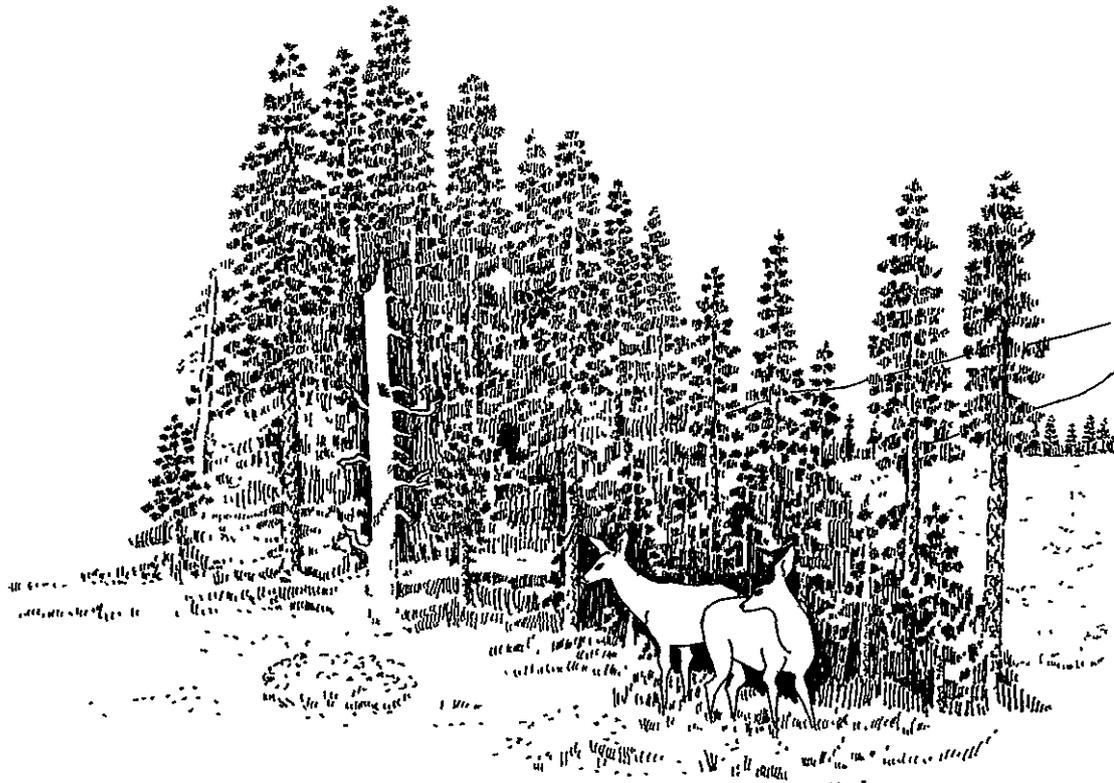


Chapter II

SUMMARY OF AMS



CHAPTER II SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

A. INTRODUCTION

This chapter briefly summarizes the Forest's potential to supply various goods and services and projections of demand for goods and services. Information needs for the Malheur National Forest are also identified

The key issues which guided the development of this Forest Plan include economic stability, timber management, big-game habitat, riparian areas, roadless areas, and road management. "Benchmarks" were developed to help define the resource and economic potentials of the Forest, while satisfying all legal requirements. The legal requirements included those pertaining to maximum size and dispersion of harvest units and management requirements (MRs) needed to maintain viable populations of fish and wildlife and to protect water quality.

B. RESOURCE AND ECONOMIC SUPPLY POTENTIALS

Development of the benchmarks described below is detailed in the benchmark formulation section of Appendix B of the FEIS.

Minimum Level Management - Determines the minimum costs (with resultant outputs and effects) necessary to retain the National Forest lands in Federal ownership, subject to certain environmental constraints and protection of life, health, and safety of incidental users.

Present Net Value (PNV Assigned) - Estimates the maximum PNV that might be attained by maximizing the net value of market resources under a non-declining policy, and assigning values to the production and output of all nonmarket resources (see Glossary). This benchmark serves as a basis for an economic comparison between benchmarks and alternatives, as well as a basis for determining the effects of various constraints on outputs and costs.

Present Net Value (PNV Market) - Estimates the maximum PNV that might be attained by maximizing the net value of market resources under a non-declining policy. The difference between this benchmark and the present net value (assigned) benchmark is that this benchmark does not assign values to the nonmarket resources such as wildlife habitat, visuals, and other resources that are not sold in a market.

Current Direction - Estimates the outputs and effects of maintaining direction and policy found in existing unit plans, timber and other resource plans, special area management plans, and Malheur National Forest policy. This benchmark provides the basis for the No Change and No Action Alternatives. (Outputs are reported for the No Action Alternative in Table II-2 and Figure II-1.)

Max Timber - Estimates the highest sustainable timber harvest levels for the Forest, subject to legal requirements for other resources. The objective was to maximize timber production on the Forest under a nondeclining policy.

Max Range - Estimates the highest sustainable grazing levels for the Forest, subject to legal requirements for other resources. The objective was to maximize forage production for cattle grazing on the Forest.

Max Anadromous Fish - Estimates the maximum capability of the Forest to produce fish habitat and possible corresponding fish populations.

Max Big Game - Estimates the maximum capability of the Forest to produce and sustain habitat for big-game wildlife.

Table II-1 displays the upper output levels for specific resources analyzed in the resource maximization benchmarks. In addition to maximizing resource outputs, benchmarks were established which maximized present net value. The minimum level management benchmark established the lower bound of Forest management. The current direction benchmark (subsequently developed into the No Action Alternative) established the probable resource outputs and effects if existing management policies were to remain in effect. These benchmarks (displayed in Table II-2) defined the mix and range of realistic and attainable resource outputs (decision space) in which the alternatives could be developed.

TABLE II-1
Maximum Resource Output Benchmarks^{1/}

Benchmark	Average Annual Outputs
Max Timber Benchmark Timber Sale Program Quantity Decade 1 Decade 2 Decade 5 Long-Term Sustained Yield Capacity	Million Cubic Feet 59.2 59.4 60.1 68.8
Max Big-Game Benchmark Big-Game Use Decade 1 Decade 2 Decade 5	Thousand Wildlife-and-Fish-User-Days 168.3 162.4 194.7
Max Anadromous Fish Benchmark Commercial Harvests Decade 1 Decade 2 Decade 5	Thousand Pounds 43.0 68.6 77.6
Max Range Benchmark Livestock Use Decade 1 Decade 2 Decade 5	Thousand Animal Unit Months 194 247 274

^{1/}Only the maximum outputs of the respective resource for the benchmarks are displayed. The purpose of these benchmarks was to establish upper bounds of potential production of specific resources from the Forest.

TABLE II-2
Quantifiable Outputs And Effects Of Benchmarks
And The No Action Alternative
(Average Annual Outputs)

	Benchmark			
	Minimum Level	Max PNV (Assigned) ^{1/}	Max PNV (Market) ^{2/}	No Action Alt.
Discounted Benefits (Millions of Dollars)				
Timber	0.7	612.4	612.4	460.7
Wildlife	76.6	81.6	0.8	63.3
Range	0.4	54.9	54.6	28.8
Other	25.3	25.4	0	23.1
Discounted Costs (Millions of Dollars)	35.1	301.7	301.7	277.1
Present Net Value (Millions of Dollars)	67.9	472.6	366.1	300.2
Timber Sale Program Quantity (Million Cubic Feet Per Year)				
Decade 1	0	51.7	51.7	42.6
Decade 2	0	52.0	52.0	42.6
Decade 5	0	52.3	52.3	43.0
Long-Term Sustained Yield Capacity (Million Cubic Feet Per Year)	0	61.7	61.7	45.3
Big-Game Use (Thousand Wildlife-and-Fish-User-Days Per Year)				
Decade 1	49.1	105.6	105.6	117.9
Decade 2	49.1	70.4	70.4	126.2
Decade 5	49.1	109.2	109.2	128.7
Anadromous Fish Commercial Harvest (Thousand Pounds Per Year)				
Decade 1	40.9	32.1	32.1	26.8
Decade 2	61.6	32.1	32.1	28.0
Decade 5	70.6	32.1	32.1	31.6
Livestock Use (Thousand Animal Unit Months Per Year)				
Decade 1	0	156	156	131
Decade 2	0	200	200	135
Decade 5	0	189	189	131

^{1/}Max PNV (Assigned) includes management requirements and is Benchmark 7 in FEIS, Appendix B
^{2/}Max PNV (Market) includes management requirements and is Benchmark 11 in FEIS, Appendix B.

C. RESOURCE DEMAND PROJECTIONS

This section summarizes projected demand for Forest goods and services for 50 years (RPA time period) The term "demand" is used to identify the amount of an output that users would be willing to pay for at a specified price, time period, and condition of sale. Table II-3 displays demand projections for key resource elements.

In Table II-3, the demand and supply projections for key resource elements are displayed to present demand-supply relationships for various benchmarks, the No Action Alternative, and this Forest Plan. The demand estimates shown reflect the future output levels anticipated by several public agencies, including the Forest Service. These projections are discussed in the Final Environmental Impact Statement (Chapters III and IV) and the Forest Analysis of the Management Situation. A brief discussion of the projected demand for some resources follows Table II-3.

**TABLE II-3
Supply And Demand Summary For Benchmark Resources
(Average Annual Outputs)**

	Decade 1	Decade 2	Decade 5
Timber Sale Program Quantity (Million Cubic Feet Per Year)			
Projected Demand	36.2	38.5	41.5
Projected Supply			
No Action	42.6	42.6	43.0
Maximum Timber Benchmark	59.2	59.4	60.1
Forest Plan	38.4	38.4	38.4
Big-Game Use (Thousand Wildlife-and-Fish-User-Days)			
Projected Demand	95.1	110.6	157.0
Projected Supply			
No Action	117.9	126.2	128.7
Maximum Big-Game Benchmark	168.3	162.4	194.7
Forest Plan	106.2	115.2	110.7
Anadromous Fish Commercial Harvest (Thousand Pounds Per Year)			
Projected Demand (Numerical Data Not Available)			
Projected Supply			
No Action	26.8	28.0	31.6
Maximum Anadromous Fish Benchmark	43.0	68.6	77.6
Forest Plan	37.0	48.4	66.9
Livestock Grazing (Thousand Animal Unit Months Per Year)			
Projected Demand	120	120	120
Projected Supply			
No Action	131	135	131
Maximum AUM Benchmark	194	247	274
Forest Plan	113	112	116

Timber	<p>The projected demand for timber from the Malheur National Forest displayed in Table II-3 is derived from the discussion in Chapter III of the FEIS. Essentially, the demand projections were based on historical demand (exhibited by raw material cut from the Forest) with some adjustments made for the cyclic nature of the industry and technological advancement. The demand figures presented in the table reflect the midpoint of the range of projected demand for Malheur National Forest timber. Demand projections in the FEIS in Tables III-6 and IV-3 include projected demand for all sources of timber supply in Grant and Harney counties; this cumulative demand would be partially supplied by private ownership and other National Forests (Ochoco, Umatilla) in Grant and Harney counties.</p>
Wildlife	<p>Projected demand for big-game use on the Malheur National Forest includes elk and mule deer hunter-days as estimated in the Forest Analysis of the Management Situation. An increase of about 10-15 percent per decade is projected over time. Projections were derived from regression curves based on Oregon Department of Fish and Wildlife hunter-days data.</p>
Fish	<p>Quantified projections of the demand for anadromous fish from the Malheur National Forest have not been performed at this time. As stated in the Forest Analysis of The Management Situation, however, the demand for chinook salmon and steelhead trout in the Columbia Basin exceeds the current supply. Indications of demand exceeding supply include court cases involving allocation of fish stock between Indian and non-Indian harvest groups, reduced or canceled sport-fishing seasons, and legislation designed to protect depleted stocks of fish for commercial fishery operations. Consequently, the assumption was made that all anadromous fish produced from waters within the Malheur National Forest would be demanded (i.e., utilized). However, the production potential of the Forest is a very small percentage of the total increase necessary in the entire Columbia River Basin to meet demand.</p>
Range	<p>The demand for forage from the Forest, primarily for livestock, is affected by the price that permittees have to pay. In past years, the price of National Forest forage has been below the appraised market value. As detailed in the Grazing Fee Review and Evaluation Final Report completed by the USDA Forest Service and USDI Bureau of Land Management (1986), the appraised market value of grazing on public rangelands is \$5 90 per AUM. However, the price that permittees pay currently is \$1.54 per AUM. Consequently, despite declines in the beef-producing industry, the demand for National Forest permitted grazing remains high because of the price permittees pay. Expectations are that the demand for Malheur National Forest forage will remain strong until the price of National Forest forage approximates the appraised market value for forage on public rangelands.</p>
Recreation	<p>The demand for dispersed and developed recreation on the Malheur National Forest is expected to increase over time (from 200,000 recreation visitor days of annual dispersed use currently to about 300,000 recreation visitor days by the year 2030). The demand for wilderness use on this Forest is expected to increase slowly, and the alternatives and benchmarks do not vary significantly in the supply of wilderness. Demand projections generated were derived from historical use patterns and National and Regional trends applied to the local situation.</p>

D. SUPPLY AND DEMAND DISCUSSION

The following discussion summarizes the interactions of the projected supply of some resources and the corresponding demand for those resources. The primary emphasis of this discussion is the supply of various resources under this Forest Plan when compared to projected demand for those resource outputs.

Timber

The supply of timber under this Forest Plan is expected to be adequate to meet demand in the Forest zone of influence (Grant and Harney counties) through the year 2000. As displayed by the maximum timber benchmark, however, the Forest does have the capability to produce more timber supply than would be offered under this Forest Plan. Other resource outputs (e.g., dispersed recreation, anadromous fish) would be affected if the maximum amount of timber were produced. Changes in demand for the Malheur National Forest timber supply could result from changes in supply from adjacent sources of timber (e.g., other National Forests). These changes could translate into increased demand for Malheur National Forest timber.

Wildlife

The supply of and demand for wildlife on the Malheur National Forest has been presented primarily in terms of Wildlife-and-Fish-User-Days (WFUDs); that is, wildlife-oriented recreation. The demand for wildlife-oriented recreation [primarily consumptive use (hunting) of substantial economic value to the local economy] is contingent upon the quality and/or quantity of the animals being sought. Consequently, as deer and elk herds on the Forest increase in quality and/or quantity, the demand (exhibited in hunting pressure) would increase also. As displayed in Table II-3, the supply of wildlife-oriented recreation (WFUDs) under this Forest Plan is compatible with projected demand for the first two decades. Projections derived from Oregon Department of Fish and Wildlife data indicate that demand will be substantially greater than supply by the fifth decade. In comparison, the maximum big game benchmark identifies the upper bound of potential supply of deer and elk, to achieve this level of supply would result in substantial reductions in permitted livestock and timber harvest.

The implementation of management requirements, Forest-wide standards, and management area standards should ensure viable populations (i.e., supply) of nongame species under this Forest Plan. Demand for these nongame species is present but difficult to quantify.

Fish

The demand for anadromous fish in the Columbia River Basin, of which the John Day River is a part, currently exceeds supply. Projections are that demand will continue to be strong and will be greater than supply. The Forest contributes a very small portion to the total anadromous fish supply, but the demand for production from all sources is strong. Major factors affecting the Forest's ability to achieve projected increases in habitat capability for anadromous fish are: (1) implementation of livestock management strategies to achieve better distribution of livestock, with better control of forage utilization in riparian areas; (2) implementation of lower intensity riparian timber management prescriptions; and (3) the amount of watershed and fish habitat improvement work accomplished.

Forest-wide, resident and planted fish supply appears to meet demand for the foreseeable future. This may not be the case for all types of fishing experiences. For example, lake fishing opportunities are limited due to the fact that there are few lakes on the Forest. The availability of fishing in a semiprimitive setting will become more limited. Data are not available to quantify these projections. The implementation of Forest-wide and management area standards, along with application of watershed and fish habitat improvements will result in increased habitat capability for resident fish.

Range

The supply of forage available for livestock grazing under this Forest Plan will be near historic levels of use. As detailed above in the demand projections for range, *the demand for National Forest forage is affected by the price that permittees have to pay.* Historically, because the price charged for public forage has been less than the appraised market value of that forage, the demand for National Forest forage has remained strong despite fluctuations in the demand for beef. Projections are that the supply of forage will approximate demand (defined by past permitted grazing levels). However, any increase in supply would be promptly utilized as long as current pricing policies remain in effect.

Recreation

The supply of recreation settings (primitive, semiprimitive nonmotorized, semiprimitive motorized, roaded natural, rural, and urban) available on the Malheur National Forest *currently exceeds the demand for all types of recreation.* The supply of specific recreation experiences such as cross-country skiing on a groomed trail, or mountain bike trail riding, does not meet the demand. During the elk and deer firearms seasons, the demand for big-game hunting exceeds the supply for most of the game management units on the Forest. The number of hunting permits for big-game are regulated by the State of Oregon to meet herd management objectives. Projections are that, although demand will increase, the supply of all types of recreation settings will continue to meet or exceed demand throughout the life of this Forest Plan (i.e., the next 10 to 15 years). Projections show that the demand may exceed the supply for semiprimitive motorized opportunities by the fifth decade.

Old Growth

Under this Forest Plan, a supply of old-growth forest would be retained as habitat for old-growth dependent species. This supply satisfies the projected demand to maintain habitat for old-growth dependent species at 30 percent or more above minimum viable population levels.

Undeveloped Areas

Under this Forest Plan, a supply of undeveloped areas (i.e., roadless, research natural areas, special interest areas) will be provided. However, the demand for these types of areas is difficult to assess and quantify. From best available information, the supply of undeveloped areas provided under this Forest Plan will meet demand for such areas for the next 10 to 15 years.

E. INFORMATION NEEDS

1. Research Needs

The following research needs have been identified during development of this Forest Plan. They will be evaluated by the Regional Forester for inclusion in the Regional research program proposal. It is anticipated that more research needs will become apparent during monitoring and evaluation of the Plan as it is implemented.

- Timber/Soils**
1. Long-term studies of timber growth are needed to assess the effects of various treatment methods on the long-term soil productivity. Long-term effects of soil compaction, removal of timber harvest residue, and other effects need to be assessed.
- Fire**
2. Study of the characteristics of emissions from prescribed burning of forest residues in eastern Oregon fuel types is needed to measure emission factors for particulate matter, carbon monoxide, and hydrocarbons.
- Fisheries**
3. Develop methods to verify fish production coefficients used to calculate fish outputs of this Forest Plan.
 4. Conduct taxonomic and distribution studies on the redband trout to determine taxonomic classification and make recommendation for listing/not listing the species under the Threatened and Endangered Species Act.
 5. Determine stand conditions that will provide the amount and type of instream woody material needed to maintain fish habitat in Blue Mountain streams.
 6. Determine habitat needs for the Malheur mottled sculpin (*Cottus baridi* spp.).
 7. Determine the taxonomy of redband trout and the need for sensitive species listing.
- Wildlife**
8. Determine the effects of uneven-aged management on meeting habitat requirements of deer and elk.
- Integrated Pest Management**
9. Determine the effects of management practices on the incidence and severity of pathogens and insects as they affect long-term timber productivity. Evaluate the effects of insects and pathogens on forest composition and the influence of forest composition on the population dynamics of insects and pathogens.
- Timber/Wildlife**
10. Evaluate alternatives for managing old-growth forests and for maintaining habitat characteristics (e.g., snags and logs) in young, managed forests.
 11. Determine feasibility of meeting growth and yield objectives and sanitation requirements while trying to meet elk thermal cover requirements in ponderosa pine stands.
- Watershed**
12. Determine the cumulative effects of management activities (timber harvest, road construction, site preparation, grazing, etc.) on water quality and stream stability.
 - (a) Determine the maximum percent of a watershed that could be in a harvested condition at any point in time and not cause long-term changes in watershed condition on Blue Mountain Forests.
 - (b) Determine a recovery rate to simulate hydrologic or watershed recovery over time for stands and harvest prescriptions on Blue Mountain Forests.
 13. Evaluate the effectiveness of best management practices to meet water quality standards.

2. Additional Data Requirements

Table II-4 identifies additional data requirements that are needed to improve the Forest's data base, to revise current data base inventories to new standards, and to incorporate new data base requirements that have recently been identified.

**TABLE II-4
Additional Data Requirements And Accomplishment Schedule**

Data Requirement	Information Source	Accomplishment Schedule
Elk Habitat Inventory - Refine Blue Mountain Elk Habitat Effectiveness model variables to provide more accurate assessment of forest habitat condition. (Region Office Task Committee)	Blue Mountain Habitat Handbook Forest Service Manual 2620, 2630	1992
Elk Winter Range Survey: Verify Condition and Boundaries	Forest Service Manual 2620, 2630	1995
Forage requirements for livestock/big-game on winter range. (Starkey Study)	Forest Service Manual 2200	1995
Effect on watertable of log and rock structures placed in streams to create pools	Forest Service Manual 2500	1995
Riparian area classification. (Plant Associations)	Forest Service Manual 2526	1995
Old-Growth Inventory: Survey and verify condition	Forest Service Manual 2620, 2630	1993
Management status and distribution of the Malheur mottled sculpin (<i>Cottus bairdi</i> spp.) on the Forest.	Forest Service Manual 2620, 2630, 2670	1994
In-Place Timber Inventory.	Forest Service Handbook 2409.21	1993
Riparian Area Inventory	Forest Service Manual 2526, 2636	2000
Baseline data on water temperature and turbidity on major drainages.		
American Indian Cultural Sites: Contemporary and traditional use areas, as related to subsistence and religious activities on the Forest.	Appropriate American Indian Tribal members	1999
Threatened, Endangered, and Sensitive Species survey and evaluation of habitat needs.	Forest Service Manual 2670	2000
Management status and distribution of the bull trout (<i>Salvelinus confluentus</i>) on the Forest.	Forest Service Manual 2630, 2670	1995

TABLE II-4 (Continued)
Additional Data Requirements And Accomplishment Schedule

Data Requirement	Information Source	Accomplishment Schedule
Management status and distribution of cutthroat trout (<i>Salmo clarki</i>) on the Forest	Forest Service Manual 2630	1995
Determine Cooper's and sharp-shinned hawks population levels and habitat requirements to maintain long-term viability	Forest Service Manual 2620, 2630	1996
Air Quality Related Values (AQRV) survey and evaluation in Class I Airshed (Strawberry Wilderness)	Forest Service Manual 2320, 2580	1995



