CHAPTER 2 - ANALYSIS OF THE MANAGEMENT SITUATION SUMMARY

In the spring of 2002 the Forest Service announced the revision of the Beaverhead and Deerlodge National Forests land and resource management plans, to provide a broad framework of decisions to identify the kind of land use allowed. A draft of the Analysis of the Management Situation (AMS) was released in December 2002 describing why and what changes were sought through revision. Numerous public information forums were held in communities throughout southwestern Montana. Comments on the AMS generally supported the need to change findings. Based on public comments, with further analysis and discussion, the revision topics were refined and are described below. These changes conclude the Analysis of the Management Situation and constitute the final documentation.

Following is a brief summary of the analysis of the management situation, including demand and supply conditions for resource commodities and services (36 CFR 219.11(a) and a description of the revision topic benchmarks used to frame alternative development (36 CFR 219.12(e). Much of this information was derived from the accompanying Final Environmental Impact Statement (FEIS). Legal requirements of an AMS, described in CFR 219.12(e), are met by a combination of the Draft AMS, 2002, the summary below and detailed discussion of revision topics in the FEIS.

MODIFICATIONS TO THE DRAFT AMS

Through the analysis process primary revision topics were refined into recommended wilderness vegetation, wildlife, aquatic resources, recreation and travel management, fire management, livestock grazing, and timber management.

Additional topics not identified as primary revision topics, were addressed in the FEIS. They were refined as: noxious weeds, Research Natural Areas, and Wild and Scenic Rivers, heritage resources, lands and special uses, minerals, roadless areas, soils, air quality and sensitive plants.

Benchmarks were more fully developed to guide formulation of alternatives. The benchmarks are described below. These changes conclude the Analysis of the Management Situation and constitute the final documentation.

SUMMARY OF RESOURCE COMMODITIES AND SERVICES

Recreation

A wide variety of recreation opportunities are offered on the Beaverhead-Deerlodge National Forest (BDNF) with an emphasis on dispersed recreation. There are 219,000 acres of designated Wilderness and an additional 1.8 million acres of inventoried roadless areas

(IRAs). There are approximately 2600 miles of trails, most of which are available to hikers, horseback riders, and mountain bikers. Almost half of the trails are also available to motorcycles or ATVs. Nearly 85% of approximately 6800 miles of roads are open to motorized public use. There are many developed campgrounds and trailheads. Ski areas are located on National Forest System lands outside the towns of Dillon and Philipsburg. Other major recreational activities include hunting and snowmobiling.

The majority of recreation on the BDNF is dispersed, meaning it does not rely on or concentrate around constructed facilities. Demand for both dispersed and developed recreation is expected to continue growing at 10% per decade, based on recent national recreation surveys (USDA, 2001). The BDNF has the capacity to support demand for developed and dispersed activities for at least the next 50 years.

Demand for Wilderness recreation experiences, based on visitation only, is currently about 5,700 visits (USFS, 2005). Demand for Wilderness recreation is also expected to continue growing at 10%/decade. Demand for Wilderness based on ecological and societal need is more difficult to quantify as it applies to a single forest, but is addressed by the Region 1 Wilderness Needs Assessment (USDA, 2003).

Timber Production

Timber harvest is a long time historic use of the BDNF. Approximately 1,489,000 acres are tentatively suitable for timber production. Productivity is considered low to moderate, with an estimated mean annual growth on all forested lands of 46 cubic feet per acre per year (BDNF, Forest Inventory Analysis data). From 1987 to 2005 an average of 14 million board feet per year were sold from a base of 676,000 acres of land suitable for timber production and 768,000 acres where harvest was allowed (excluding the Elkhorn Mountains).

This plan allocates 299,000 acres as lands suitable for timber production. Timber harvest is allowed on another 1,614,000 acres to achieve other resource objectives

Less than 15 percent of the stumpage in the 7 county area that includes the BDNF comes from this Forest. The majority comes from private lands. Within the larger timer processing area of 14 counties, there are 148 timber processing facilities including 64 log home manufacturers, 38 sawmills, 25 post and pole plants, 18 log furniture manufacturers and three plywood facilities. Sawtimber mill capacity has declined in the area that uses stumpage from the BDNF by approximately 6% from 1985 to 2000. During the same time mill capacity for the state of Montana fell a much larger 31%. The timber demand assessment is based on a study of the BDNF timber processing area (Keegan 2004) and an analysis of Montana's forest products industry (Keegan 2001).

Supply potential or long-term sustained yield for the Forest is based on the SPECTRUM model. The Long Term Sustained Yield for the preferred alternative without budget constraints is 24 million board feet, compared to the maximum timber benchmark of 118 million board feet. Neither figure includes projections for timber harvest on non-suitable lands for other purposes. Long term sustained yield exceeds estimated outputs for harvest based on budgets and other management constraints.

Livestock Grazing

Permits are required for livestock grazing on BDNF lands. Permitted use is 87% of numbers in the mid-1980s. Actual use has declined by 44% but numbers fluctuate annually depending on economics and weather. In 2001, 36,579 of the permitted 50,750 cattle grazed on the BDNF and 13,050 of the permitted 15,600 sheep.

Demand for livestock forage is expected to increase to the extent of available permitted use . However, increases in grazing fees, or more restrictive regulations, affecting use of National Forest rangeland could decrease demand.

Leasable and Locatable Minerals

The BDNF does not have a high potential for oil and gas discoveries. Areas with moderate potential are confined mostly to the Gravelly, Lima Peaks and Tendoy Mountain ranges within inventoried roadless areas. Ten-year leases were issued in 2006 in the Garfield Mountain area but exploration and development are not likely. If the 2001 Roadless Area Conservation Rule applies, it will constrain development although demand for oil and gas and the value of the deposits is expected to increase over the coming years.

Locatable minerals are those valuable deposits subject to exploration and development under the Mining Law of 1872 and its amendments. More than ½ of BDNF lands are classified as favorable for one or more polymetallic mineral deposits. Demand is closely tied to economics and international markets.

BENCHMARK ANALYSIS

Benchmark analysis is required as part of the AMS in planning regulations in the Code of Federal Regulations 36 CFR 219.12(e)(1) (1982). Benchmarks help define the maximum and minimum range within which alternatives can be constructed using the minimum management requirements defined in 36 CFR 219.27. Selection of benchmarks depends on the primary revision topics.

Benchmarks for livestock grazing, recreation, wildlife, and wilderness, developed during the 1986 and 1987 planning process were reviewed, validated, and found appropriate. For vegetation and fire the historic range of variability described in Chapter 3 of the FEIS, “Vegetation Management – Affected Environment” serves as a benchmark. Benchmarks for fisheries in the 86/87 Plans are not relevant to the aquatic revision topic which focuses on watershed health and viability of native species. Alternatives 3 (watershed restoration and conservation) and Alternative 4 (sustainable commodity outputs) serve as minimum and maximum benchmarks for this topic.

Benchmarks were re-established for the timber revision topic using the SPECTRUM model. Three benchmarks were analyzed - maximizing timber production for the first decade, maximizing present net value (PNV) of the timber program, and minimizing the level of timber management.

Validation of 1986/87 Benchmarks

The 1986/87 Plans developed benchmark numbers for recreation, elk, game fish, livestock forage (AUMs), and acres of wilderness, and timber production. A program called FORPLAN produced the numbers based on constraints and assumptions documented in Appendix B of the 1986 FEIS. For this exercise, the benchmark numbers produced by FORPLAN were evaluated (adding 1986 Beaverhead and 1987 Deerlodge plan estimates) and compared to current data and science to determine whether they continue to be reasonable.

Livestock Forage Production: Livestock forage production maximums measured in Animal Unit Months (AUMs), appear to be reasonably close to maximum supply potential. These numbers are closely tied to land capability which has not changed over the past 20 years. The Beaverhead estimate was 264,800 AUMs and the Deerlodge estimated 81,800 AUMs for a total of 346,600 AUMs. The minimum benchmark for livestock grazing would be zero AUMs.

Wilderness Potential: Wilderness potential increased slightly since the early 1980s based on acres inventoried as roadless. The 2005 inventory increased by 12%, largely from additions in Lost Creek, the Madison Range, and Garfield Mountain. The remaining increase is because of improved mapping (GIS) and minor additions to existing roadless areas. The 1986 benchmark used 1,246,000 acres in addition to existing Wilderness. In 2007, 1,468,122 roadless area acres comprised the maximum wilderness benchmark. The minimum wilderness benchmark is zero acres of roadless recommended, represented by Alternative 4. The 2001 Roadless Area Conservation Rule, if it applies, constrains consideration of an alternative that opens roadless areas to development using road construction or timber harvest.

Elk Population Numbers: The number of elk predicted for the 1986 and 1987 benchmarks is low compared to 2001 Montana Fish, Wildlife, and Parks (MTFWP) Elk Plan Objectives. Actual counts are considerably higher than the previous benchmark of 23,200 animals.

Table 2. Elk Population Maximum Benchmark Compared to Current Populations

Number of Elk	Previous BDNF Benchmark	2001 State Objective Applied to BDNF	Actual Count in 2005
Winter	18,650		32,841*
Summer	23,200	26,720 – 29,300	

**The actual MT FWP count was 41,052 elk in the analysis area. This number estimates 80% of those animals summer on the BDNF. The States Elk Objective (Elk Plan 2001) is 33,400 – 36,700 animals, of which 80% is 26,720-29,300.*

The maximum benchmark is adjusted upward to meet the actual MTFWP population count for elk management. This number is considerably higher than the State elk objective, it's an ideal number rather than maximum capability. The maximum benchmark population is 33,000 animals. The MTFWP Objective of 29,300 (80% of 36,700) animals is considered the demand. A minimum benchmark was not provided.

Recreation Use Potential: Projections for maximum visitor use potential are similar to previous projections. The 1986 and 1987 projections were compared with current use and no adjustments to the previous benchmarks were necessary. Projections in 1986 show the

capability to supply three times more recreation use than the BDNF did at the time of this analysis. Updated projections agree the Forest can supply three times more use than shown in the 2005 NVUM survey. However, the distribution of use between developed camping and hunting does not fit the distribution of current use or future predictions. Hunting was underestimated in the 1986 document and developed recreation was overestimated as explained in Table 5 on the next page.

Table 3. Distribution of Recreation Activities Compared to the Present

Recreation	Maximum	Actual based on 2005 NVUM*	Maximum Benchmark based on updated percentages
Developed	30%	5%	279,600
Dispersed	66%	69%	3,858,480
Wilderness	2%	2%	111,840
Hunting and Fishing	3%	24%	167,760
Total Recreation Visitor Days	5,592,000	1,750,000	5,592,000

** National Visitor Use Survey 2005. Visits were converted to Recreation Visitor Days (RVDs) using a factor of 1 visit = 1,259 RVDs or 1 RVD= .795 visits.*

The previous plans used 1980 recreation visitor levels as a base level to establish the minimum recreation benchmark. This benchmark is still reasonable.

New Benchmarks

Maximum Timber Production: This benchmark indicates the maximum capability, under the current legal framework, to produce timber on the BDNF and the costs/benefits of doing so. SPECTRUM software was used as a timber harvest scheduling tool, reporting timber outputs and timber costs and benefits. SPECTRUM was not used to make land allocation decisions. Based on 2004 SPECTRUM runs, the maximum timber benchmark has an allowable sale quantity (ASQ) of 720 MMBF in decade 1 (72.0 MMBF/year), with harvest occurring on 82,693 acres. Long term sustained yield (LTSY) for this benchmark is 23.6 MMCF/year or 118 MMBF/year calculated on 1,455,247 acres. The 1986 and 1987 benchmarks can be compared in the table below.

Table 4. Previous timber benchmarks compared to 2004 maximum timber production

Measure	Beaverhead Forest Plan Benchmark 1986*	Deerlodge Forest Plan Benchmark 1987**	Combined Total	Maximum Timber Volume 2004 SPECTRUM	Maximum PNV 2004 SPECTRUM
Suitable Acres	804,200	594,771	1,398,971	1,455,247	1,455,247
LTSY (MMBF)	68.1	46.7	114.8	118	112
ASQ in decade 1 (MMBF)	53.5	28.4	82	720	715

**Page II-10 1986 Beaverhead FEIS*

*** Page II-15 1987 Deerlodge FEIS*

Long term sustained yield benchmarks for timber have not changed notably in the last 20 years despite updates in the model assumptions and constraints**.** The 2004 LTSY benchmark is 3% higher than the benchmark prior to 1986. Suitable acres vary only by 4%, a difference that may be a result of improved computer mapping technology.

The small difference in the ASQ harvest in decade one may reflect some of the changes made to the model (Harry 2006). Both the FORPLAN and SPECTRUM models were based on yield outputs of Forest Vegetation Simulator (FVS).

In the last 20 years, continual adjustments were made to FVS. Most of the adjustments relate to mortality – the original vegetation simulator considered trees growing very dense and predicted stands would continue to accrue volume as they did so. The current tables more closely reflect what is taking place in actual stands. As they become denser, mortality increases. Yield tables only calculate live volume, so it begins to drop as stands reach a certain age. In addition, constraints built into the model produce different results due to 40,000 acres of timber harvest between 1986 and 2004.

Maximum Present Net Value for Timber: This benchmark explores the opportunity to maximize the net monetary value of the timber resource. It provides a basis for evaluating the costs and benefits of implementing other alternatives, each of which is constrained to meet specific resource management objectives.

The SPECTRUM model provides volumes, acres, and a financial report for optimizing maximum present net value (PNV) of timber.) The benchmark for modeled volumes and acres in the maximum PNV scenario (over a horizon of 50 years) is presented in the table below.

Table 5. Maximum Present Net Value for Timber

Category	Annual Volume	PNV of Benefits	PNV of Costs	Cumulative PNV
Maximum PNV	71.5 mmbf	$292,292,000	$201,666,000	$90,626,000

A maximum PNV was not modeled for resources other than timber. Use of the SPECTRUM model was confined to those activities for which accurate cost and value data for the BDNF was available and could be applied spatially.

There is no accurate data to quantify opportunity costs for maximizing aquatic species, water quality, or wildlife. They are addressed through the range of alternatives, by resource, in the FEIS. Opportunity costs for maximizing Wilderness and roadless areas, are also addressed by the range of alternatives in the FEIS.

Minimum level of timber management: The minimum level benchmark for timber would show no commercial timber production or an ASQ of zero. The PNV for timber is zero, since there would be no costs incurred (for timber) and no revenues generated.