

## APPENDIX B DESCRIPTION OF THE ANALYSIS PROCESS

### I. INTRODUCTION

Appendix B describes the analysis process used in developing the Forest Plan. This appendix focuses on the quantitative methods used to perform the analysis and documents how the analysis was done.

As a result of responding to comments received from public and organizations following the release of the Draft Environmental Impact Statement, the following listing is a summary of changes made to the alternatives for this Final Environmental Impact Statement. These changes are the result of a concerted Forest effort to respond to significant issues, concerns and opportunities that were received during the Draft Environmental Impact Statement review process.

#### FORPLAN (FOREST PLANNING) Model Restructured

The Proposed Forest Plan displayed estimated resource outputs and effects on a Forest-wide basis. There were no implicit geographic identifiers contained in FORPLAN during this analysis. In order to provide more specific basis for management prescription selection and more optimal land assignments, geographic identifiers (seven major watersheds and two range conditions) were incorporated into the FORPLAN model structure. Key outputs and activities by the geographic identifiers are now displayed in the Final Plan.

In addition to including specific geographic identifiers, a mix of timber harvest treatments were added and errors in harvest dispersion constraints were fixed. The Final Environmental Impact Statement also separately identifies anadromous and nonanadromous streams.

#### Alternatives Added, Deleted and Changed

The following is a list of the alternatives added, deleted or changed since the Draft Environmental Impact Statement, and the reasons therefore.

Alternative	Action	Reason
NC	Retained	Decision on Appeal No. 1588
A	Retained	Required by Law
B	Now B-Mod	To respond to the publicly suggested "Preferred Plus Alternative"
C	Now C-Mod	To respond to the publicly suggested "Citizens Multiple Use Alternative"
D	Omitted	Lack of public interest or comment
E	Omitted	Lack of public interest or comment
F	Retained	To provide full spectrum of alternatives.
F-Dep	Omitted	Lack of public interest or comment.
G	Omitted	Lack of public interest or comment
H	Omitted	Lack of public interest or comment.
I	Added	To incorporate the widest possible range of public input, including the State of Oregon comments.

For more information on this subject see section VII A of this appendix.

### **Habitat Effectiveness Model Used to Estimate Elk Habitat**

An analysis process evaluating cover quality, spacing, and open road density has been used to determine elk habitat effectiveness in lieu of cover/forage ratios. Potential elk population numbers have also been re-analyzed for each alternative. Ranking between alternatives related to Habitat Effectiveness has also changed from the Draft to the Final Environmental Impact Statement.

### **Wildlife and Fisheries Calculation Changes**

A new smolt habitat capability index was used for the analysis of the Final Environmental Impact Statement. Wildlife and fish user days (WFUDs) are now displayed by alternative, using the new index approach.

### **Fuel Management Estimates Recalculated**

An improved method to calculate fuel treatment activities was used for the Final Environmental Impact Statement. Consequently, residue utilization goals are more site specific under the Final Environmental Impact Statement.

### **Ten-Year Baseline Period Updated to 1980-1989**

The ten-year baseline period for the Forest Plan was updated from 1977-86 average output levels to 1980-89 average output levels (e.g., timber sale levels, range outputs, etc.), as well as accounting for changes in old growth estimates and changes in vegetative conditions, to compare more accurately the change in jobs and timber harvest outputs by alternative. Budgets were also updated to include better estimates of costs, and minor errors in economic tables were corrected.

### **Energy and Mineral Production Potential Changes**

Mineral operating plans were updated by alternative and energy minerals produced are reported in billions of BTUs per year.

### **Timber Management**

Based on sampling the seven major watersheds (See Figure B-1), the Forest-wide average of manageable understories is now considered to be 62 percent.

Board foot yield tables have been built using cubic foot to board foot conversion ratios based on average diameter harvested. Board foot yields are shown for the first decade only.

An error in the FORPLAN model regarding shelterwood harvest constraints was corrected allowing for an increase in ASQ.

In order to account for the time lag that exists between collection of the timber inventory data (1979-80) and the beginning of the planning period (1990), a procedure was developed for use within Forplan. This process simulates the programmed timber harvests over the past ten years (1980-89), thus correcting key attributes (i.e. timber inventory, empirical growth, timber condition classes, etc.) used within the analytical model.

### **Management Indicator Species**

The bald eagle, peregrine falcon and chinook salmon have been deleted, and the bull, cutthroat, and rainbow trout have been added to the list of Management Indicator Species

### **Omnibus Oregon Wild and Scenic Rivers Act of 1988**

This legislation resulted in reduction of 2147 acres in the tentatively suitable land base from the Draft Environmental Impact Statement, because of the designation of the Malheur River as a wild river

### **Change in Riparian Yield Tables**

Timber yield tables for these areas were modified to provide longer rotations and more structural material for the stream channels

### **Snags and Snag Replacements**

These were modified to provide a minimum of 40% of potential populations for all alternatives

## **A. OVERVIEW OF THE PLANNING PROBLEM**

The Forest Service is responsible for determining the management of National Forest lands based on public desires and land capabilities. In the Forest and Rangeland Renewable Resources Planning Act of 1974 and the National Forest Management Act of 1976 as amended, Congress stated "The management of the Nation's renewable resources is highly complex and the uses, demand for, and supply of the various resources are subject to change over time," and further,

To serve the National interest, the renewable resource program must be based on a comprehensive assessment of present and anticipated uses, demand for and supply of renewable resources from the Nation's public and private forest and rangelands, through analysis of environmental and economic impacts, coordination of multiple use and sustained yield opportunities as provided in the Multiple-Use Sustained Yield Act of 1960 (74 Stat 215, 16 U.S.C. 528-531), and public participation in the development of the program

A comprehensive land and resource management plan for each National Forest will be developed and implemented in accordance with National Forest Management Act. Each plan will be prepared under procedures of the National Environmental Policy Act of 1969 as a major Federal action.

The Malheur National Forest consists of complex natural systems that can be managed for different mixes of resource outputs, land uses, and environmental conditions. Different people and groups prefer to see the Forest managed to emphasize different outputs, uses, and conditions. Because all the resources, uses, and conditions of a forest are interconnected, managing to emphasize some resources results in changes in others. Since there are practical and natural limits to what the Forest can provide, tradeoffs occur when the production of one or more resources is emphasized at the expense of other resources. Differences in people's desires concerning management of the Forest's resources are what creates issues. Thus, one component of the planning problem is how best to resolve the issues related to management of the Malheur National Forest.

The central task in Forest planning is analyzing the alternative ways of managing the National Forest to determine the implications for the environment and for human uses of it. The different emphases on goods, services, uses, and environmental conditions are used to identify the alternative mixtures of management practices which are formulated and analyzed

The different preferences of individuals and groups--and the physical, biological, and legal limits of forest management--are present in the issues and concerns which guide the Forest planning process. Another component influencing alternatives is the various resource use and development opportunities suggested by either the public or the Forest Service managers. The details of the issue development process are in Appendix A.

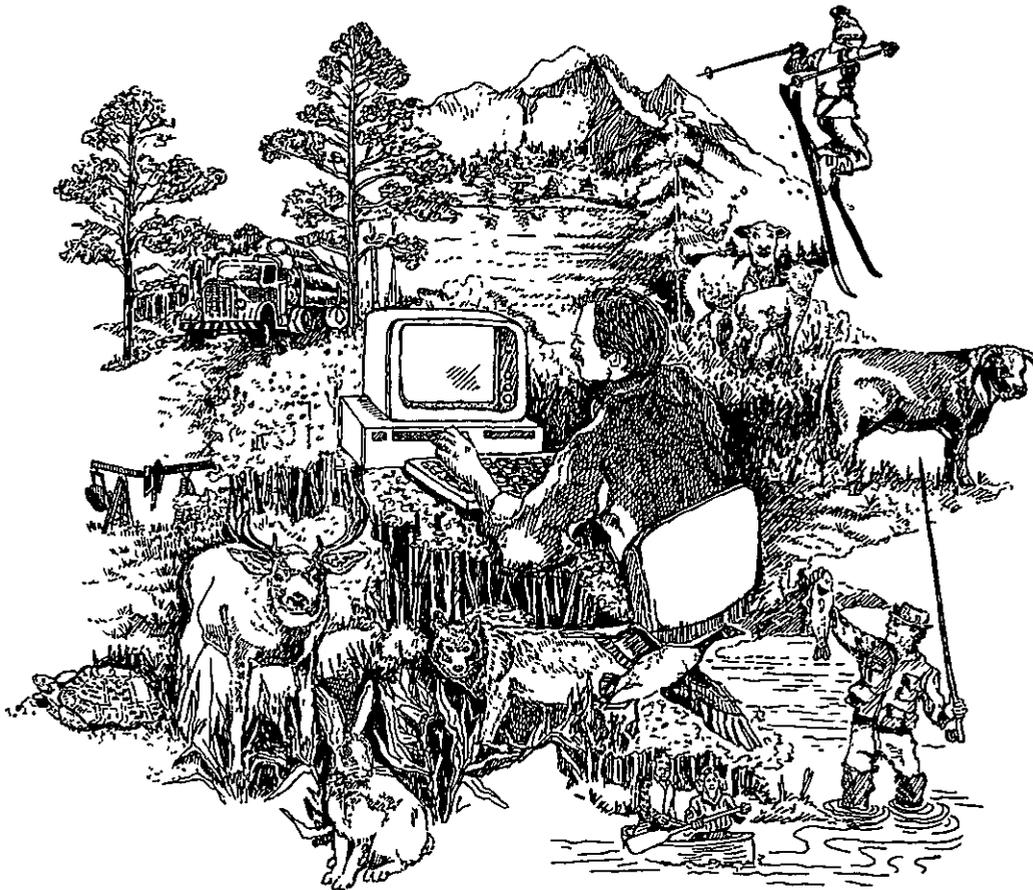
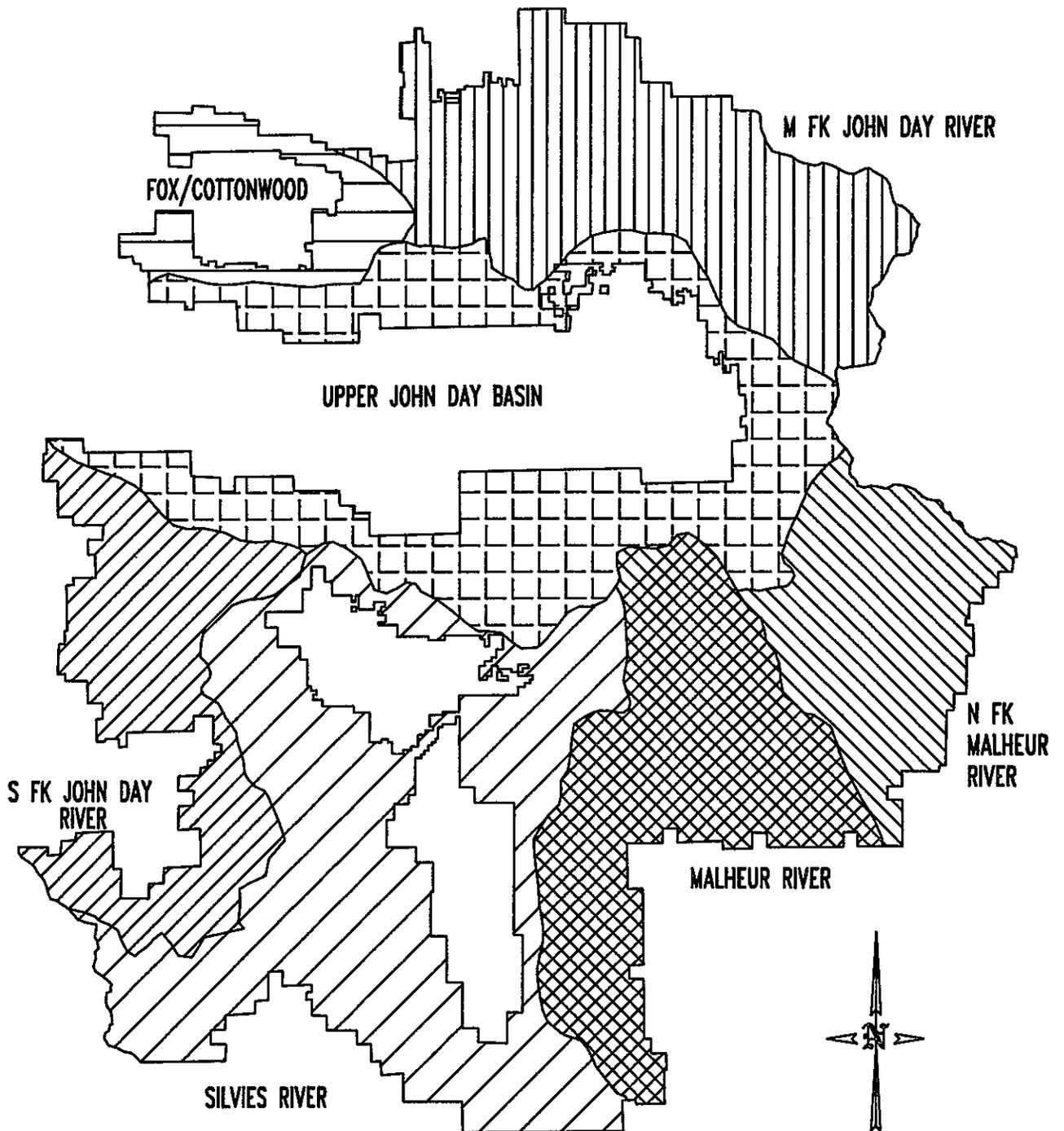


FIGURE B-1

MAJOR WATERSHEDS



Public interest includes divergent viewpoints about the use of market commodities such as timber, grazing, minerals, and nonmarket outputs such as wilderness, unroaded recreation, scenery, wildlife, old growth, and habitat diversity. The Forest's major planning goal is to provide enough information to help decision makers determine which combination of goods, services, and land uses will maximize net public benefit. (This concept is further discussed in Section IV of this Appendix.) The National Forest Management Act and the regulations developed under National Forest Management Act (36 CFR 219) provide the analytical framework to address the objective. The requirements of the National Environmental Policy Act and its regulations (40 CFR 1500-1508) must also be applied during the analysis process.

#### **B. OVERVIEW OF THE PLANNING PROCESS**

The planning and environmental analysis process brings a new outlook and a new technology to National Forest land management, principally: (1) processes formerly used to make individual resource decisions are now combined to help make integrated resource management decisions, and (2) new mathematical modeling techniques are used to assist in the proposed land use problem, including identifying the most cost-efficient pattern of land management.

The ten-step planning process is discussed in the National Forest Management Act regulations and in Chapter I of the Final Environmental Impact Statement document. Planning steps 1, 2, 7, and 8 are described in Chapters I, II, and in Appendix A of the Final Environmental Impact Statement. The execution phase, planning steps 9 and 10, is presented in the Proposed Forest Plan. This appendix describes the analysis phase of the process covering steps 3, 4, 5, and 6. The objectives of these steps are described below.

#### **C. INVENTORY DATA AND INFORMATION COLLECTION (PLANNING STEP 3)**

Following the issue development process, the Interdisciplinary Team began assessing the data needs of future planning steps. The analysis of the management situation, formulation of alternatives, and monitoring require data on resource capabilities, conditions, trends, existing supply and demand, expected outputs, benefits, and costs. Existing data was used whenever possible but was supplemented with new data if needed to help resolve sensitive issues or management concerns. During planning step 3, management strategies, standards, resource yield tables, and production coefficients were developed. Section II of this appendix will discuss the inventory data and information collection process in greater detail.

#### **D. ANALYSIS OF THE MANAGEMENT SITUATION (PLANNING STEP 4)**

This analysis step examined resource supply and market conditions and determined the abilities of the Forest to resolve the issues. A land use allocation model (FORPLAN) was used to address a number of specific requirements, including benchmark analysis. Benchmark analysis determines the maximum economic and resource production levels of the Forest in order to define the Forest's "decision space" for formulating alternatives. The decision space for the Forest defines the minimum and maximum production levels of the resources. The Interdisciplinary Team used the decision space to develop the alternatives through various combinations of the resource production levels and land allocations. The Analysis of the Management Situation document is on file in the Forest Supervisor's Office. The summary of this document is Chapter 2 of the Forest Plan.

**E. FORMULATION OF  
ALTERNATIVES  
(PLANNING STEP 5)**

The information gathered during the first four planning steps was combined and analyzed to formulate alternative management strategies. These alternatives reflect a range of resource management direction. Each major public issue and management concern was addressed in one or more alternatives. Alternative emphases for different groups of issues were examined. Management prescriptions and practices were combined to represent the most cost-efficient way of attaining the objectives for each alternative. Both priced and nonpriced outputs are considered in formulating the alternatives. The process used in formulating the alternatives for the Forest is discussed in Section VII of this Appendix.

**F ESTIMATION OF  
EFFECTS OF  
ALTERNATIVES  
(PLANNING STEP 6)**

The physical, biological, economic, and social effects of each alternative were estimated and analyzed to determine how each responds to the range of goals and objectives defined to address the issues, concerns, and opportunities. FORPLAN was used to estimate some of the economic and physical output effects, while other methods were used for the remaining effects. The analysis determined: (a) direct effects, (b) indirect effects, (c) conflict with other Federal, State, local, and Indian tribe plans, (d) other environmental effects, (e) cumulative effects, (f) socioeconomic effects within the Forest's influence zone, (g) tradeoffs associated with various resource production levels and land management strategies; and (h) mitigating measures for resource protection. The effects of the alternatives are discussed in Chapters II and IV of the Final Environmental Impact Statement and in Section VIII of this Appendix.

