicate unacceptable resource damage or conflicts that are not already being dealt with. Current Travel Plan efforts are intended to protect the resource and

Recreation

meet prescriptions of the Plan. Alternatives are also being proposed through Forest Plan Revision which are intended to facilitate travel plan compliance and project decisions.

Monitoring Item:	1-5, Cultural
Activity, Practice or Effect to be Measured:	Actual condition of significant cultural sites
Intent:	Monitor deterioration and/or vandalism to National Register eligible or listed sites.
Unit of Measure:	Project
Frequency a Measurement:	Annual
Reporting Period	6 years
Variability which would initiate further evaluation	Vandalism evident at 10% of sites. Deterioration which threatens cultural integrity at any National Register eligible site. Less than 100% of all projects in compliance with Section 106.

Monitoring Results

Archaeologists completed 68 archaeological inventories in support of projects proposed by other functions. These surveys resulted in file letters, compliance reports or other documentation that was sent for review by the Montana SHPO in compliance with Section 106 of NHPA.

Archaeological inventory in support of other projects resulted in the examination of 2000 acres during the 2003 field season. An additional 1000 acres of survey was completed for heritage resource management purposes (i.e. archaeological research). As a result of these archaeological inventories 30 new heritage sites were recorded on the Deerlodge unit; both historic and prehistoric.

Twenty previously recorded heritage sites were formally monitored during the 2003 field season. This accomplishment represents ongoing efforts to check on the condition of known heritage site. Known heritage sites were often poorly recorded and had not been examined since initial discovery (often 20 years ago). Most sites examined had suffered some level of deterioration in the time since they had first been discovered. Impacts included natural deterioration (for historic structures), erosion (prehistoric sites), inadvertent impact from Forest users (e.g. trail bikes), and sometimes vandalism and or looting.

Site monitoring indicates many significant sites are slowly deteriorating due to lack of protective treatments to stabilize or preserve them. Budget and staffing levels have been inadequate. This

Recreation

applies to both National Register eligible sites and a host of sites which have not been formally evaluated.

Evaluation: All projects comply with Section 106.

Monitoring Item:

2.1, Roadless

Activity, Practice or
Effect to be Measured:

Change in the roadless resource

Intent:

Compare the acres and distribution of the roadless resource with that projected.

Unit of Measure:

Acres

Frequency a. Measurement:

Annual

Reporting Period

9 years

Variability which would initiate further
evaluation:

Loss of 10% of roadless resources from
Forest Plan projections.

Monitoring Results

At the time the Forest Plan was approved in 1987, there were 447,374 acres of inventoried roadless land on the Deerlodge National Forest (refer to Appendix C, Appendices to the Final EIS, for a complete description of each roadless area). The Forest Plan projected that approximately 19,652 acres (4%) of road less area would be developed during the first decade. During the first 9 years (1988-1996) that the Forest Plan was in affect, 1,961 acres of roadless area were actually developed. This is 10% of the acres that were projected to be developed during the first decade and less than one-half of one percent of the total roadless acres.. At the end of 1996 there were 445,413 acres of roadless area remaining on the Deerlodge Forest.

Evaluation: Currently, development of roadless areas is far less than the Forest Plan predicted. Only 1% of the total acres projected for development in the Forest Plan were actually developed by the end of the first decade. The Analysis of the Management Situation (AMS) prepared for Forest Plan Revision describes a shift in public interest in roadless areas over the last decade. The Roadless Area Conservation Rule of 2001 is a reflection of national pressure to protect roadless lands in the National Forest System. The Rule has not been implemented to date (2003) because of legal controversy. However, the Chief of the Forest Service issued an Interim Directive for roadless area protection, reserving decision authority for certain road construction and timber harvest activities in inventoried roadless areas to the Chief or Regional Forester. As a result, little or no activity has taken place in inventoried roadless areas on the Forest since 2000. A re-inventory of roadless areas will take place during revision of the Forest Plan, noting those changes made since the 1986 Plan was written and accounting for areas with roadless values that should be included.

Deerlodge National Forest

Monitoring Item:

4-1, Wildlife

Activity, Practice or
Effect to be Measured:

Seasonal distribution, movement patterns,
population structure and density of elk, mule
deer, moose and mountain goat populations.

Intent:

Identify ungulate population segments and
year-long range of each segment in the
Elkhorns.

Unit of Measure:

Varied

Frequency of Measurement:

Annual

Reporting Period

9 years

Variability which would initiate further
evaluation:

± 20% from previous measurements

Monitoring Results

Population information about seasonal distribution, movement patterns, population structure and density of elk, mule deer, moose and mountain goats is gathered by the Montana Department of Fish, Wildlife, and Parks (FWP). The objective of their surveys is to monitor long-term population trends.

Moose - Moose populations are stable in southwest Montana (Craig Fager, FWP wildlife biologist). There are anecdotal reports of over browsing of willows in the Rock Creek drainage.

Mule Deer - Mule deer populations have rebounded from declines in the mid 1990s in southwestern Montana, but localized post hunting season buck to doe ratios have skirted minimum FWP parameters in areas with greater access. (Craig Fager, FWP biologist. Pers. Comm.). Hunters are averaging approximately 50% success rate across FWP regions 2 & 3 which encompass portions of the Forest.

White-tailed Deer -As with the Beaverhead NF portion, white-tailed deer populations and harvest have increased steadily. Populations are now at the point where the state offers non-quota antlerless tags over the counter with no restrictions as to hunting districts that encompass the forest.

Elk - No monitoring projects related specifically to habitat carrying capacity for any big game species are conducted. FWP collects all population trend data for. We can only make inferences from population trend data provided by the State showing virtually all elk management units that encompass portions of the Forest have reached or exceeded State objectives for population, hunter numbers, and hunter recreation days. In 2003, elk using the Deerlodge Forest during summer likely exceeded 10,000. This is based on State monitoring (2001) showing elk

Wildlife

management units (EMUs) meeting or exceeding State objectives for population, hunter numbers, and hunter recreation days. Winter numbers probably never exceeded 4,000 on National Forest Lands. The Deerlodge plan displayed “current levels” of elk at 3,000 in winter and 8000 in summer. Numbers were not provided for other ungulates. With the exception of the Fleecer EMU, the State has not liberalized the cow elk harvest for the 2004 season.

Table 8. Deerlodge Elk Management Unit

Deerlodge Elk Management Unit (<i>Hunt District</i>)	EMU Elk Population Current Survey	Elk Population Objective	Current Estimated Recreation Days	Objective For Recreation Days
Deer Lodge (215, 318)	1969	1900 - 2200	31448	28100
Flint Creek (212, 213)	1900	1400	21337	15000
Highland (340, 350,370)	1371	1500 - 1700	25548	17000
Fleecer (341)	2063	1500 - 1800	21396	19000
Tobacco Root	1300	900 - 1000	14590	8700
Elkhorn	2072	1900 - 2100	24328	23000-25000
Sapphire	4794	4000-4200	60,140	50,000

Evaluation: This monitoring item is tied to ungulate populations, which are the responsibility of FWP. Elk population numbers are the only ones provided in the Deerlodge Plan. State monitoring (2001) shows elk numbers were within 20% of those described in the Plan and all elk management units meeting or exceeding State objectives for population, hunter numbers, and hunter recreation days. Other ungulate populations are stable or increasing.

Monitoring Item:

4-2, Wildlife

Activity, Practice or Effect to be Measured:

Evaluate habitat for elk, mule deer, moose and goat.

Intent:

Determine preference by species of wildlife.

Unit of Measure:

Varied

Frequency of Measurement:
Reporting Period

Annual
9 years

Variability initiating further evaluation:

± 20% from previous measurements.

Deerlodge National Forest

Monitoring Results

No projects were conducted in 2003 to address this item

Evaluation: There are no indications from FWP that current habitat conditions limit populations of moose, mule deer or bighorn sheep. Elk grazing is appearing to be detrimental to aspen regeneration (see FY98 Monitoring and Evaluation Report).

Monitoring Item:

4-3, Wildlife

Activity. Practice or
Effect to be Measured:

Past, present, and future land use activities and their effect on the populations (includes livestock grazing, timber harvest, fire, vehicle use, mining and hunting).

Intent:

Evaluate response to man-imposed activities by various ungulate populations.

Unit of Measure:

Varied

Frequency of Measurement:

Annual

Reporting Period

8 years

Variability which would initiate further
evaluation:

± 20% from previous measurements.

Monitoring Results:

In 2003, there were no projects implemented or proposed that created threats to the viability of any ungulate population on the Forest. All NEPA documents include analyses of effects to big game species as appropriate. Elk analyses predominate. Analyses have included effects from proposed salvage sales, mining reclamation (Beal Mine), and timber stewardship projects. On all projects, attempts are made to mitigate effects such that no significant reduction in the quantity or quality of wildlife habitat occurs as reported in items 4-1 and 4-2, ungulate populations on the Forest are stable or growing.

Evaluation: There are no indications that land use activities are detrimentally impacting ungulate populations. No further evaluation is required.

Deerlodge National Forest

Monitoring Item:

4-4, Wildlife

Activity, Practice or

Indicator species-elk/mule deer habitat effectiveness

Effect to be Measured:

(cover/forage, open road density, and livestock impacts on elk habitat potential) by elk security analysis areas.

Intent:

To be able to respond to any unacceptable deviation from past measurement.

Unit of Measure:

Varied

Frequency of Measurement:

Bi-annual

Reporting Period

9 years

Variability which would initiate further evaluation:

-20% from previous measurements.

Monitoring Results

Hunting district fall road densities range from 0.0 to 2.1 miles/sq.mi. This converts to habitat effectiveness based on roads in a range of 100% to 47%. Forest Plan standards allow a range of 50%-100% or average of 70%.

Extensive vehicular access management has been adopted since the plan has been adopted. Controls are in place to provide seasonal security based on elk calving & fall security. A prohibition on wheeled cross-country travel has been in effect since 2001. The State's has set an objective for hunter harvest of no more than 40% of the total harvest during the first week of the general season as a measure of habitat effectiveness. Table 9 below displays the first week hunter success for each hunting district along with the fall elk road density figures. Note that Table 9 does NOT show an obvious correlation to road densities and first week hunter success. Weather and timing of hunter pressure have more to do with hunter success. Neither of these factors is controllable by the Forest Service.

Table 9. Hunting District

Hunting District	Fall Elk Road Density	First Week Hunter Success
210	0.9 mi/sq mi	52.2%
211	0.6	44.4
212	1.5	23.9
213	1.8	33.3

Wildlife

214	1.8	25.0
215	1.6	25.6
311	0.0	40.0
318	2.1	11.5
333	1.1	40.0
340	1.5	47.9
341	0.7	33.3
350	1.3	22.7
370	0.9	41.7

As noted in the narrative at item 4.1 all EMUs that encompass portions of the Forest have reached or exceeded State objectives for herd population, hunter numbers, and hunter recreation days. *This is with the existing road densities and road management objectives.*

Evaluation: Cover/forage ratios and open road density have not changed by 20% so further evaluation is not required. However, as early as 1994 (Deerlodge 5-Year Monitoring Report) monitoring showed that our elk habitat effectiveness measures were inappropriate. The Beaverhead-Deerlodge Analysis of the Management Situation, 2002, also identified several problems with the use of elk effective cover analysis as established in the 1987 Forest Plan. The EHROGAS identified in the plan do not appear to provide a useful scale to measure elk management success. The State regulates elk hunting at the hunting district scale, and it appears prudent for the Forest to adopt the same scale. The State elk plan is scheduled for revision, and the Forest has provided comments to the State's revision process. Alternatives being considered for Forest Plan Revision address more effective and meaningful measures for elk security – these focus largely on road density and maintaining large blocks of security cover.

Deerlodge National Forest

Monitoring Item:**4-5, Wildlife**

Activity, Practice or
Effect to be Measured:

Indicator species-Bighorn Sheep habitat suitability.

Intent:

To be able to respond to any unacceptable deviation from past measurement.

Unit of Measure:

Frequency of Measurement:

Variable

Reporting Period

Annual

Variability which would initiate further evaluation:

9 years

-20% from previous measurements

Monitoring Results:

The Forest relies on survey results from Montana Department of Fish, Wildlife and Parks. There are two bighorn sheep herds with sub populations that use the Deerlodge Forest seasonally. The State has only three hunting districts for sheep that encompass portions of the Forest: Garrison, South Flint (Lost Cr herd), and the Highlands. The South Flint unit contains the most robust population. Tags have increased from 4 in 1999 to 11 proposed for the 2004 season. The Highlands unit is closed and the Garrison unit has only 1 tag proposed for 2004. In 2003 the Forest completed the R-Y land exchange around Georgetown Lake. While the lands are more suited to elk, the acquisition of some 30,000 acres into public ownership may provide more opportunities to provide for the Lost Creek herd.

Evaluation: Bighorn sheep numbers are stable or increasing. No further evaluation required.

Monitoring Item:**4-6, Wildlife**

Activity, Practice or
Effect to be Measured:

Indicator species for the following vegetative communities:

- a. Lodgepole Pine- Hairy Woodpecker
Mountain Grassland -Mountain Vole
Evergreen Shrub -Sage Thrasher
Riparian -
- b. Shrub

Wildlife

Intent:	c. Tree-Northern Shrew, Warbling Vireo
Unit of Measure:	To be able to respond to any unacceptable deviation from past measurement.
Frequency of Measurement:	Varied
Reporting Period	Annual
Variability which would initiate further evaluation:	9 years
	20% from previous measurements.

Monitoring Results:

The species included here are believed to have either special habitat needs or indicate the effects of management activities. Every species listed in this item, to varying degrees, have been addressed in NEPA documents. The Forest developed GIS (geographic information system) queries to graphically display habitat for these species. While Forest-wide systematic surveys for these species were not conducted in 2003, the Forest does participate in the R1 Landbirds Survey Program which provides survey information for a variety of bird species. Surveys are scheduled for 2004. Information of bird occurrence by habitat type, abundance, and species trend is available on-line at <http://biology.dbs.umt.edu/landbird/landbird.htm> for NEPA effects analysis. The Forestwide neotropical bird surveys (established in 1994 through the Landbird Survey Program) provide us a baseline against which to measure change.

Evaluation: We do not know if populations of these species have varied more than 20% because the Forest Plan did not establish a baseline against which to monitor changes in these species. The Deerlodge Forest five year evaluation and monitoring report, 1994, discusses in detail this monitoring item and its drawbacks. Not only were baselines not established, but the scientific literature shows it has been difficult to establish a cause and effect relationship between habitat and MIS population levels. As with threatened, endangered and sensitive species, we attempt to minimize potential negative effects through project alternative development, mitigation measures or habitat improvement projects.

Wildlife

Monitoring Item:**4-7, Wildlife**

Activity, Practice or
Effect to be Measured:

Old Growth habitat (Goshawk, Northern
3-toed Woodpecker) Douglas-fir
(Piliated Woodpecker).

Intent:

To be able to respond to any
unacceptable deviation from past
measurement.

Unit of Measure:

Frequency of Measurement:

Varied

Reporting Period

Annual

Variability which would initiate further
evaluation:

-20% from previous measurements.

Monitoring Results:

In 2003 the Forest developed a series of GIS maps showing the distribution of habitat for these species. This was done to enable NEPA effects analyses to more clearly display project effects on these species. Current Forest Inventory Analysis (FIA) shows that the old growth component by forest type greatly exceeds plan standards of 5% at the forest scale.

Forest Type	Current Old Growth
Douglas Fir	20%
Lodgepole Pine	14
Englemann Spruce	34
Sub-alpine Fir	30
Whitebark Pine	29
Limber Pine	28

The Pileated Woodpecker, Northern Goshawk and Three-toed Woodpecker are not species found exclusively in old-growth forests. The Northern Goshawk, while showing a preference for older stands for nesting on the Deerlodge (Clough. 2000), does not show the same preference for post fledging habitat. Clough surveyed all available forest cover types in the northern Flint Creek Range. The study was done to obtain an unbiased estimate of nest-site selection, quantify nesting habitat at five spatial scales (landscape, post-fledging family area, nest stand, nest-tree area, and nest tree proper), and compare the success and productivity of goshawk nesting attempts among habitats selected by goshawks. Results suggested that in an intensively managed landscape, goshawks

Fisheries

selected a core area of mature forest (37acres ±9acres) that was surrounded by denser, smaller-sized trees. Post fledging habitat contained 11.3% mature forest habitat.

NEPA analyses consistently address goshawk needs and address cumulative effects to determine impacts on viability. No biological evaluations in 2003 determined that projects presented impacts that would result in a loss of viability for the goshawk on the Deerlodge NF.

Clough, L.T. 2000. Nesting habitat selection and productivity of Northern Goshawks in West-central Montana. M.S. thesis, University of Montana, Missoula, MT.

Neotropical Migrant Birds

The Forest continued its participation in the R1 landbirds monitoring program. Logistical and administrative support was provided to two surveyors in 2003. One surveyor for Deerlodge transects and one for BLM transects. Data is available on-line at <http://biology.dbs.umt.edu/landbird/landbird.htm>.

Evaluation: No benchmark of old growth acres was provided in the Deerlodge Plan, FEIS, or Analysis of the Management Situation so there is no baseline to compare current inventoried acres to for an assessment of change. However, current Forest Inventory Analysis (FIA) shows that the old growth component by forest type exceeds Plan standards (10%) across the board.

Monitoring Item:

5-1, Fisheries

Activity, Practice or
Effect to be Measured:

Pools formed by instream debris and fish numbers

Intent:

Insure management does not decrease Westslope Cutthroat trout.

Reporting Period

5 years

Variability which would initiate further

Measureable declines in population.

Monitoring Results:

Westslope Cutthroat Trout

Information to date suggests that the historic distribution and abundance of westslope cutthroat trout (WCT) has declined substantially, not only on the Beaverhead-Deerlodge Forest, but also through out the fish's historic range in the Upper Missouri river basin.

Fisheries

Beginning in 2001, the Beaverhead-Deerlodge Forest began an intensive westslope cutthroat trout inventory. The inventory gathered population data, genetic sampling, and habitat data in preparation for Subbasin planning.

Describing current WCT distribution is complicated by an abundance of populations with varied levels of genetic purity. The question is, at what point has a hybridized individual/population become sufficiently altered so that it no longer has value from a WCT conservation standpoint? We have adopted specific criteria outlined by Shepard, et. al., (2002) to designate Conservation Populations. These are genetically unaltered; or are hybridized or the genetic status is unknown, but has ecological, genetic and behavioral attributes of significance.

Currently, about 301 WCT populations have been inventoried in streams in the analysis area. Fifty-seven percent, or 173 of these are conservation populations. Table 10 below displays the distribution across river drainages. Conservation populations occupy about 1,280 stream miles, representing approximately 14% of historically occupied stream miles within the Forest.

The inventory project will be completed in 2004. Westslope Cutthroat Subbasin plans will be prepared for the Big Hole, Beaverhead, Ruby, Red Rock, Madison and Jefferson drainages from 2004 to 2006.

Table 10. Distribution of Conservation and Non-Conservation Populations by River Drainage

River Drainage (4th Hydrologic Unit Code)	Conservation Populations	Approximate Non-Conservation Populations
Beaverhead	18	7
Big Hole	48	27
Boulder	6	1
Jefferson	7	2
Madison	9	20
Red Rock	40	22
Rock Creek	8	5
Ruby	16	19
Upper Clark Fork	21	25
TOTAL	173	128

Evaluation: Declines in westslope cutthroat trout populations are apparent. Further evaluation is provided here. The declines in WCT populations throughout the fish's historic range in the Upper Missouri river basin have been recognized for years. Where cutthroat populations have been monitored, many show a negative trend. Unfortunately, changes in densities do not show a statistical correlation with habitat conditions. Population trends can seldom be related to a single cause, because many factors influence fish abundance. Management effects must still be considered, but we are not observing a dependable relationship between changes in habitat quality and population declines. The probable over-riding causes of decline are associated with reductions in habitat due to drought and competition by non-native trout.

Fisheries

The BDNF has responded to this in two ways. We have modified Forest Plan direction by incorporating the Short Term Strategy for Westslope Cutthroat into our Riparian Standards since 1998. Stream function and fish habitat have shown improvement with application of the new riparian standards (see item 2-3). We have also intensified inventory and genetic testing coupled with development of subbasin Plans for conservation and restoration. We have discovered new populations of westslope since this inventory began in 2001. This does not, however, translate into a growing population, just improved data.

Monitoring Item:

6-1, Riparian

Activity, Practice or
Effect to be Measured:

Streamside cover for fish; willow communities; forage utilization and streambank trampling.

Unit of Measure:

Project EAs, habitat transects, utilization studies, inspections, contracts

Reporting Period

Annual.

Variability which would initiate further
evaluation:

+15% variance in utilizations, range condition and trend
+20% variance in streambank cover and composition, more than 10% of bank showing damage

Monitoring Results:

The unit of measure for monitoring this item changed in the late 1990's with a shift in our knowledge about riparian systems and the implementation of interim riparian grazing guidelines. We now measure stream function as a reflection of stream health. Initial inventory work to establish a baseline for trend analysis was completed in 2002. Roughly 700 non-randomly sampled stream monitoring reaches have been permanently established on the combined Beaverhead-Deerlodge National Forest. Rereading of surveys located in streams with grazing impacts will be conducted at 5-year intervals to determine trend. Look for this trend data in the FY04 report.

The results of baseline surveys show that over half of the reaches on the Forest are functioning properly as compare to reference conditions from similar valley bottoms. However, a quarter of the reaches are determined to be non-functional and lack the necessary components of a healthy stream. These will be the important reaches to track through time to see if management or restoration techniques are effective.

Table 11. Forestwide Stream Function Determinations

Stream Function	Number of Reaches	Percent of Reaches
Functioning	380	56%

Fisheries

Functioning at Risk	129	19%
Non-Functional	166	25%

Fisheries

Evaluation: We do not yet have the trend data to establish if we are within the variance described for this monitoring item. We are still measuring new streams and adding to the baseline information before we can begin to establish trend. Compliance with riparian standards was achieved on 97% of the allotments monitored in 2003.

Monitoring Item:	7-1, Range
Activity, Practice or Effect to be Measured:	Percent of available forage utilized by livestock
Intent:	Determine actual use by livestock and if utilization constraints of Forest Plan are met.
Unit of Measure:	Percent of available forage utilized by livestock.
Frequency of Measurement:	5 years, 100% of inspections records and utilization studies
Reporting Period	9 years
Variability which would initiate further evaluation:	±variance over a sustained (3 yr.) period.

Monitoring Results:

In FY03 57 allotments out of 92 were inspected to determine if forage utilization standards were being met. Out of the 57 allotments inspected 52 were found to be in compliance while 5 did not meet the standard.

Evaluation: Utilization constraints set by the Forest Plan are generally being met.

Monitoring Item:	Variability which would initiate further evaluation:
Activity, Practice or Effect to be Measured:	
Intent:	7-2, Range
Unit of Measure:	Allotment Management Planning and update.
Frequency of Measurement:	Insure Update; plan is adhered to, management objectives are met,.
Reporting Period :	

Range

Number of Plans updated

Annual
1 year

Less than 4 plans updated annually, planned objectives are not being met.

Monitoring Results:

The Deerlodge Forest did not complete any allotment updates in FY03.

In FY-03 30 structural range improvements were completed with a combination of range betterment and KV funds. This level of construction is far behind what is needed to replace worn out structures and for new construction needed to implement existing approved AMPs.

Evaluation: Fewer than the 4 scheduled plan updates were completed on the Deerlodge zone. All planning resources have been directed towards the Beaverhead lawsuit Settlement Agreement. We anticipate that new allotment planning efforts will begin in FY06 on the Deerlodge portion of the Forest.

Monitoring Item:

7-3, Range.

Activity, Practice or
Effect to be Measured:

Weed Infestations

Intent:

Monitor weed infestation, effectiveness of contract measures, activities responsible, implementation of IPM techniques.

Unit of Measure:

Acres

Frequency of Measurement:
Reporting Period

Annual -100% of inspection reports exams
1 Year

Variability initiating further evaluation:

Noxious weeds increase by 5%; other weedy species by 10%; new infestations.

Monitoring Results:

Approximately 2000 acres of noxious weeds were treated on the Forest in FY03. This was accomplished through a combination of biological, mechanical, and chemical treatments. A noxious weed seed free forage program is in effect, and continues to be effective, with few violations being monitored. There continues to be strong emphasis on education and coordination with local weed districts and cooperators.

Evaluation: Noxious weeds have increased by at least 27% based just on acres treated. The Deerlodge Forest Plan scheduled 1575 acres of noxious weed treatment per year compared to the 2000 acres treated in FY03. Noxious weeds have become a much more severe problem than anticipated in 1987, largely because of the appearance of new species on the Forest like knapweed. The 2002 BDNF Noxious Weed FEIS identifies 43,000 acres of weed infested acres on the entire Forest, along with authorizing a new tool to address the infestations: aerial

Range

application of herbicides. All indications are that this method of treatment is very effective for our larger scale infestations. .

Monitoring Item:

7-4, Range

Activity, Practice or Effect to be Measured:

Condition and trend of range and forage availability.

Intent:

Identify decline in range condition and condition and trends, recommend changes in management strategies or stocking levels. Determine any shift away from grass aspects due to conifer or shrub encroachment.

Unit of Measure:

Acres

Frequency of Measurement:

Annual

Reporting Period

1 year

Variability which would initiate further evaluation:

5% increase in acres with downward trend or a 5% decline in acres by condition class. 5% decline in acres with a grass aspect. 5% less of grass/brush to a conifer overstory.

Monitoring Results:

An analysis of vegetation changes over time was performed as part of Forest Plan Revision. The SIMPLLE model estimates that current cover of xeric shrublands is 58% of the lower range of historic occurrence, with conifer encroachment the likely cause. Mountain shrublands occupy 84% of the lower range of historic shrublands. Again, conifer encroachment into shrublands is the likely cause of this difference. As a result, the forage base estimated to support permitted livestock grazing has declined as well.

Actual use by livestock continues to fall below both permitted use and the projected Forest Plan output. In general, it is felt that the actual use figure of 54,143 Animal Unit Months approaches a more realistic capacity figure for the Forest than the 62,795 AUMs permitted. A number of factors enter into this situation, some of which include loss of transitory range and loss of capacity due to conifer encroachment described above.

Evaluation: Decline in grass and shrublands distribution has not been as large as 5% a year. No further evaluation is required; however, this issue is being addressed during Forest Plan revision.

Air Quality

Monitoring Item:	7-5, Range
Activity, Practice or Effect to be Measured:	Permit Compliance
Intent:	Insure livestock use complies with range readiness, proper utilization and permit requirements.
Unit of Measure:	Varied
Frequency of Measurement:	Annual
Reporting Period	Annual
Variability initiating further evaluation:	± 10% change from annual plan.

Monitoring Results:

In FY03, 57 allotments out of 92 were inspected to determine if forage utilization standards were being met. Out of the 57 allotments inspected, 52 were found to be in compliance while 5 did not meet the standard.

Evaluation: Permit compliance was achieved on 91% of allotments inspected. No further evaluation is required.

Monitoring Item:	8-1, Timber
Activity, Practice or Effect to be Measured:	Regulated volume prepared for sale.
Intent:	Insure that the volume offered and/or sold does not exceed the ASQ for the 10-year period
Unit of Measure:	MMBF
Frequency of Measure:	Annual
Reporting Period:	5 years
Variability:	Cumulative values for Plan period is 10% over the cumulative average annual ASQ

Timber

Monitoring Results:

Tables 12 through 15 display the timber sale program and harvest data for Fiscal Years 1988-2003 as well as the projected Forest Plan outputs for this monitoring item.

Table 12. Timber Sale Program (Million Board Feet)

Year	Volume Sold	Volume Offered but not sold	Volume Appealed	Volume Sold From Previous Years Sales Programs	Total
1988	19.6	0.3	0	0	19.9
1989	22.1	1.0	0	(4.6)	26.7
1990	5.5	3.9	0	(7.9)	17.3
1991	3.3	3.0	0	(4.2)	10.5
1992	3.6	6.9	0	(4.6)	15.1
1993	3.0	0	0	(6.9)	9.9
1994	6.3	0	0	(4.2)	10.5
1995	4.1	6.4	0	0	10.5
1996	2.6	7.8	0	(6.4)	16.8
1997	7.4	6.1	0	(13.2)	19.3
1998	8.8	1.3	0	(6.0)	16.1
1999	1.8	0	4.5	(1.2)	7.5
2000	2.9	0	0	0	2.9
2001	2.4	0	2.0	(0.2)	4.6
2002	2.9	0	1.6	0	4.5
2003	2.6	0	0	0.3	2.9
A/Y	6.2	2.3	0.5	(3.7)	12.7

The summary shown above consists of chargeable live and dead volume that actually has been sold. Timber volume under appeal and volume in timber sales offered for sale, but not sold in the program year, are shown in the year when actually sold.

Timber

Table 13. ASQ Sold (Million Board Feet)

Description	Allowable Sale Quantity (ASQ)
1988	18.5
1989	21.1
1990	11.4
1991	6.3
1992	3.6
1993	9.9
1994	10.5
1995	10.5
1996	9.0
1997	7.4
1998	8.8
1999	1.8
2000	2.9
2001	2.4
2002	2.9
2003	2.6
Yearly Average	11.2
Forest Plan	23.0

The sixteen year average shows a total annual volume sold of 8.1 MMBF/year. This is 35% of the Forest Plan ASQ of 23.0 MMBF. These figures do not include an additional 6.2 MMBF that was sold to RY as part of the RY/Lost Creek Land Exchange.

Timber

Table 14. Timber Under Contract and Volume & Acres Harvested

Description	Volume Under Contract (MMBF) (1)(2)	Acres Harvested (3)	Sawlog Volume Harvested (MMBF) (1)	Convertible Products Harvested (MMBF) (1)	Total Volume Harvested (MMBF) (1)
1988	21.5	3428	21.8	1.4	23.2
1989	24.7	3567	30.0	1.1	31.1

Timber

Description	Volume Under Contract (MMBF) (1)(2)	Acres Harvested (3)	Sawlog Volume Harvested (MMBF) (1)	Convertible Products Harvested (MMBF) (1)	Total Volume Harvested (MMBF) (1)
1990	13.2	2765	22.3	1.3	23.6
1991	13.5	763	5.1	0.8	5.9
1992	10.0	638	9.9	1.4	11.3
1993	12.3	486	6.0	1.3	7.3
1994	15.3	676	6.0	2.0	8.0
1995	9.7	858	6.9	0.7	7.6
1996	14.2	532	2.7	1.9	4.6
1997	Not available	603	2.0	0.5	2.7
1998	19.8	583	6.5	1.2	7.7
1999	11.1	694	4.2	1.2	5.4
2000	11.3	827	6.0	1.3	7.3
2001	17.4	409	2.8	2.6	5.4
2002	5.6	905	8.8	1.2	10.0
2003	3.9	574	7.4	1.4	8.8
A/Y	13.6	1144	9.3	1.3	10.6

(1) MMBF is million board feet

(2) Data for "Volume Under Contract for 1988 and 1989 has been adjusted to include estimates for Per Acre Material (PAM). This was derived from the automated timber sales accounting system report listing uncut quantities remaining by contract at the end of the FY (September 30).

(3) Does not include personal firewood volume.

Total volume harvested averaged 10.6 MMBF/year, which is 46 percent of the Forest Plan projected level of 23.0 MMBF. Volume harvested is not directly proportional to volume sold, but is influenced by variables such as the type of harvest method, the length of time of the timber sale contract, the demand for timber, and sawmill harvest schedules. Volume harvested has been decreasing over the sixteen year time period due to the decrease in the amount of timber being offered and sold.

Timber

Table 15. Commercial and Personal Use Firewood Removal

Description	Personal Use Firewood Permits Sold	Personal Use Firewood Sold (MMBF)
1988	910	2.0
1989	1262	2.7
1990	905	1.8
1991	206	1.2
1992	1058	1.4
1993	1021	1.3
1994	845	1.1
1995	857	1.2
1996	891	1.2
1997	Not available	Not available
1998	Not available	Not available
1999	905	1.2
2000	760	1.0
2001	1095	1.4
2002	902	1.2
2003	1045	1.4
Average per year	904	1.4

While not identified as a specific component in the Forest Plan, firewood volume is now considered part of the ASQ. Demand for firewood leveled in the late 1990's, but picked up again with increased insect killed trees. Personal use firewood permit rates went from \$2.50 per cord in the late 80's to \$5.00 per cord in the mid-90s. Firewood increased to \$6.00 per cord in FY97 and has remained at that price through FY2003. Firewood demand will probably continue at or near the current level.

Evaluation: Volume offered and/or sold does not exceed the ASQ over the 10 year period. No further evaluation required.

Monitoring Item:

Activity, Practice or Effect to be Measured:

Intent:

Unit of Measure:

Frequency of Measurement:

Reporting Period

8-2, Timber

Timber assumptions: volume, condition, class, logging, acres harvested.

Insure:

- 1) Board foot/cubic ft ratios are correct, 2) Volume/acre yield is correct. 3) Condition class assignments are correct. 4) Scheduled logging system (cable and tractor) are used. 5) Scheduled acres harvested is correct.

MMBF, Acres, Acres harvested

Timber

Variability which would initiate further evaluation: $\pm 15\%$ of Forest Plan average projections.

Monitoring Results:

1. Board foot/cubic foot ratios: Cubic foot timber yield tables were used in the computer model "FORPLAN" to calculate Forest Plan timber volumes. Yield tables determine the volume of wood in individual trees by its diameter and height. Board foot/cubic foot ratios are necessary to convert cubic foot timber volumes into board foot volumes. With the possibility of all measurement going to cubic feet, board foot/ cubic foot ratio would become informational only.

2. Volume/acre yield: The volume actually harvested averaged 9.3 MBF/acre and is 38% higher than the anticipated Forest Plan volume of 6.9 MBF/acre. This may be due to the fact that personal use firewood is now included in the volumes harvested. Top wood above the merchantable sawlog specifications and post and pole size lodgepole pine are also included in volume removed. Also, stands selected for harvest during this reporting period have better than average volumes for the Forest.

3. Condition class assignments: Condition class assignments have been reviewed at each annual sale review and adjusted to ground truthed conditions, to date there has not been a significant change.

4. Scheduled logging systems: The Forest Plan scheduled no cable logging during the first period. During this reporting period, the majority of the harvest has been with conventional tractor yarding systems. Other systems used have been skyline, helicopter and horse.

5. Schedule of acres harvested:

Table 16. Harvest Volume by Harvest Method

	Volume Harvested/year	Acres Harvested/year	% Clearcut	% Shelterwood	% Select	Interim
Forest Plan	23 MMBF	3331	61	12	T	27
FY 88-03	10.6 MMBF	1144	38	13	1	48

The acres harvested are influenced by the timber volume per acre and the silviculture treatment method. Total acres harvested averaged 1,144 acres/year. This is approximately 74% of the 1536 acres that would be expected to be harvested at the 10.6 MMBF rate harvested per year. The actual acres harvested are 34% of the estimated Forest Plan projection of 3331 acres at the 23.0 MMBF Forest Plan ASQ level.

Evaluation: Timber assumptions for were fairly accurate for board foot/cubic foot ratios, volume/acre, condition class and logging systems. Assumptions for acres harvested and treatment methods, however, were erroneous. Acres harvested are only 34% of what was

Timber

projected, this reflects in the volume harvested/year as well. Problems with assumptions are discussed at length in the AMS (2002) and are being addressed through Forest Plan Revision.

Monitoring Item:

8-3, Timber

Activity, Practice or
Effect to be Measured:

Silvicultural assumptions and practices.

Intent:

Insure that:

1. Uneven-aged or appropriate even-aged management is applied to elk winter range and riparian areas.
2. Rotation age and CMAI assumptions are correct.
3. Silvicultural prescriptions follow Management Area standards and guidelines.
4. Silvicultural prescriptions precede all vegetative manipulation. .
5. Silvicultural prescriptions are practical and achieve desired results.

Unit of Measure:

Varied within Prescriptions

Frequency of Measurement:

Annual

Reporting Period

1 year

Variability initiating further evaluation

Silviculture program review questions
validity of assumptions. \pm 15% of Forest
Averages.

Monitoring Results:

1. Uneven as well as even-aged management is applied to elk winter range and riparian areas: Uneven-aged management is considered when prescribing treatment in these areas for timber sales.

2. Rotation age and culmination CK mean annual increment (CMAI): Based on information contained in the timber sale prescriptions and field observations, of stands are within the current rotation age and CMAI assumptions.

3. Silvicultural prescriptions follow management standards and guideline: All silvicultural prescriptions reviewed on the annual timber sale reviews and NEPA documents follow management standards and guidelines.

Timber

4. Silvicultural prescriptions precede all vegetative manipulation: All stands within timber sales receive silvicultural prescriptions. Silvicultural prescriptions are sometimes lacking for vegetative manipulation projects that involve prescribed burning where very few trees are involved.

5. Silvicultural Prescriptions are practical and achieve desired results: Prescriptions reviewed both before and after implementation have been practical and have been within the range of desired results or modified so that they were.

Evaluation: Silvicultural prescriptions and assumptions have been applied as required to timber stands. However, Forest Plan assumptions that clearcutting would be the primary harvest method in lodgepole pine, throughout the entire planning period are erroneous. In 1992 a policy decision was made to reduce the use of clearcutting and clearcut acres have steadily fallen.

Monitoring Item:

8-4, Timber

Activity, Practice or
Effect to be Measured:

Size of openings.

Intent:

Insure openings conform with standards and guidelines and to determine whether the maximum limits (40 acres) for harvest areas should be considered.

Unit of Measure:

Acres

Frequency of Measurement:

Annual

Reporting Period

16 years

Variability which would initiate further
evaluation:

Unacceptable results of an interdisciplinary
(ID) team or administration review.

Monitoring Results:

The current standard for openings created by timber harvest is a maximum of 40 acres unless larger openings are warranted. Creating openings greater than 40 acres in size require Regional Forester approval. As indicated in item 8-2, only 38% of the volume was harvested through clearcutting. No exceptions were requested from the Regional Forester.

Evaluation: The size of opening standard was met where it applied. No further evaluation is required.

Timber

Monitoring Item:

8-5, Timber

Activity, Practice or
Effect to be Measured:

Regenerated yield projections.

Intent:

Insure that regenerated yield projections are correct (by measurement of permanent growth plots and field sampling).

Unit of Measure:

Plots

Frequency of Measurement:

5 years

Reporting Period

16 years

Variability which would initiate further
evaluation:

<50% accomplishment of scheduled
permanent plots.

Monitoring Results:

Table 17. Growth Plow Established and Remeasured (Number).

Description	Growth Plots Established	Growth Plots Remeasured
1979-1985	33	0
1986	7	7
1987	3	7
1988	1	8
1989	5	4
1990	2	3
1991	0	2
1992	0	6
1993	5	32
1994	1	2
1995	0	3
1996	0	3
1997	0	0
1998	0	0

Timber

Description	Growth Plots Established	Growth Plots Remeasured
1999	0	0
2000	0	0
2001	0	12
2002	0	0
2003	0	0
Average Per Year	1.3	4.9

A total of 57 permanent growth plots were established beginning in 1979. The plots were measured again beginning in 1986. Eighty nine plots were remeasured during the reporting period.

Evaluation: Growth plot remeasurement was on schedule through 1996. Ten years of data is available to show that regenerated yield projections were correct.

Monitoring item:

Activity, Practice or
Effect to be Measured:

Intent:

Unit of Measure:

Frequency of Measurement:

Reporting Period

8-6. Timber

Reforestation practices and Assumptions

Insure that:

1. Regeneration is obtained within 5 years after final harvest cut.
2. Scheduled planting is accomplished.

Acres

Annual

16 years

Variability which would initiate further evaluation:

1. Less than 75 % of accomplishment of scheduled planting in 5 years, less than 50% accomplishment per year.
2. >10% increase in scheduled planting over 5 year period.

Timber

Monitoring Results:

Table 18. Acres of Site Preparation and Reforestation

DESCRIPTION	SITE PREP FOR NATURAL REGENERATION (TB 12)	PLANTED ACRES (TB 9, 10)
1988	403	341
1989	1580	53
1990	1150	211
1991	458	155
1992	153	313
1993	557	149
1994	250	228
1995	428	296
1996	213	412
1997	134	135
1998	461	107
1999	215	116
2000	201	0
2001	241	142
2002	258	160
2003	374	84
Average Per Year	442	181
Forest Plan	2117	374

The assumption in the Forest Plan is that 10% of the acres harvested as a regeneration cut will need to be planted. A review of reforestation records between 1976 and 1998 indicate that this assumption is correct with 90% of the acres harvested during that period regenerated naturally. In most cases, natural regeneration actually results in overstocked stands.

The Forest Plan estimated that 73% of the 3331 acres harvested at the Forest Plan ASQ level of 23.0 MMBF would be by some type of regeneration cut (clearcut, shelterwood, or selection) Of the acres harvested during the 16-year reporting period, 52% received some type of regeneration cut. Ranger Districts have scheduled for planting areas that are expected to be slow in regeneration naturally. Planting targets are being met. The Forest Plan anticipated that an average of 374 acres would be planted. At the reduced rate of harvest from Forest Plan ASQ levels it is estimated that approximately a minimum of 159 acres would need to be planted each

Timber

year to meet the 5-year restocking requirement. Actual planting for the 16-year period between 1988 and 2003 has averaged 181 acres.

Evaluation: The intent of this monitoring item was to ensure harvest units were regenerated within 5 years where reforestation did not take place naturally. While the acres planted are far below Forest Plan projections, this is a reflection of reduced harvest, not lack of regeneration. No further evaluation is required.

Monitoring Item:

8-7. Timber

Activity, Practice or
Effect to be Measured:

Timber stand improvement practices and assumptions.

Intent:

Insure that scheduled TSI projects are accomplished.

Unit of Measure:

Acres

Frequency of Measurement:

Annual

Reporting Period

16 years

Variability which would initiate further
evaluation:

Less than 75% accomplishment of
scheduled TSI in 5 years, or less than 50%
accomplishment per year.

Monitoring Results:

Table 19. Timber Stand Improvement by Acre by Year

DESCRIPTION	SILVICULTURAL EXAMS (Thousand Acres-TB 8)	THINNING (TSI) ACRES (TB 14)
1988	29.5	179
1989	28.4	325
1990	46.5	272
1991	55.5	234
1992	8.0	339
1993	10.4	188
1994	10.6	282
1995	12.6	213

Timber

DESCRIPTION	SILVICULTURAL EXAMS (Thousand Acres-TB 8)	THINNING (TSI) ACRES (TB 14)
1996	10.7	196
1997	5.7	250
1998	<0.1	503
1999	<0.1	169
2000	0.1	15
2001	<0.1	225
2002	<0.1	218
2003	0.1	142
TOTAL	218.3	3750
AVERAGE PER YEAR	13.6	234
FOREST PLAN	60.0	300

The amount of acres requiring thinning each year depends on the degree of overstocking of areas harvested or burned over about 20 years ago. Silvicultural stand exams helps identify stands needing treatment. Approximately 13,600 acres receive stand exams each year. However, in the past five years, only 229 acres have been reported as examined for commercial timber harvest. The reason for the dramatic shortfall is lack of funding to complete the exams. The average 234 acres thinned each year is 78% of the Forest Plan estimate. The least amount thinned in any one year is 5% of the Forest Plan estimate.

Recent listing of the Canada lynx as Threatened or Endangered has reduced the Forest's thinning program considerably. Young lodgepole pine stands provide habitat for snowshoe hares, an important prey for lynx.

Evaluation: Although TSI work is decreasing, we are still within 75% of the Forest Plan estimate over time. No further evaluation is required at this time.

Timber

Monitoring Item:**8-8, Timber**

Activity, Practice or
Effect to be Measured:

Lands suitable for timber production.

Intent:

Evaluate the accuracy of suitable timberlands classification in the Forest Plan; periodically reexamine lands identified as not suited for timber production to determine if they have become suited and could be returned to timber production.

Unit of Measure:

Acres

Frequency of Measurement:

Annual

Reporting Period

16 years

Variability initiating further evaluation:

± 5% change in acreage of suitable land

Monitoring Results:

The Forest Plan classifies 406,800 acres as suitable for timber production. The evaluation of land suitability for tentatively suitable lands and the further division of these lands into suitable forest land available for timber harvest is ongoing through landscape analysis, project analysis, and timber stand examinations. This data is entered into the Timber Stand Management Record System (TSMRS) to provide information for forest analysis.

The timber stand examination process and NEPA analysis on suitable forest land provides an updating process for timber inventory, and as timber stands are examined we are better able to evaluate the status of the tentatively suitable lands. From 1988 to 2003, 218,300 acres of stand exam have been completed, averaging 13,640 acres per year.

Evaluation: There have not been measureable changes in the acreage of suitable land over the last 10 years. A Forest-wide re-analysis of tentatively suitable timber land is being conducted in FY03 and FY04. Suitable timber acres will be re-allocated as part of the Forest Plan Revision.

Minerals

Monitoring Item:

Activity, Practice or
Effect to be Measured:

9-3, Soils

What are the impacts of activities on soil
productivity?

Unit of Measure:

Benchmark vs. sample soils

Reporting Period

5 years

Variability which would initiate further
evaluation:

Forest Plan standards not met

Monitoring Results:

Twenty one transects with a minimum of 60 plots on each were sampled on the proposed Georgetown Lake Fuels project. Soil penetration resistance, soil disturbance, and downed woody debris were sampled at each plot location. The objective was to document existing condition prior to project initiation. Thirty six of 1290 penetrometer measurements had readings of 200 to 240 pounds per square inch which indicated probable soil compaction with the potential to affect productivity. The other 1254 had readings less than 200 pounds per square inch which indicated they had not been impacted, or had slight impacts that would improve over time. Fifty four soil disturbance plots had soil disturbance classes that equate to detrimental soil disturbance – the remaining 1236 classified as less disturbed. Downed woody debris values ranged from 2 to 11 tons per acre with most in the 5 to 7 tons per acre range. The target value is 15 tons per acre after clearcutting an area. These values are acceptable considering that the units are to be thinned rather than clearcut and the remaining trees will continue to contribute additional woody debris over time.

Soil samples were taken on the old LC Prison and the old Joe/Fox timber sales to monitor soil moisture conditions. The objective was to determine if soils were dry enough to use an excavator to pile slash. Initial samples indicated the soil was too moist for piling. Sampling was stopped when plans were dropped to excavator pile the units because of the shortage of money due to high firefighting costs nationwide.

Evaluation: Project mitigation measures assure Forest Plan standards are met.

Fire and Fuel

Monitoring Item:

11-2, Air Quality

Activity, Practice or
Effect to be Measured:

Air quality standards meet State and Federal
guidelines?

Unit of Measure:

Project reports

Reporting Period

Annual

Variability which would initiate further
evaluation:

10% beyond standards and guidelines

Monitoring Results:

Ambient air quality standards are not exceeded in Airshed 7. Only during times when wildland fire have burned large acres have the emissions exceeded the 24 hour standard. Standards have been met during the spring and fall prescribed burning seasons.

Airshed 5 has a non attainment area within the vicinity of Butte, which typically exceeds the pm 2.5 or 10 standards. The Forest contributes to the total emissions for this area during fire season and with the occasional prescribed burn.

Evaluation: The 5 Year Monitoring Review recommended this item be dropped. It pertains to operation of projects and does not measure implementation, effectiveness, or validation of Forest Plan goals, objectives, or standards.

Monitoring Item:

11-3, Fuel Treatment Outputs

Activity, Practice or
Effect to be Measured:

Are fuel treatment targets being met?

Unit of Measure:

Acres

Reporting Period

Annual

Variability which would initiate further
evaluation:

-5% to +25% of programmed targets

Monitoring Results:

In general fuel treatments have remained fairly consistent across the Forest. The primary emphasis over the last 3 years for treatment has focused on the wildland urban interface (WUI). Historical fuel accomplishments were associated with rangeland improvement or wildlife. Acres are reported for the entire Forest, not just the Deerlodge portion.

Fire and Fuel

Table 20. Planned Acres compared to actual acres of fuel treatment

Planned Vs. Actual Accomplishments - FY 2000 (BDF)					
Organization	WUI Acres Planned	WUI Acres Actual	Other Acres Actual	Total Acres Planned	Total Acres Actual
Totals	1,953	625	0	1,953	625
Planned Vs. Actual Accomplishments - FY 2001 (BDF)					
Organization	WUI Acres Planned	WUI Acres Actual	Other Acres Actual	Total Acres Planned	Total Acres Actual
Totals	8,411	5,767	2,308	11,952	8,075
Planned Vs. Actual Accomplishments - FY 2002 (BDF)					
Organization	WUI Acres Planned	WUI Acres Actual	Other Acres Actual	Total Acres Planned	Total Acres Actual
Totals	5,807	4,466	1,552	7,396	6,018
Planned Vs. Actual Accomplishments - FY 2003 (BDF)					
Organization	WUI Acres Planned	WUI Acres Actual	Other Acres Actual	Total Acres Planned	Total Acres Actual
Totals	5,654	2,979	2,028	8,910	5,007
			AVERAGE	7,553	4,930

Sixty five percent of the Forests target acres were actually burned. In 2000 and 2003 severe fuel and weather conditions prohibited prescribed fuel treatments from being accomplished.

Evaluation: The Deerlodge Forest Plan established a target of 5400 acres fuel treatment/year with 44% of it based on treating fuels created by logging. We are averaging just over 90% of that projection; a small proportion of it is in logging slash. Since the big wildfire year of 2000, our fuels program has shifted to protection and fuel reduction in areas where people live and work. The acres tied to this monitoring item are no longer relevant to the Forest fuel treatment program and program targets. The Forest Plan revision effort takes a new look at alternatives for using fuel treatment to achieve desired conditions.

Monitoring Item:

11-4, Wildland Fire Acres

Activity, Practice or Effect to be Measured:

Acres burned by wildfire

Unit of Measure:

Acres

Reporting Period:

5 years

Variability which would initiate further evaluation: +50% above projected average annual acres burned

Fire and Fuel

Monitoring Results:

The table below describes number of acres by cause class that burned from 1997-2003 for the entire Forest.

Table 21. Wildland Fire Acres Burned by Ignition Cause

Beaverhead-Deerlodge National Forest Fire Statistics from 1997-2003				
Year	# Fires	Lightning Acres	Human Acres	Total Acres
1997	21	1	7	8
1998	76	357	1344	1701
1999	126	253.6	3982	4235
2000	133	58924	315	59239
2001	54	38.2	132	170
2002	65	2386	210	2596
2003	97	13790	3299	17089
7 yr Avg	81	10821	1327	12148

Evaluation: Projected average annual acres burned was not exceeded by 50%. No further evaluation is needed.

Monitoring Item:

11-5 Cost of Suppression

Activity, Practice or
Effect to be Measured:

Cost of suppression, protection
organization and net value change

Unit of Measure:

Dollars

Reporting Period:

5 years

Variability which would initiate further evaluation: +/- 5% increase in real costs

Monitoring Results:

The most efficient level of fire suppression for the Beaverhead-Deerlodge N.F. for fiscal year 2003 was \$3,212,347.00.

Evaluation: This item has not been monitored regularly enough to make a comparison. No further evaluation is being done.

Adjacent Lands

Monitoring Item:

12-1, Facilities

Activity, Practice or Effect to be Measured:

Local roads in place and collector roads constructed

Effect to be Measured:

Intent:

Insure that assumptions are valid concerning:
 1. Local/collector road density.
 2. Local/collector road standards.

Unit of Measure:

Miles

Frequency of Measurement:

Annual, 100% review of reports.

Reporting Period

5 years

Variability initiating further evaluation:

±20% of predicted miles of road.

Monitoring Results:

Table 22 displays Beaverhead-Deerlodge National Forest accomplishments in road construction and reconstruction over the past five years, as well as the projections from the individual Deerlodge and Beaverhead Forest Plans. (Note: Until 1998, the Deerlodge and Beaverhead National Forests reported road accomplishments separately. Consolidation of the two Forests caused subsequent changes in budgeting and reporting, the mileages shown are totals for the combined Beaverhead-Deerlodge National Forest. Thus, these numbers cannot be directly compared to the tables shown in Deerlodge Forest Monitoring and Evaluation reports for FY1996 and earlier.)

Table 22. Road Construction and Reconstruction, Fiscal Years 1999-2003.

Activity	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles	Miles
	Deerlodge	Beaverhead	Total	1999	2000	2001	2002	2003	Average
Construction	24.7	30.8	55.5	0	0	1.0	0.6	0.5	0.4
Reconstruction	4.5	11.7	16.2	30.4	0	2.6	5.1	5.4	8.7

The Deerlodge Forest Plan projects new construction at 24.7 miles per year. Actual construction on the combined Beaverhead-Deerlodge National Forest averaged only 0.4 mile annually over the past five years, a small fraction of the projected mileage. Reconstruction averaged slightly over fifty percent of the combined Forest Plan projected level during the same period. In FY2003, only 0.1 mile of road was constructed on the Deerlodge, at an administrative site. Reconstruction included 3.8 miles gravel replacement on the Highland road, an arterial route south of Butte.

Adjacent Lands

Evaluation: Road construction on the Forest in the last 5 years averaged only a small fraction of the Plans projected mileage. The trend of decreased road construction is occurring, at least in part, due to public opposition to the development of new specified roads; as a result, timber harvest units are situated along existing roads or are accessed with temporary roads. Emphasis has shifted toward reconstruction and maintenance of the existing road system, and identifying the minimum transportation system necessary for meeting Forest management objectives. This issue is being reevaluated through Forest Plan Revision.

Monitoring Item:

12-2, Facilities

Activity, Practice or
Effect to be Measured:

Road Management.

Intent:

Insure that assumptions are valid concerning local/collector road:
1. Yearlong closures.
2. Seasonal closures.

Unit of Measure:

Miles

Frequency of Measurement:

Annual, 100% review of reports.

Reporting Period

5 years

Variability which would initiate
further evaluation:

±30% of miles of predicted road closed either seasonally or yearlong.

Monitoring Results:

Gates are the primary method of physically closing specified roads on the Forest, followed by signs only (no physical barrier), natural barriers, and man-made barriers. Table 23 shows the extent of road use restrictions on the Forest (Deerlodge portion only).

Table 23. Road Use Restrictions¹, Fiscal Year 2003.

RESTRICTION PERIOD	RESTRICTED MILES
Yearlong	114
Seasonal	693

¹ Table 23 displays restrictions applicable to standard highway vehicles. Many roads have different restrictions for other types of traffic, such as motorcycles, ATVs, and snowmobiles.

Vehicular traffic on roads is managed to provide public access for resource use and recreation, to reduce maintenance costs, to minimize sedimentation into streams, to keep disturbance of wildlife at acceptable levels, and to carry out the goals, objectives, standards and guidelines as defined in the Forest Plan. Roads have been permanently closed and seasonally restricted to meet

Adjacent Lands

the above objectives. Approximately thirty-eight percent of the National Forest system roads on the Forest have some type of restriction.

Evaluation: The Forest Plan did not actually predict how much of the total road system would be closed seasonally or yearlong. Monitoring of all the roads in the road system has shown that Forest road management has been dynamic and responsive to the objectives in the Forest Plan, the desires of the public, and the goals and objectives of our cooperating agencies. The amount of roads with closures at this time appears appropriate. No further evaluation of this monitoring item is necessary.

Monitoring Item:

14-1, Adjacent Lands, Resources, Communities and Agencies

Activity, Practice or Effect to be Measured:

Effect of National Forest management on land, resources, and communities adjacent to the National Forest

Intent:

Determine effects of Forest Plan on other ownership, resources, and communities.

Unit of Measure:

Varied

Reporting Period

Annual

Variability which would initiate further evaluation:

Unacceptable results or impacts according to ID team and/or Management Team review

Monitoring Results:

Management of National Forest lands continues to influence management of other Federal and State lands adjacent to the National Forest through cooperative ventures between the various land management agencies. Areas of cooperation are in the areas of travel management, fire and fuel management, wildlife management, and range management. Both BLM and Beaverhead-Deerlodge National Forests are revising management plans in the near future. Cooperation in planning has begun with sharing of data bases, inventories and mapping.

The close proximity of National Forest land to the many communities greatly enhances the quality of life for the people living in and near those communities. Besides providing a scenic backdrop for the setting of the community and offering many outdoor recreation opportunities, the Forest continues to provide a variety of commodities and opportunities for jobs. The effect of those commodities and the activities available on Forest lands is displayed in Table 22 below.

Residents in local communities around the Beaverhead-Deerlodge National Forest have maintained a high degree of interest in forest management. This has been reflected in the level of participation in Forest Plan Revision. Work on revising the 1987 Deerlodge Forest Plan and 1986 Beaverhead Forest Plan began in earnest in FY03 and is scheduled to be completed in

Adjacent Lands

January of 2006. An Analysis of the Management Situation was released early in FY03 and made available for public comment. Thirty meetings were scheduled with different communities, organizations and interested parties. Close to 100 written comments were received. A Proposed Action was released in August of 2003, precipitating another round of meetings in local communities and a comment period which extended into FY04. Concerns ranged from how Forest management affects community economic health to how specific snowmobiling areas would be affected.

A preliminary economic impact analysis for the Beaverhead-Deerlodge Forest has been completed for Forest Plan Revision using the IMPLAN economic impact analysis system. The information provided here is from the existing condition scenario used to compare the alternatives.

IMPLAN provides both direct and indirect effects of Forest Service activities. An IMPLAN model was developed using 2000 IMPLAN data, the most recent data available at the time of the analysis. 2003 Forest Service resource output data and Forest employment and expenditure data was used to estimate the employment and labor income effects related to Forest Service activities. As Table 22 shows, in 2003 the Beaverhead-Deerlodge National Forest was responsible for approximately **1655 jobs and \$65.3 million in labor income** to the 8-county area studied. We did not separate out the counties influenced by the Beaverhead NF or the Deerlodge NF.

Table 22. Values of Activities and Resources from the Beaverhead-Deerlodge National Forest in 2003

Resource Area	Output	Employment (Jobs related to FS activities)	Labor Income (\$million related to FS activities)
Recreation	588,119 visits	610	\$15.1
Range	162,748 head months	65	\$1.6
Timber	8.9 MMBF	300	\$13.2
Minerals	Not Available	Not available	Not available
Fish and Wildlife	468,931 visits	370	\$15.4
Payments to States/Counties		10	\$.3
Forest Service Expenditures	Budget of \$16,035,000	300	\$19.7
TOTAL		1655	\$65.3

Adjacent Lands

Evaluation: The Forest Leadership Team has not identified unacceptable impacts. No further evaluation is necessary.

Monitoring Item:

14-2, Adjacent Lands

Activity, Practice or
Effect to be Measured:

Effect of management of adjacent lands and
of other agencies activities on the National
Forest

Intent:

Determine effects of management of other
ownership on Forest Plan

Unit of Measure:

Varied

Reporting Period

1 year

Variability which initiates evaluation:

Unacceptable results of an ID Team Review

Monitoring Results:

Management practices of other Government agencies and private landowners continue to have an effect on national forest management. Alterations have been made for planned timber sales, range allotment plan development, and other vegetative manipulation projects to meet other agency and adjacent landowner concerns.

The Bureau of Land Management, Dillon Field Office, is revising their Resource Management Plan. The Butte Field Office will soon update their Resource Management Plan. Resource specialists for BLM and Forest Service have coordinated data bases, mapping, and other aspects of planning to avoid unacceptable impacts on agency goals, objectives, targets or activities.

Evaluation: The Forest Leadership Team has not identified unacceptable impacts from other agencies or adjacent landowners.

Monitoring Item:

15-1, Emerging issues

Activity, Practice or
Effect to be Measured:

Effects of emerging issues or changing
social values

Intent:

Keep publics informed, raises FS awareness
to public concerns

Unit of Measure:

Not applicable

Reporting Period:

1 year

Variability which would initiate further
evaluation:

If issues cannot be dealt with under the
Forest Plan

All Resources

Monitoring Results:

An Analysis of the Management Situation document was released in December 2002 (FY03) to address changes since the 1986 Plan was written, specifically, those emerging issues or changing social values not adequately addressed by the Forest Plan. The Revised Forest Plan *will* address these issues. Please refer to that document (available at <http://www.fs.fed.us/r1/b-d/>) for a comprehensive discussion of this monitoring item. Some of the new issues include:

Travel Management - Demand for both motorized and non-motorized opportunities are increasing. Motorized access to remote areas is increasing due to technological advances in ATVs and snowmobiles. Conflicts around motorized use are increasing. The Statewide Off Highway Vehicle Amendment in 2001 restricted cross-country vehicle travel, changing the BDNF travel plan, and requiring subsequent travel planning.

Fire Management - Agency fire management policies have been through a significant change, particularly since 2000 when significant drought hit the West and large scale fires broke out in nearly every western state. The National Fire Plan (2001) acknowledged an environment of increasing risk to firefighters, rural communities (wildland urban interface), and resource values (TES, water quality, air quality, soils, etc.) affected by wildland fire. Agency policy and direction for fire and fuel management has expanded significantly since.

Roadless Area Management - Public interest in roadless areas has shifted since the 1986 Plan was written. The initial release of a Roadless Area Conservation Rule in 2001 is a reflection of national pressure to protect roadless lands in the National Forest System. The Rule has not been implemented to date (2004) because of legal controversy and process. However, the Chief of the Forest Service issued an Interim Directive for protection of roadless areas, part of which reserved decision authority for certain road construction and timber harvest activities in inventoried roadless areas to the Chief and Regional Forester.. As a result, little or no activity has taken place in inventoried roadless areas on the Forest since 2000. A re-inventory of roadless areas will take place during revision of the Forest Plan, noting those changes made since the 1986 Plan was written and accounting for areas with roadless values that should be included.

Evaluation: These issues are all being dealt with through Forest Plan Revision.

Monitoring Item:

15-2, All resources

Activity, Practice or
Effect to be Measured:

Evaluate lands identified as not meeting
physical or biological characteristics used in
initial allocation.

Intent:

Verify allocations in the Forest Plan

Unit of Measure:

Acres

Reporting Period:

9 years

Variability initiating further evaluation:

All changes will be evaluated annually.

Research

Monitoring Results:

No changes were made in FY03.

Evaluation: No further evaluation needed. Timber and range “suitability” are re-evaluated during Forest Plan Revision. These allocations will be made in the Record of Decision, expected in January 2006 and will depend on the alternative selected.

Monitoring Item:

16-1, Research

Activity, Practice or
Effect to be Measured:

Determine the needed research for National
Forest Management

Intent:

Identify Research needs

Unit of Measure:

Not applicable

Reporting Period

1 year

Variability which would initiate further
evaluation:

Lack of reliable data to base predictions on

Monitoring Results:

Research needs are identified through two avenues. First, the Regional Inventory and Monitoring Program Plan (IMPP) was established in 2001 to assist Forests in identifying data needs. This process helps Forests identify needs outside their research capability of funding capability and forward them for Regional or National attention. Second, the Regional Inventory Monitoring (RIM) Board also responds to research needs with special project funding.

Evaluation: No further evaluation of this monitoring item is required. The Deerlodge Five Year Review (1994) recommended dropping this monitoring item because there are other avenues to address it.