

## APPENDIX G INFORMATION REGARDING MANAGEMENT REQUIREMENTS

### A. PURPOSE

This appendix is included in the Environmental Impact Statement (EIS) for the Forest Plan in response to decisions of the Chief of the Forest Service and the Deputy Assistant Secretary of Agriculture regarding appeal No. 1770, brought by the Northwest Forest Resource Council on September 18, 1986. The appeal centered on direction from the Regional Forester to incorporate "Management Requirements" (MRs) in Forest Plan alternatives. The appellant requested that the appropriateness of the MRs be examined through the Environmental Impact Statement process. The information in this appendix also responds to comments about Management Requirements that were raised during the review of the Draft Environmental Impact Statement.

A summary of Management Requirements is provided in Chapter II, "Management Requirements" section. Additional information is in Appendix B "Development of Management Requirements - The Standards (or specifications) for implementation of the Management Requirements are found in Appendix D of this Environmental Impact Statement.

This appendix addresses the issue raised by the appellant. For those Management Requirements which cause significant reductions in Allowable Sale Quantity (ASQ) or Present Net Value (PNV), alternate ways of meeting the Management Requirements are examined and their opportunity costs (reductions in ASQ and PNV) are compared.

Appendix G, "Sensitivity Analysis for Management Requirements" located in the Environmental Impact Statement is not brought forward into the Environmental Impact Statement as no changes have been made to it.

### B. BACKGROUND OF MANAGEMENT REQUIREMENTS

#### 1. What are Management Requirements?

Many laws and regulations guide Forest Service activities. One law in particular, the National Forest Management Act of 1976 (NFMA), and its implementing regulations provide direction for the Forest planning process. The Management Requirements (MRs) for National Forest Systems Land and Resource Management Planning, in Section 36 of the Code of Federal Regulations, Part 219 [36 CFR] Specify (1) the minimum specific Management Requirements to be met in accomplishing the goals and objectives of the National Forest System [36 CFR 219.27], and (2) the minimum requirements for integrating individual forest resource planning into the Forest Plan [36 CFR 219.14 through 219.26]. The term "Management Requirements (MRs)" will be used in this appendix to refer to these NFMA regulations instead of "Minimum Management Requirements" (MMRs) used in the Draft Environmental Impact Statement and Forest Plan.

Some Management Requirements are procedural in nature and need not be dealt with here. Some requirements were analyzed and were available for review during the Regional Guide Environmental Impact Statement process and are not dealt with here. See Chapter II and Appendix B for a more complete discussion. The Management Requirements which have not been fully dealt with elsewhere, and which require additional analysis due to significant opportunity costs associated with implementation, are:

- a Maintenance of habitat to assure viable populations of fish and wildlife populations, particularly mature and old-growth habitat,
- b. Protection of water resources, particularly water temperatures; and
- c Size and dispersion of created openings (harvest dispersion).

These Management Requirements are described in greater detail in later sections of this appendix. Management Requirements for other wildlife habitats and other requirements noted in 36 CFR 219.27 which have not been addressed in other Environmental Impact Statements do not cause significant opportunity costs when implemented.

**2. Legal  
Requirements  
vs.  
Implementation  
Methods**

The Management Requirements from National Forest Management Act and its implementing regulations are legal requirements. They represent "ends" which must be met during Forest Plan implementation. For example, the NFMA implementing regulations require that "fish and wildlife habitat shall be managed to maintain viable populations of existing and desired non-native vertebrate species in the planning area." It is mandatory that whatever implementation methods are chosen, the Management Requirement be met.

Specifications or standards for achievement for each Management Requirement are established at the National level or through analysis at the Regional level for most of the Management Requirements. These are listed in the regulations or as Standards in the Regional Guide. Additional specifications identified on the Forest are listed as Standards in EIS, Appendix D. The specifications must be based on knowledge of the resources involved. For example, in meeting the Management Requirement for viable populations of vertebrate species it is necessary to define the type of habitat required by the species, the maximum distance between habitats which will still provide reasonable assurance of genetic interaction, and the size of habitat area needed to support a breeding pair.

Often, the pool of scientific knowledge is insufficient to provide the entire basis for defining the specific conditions or Standards that will satisfy or meet a Management Requirement. When this happens it is necessary to rely on the field experience and the professional judgement of knowledgeable professionals, and to establish monitoring and research that will provide better information for future planning efforts.

Implementation methods are the "means" or "ways" in which the Management Requirements will be met. Determining the most appropriate means of meeting the specifications for each Management Requirement involves careful analysis at the Forest level. Considering and analyzing different means or ways of meeting a specific Management Requirement are particularly important if there are potentially significant reductions in Present Net Value (PNV) or Allowable Sale Quantity (ASQ) involved.

The distinction between "ends" and "means" is not always clear. The National Forest Management Act and implementing regulations clearly describe the "end" regarding viable populations of vertebrate species. However, in the case of harvest dispersion Management Requirement, the "end" is not well defined. National Forest Management Act specifies that harvest openings be limited to a prespecified size and be dispersed, but does not specifically state the reason (or end) to be accomplished by doing so. The implementing regulations and the Regional Guide comply with NFMA by specifying maximum size of created openings (harvest units), and describing how they are to be implemented to achieve a dispersed standard. Limited size and dispersal of harvest openings have no clear precedent regarding "means" or "ends" though for the purpose of this analysis it is treated as though it were an "end" in itself.

**3. How Implementation Methods Are Developed To Meet The Management Requirements**

The selection of means sufficient to meet Management Requirements is based on effectiveness in meeting resource protection and on minimizing reductions to Present Net Value or Allowable Sale Quantity. The general process used in evaluating alternative ways of meeting the Management Requirements is as follows.

- a. Identify the desired "end" for each Management Requirement.
- b. Assemble existing information about the resources addressed by the Management Requirements
- c. Analyze the existing information to determine what conditions or specifications need to exist on-the-ground to assure meeting the "ends" of the Management Requirement. See Table G-1.
- d. Develop various ways or means to meet the Management Requirement. See Table G-2.
- e. Evaluate the effectiveness of the alternative means in meeting the Management Requirements. Estimate the environmental effects of each set of means.
- f. Estimate, for each set of means, the effects on economic efficiency (as measured by changes in Present Net Value) and the effects on timber availability (as measured by Allowable Sale Quantity).
- g. Where opportunity costs of meeting a Management Requirement exceed two percent of Present Net Value or Allowable Sale Quantity of the Present Net Value benchmark, the analysis used to select the means are presented. Two percent was used because differences less than two percent would not be significant in terms of opportunity costs of alternative means. A higher threshold would preclude evaluation of many alternatives.

For discussion purposes, opportunity costs are reductions in Present Net Value and reductions in Allowable Sale Quantity that result from implementing resource protection measures (means or ways) to meet the Management Requirements set forth in National Forest Management Act regulations. In order to provide protection for water quality and wildlife habitat on Malheur National Forest land, some opportunities to maximize Present Net Value or to maximize timber production must be foregone.

Discussions are grouped by water quality Management Requirements and by wildlife Management Requirements in separate sections. In each section, the Management Requirements are displayed along with relevant specifications from National and Regional guidelines, and alternative implementation methods (means or ways) are analyzed.

Table G-1 summarizes each of the Management Requirements (ends) subject to analysis of opportunity costs on the Malheur National Forest and summarizes the specifications or standards of achievement for those ends. Table G-2 shows the alternative means considered for implementing each Management Requirement where the opportunity costs exceeded two percent. (Note: Two percent was the threshold defined as significant.)



TABLE G-1

SUMMARY OF MANAGEMENT REQUIREMENTS AND ASSOCIATED SPECIFICATIONS

MANAGEMENT REQUIREMENTS	SUMMARY OF SPECIFICATIONS
1 Protect Water Quality	<p>a Dissolved oxygen concentrations not less than 75% of saturation at low flow, and not less than 95% of saturation during spawning and incubation periods</p> <p>b Temperature increase of two degrees F or less when 66 degrees F. or less and no measurable increase when 68 degrees F or more</p> <p>c Turbidity increases of 10% or less</p> <p>d pH within range of 6.5 to 8.5 in John Day River basin and 7.0 to 9.0 in Malheur River basin</p>
<p>2 Habitat provided that maintains viable populations of existing native and non-native vertebrate species</p> <p style="padding-left: 40px;">-Pileated woodpecker and pine marten</p>	<p>a Maintain mature conifer stands of adequate size and distribution to allow interaction among breeding pairs of dependent species [See G-6, 7 and 8]</p>
<p>3 Openings created by timber harvest activities are dispersed and limited in size</p>	<p>a Maximum created openings of 40 acres (with some exceptions)</p> <p>b Limited to 1/3 size and perimeter of adjacent natural openings</p> <p>c. Corners of two or more created openings may touch, but considered a single opening and cannot exceed 40 acres (with some exceptions) if they are not stocked with trees 4 1/2 feet tall</p> <p>d. Protect vegetation along edge of natural openings at all times.</p> <p>e Site must be adequately stocked with trees 4 1/2 feet tall before a harvest area is considered a closed stand and not an opening</p>

TABLE G-2

SUMMARY OF ALTERNATIVE MEANS CONSIDERED FOR IMPLEMENTING EACH MANAGEMENT REQUIREMENT

MANAGEMENT REQUIREMENTS	SUMMARY OF SPECIFICATIONS
1 Protect streams and streambanks	<ul style="list-style-type: none"> <li>a. Set-aside streamside vegetation (no scheduled timber harvest).</li> <li>b. Selective harvest of streamside vegetation (scheduled timber harvest).</li> </ul>
2. Provide for adequate habitat to maintain viable populations of existing native and desired non-native vertebrate species  -Pileated woodpecker and pine marten	<ul style="list-style-type: none"> <li>a. Manage habitat sites on 240 year rotations.</li> <li>b. Dedicate habitat sites for no timber harvest.</li> </ul>
3 Harvest dispersion	<ul style="list-style-type: none"> <li>a. For all tree species, assume 10 years to grow to 4 1/2 feet in height to consider an opening "closed" or no longer an opening.</li> <li>b. For lodgepole pine, assume 10 years and for all other tree species, consider 15 years to grow to 4 1/2 feet in height to consider an opening "closed" or no longer an opening.</li> </ul>

In analyzing the effects of the alternative means of meeting the MRs on Present Net Value and Allowable Sale Quantity, FORPLAN runs were made with and without constraints designed to simulate meeting the Management Requirement. The Present Net Value benchmark was used for this analysis. This benchmark is a FORPLAN run which identifies the mix of management activities which would result in the highest level of economic efficiency (i.e., the highest Present Net Value) in managing Malheur National Forest resources. It also identifies the Allowable Sales Quantity associated with the most economically-efficient mix of management activities.

A benchmark was chosen to use in the "with and without" constraint comparison, rather than an issue-based Forest Plan alternative. Management practices necessary to meet other objectives of the issue-based alternatives may partially or fully meet the MR, thus clouding any analysis of opportunity costs induced by the Management Requirement. The true effect when measured against a fully developed alternative is significantly less because the objectives of that alternative may satisfy the Management Requirements to a large extent

**4. Implementation Methods with High Opportunity Costs**

Table G-3 displays the opportunity costs of the implementation measures selected for meeting Management Requirements on the Malheur National Forest. Only those implementation measures with opportunity costs of two percent or larger are shown: water quality, mature conifer/old growth (for pileated woodpecker, pine marten) and dispersion of openings

TABLE G-3

OPPORTUNITY COST OF MEETING THE MANAGEMENT REQUIREMENTS WITH THE SELECTED IMPLEMENTATION METHODS

	FIRST DECADE ALLOWABLE SALE QUANTITY MMCF/YR <sup>1/</sup> (MMBF/YR) <sup>2/</sup>	CHANGE IN ALLOWABLE SALE QUANTITY <sup>3/</sup>	PRESENT NET VALUE <sup>4/</sup> MM\$	CHANGE IN PRESENT NET VALUE
PNV Benchmark with no protection measures	53 3 (304 9)	--	638 6	--
<hr/>				
Opportunity Cost Approximate Change.				
Opportunity Cost of Selected Water Quality Implementation Methods	0 6 (3.5)	1%	14.5	2%
Opportunity Cost of Selected Old-Growth Implementation Methods (for pileated woodpecker, and pine marten)	2 6 (14 9)	5%	20 9	3%
Opportunity Cost of Selected Created Openings (Harvest Dispersion) Implementation Methods	2.5 (14.0)	5%	55 2	9%

<sup>1/</sup>MMCF/YR = Millions of cubic feet per year

<sup>2/</sup>MMBF/YR = Millions of board feet per year, assuming 5.72 MMBF per MMCF

<sup>3/</sup>Percent change calculated on cubic foot basis

<sup>4/</sup>MM\$ = Millions of dollars

**5. Implementation  
Methods With Low  
Opportunity Costs**

Management Requirements for other wildlife habitat requirements for Threatened and Endangered Species, Sensitive Species, special habitats, and dead and defective tree habitat are not addressed in this analysis because opportunity costs of providing sufficient habitat to maintain viable populations are less than two percent.

**6. Implementation  
Methods That Meet  
More Than One  
Management Requirement**

Implementation methods selected to meet water quality Management Requirements also provide fish habitat in streams and riparian habitat adjacent to streams to assure the maintenance of viable populations of species dependent on these habitats. Alternative implementation methods for meeting water quality Management Requirements will also meet fish habitat and riparian habitat requirements. No additional discussion or analysis is displayed in Appendix G for these Management Requirements.

**C. WATER QUALITY  
MANAGEMENT  
REQUIREMENTS**

**1. Source of the  
Water Quality  
Management  
Requirements**

Management Requirements for water quality are based on NFMA which states:

Forest planning shall provide for compliance with requirements of the Clean Water Act, the Safe Drinking Water Act, and all substantive and procedural requirements of Federal, State, and local governmental bodies with respect to the provision of public water systems and the disposal of waste water [36 CFR 219.23(d)].

Special attention shall be given to land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes and other bodies of water. This area shall correspond to at least the recognizable area dominated by the riparian vegetation. No management practices causing detrimental changes in water temperature or chemical composition, blockages of water courses, or deposits of sediment shall be permitted within these areas which seriously and adversely affect water conditions or fish habitat [36 CFR 219 27(e)].

The Clean Water Act seeks to control nonpoint sources of water pollution. To comply with Section 208 of the Act, Forest Service Region 6, the states of Oregon and Washington (which manage implementation of the Act in the respective states) and the Environmental Protection Agency agreed on a process whereby each state reviews Forest Service Management Practices to determine if they meet or exceed state water quality standards. Practices that are judged to meet or exceed the standards are certified as Best Management Practices (BMPs) which the Forest Service then agrees to continue.