APPENDIX I

ANALYSIS OF PUBLIC RESPONSE

INTRODUCTION I-01

RELEASE AND DISTRIBUTION TO THE PUBLIC I-01

SUMMARY OF PUBLIC COMMENT I-02
- Content Analysis Process I-02
- Distribution of the Comments I-03
  - Who I-03
  - Where I-03
  - Form I-05
- Overview of Comment Content I-06
  - Comments on the Alternatives I-06
  - Comments on Selected Issues I-07

RESPONSE TO PUBLIC COMMENT I-10
- Introduction I-10
- Air Quality I-10
- Diversity I-12
- Economic Considerations I-17
  - General I-17
  - Jobs and Income I-19
  - Payments to the Counties I-21
  - Present Net Value (PNV) I-22
  - Price Trends I-23
  - Values and Costs I-23
- Ecosystems I-25
- Fire I-28
- Fish I-30
- Minerals I-33
- Multiple Use I-35
- Old Growth I-37
- Planning I-40
  - Adequacy of Analysis I-40
  - Adequacy of Information I-41
  - Alternatives Considered I-42
  - Computer Modeling I-44
  - Legal Adequacy I-45
  - Monitoring I-50
  - Public Participation I-53
  - Standards and Guidelines I-55
- Recreation I-56
  - General I-56
  - Permits I-59

Trails I-60
Vehicles I-61
Riparian I-62
Roadless Areas I-65
Sensitive Plants I-67
Social Considerations I-68
Soil I-68
Special Management Areas I-71
HJ Andrews Experimental Forest I-71
Oregon Cascades Recreation Area (OCRA) I-71
Research Natural Areas (RNAs) I-71
Special Interest Areas (SIAs) I-72
Timber I-73
Fertilizer I-73
Harvest Effects I-74
Harvest Levels I-74
Harvest Methods I-75
Harvest Scheduling I-76
Inventories I-76
Land Suitability I-78
Reforestation and Timber Stand Improvement I-78
Sustained Yield I-80
Yield Tables I-80
Transportation I-81
Visual Resources I-82
Water I-84
Data, Statistics, and Method I-84
Effects of Management Practices I-87
Erosion, Sedimentation, Temperature, and Turbidity I-88
Groundwater I-90
Standards for Water Quality I-90
Water Quality Monitoring I-92
Wild and Scenic Rivers I-93
Wilderness I-95
Adjacent Lands I-95
Commercial and Other Use I-96
Management I-97
Recreational Use I-98
Wildlife I-100
Big Game I-100
General I-102
Habitat I-103
Management Indicator Species & Management Requirements I-105
Marten I-107
Primary Cavity Excavators I-108
Spotted Owl I-110
Threatened, Endangered, and Sensitive Species I-112
Other Topics I-113
Budget and Funding I-113

Cultural Resources I-114
Energy I-114
Firewood I-115
Insect and Disease I-115
Manufactured Compounds I-116
Range I-116

LIST OF WHO COMMENTED
Federal Agencies List-1
State Agencies and Elected Officials List-1
Local Governments and Elected Officials List-1
Native American Tribes List-1
Utility and School Boards List-1
Businesses List-1
Other Organizations List-3
Individuals List-4

LETTERS FROM PUBLIC AGENCIES Letters-1

APPENDIX I

ANALYSIS OF PUBLIC RESPONSE

INTRODUCTION

This Appendix presents or discusses the:

- Release and distribution of the Draft Environmental Impact Statement (DEIS).
- Summary of the public comment (including the process used to review the comments which were received, an overview of the distribution of the comments, and an overview of the content of the comments).
- Response to public comment.
- List of Who Commented.
- Agency, Elected Official, and Indian Tribe Comments (Letters from Public Agencies)

The Forest took the public comments very seriously. They provided a unique and invaluable opportunity to learn and consider the personal, professional, and organizational opinions of those affected by the management of this Forest. A diverse cross section of opinion was tapped over a range of issues as diverse as the natural resources found on the Forest.

Over 17,500 comments were received. Very many of them were personally read by the Forest Supervisor, the Deputy Forest Supervisor, the District Rangers, and the Staff. They were considered by the Interdisciplinary Planning Team, by program managers, and by those responsible for implementation on the ground. All were analyzed for their content and the valuable perspectives they offered on management of this Forest.

RELEASE AND DISTRIBUTION TO THE PUBLIC

The DEIS and Proposed Land and Resource Management Plan (Draft Forest Plan) received wide notice and distribution. A news conference was held on December 7, 1987 for the print and electronic media. Distribution began on that day and continued through December and into January, 1988. Notice was published in the Federal Register on December 24, 1987. The initial public review period was scheduled to end March 31, 1988. It was later extended to May 16, 1988.

Over 5100 Summary Packets were distributed. The Summary Packets included a summary, maps, and a response form. 1850 full sets of the DEIS, Appendices, Draft Forest Plan, maps, and response forms were distributed. Several thousand introductory summary brochures were also circulated.

The Forest publicized the availablity of the DEIS and Draft Forest Plan and actively encouraged public involvement throughout the comment period. Display ads were printed in newspapers in Eugene, Salem, Albany, Corvallis, and Oakridge. Three Planners Reports were published and distributed to the 2200 names on the Planning Mailing List.

Numerous open houses, displays, and presentations were conducted during the comment period. These activities both informed the public of the availability of the documents and provided the opportunity to answer questions. Open houses were held not only in Eugene, Salem, and Albany, but in several smaller communities near the Forest. Displays at various locations and events in Portland, Corvallis, and Eugene helped publicize the nature and availability of the documents to the general public. Planners responded to telephone calls and office visits. They conducted internal briefings for employees and retirees to draw upon their familiarity with the Forest's resources. They also participated in numerous meetings of service clubs, business and professional groups, recreation and conservation groups, and briefed various agency and elected officials.

The print and electronic media provided excellent coverage of the availability of the documents, the public's opportunity to comment, and of the major public issues associated with the planning process. In addition, some organizations independently undertook their own campaigns to inform the public of the opportunity to comment.

SUMMARY OF PUBLIC COMMENT

Content Analysis Process

Great emphasis was placed on reviewing the public comments. The Forest attempted to capture the feelings, opinions, ideas, suggestions, and supporting logic offered by the many people and organizations that devoted their energies to commenting on the DEIS. A technique called "content analysis" was used to accomplish this. Obviously, any process used to interpret and catalog the expressions of others is subject to inherent limitations; and content analysis and its accompanying coding are no exception. The Forest made every effort to minimize those limitations, however, and to capture the thrust of the comments as completely and objectively as possible.

Upon arrival at the Supervisor's Office, each comment was date stamped and assigned a sequential number. The comment was copied onto larger working sheets, and the original put in a secure place.

In order to make analysis manageable, each comment was coded to the extent practicable for basic demographic information and for content. Demographic information normally included the identification number of the comment, the name and address of the person commenting, and the form of the response (e.g. form letter, petition, original letter).

Content coding was of course more challenging. A code book was established shortly before the completion of the comment period which attempted to categorize the reasons or concerns expressed by the comments. The code book was continually refined as coders were trained and gained experience coding actual comments. Ultimately codes were available to capture opinions and information on most recurring subjects and specific sites. In addition, coders could "red flag" technical information, comments, questions, or ideas, signaling the data entry team that the specific verbatim comment should be entered into a data base.

The coders included Forest Service retirees and employees from a number of different Ranger Districts and Forests. These individuals represented a range of backgrounds and carried a collective familiarity with the full range of major public forest management issues. Data input of the coded comments was generally done by contracted temporary services.

Comments were read by the coder at least three times. The first reading was intended to provide context and give the coder an overall sensitivity for the writer's concerns. In the second reading, the coder selected comments that were relevant to the identified issues and expressed the writer's feelings. The third reading provided the opportunity for numbering and categorizing the comments. This last step could include highlighting textual excerpts as needed (e.g. existing subject and opinion codes were inadequate, a potentially substantive comment was made, technical information was provided). The coded comment was then forwarded to a coding supervisor for review before the data entry phase was approved.

Distribution of the Comments

It is highly unlikely that the people and organizations who chose to comment on the DEIS and Draft Forest Plan constituted a truly random sample of the public. Consequently some basic analysis of the sample was undertaken to provide managers and the Interdisciplinary Team (IDT) a measure of context in which to interpret the viewpoints represented by the comments. The analysis of the sample was not intended to meet rigorous statistical standards, nor was it used as a basis from which to draw sophisticated inferences. In fact, nearly 900 comments were not analyzed for distribution at all, because they came from unidentifiable sources (illegible name, missing address, etc.). These 900 comments were analyzed only for content.

Readers are cautioned that the numbers presented in this section are approximate only. Specific numbers should not be assumed to suggest absolute precision. Readers are encouraged to use the information only for purposes of establishing context for the viewpoints represented by the comments.

Who

Over 17,500 comments were received. About 600 of these involved a person or organization sending in more than one response, including raising new concerns ("duplicates").

These comments involved over 177,000 separate thoughts, ideas, or concerns.

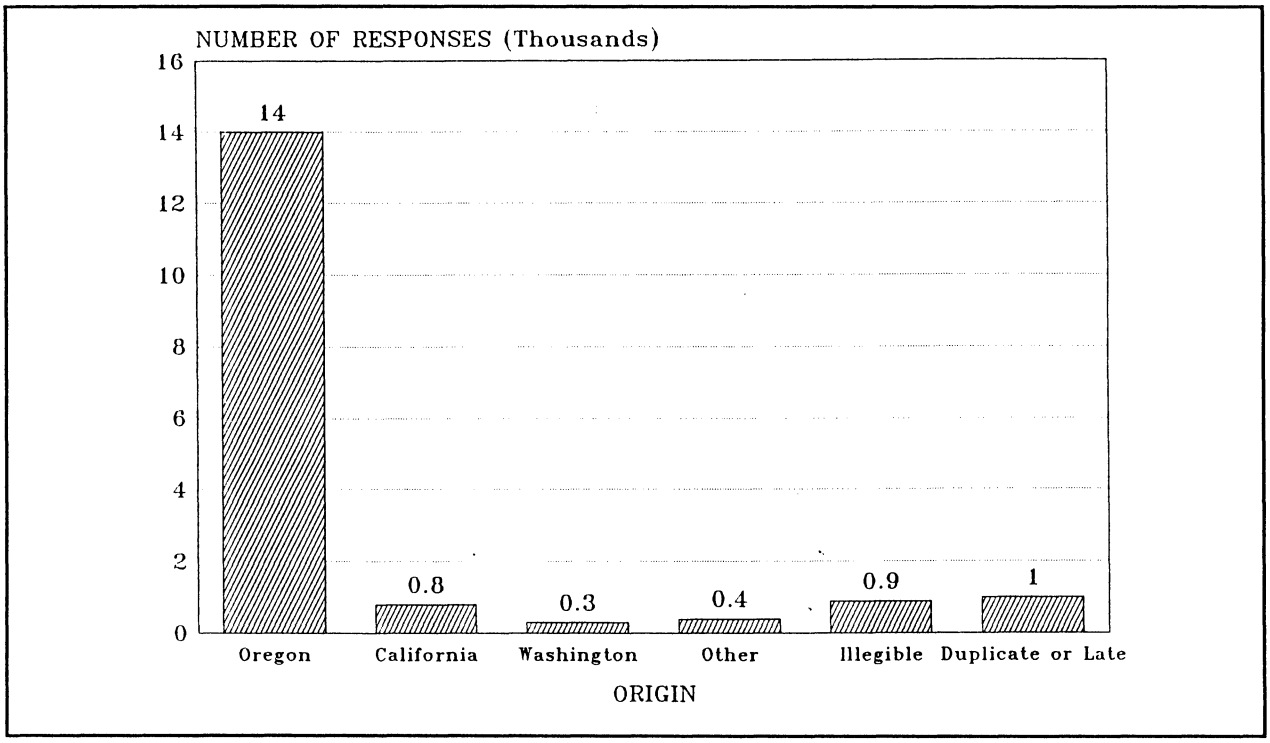
The vast majority of the comments, about 16,000, were submitted by individuals acting for themselves or families. The remaining comments came from a variety of sources, such as business, timber industry, environmental and conservation groups, recreation groups, public agencies, elected officials, universities, and professional groups. No Native American tribal council comments were received.

Where

Comments were received from nearly every State. Comments were also received from Australia, Brazil, Canada, Finland, the Sultanate of Oman, Sweden, and West Germany.

The overwhelming majority of comments (in excess of 14,000) were received from Oregon. About 750 comments were received from California, and about 350 were received from Washington. See Figure I-1.

Figure I-1. Geographic Origin of Comments



Comments were received from about 300 Oregon cities, from Adel to Zigzag. In fact, Oregon cities beginning with every letter of the alphabet except Q and X were represented.

Oregon cities contributing in excess of 100 comments were:

4,280 - Eugene
1,142 - Springfield
726 - Lebanon
619 - Portland
574 - Salem
525 - Corvallis
500 - Cottage Grove
480 - Sweet Home
399 - Albany
346 - Creswell
267 - Stayton
246 - Oakridge
186 - Mill City
169 - Roseburg
162 - Lyons
149 - Scio
145 - Dallas
129 - Veneta
125 - Florence
124 - Junction City
105 - Drain

Form

The vast majority of comments, about 14,000, were submitted on one of several preprinted forms prepared by interested organizations. Broadly speaking, these organizations either supported the interests of the timber industry or various conservation/preservation groups.

Over 2,000 original letters and cards were received. Only about 150 comments were submitted on the form supplied by the Willamette National Forest. Some comments were received in other formats, ranging from petitions to resolutions to extensive critiques in excess of 50 pages.

Some people believed that the value of the form letters should be discounted. Some of the more frequently expressed concerns were that:

- Using the forms perhaps indicated that the person commenting did not feel as strongly about the issues as people who devoted the energy to write a personal letter.
- The matters expressed in such comments more nearly reflected the opinion of the interest group producing the form than that of the individual submitting the comment.
- In some cases real or perceived employment or organizational coercian motivated the writer to submit the form, rather than personal agreement with the content of what was submitted.
- Form letter campaigns represented efforts on the part of the interest group producing the form "to stuff the ballot box" in favor of that group's positions.

Despite the fact some people held these concerns, the Forest coded and considered comments regardless of the form in which they were received. The Forest's philosophy is that content is more important than the manner of presentation, whether by backside of an envelope, handwritten letter, preprinted form, or glossy graphic.

To the extent the use of preprinted forms may have stimulated wider public participation in the planning process, the public benefited from a more informed final decision about the management of the Forest. While the extent of this stimulation cannot be measured directly, one fact is clear: collectively the forms provided by the interest groups were much more heavily used than the one provided by the Forest's mailing.

Concerns about "stuffing the ballot box" should not be overemphasized, because neither the National Environmental Policy Act (NEPA) nor the National Forest Management Act (NFMA) contemplate that decisions affecting the forest environment will be made by simple popular vote. The degree of public interest surrounding specific issues, as judged either by their extent or intensity, is only one important factor the Deciding Official evaluates in making an informed decision. Many other factors, such as legal requirements, available technology, and resource capability also influence the decision. Indeed, the bulk of the FEIS and related documents analyzes and addresses these other factors.

Finally, the Forest is unaware of extensive concern about coercian in the submission of form letters. In considering this issue it is important to keep in mind that the perception of coercian is a highly individual matter. It is certainly possible that some people may have felt they were coerced into submitting their comments, while others holding nearly identical opinions in nearly identical circumstances might not have felt any such compulsion. That the issue of coercian was not pervasively raised is perhaps the best evidence that it was not a substantial factor. Furthermore, the ultimate effects of coercian (if any occured) would merely be a variation of the "stuffing the ballot box" concern discussed above.

Overview of Comment Content

This subsection provides a subjective overview of the comments received on the DEIS alternatives and selected major issues.

Comments on the Alternatives

Many of the comments referred to the DEIS and accompanying documents in general terms rather than identifying a specific alternative.

Of the alternatives specifically mentioned, Alternative J received the most comments. Most likely this is because it was identified as the Preferred Alternative and was the subject of the Draft Forest Plan. The overwhelming sentiment (over 44,000 comments) was that modification was necessary. In addition, over 18,000 comments expressed dissatisfaction with Alternative J, while less than 800 approved of it.

The Oregon Natural Resources Council (ONRC) and Willamette Forestry Council (WFC) Alternatives each received over 19,000 favorable comments. The ONRC and WFC positions were in many respects incompatible; but despite such incompatibilities, each received only a handful of negative comments. Most of the comments expressing support for these positions were found in the text of preprinted cards.

Alternative C received over 3,500 favorable comments. Of all the fully displayed alternatives, Alternative C was closest to the ONRC Alternative. Many expressed their support for Alternative C, based on the fact that the ONRC Alternative was eliminated from detailed study.

None of the remaining alternatives received extensive comment.

Table I-1 displays the distribution of comments and opinions on the alternatives. The numbers are approximate only. Specific numbers should not be assumed to suggest precision.

Table I-1. Comments and Opinions on Alternatives (I-1)

Alternative	Positive	Negative	No or Other Opinion	Modification Necessary	Total
In General	392	160	69,280	63	69,895
NC (No Change)	49	20	5	1	75
A (No Action)	20	21	13	1	55
B-Dep (RPA)	26	21	4	14	65
C	3,555	47	85	347	4,034
D	163	10	12	24	208
F	72	16	17	19	124
I	24	20	0	6	50
J (Preferred)	784	18,808	305	44,075	63,972
J-Departure	17	19	4	26	66
ONRC	19,107	32	57	86	19,282
WFC-Willamette Multiple Use	19,324	55	45	114	19,438
NEW ALT.	356	1	63	0	420
OTHER PLANS	13	1	2	1	17
TOTAL					177,701

Comments on Selected Issues

Dispersed Recreation: The comments expressed support for an improved trail system on the Forest, including both new construction and maintenance of existing trails to a higher standard. Most comments about ORV use were negative, citing resource damage and incompatibility with many other forms of disperse recreation. Many comments were site-specific, encouraging management consistent with the writer's preferred use of the sites.

Old Growth: Many writers expressed their interest in preserving most or all of the remaining old growth. Generally the reasons which were cited were difficult to value economically: aesthetic, ecosystem integrity, habitat needs for plants and wildlife, biological diversity, protection of soil and water, recreational uses, and spiritual values.

A smaller, but still sizable group of people pointed to the economic value of harvesting old growth and expressed concerns for local economies and mills should remaining old growth be extensively preserved. Many in this group found beauty and biological value to converting stands of "decadent" timber to more vigorously growing second growth forests.

Many people on both sides of the old growth preservation issue questioned the definition and inventory figures for old growth used by the Forest. Many also considered the Forest's practice of grouping old growth with mature timber misleading.

Roadless Lands: People were highly polarized over the issue of whether to develop roadless lands, and the extent to which this should happen. A large number of people considered the roadless issue closed with the passage of the Oregon Wilderness Act of 1984. They favored development of most or all of the remaining roadless lands. Several considered any no-harvest allocations adjacent to existing wilderness as constituting improper buffers to wilderness.

Others strongly objected to building any roads into existing roadless lands; and frequently people objected to any entry for timber harvest, even if it involved no new roads. Reasons stated for retention of some or all of existing roadless areas included ecological integrity, retaining options for future wilderness designation, unroaded recreational use, promoting biological diversity, and preservation of remaining old-growth stands.

Scenic Quality: Most comments about scenic quality were concerned with the visual aesthetics from major roads and highways and from other important scenic corridors. The impressions of Forest visitors and tourists, with the resultant effects on tourism, were important. Many considered the Forest's treatment of the visual resource misleading, inaccurate, or without adequate integration. Others criticized the technical timber volume treatment of visual areas. Some stressed the relatively temporary nature to the disruption of the visual resource that logging produced, and therefore felt the Forest had overemphasized visual considerations.

Timber: Most people had something to say about timber management practices. The concerns ranged from the amount of harvest to the nature of logging techniques, rotation lengths, reforestation, land suitability, effects of logging on other resource values, and the way in which available timber quantities are calculated.

Many people saw the economic well being of themselves, their family, and their community tied to a high, sustainable level of timber supply. Frequently this included the availability of old growth and the need to enter areas currently in roadless condition. Frequently this included issues of cost efficiency in the logging techniques employed.

Others viewed the effects of timber harvest as seriously harmful to virtually all the remaining resource values in the Forest. The issue was joined across the full range of harvest considerations, from land suitability to logging techniques and vegetation management. Economic concerns were often addressed in terms of the need for diversification.

Virtually no one perceived their own historical or anticipated use of the timber resource inconsistent with wise forest management or conservation principles. Yet often comments would characterize the position of the "other side" as economically harmful, wasteful, or exploitive. In all its facets this issue clearly represented a matter in which the public was seriously divided.

Despite the complexity of the questions and their interrelationships to other resources, an extremely sophisticated level of public debate was evident in the comments on timber.

Water Quality and Quantity: Serious concerns were raised about the Forest's treatment of water quality and quantity, including related issues such as soils and the management of riparian zones. In short, the general comment was that the Preferred Alternative would fail to result in compliance with

applicable laws. Considerable attention was focused on the adequacy of standards and guidelines and monitoring plans.

Wildlife, Fish, and Plant Habitat: Most of the comments expressing concern for fish habitat were related to the water quality issues discussed above. Similarly, the most pervasive concern for plant habitat involved another subject discussed above, namely old growth.

The bulk of the comment about wildlife involved management indicator species (MISs), such as the spotted owl, pine marten, pileated woodpecker, and big game. Some questioned the process by which MISs were chosen and Management Requirements (MRs) were set. Disagreement was evident over whether too much or too little protection was provided. The economic impact and the state of scientific knowledge were thoroughly debated by the comments.

Wild and Scenic Rivers: Several people requested that the Forest conduct further evaluation and designation of rivers under State Scenic Waterways or federal Wild and Scenic River legislation.

Economics: Concern about the economic impact of potential management decisions was evident throughout the comments. Typically the concerns centered around the extent to which proposed management practices might result in lower timber harvest volumes or more expensive mitigation requirements.

The debate ranged over virtually every consideration: would economic well being be enhanced or devastated; who would be affected and when; how were assumptions formulated; were assumptions valid; were analytical techniques appropriate; were alternative techniques available to achieve the desired resource effects with less economic impact; could changes in practices be phased in; what was the proper role of the Willamette National Forest in supporting the local economy? Frequently the debate was simply social: assuming economic cost was involved in protecting the environment, just how much economic cost was the public willing to incur?

RESPONSE TO PUBLIC COMMENT

Introduction

One of the most valuable advantages to circulating the DEIS and receiving back comments from the public was the opportunity to receive substantive comments. A substantive comment is defined by Forest Service Handbook 1909.15, Section 05, Item 34 as, "A comment that provides factual information, professional opinion, or informed judgment germane to the action being proposed."

Consideration of substantive comments gives the Forest the opportunity to do one or more of the following:

- Modify alternatives, including the proposed action.
- Develop and evaluate alternatives not previously given serious consideration.
- Supplement, improve, or modify the analysis.
- Correct factual errors.
- Identify where in the documents the comment is addressed, and as appropriate explain why the Forest's position is maintained in the FEIS by discussing the rationale, sources, and authorities used.
- Explain what circumstances would trigger agency reappraisal or further response.

Each of these results should produce either a better technical document, promote public understanding of the issues, or both.

Identification of the substantive comments was a task undertaken by the Interdisciplinary Team. The substantive comments, and the Forest's response, are presented below. Comments are arranged by subject categories. In many instances comments have been paraphrased or combined when issues of a like or closely related nature are involved.

Air Quality

In light of the heightened public awareness and sensitivity to the issue of air pollution, the Draft Forest Plan is overly optimistic for the levels of prescribed burning that are projected. What are the impacts if you are unable to use prescribed burning to reduce logging slash at the rate your plan suggests?

> **Response:** If air quality considerations become more restrictive for prescribed burning, the result will likely be a reduction in the amount of area treated by that method. A corresponding increase in fire hazard and increased difficulty in reforestation on some sites may result. These results may be ameliorated to the extent alternative forms of fuels treatment may be prescribed which minimize the production of smoke during critical times of the year. The physical removal of large amounts of residue is not likely to be physically or economically practical. In addition, in some cases there is the need to retain large woody material for long-term productivity.

The DEIS states that emissions will be decreasing from the 1979-1985 average, but no reference is made to the 1976-1979 baseline emissions. Planned increases require technical analysis on nearby Class I wilderness and Class II lands (analysis unneeded if the baseline period is not exceeded). If significant impacts are indicated, then specific measures designed to mitigate them must be described.

> **Response:** The FEIS has been corrected to incorporate the 1976-1979 baseline period emissions. If projections or monitoring information reveals that baseline emissions may be exceeded, the technical analysis will be completed in accordance with the State Implementation Plan.

Oregon Administrative Rule 340-20-001 requires the highest/best practicable treatment and control be applied to pollution sources. Since prescribed burning smoke is the largest source of fine particulate emissions in the State, the DEIS should include consideration of an alternative that assures the highest/best practicable treatment of forest residues, focusing on intensive utilization of woody residues for industrial purposes.

> **Response:** The Forest must comply with the Clean Air Act under all alternatives. The State Department of Environmental Quality's (DEQ's) State Implementation Plan (SIP), of which the Smoke Management Plan administered by the Oregon Department of Forestry (ODF) is a part, establishes the standards which must be met. The SIP goal is a 50% reduction in the fine particulates from the 1976-1979 baseline by the year 2000. In order to meet this goal, alternative treatment methods and strategies for the disposal of forest residues are considered in the site-specific project analyses for activities which propose generating or disposing of such residues. In this way highest/best practicable treatments and controls are identified, including potential industrial uses.

Page IV-41 of the DEIS notes that "no emissions from forestry burning have yet been identified by the Environmental Protection Agency (EPA) as hazardous to human health." While technically true, this statement is misleading and in conflict with other Forest Service FEISs. The EPA does not categorize

health effects of pollutants in terms of sources. Rather, they are categorized in terms of the pollutants themselves, including carbon monoxide, particulates, and toxic air pollutants from a variety of sources. The FEIS should more accurately reflect what is known, or not known, about the health effects of smoke.

Response: While it is known that the burning of woody material does produce some volume of respirable particulates, there is no completed study as yet detailing the health effects of smoke produced from forestry burning. In terms of health effects of smoke in population centers, residential woodburning is presently the primary concern of air regulatory agencies.

The information present on pages III-33 through 37 and IV-46 through 47 of the DEIS is outdated. In particular, the discussion describing the Oregon Smoke Management Plan should be revised.

Response: Updated information is incorporated in the FEIS. A discussion of the visibility portion of the State Implementation Plan has been added, outlining the restriction of forestry burning in the Cascades between July 4 and Labor Day. The Figure showing the areas of air quality concern in Chapter III has been updated to include Bend as a Designated Area. The Figure showing acres treated by prescribed burning is updated. The discussion about intensive utilization practices has been updated to reflect more current economic factors and the retention of woody material on sites for nutrient supply and long-term productivity.

Page 17 of the DEIS Summary states: "For the use of prescribed fire, extreme care will be taken to avoid intrusion of smoke into State-identified sensitive areas." What area in this state, or in any state, is not a sensitive area in regard to the toxic effects of smoke, especially smoke containing toxic chemicals such as herbicides?

Response: The State Smoke Management Plan which is a part of the State Department of Environmental Quality's State Implementation Plan establishes which areas are considered "sensitive" and what standards must be met.

The instances in which the same unit would be treated by both herbicides and burning are expected to be very rare during the planning period. Normally this would only occur when there were serious, unexpected problems in restocking the unit, and even then the normal order would be to burn first and then apply the herbicide. In the unlikely event the order would be reversed (i.e., burning after the application of herbicides) the site specific environmental analysis would carefully consider the potential health effects of the procedure.

Diversity

The discussion about the Basis for Alternative Development (pages II-3 and II-4 of the DEIS) fails to list the need to develop an alternative which looks to maintain an adequate level of natural forest diversity as required by regulation. See 16 USC 1604(g)(3)(b) requiring plans to provide for plant and animal diversity; and other citations relating to diversity such as 36 CFR 219.26, 36 CFR 219.27(g), and the Regional Guide standard and guideline 2. The diversity provided by SIAs, RNAs, and wilderness fails to provide adequate distribution and representation of all habitats; and the result will be a timber harvest schedule, eventually excluding stand ages between 100 and 300-400+ years.

Response: Alternatives are intended to represent differing integrated strategies to address and respond to the major public issues, management concerns, and resource opportunities identified during the planning process. Consistent with National Environmental Policy Act and

National Forest Management Act requirements, a broad range of reasonable alternatives, including certain specified ones, must be formulated. A "diversity" alternative, as such, is not one of these.

While no "diversity" alternative must be formulated, in fact all alternatives consider diversity and no alternative proposes the loss of a viable, well-distributed native or desirable nonnative species of plant or animal. No type conversion is proposed. With the exception of the NC Alternative, all alternatives meet the requirements of the Regional Guide.

The Final Forest Plan includes substantial direction to maintain diversity. Examples include: using management indicator species to provide appropriate habitat protection for the various wildlife species; management sensitivity to corridor needs for species dispersion; management for sensitive plants and for threatened and endangered wildlife species; retention of timber stand structural diversity (green trees, snags, down wood) in harvest areas; management for old growth in reserved areas and in general forest; and some management areas managed on extended rotation ages.

The Goals Statement for Alternative C on page II-48 of the DEIS says that "...diversity of plant and animal habitats will be maintained at high levels." What does that mean?

Response: In addition to meeting the minimum legal requirements for plant and animal diversity, a specific goal of Alternative C is to actively foster diversity as a prime consideration in project planning. Alternative C, as with all alternatives, provides for viability for all of the species, but different alternatives place varying emphasis on the relative populations for which species are managed.

The terms "plant diversity" and "animal diversity" are misused at page III-47 and Figure III-G-4 of the DEIS. If they imply species numbers then the term "species richness" should be used. Richness is only a part of diversity. Similarly, the opening discussion about the environmental consequences to vegetation (DEIS, page IV-49) seems too narrow. It inadequately discusses the complexity of ecosystems (genetic, temporal, structural) and the manner in which resource uses can be coordinated. Nor is there any method to monitor biological diversity.

Response: Diversity can occur at the genetic, species, habitat and landscape levels. Species diversity consists of species richness (the number of species present) and species evenness (the relative population density of the species present). See the Vegetation Section, Chapter IV of the FEIS.

It would be virtually impossible to conduct a complete census of the vertebrate and plant species in order to calculate species diversity over an area the size of the Forest. The most feasible and useful approach has therefore been to monitor specific species (Management Indicator Species and threatened/endangered species), and then conduct planning and monitoring for the habitat used by all other species. "Habitat" in this context can be thought of as the abundance, distribution, structural condition, and seral stage of plant communities across the Forest. The Final Forest Plan accordingly calls for emphasis on specific species and management for the habitat of all other species, along with associated monitoring activities. This method inherently incorporates the concept of resource use coordination.

The Draft Forest Plan fails to describe diversity as a component of the desired future condition of the Forest in 10 to 15 years.

Response: The Final Forest Plan Goals recognize the vital role that diversity plays in a healthy and productive forest ecosystem. The most important facet of this recognition, the direction to manage in a manner consistent with promoting diversity, is found in the standards and guidelines (S&Gs) in Chapter IV of the Final Forest Plan and the monitoring plan in Chapter V of the Final Forest Plan. The future condition of the Forest will reflect the success of those S&Gs.

Old-growth values and quantities are not addressed in the DEIS and Draft Forest Plan in terms of forest type. An abundance of old forest stands do and will continue to exist in the wilderness areas, but a large majority of these stands are high elevation true fir and mountain hemlock forests which do not offer the structural and biologic diversity that the lower elevation douglas-fir/western hemlock forests do.

Response: As a result of the Mature and Over-Mature Survey, displays of old growth by species and land allocation are presented for the Forest in Chapter III of the FEIS and for each alternative in Chapter IV of the FEIS. The direction in the standards and guidelines for the Final Forest Plan do not make a distinction for old growth by species. If monitoring results reveal that species or elevation specific direction for old growth is indicated, then the appropriate changes will be made.

Why is no dollar value assigned to the long term benefits of ecological diversity?

Response: The long term benefits of diversity are very difficult to quantify in economic terms. They contribute to the ability of the Forest to provide a full range of commodities and amenities, but the economic impacts of changes in diversity depend on the exact nature and degree of change and cannot yet be predicted with confidence.

In order to "provide forest visitors...the experience of...natural aspects of the forest" as promised in the fourth item to Recreation in Chapter IV of the Draft Forest Plan, it will be necessary to maintain some examples of the complex ecological diversity, especially for future generations.

Response: Complex ecological diversity will be maintained over much of the Forest. Wilderness, riparian areas, old-growth groves, special management areas, and areas of unsuited soils will all retain their complex, natural characters. In addition, a complex set of seral stages, stand structures (green trees, snags and down wood), and dispersal corridors will occur in lands managed for timber.

Figure III-G-4 of the DEIS fails to portray the entire picture of natural diversity by omitting nonforested communities and the patterning of communities and successional stages across the National Forest.

Response: Figure III-G-4 was only intended to refer to conditions in forested stands or disturbed areas that are quickly becoming reforested. Natural openings and nonforested lands also contribute a tremendous amount to the diversity of the Forest. Similarly, spatial diversity (the distribution of plant communities across the landscape) also contributes to habitat diversity beyond the changes in succession depicted in that Figure.

The diversity discussion starting on page IV-51 of the DEIS brings up the issues of fragmentation and patch size, but it does not offer any evaluation of the alternatives on these critical issues.

Response: The vegetation section of Chapter IV of the FEIS discusses fragmentation and patch size, and the standards and guidelines in Chapter IV of the Final Forest Plan provide direction that patch size and fragmentation be considered when proposing timber harvest. No

comparative evaluation of the alternatives is made on this issue, because the project level decisions which influence patch size and fragmentation are highly site specific and in part influenced by the unique mix of all prior decisions. To the extent adverse effects on the values associated with fragmentation and patch size are disclosed by monitoring results, for example the viability of either interior or exterior dependent species, appropriate corrective action will be initiated, including amendment or revision of the Final Forest Plan as may be necessary.

One of the major flaws in the Draft Forest Plan is the failure to implement a rigorous program of inventory and research on species that inhabit the Forest.

Response: Several different kinds of inventories exist or are in development across the Forest, including plant community sampling and description, vegetative resource inventory, and mature and over-mature stand sampling. A complete census of all vertebrate and plant species over an area the size of the entire Forest would not be practical, however. The National Forest System is not chartered to do formal research. Research on many species is occurring within the Forest and Range Experiment Stations and academic institutions, and the continuing need for such research is identified as one of the "Information Needs" in Chapter II of the Final Forest Plan.

By failing to address the reduction in diversity resulting from the liquidation and fragmentation of old growth, the DEIS fails to meet overall NFMA multiple-use objectives and the Endangered Species Act. The Draft Forest Plan disrupts up to one-third of the edge of sites by management activities, which in turn results in the effective loss of much of the rest of the sites by edge effect.

Response: The FEIS recognizes that edge effects occur in both natural openings and into old growth stands, thereby reducing habitat effectiveness (see Vegetation section, FEIS, Chapter IV).

The Forest-wide and management area standards and guidelines in Chapter IV of the Final Forest Plan are concerned with the distribution and functional value of habitat effectiveness. Accordingly, they call for several actions that will help to minimize fragmentation of old growth. For example, no programmed harvest occurs within Wilderness. Riparian areas along class 1, 2, and 3 streams will be managed to provide travel corridors for species which prefer old growth. Special wildlife habitat areas that contain most of the features of old growth will be dispersed across the Forest. Substantial amounts of green trees, snags, and down wood will be left in harvested areas to provide wildlife habitat and inputs of organic matter to the soil. Harvest will be planned to minimize fragmentation of old growth by attempting to maintain larger blocks of old growth for as long as possible into the future.

It is inevitable that old growth will be harvested in general forest, however, and that fragmentation will occur. While it is possible the populations of some species will decline, their underlying viability and therefore the diversity of species within the Forest, will not be reduced.

The DEIS fails to present data making possible evaluation of diversity in terms of its prior and present condition (36 CFR 219.26).

Response: Actual data about the composition and abundance of plant and animal populations from the past is quite limited. Some inferences about past diversity can be inferred from available data about current vegetative cover, with its associated diversity of plants and animals. The most specific available research and academic data about the past diversity of vertebrates on the Forest is found in Harris, L.D., 1984; and it was considered in developing the FEIS. In addition, performing even a current census over the complete plant and animal populations

over an area the size of the Forest is virtually impossible. With these limitations the Forest has had to stress habitat capability in providing diversity; and the consideration of management indicator species in Forest planning should assure that diversity is maintained. Implementation of the monitoring plan for the Final Forest Plan (Chapter V) will provide additional data for future planning.

The documents fail to address adequately potential problems associated with limited genetic reserves in monoculture. Aspects of these possible problems include susceptibility to insects, disease, and fire; the effects on wildlife diversity and habitat; and sustainability of yield and growth rates. There do not seem to be any hardwood management objectives.

Response: The standards and guidelines (S&Gs) in Chapter IV of the Final Forest Plan provide direction for maintaining a diversity of tree species in harvested areas, including retention of hardwood species and conifers of lower economic value. The presence of these species is retained beyond the periods of precommercial and commercial thinning.

Areas reserved from timber harvest will continue to support a variety of overstory and understory species and will serve as sources of seed for adjacent harvested areas. Natural recruitment of most species will occur during succession, and to the extent these are needed to meet S&Gs, they will be maintained in managed stands.

Refer to page III-96 of the DEIS concerning tree improvement. The documents are too optimistic about the superior tree concept, and the seed orchard and genetic improvement projects which are too dependent on long term stability of climatic, edaphic, and physiologic conditions.

Response: The 10% gain for genetic improvement was based on a paper by the Regional Geneticist. This paper was based on a review of existing research data from studies across the nation, involving many different species. The results were highly variable, and the 10% gain used in this Region for seed from physically superior parents is reasonable. Additional gains from using seed orchard stock which has been tested was not used in the Forest's analysis, because the Forest does not as yet produce enough seed to meet the reforestation needs. Maintaining a large genetic pool should be beneficial in providing growing stock that will be better able to adapt to long-term changes in climatic, soil, and physiological conditions. The monitoring plan will provide information to evaluate the volume gain attributed to the genetic program. An additional hedge from such long-term changes rests with the large blocks of protected timber in wilderness, riparian strips, SOHAs, and elsewhere, providing a vast pool of unaltered genetic material.

The DEIS at page III-55 fails to list all sensitive species, their habitats, and a brief description of how the list will be updated.

Response: Complete list of the Region 6 Sensitive Species which are either suspected or documented as occurring on the Forest can be found in Tables III-G-8 (for plants) and III-J-1 (for wildlife). The Forestwide standards and guidelines in Chapter IV of the Final Forest Plan provide direction for biological evaluations, species management guides, updating the sensitive species list, and developing a Forest Watch List.

The standards and guidelines are inadequately specific and comprehensive to establish the procedures by which conflicts will be resolved when proposed management activities may adversely affect sensitive species.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan have been revised to provide specific direction for completing biological evaluations and describe the analysis steps which shall be involved. If sensitive plants or animals would be adversely affected, then appropriate consultation under the Endangered Species Act will occur and appropriate protection or mitigation activities undertaken.

The Draft Forest Plan fails to consider the significant reduction in plant and animal diversity that the high level of timber harvest in Alternative J will cause. These reductions may be in excess of that allowed in NFMA.

Response: All alternatives considered in the FEIS, except No Change, include Management Requirements (MRs) for Managment Indicator Species (MISs). The intent of establishing MRs was to ensure viability of all native and desirable nonnative species by providing suitable habitat distributed throughout the Forest. The primary assumption of the MIS concept is that by managing habitat to the level required to meet the needs of a given indicator species, the habitat needed by all species similarly associated or dependent upon that type of habitat would be concurrently met. The primary difference between alternatives is not the number or diversity of species whose viability will be maintained, but the number of individuals within species that can survive in the amount of habitat provided. Thus, while populations of some species might decline, no species is projected to decline to the point of becoming threatened or endangered. In addition, all alternatives (including No Change) provide protection consistent with the Recovery Plans for the habitat and populations of federally listed threatened and endangered species. The Vegetation and Wildlife section of Chapter IV of the FEIS provides a comparison of the projected effects each alternative will have on the diversity of plant and animal habitat.

The planning documents fail to meet NFMA diversity requirements, because there will be a significant loss in species diversity. This is so because the assumption is inaccurate that managing to meet the habitat needs of given indicator species will concurrently meet the habitat needs of all native and desired nonnative species similarly associated or dependent upon that type of habitat.

Response: Assumptions related to the use of indicator species will be evaluated on a continuing basis to ensure that requirements for the maintenance of native and desirable nonnative plants and animals are met. Three levels of monitoring are provided by the Final Forest Plan Monitoring Plan (Chapter V). Implementation monitoring will provide information to determine whether applicable standards and guidelines are being implemented as prescribed. Effectiveness monitoring will provide information to determine whether the prescribed practices, enhancements, and land allocations are really doing what they were intended to do in meeting Final Forest Plan assumptions and objectives. Validation monitoring will often involve research and administrative studies to determine whether the relationships and assumptions used in the Final Forest Plan are valid. If appropriate, monitoring results may trigger amendments or revisions to the Final Forest Plan to protect species viability.

Ecosystems

Paragraph 4 on page I-5 of the Draft Forest Plan almost seems to imply that timber is the only vegetation. There is inadequate discussion of other types of vegetation.

Response: The Final Forest Plan recognizes that many types of vegetation are represented in the Forest's ecosystem. The description of the Forest in Chapter I of the Final Forest Plan is intended to present only the broadest of overviews, so more specific descriptions of appropriate

detail are found elsewhere in the documents. See the more detailed discussion about vegetation in Chapter III of the FEIS.

Reference page IV-205 of the DEIS in which "relationships" are discussed: The environmental consequences are all timber oriented.

Response: The consequences on many resources are discussed in this section of the FEIS.

The documents inadequately address the need to manage forest ecosystems by undue emphasis on timber harvest. Effects are too often expressed in terms of "timber harvest volumes lost" with no apparent concern for individual plants or animals. Another example is that old-growth is characterized as providing "the backbone for timber harvest," with some mention of the public's recreational and aesthetic concerns, but without any apparent professional concern for the biological knowledge available.

Response: The FEIS and Final Forest Plan have been revised in numerous places to express more directly concerns for ecosystem management. This is particularly evident in the standards and guidelines and management area prescriptions in Chapter IV of the Final Forest Plan. Examples include management for snags and down wood, riparian areas, dispersal corridors, later seral stages (including old growth), and the maintenance of hardwoods and noncommercial conifers in harvest areas. The monitoring plan in Chapter V of the Final Forest Plan provides the mechanism by which the success of the Forest direction in achieving the desired effects of ecosystem management can be evaluated and, if necessary, the Final Forest Plan amended or revised.

While the documents discuss cumulative effects, area planning, long term site productivity, and subwatershed analysis, they fail to consider adequately the effects on an entire ecosystem of the prolonged, repeated removal of biomass when analyzing management strategies. Similarly, references in the DEIS to increasing long term productivity by the conversion of old-growth stands to thrifty young stands on short rotations really applies only to timber productivity: the increased production of wood may not be sustained if ecosystem processes are lost.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan provide for an assortment of management techniques to protect the long term productivity of soils from erosion and the loss of input of organic matter and nitrogen. For instance, there is increased emphasis on retaining large woody debris and managing for nonconifer species to help offset decreases in soil productivity. The standards and guidelines applicable to soil and water quality also address a number of practices to protect soil productivity.

Page III-81 of the DEIS describes ectomychorhizae as pathogens. They are not. They are beneficial and, in fact, most likely necessary for healthy forest ecosystems.

Response: This error has been corrected.

The discussion of "Vegetation" on pages III-39 through III-47 of the DEIS fails to identify what hardwoods and non-commercial conifer tree species occur on upland sites within the Forest, their general abundance in forest stands or their ecological role within the natural, unmanaged forest.

Response: Chapter III of both the DEIS and FEIS discuss the dominant species that occur in the major vegetative series across the Forest, including hardwoods and non-commercial conifers. Descriptions of most plant associations can be found in "Plant Association and Management Guide, Willamette National Forest" (Hemstrom et al. 1987), however. The ecological roles of

most species are largely unknown. Some hardwoods (red alder, for example) have been studied, but most have not.

Page III-69 of the DEIS (Wildlife) states that management activities tend to alter the stages of plant succession in ways that are often structurally similar to natural stages of succession associated with wildfire. This is untrue. Typical forest management practices result in less woody debris, fewer snags, and very few stands with abundant old emergent trees, smaller and more uniform patches and roads.

Response: The Wildlife section of the FEIS has been revised to improve this discussion. Standard vegetative management techniques, including harvest methods, site preparation practices, and reforestation activities frequently do result in conditions that differed from those following natural disturbances. The standards and guidelines and management area prescriptions found in Chapter IV of the Final Forest Plan provide for a number of management practices which will more nearly simulate natural stages of succession. These include practices such as increasing the number of snags, large live trees, and pieces of down wood in harvested areas. In addition, the Final Forest Plan emphasizes riparian areas and dispersal corridors.

The documents fail to consider the effects of the alternatives on a number of climatic concerns. First, no analysis whatever is given in the DEIS as to the differences in CO2 cycles between the endogenous and proposed "managed" forest, nor is any analysis made of the possible contribution the managed forest would make to the world-wide disaster the "greenhouse effect" represents. Second, the effects on climatic shift from the major increases in area albedo made by clearcutting relative to endogenous forest or selectively cut forests are not addressed. Third, the potential synergistic effects on global warming beyond the individual contributions made by the "greenhouse effect" and albedo increases was ignored. Fourth, the DEIS failed to discuss the potential effects removal of vegetal biomass and alterations of transpiration rates might have on desertification: removal of vegetal biomass was recently implicated as coupling with the El Nino/Souther Oscillation in sub-Saharan Africa to contribute to the drought conditions there.

Response: A discussion of many of the concerns and unknowns surrounding future climatic trends can be found in the section on Climate in Chapter III of the FEIS. Monitoring of the success and failure of reforestation by habitat types is discussed in Chapter V of the Final Forest Plan. Such monitoring may provide indicator information about climatic warming trends.

The FEIS acknowledges that management practices such as timber harvest and slash burning contribute to CO2 levels in the atmosphere. The role the northern conifer forest plays in increasing or decreasing the "greenhouse effect" is unknown, and therefore the role of this Forest on the "greenhouse effect" cannot be evaluated at this time. Conversely, the timing, degree, and kinds of effects global warming may have on the Forest's ecosystem are also unknown. The best hedge against major disruption of ecosystems is maintenance of biological diversity and paths for dispersal of organisms across the landscape. Consideration for these factors is given through the standards and guidelines and management area prescriptions in the Final Forest Plan (Chapter IV).

The problems of increased reflectance, albedo, following harvest in our ecosystems is quite short-lived. Summer reflectance should recover rapidly as sites are revegetated during the first year following harvest. Some increase in winter reflectance will occur until trees are tall enough to close canopy and behave as a closed forest. The evaluation of the effects of these local changes on global climate cannot currently be made.

The problems of desertification resulting from continuous removal of biomass in the sub-Sahara are the result of a tenuous balance in that area between drought and vegetation. The climate of the west-side Cascades in the Pacific Northwest is sufficiently mild and moist that desertification has not been detected. Any links between local changes in evapotranspiration following harvest and global climate are unknown.

The diagram showing the Forest "succession to climax" fails to represent adequately most of the Willamette National Forest.

Response: Figures III-G-1 and III-G-3 of the DEIS reflect a tendency for vegetative communities to begin with pioneer species and then move toward climax species composition and structure following disturbance. Due to the historic occurrence of wildfire and other disturbances, climax conditions rarely occur in the Oregon Cascades. Neither of those diagrams were intended to represent the actual distribution of vegetation along that continuum.

The documents fail to address old growth management appropriately by allowing timber salvage harvest for visitor safety. Safety needs can be met by pushing danger trees over and allowing them to deteriorate *in situ*, thereby preserving the structural and functional integrity of the stand.

Response: While dead and down logs are important components of natural ecosystems on the Forest, they may be very inconvenient in some recreational settings (developed sites, for example). The Forest-wide standards and guidelines in Chapter IV of the Final Forest Plan call for leaving trees cut for safety reasons on the ground in most cases; subject to the consideration of management area standards and guidelines.

The Draft Forest Plan fails to outline a plan for conserving significant amounts of natural forest in each ecotype and for each successional stage within that ecotype.

Response: A map of ecotypes or plant associations (Hemstrom et al. 1987), for the Forest does not currently exist. Efforts are underway to produce such a map within the next 5 years. Until that map exists, diversity will be monitored by tracking successional stages by stand types (Chapter V of the Final Forest Plan).

The Draft Forest Plan is in error when it states that the H.J.Andrews has been withdrawn from timber harvest: it has been and continues to be heavily cut over.

Response: The H.J.Andrews Experimental Forest is not part of the programmed harvest. Timber is harvested there for research purposes.

Fire

The catastrophic impacts of wildfires on fish and wildlife resources are not acknowledged in the DEIS. Given the differences in road access and fuel conditions among alternatives, this is a serious oversight.

Response: There can be no doubt that wildfires influence both fish and wildlife habitat. The extent and precise effect fire has on habitat is highly variable and unplanned. Actions taken to remedy the effects of fires are subject to project level site specific analysis. Fires of truly catastrophic proportions may lead to the amendment or revision of the Final Forest Plan.

The influence of management practices on the relative likelihood of fire occurrence is analyzed in Chapter IV of the FEIS. The section on Wildlife, for instance, discusses the effects of prescribed and wildfire on wildlife resources. The standards and guidelines in Chapter IV of the Final Forest Plan provide for a cost-effective and environmentally acceptable suppression response appropriate to the management area in which a fire occurs. In the event certain criteria are met, a more complete documentation of this analysis (known as an Escape Fire Situation Analysis) is undertaken. The combination of the fire protection organization prescribed by the National Fire Management Analysis System and the application of the standards and guidelines are intended to provide reasonable assurance that large areas of the Forest will not be burned by wildfire on a routine basis under any of the alternatives.

The Draft Forest Plan and DEIS overlook the effects of prescribed burning on soil erosion and productivity.

Response: The potential effects of fire on soils are described in the Soils sections in Chapters III and IV of the FEIS. The standards and guidelines and management area prescriptions in Chapter IV of the Final Forest Plan provide guidance to preserve and enhance soil productivity, including in many cases the retention of large woody debris and release for reforestation without burning. When prescribed burning is still indicated, the potential effects of burning are considered during site specific project analysis, including limitations on technique and timing. The monitoring plan in Chapter V of the Final Forest Plan will provide data against which to assess the effectiveness of various post-harvest treatments in minimizing soil erosion and maintaining soil productivity.

The Draft Forest Plan cites reduced fire hazard as one of the justifications for clearcutting. Later on the same page, however, it states that levels of fire hazard and resistance to control will increase with logging. How can it be both?

Response: On a landscape level, forest fragmentation may increase fire hazard over the long term, since managed stands tend to be more susceptible to crown fires. See discussion in the Vegetation section of Chapter IV of the FEIS. At the stand level, fire hazard and resistance to control will normally be increased for a short period of time following timber harvest due to increased fuel loading and changes in microsite weather conditions resulting from exposure to more sunlight and wind. Subsequent timely and appropriate treatment of fuels, however, can reduce both the hazard and resistance to control present on the site to levels lower than would occur under alternative harvest practices which cannot be treated as inexpensively or effectively.

The DEIS failed to recognize the different effects of wildfire on old-growth stands. The major fires of the past few summers indicate less extreme fire behavior and damage in old-growth stands overall than in managed stands and plantations.

Response: It is difficult to generalize about fire behavior and its effects in any one type of stand due to the varying conditions under which wildfires may occur. Variations in fuel loadings, canopy heights and density, and topographic slope position are all important factors in determining fire behavior in stands of any age. In some cases the greater crown heights and cooler understory microclimate present in old-growth stands can reduce the risk of crown fires. This may be offset, however, by heavier fuel loadings and multistoried canopies. In the case of managed stands, the risk of crown fires tends to dissipate over time as the stands increase in crown height and logging generated fuels decompose. Weather conditions are also critical. Under the type of conditions that existed during the summers of 1987 and 1988, virtually any of these stands has the potential to be threatened and severely damaged by fire.

On page III-69 of the DEIS it was suggested that timber harvesting mimics the stand conditions created by natural wildfires. This assumption is incorrect. Natural burns result in a mosaic of unburned timber, standing dead trees, and scattered concentrations of down, woody debris. This does not describe your average clearcut.

> **Response:** It is true that "clean" harvest units do not tend to be directly comparable to stand conditions resulting from natural wildfires. Logging practices and subsequent silvicultural treatments prescribed under the standards and guidelines found in Chapter IV of the Final Forest Plan will result in leaving a variety of standing trees, distributed down woody debris, and concentrations of untreated harvest residues that much more closely simulate the mosaic resulting from natural wildfires than was present under former practices.

Most of the serious fires on the Willamette National Forest in the last 30 years have been the result of escaped slash burns. The rate of harvest and slash burning presented in the documents will increase the risk of fire damage rather than decrease it as suggested by the DEIS.

> **Response:** Historically, most of the significant or catastrophic fires in the western Cascades were ignited and spread from large areas of untreated logging slash. The Vegetation section of Chapter IV of the FEIS discusses the activities that are expected to lead to increased risk of fire. While there is some risk associated with prescribed burning, these risks are reduced by appropriate timing and methods. The result of burning is to reduce the risks associated with heavy fuel concentrations.

You have not done an effective job of explaining the 3C policy. The reaction of the public to the Yellowstone Fire is symptomatic of the lack of understanding that most have concerning the valuable role that naturally occurring fire plays in ecosystem vitality. Emphasis should be given to educating the public in this arena.

> **Response:** The "3-Cs" are confine, contain, or control. They are not a "policy" as such, but rather they are strategies for the suppression of wildfires. Since each wildfire is unique, the specific suppression strategy and the techniques used to achieve it are the subject of site-specific consideration, consistent with the appropriate standards and guidelines (S&Gs) for Fire and the management area S&Gs. Some discussion of the role of fire appears in the Vegetation and the Fire sections of Chapter III of the FEIS. As more is learned about the effects of fire, the Forest Service will continue to make that information available to the public.

Fish

The DEIS projects about 800,000 salmon smolts across all alternatives, despite considerable differences in the projections for sedimentation and watershed degradation between the alternatives. What is the methodology and reliability of your fish projection model, and how can it be that significantly differing levels of sedimentation do not more decisively influence the production of smolts? Can you display the projected fish production by watershed?

> **Response:** The estimate of smolt habitat capability across the various alternatives was derived in consultation with appropriate Oregon Department of Fish and Wildlife biologists, Forest biologists, and Forest hydrologists.
>
> The smolt habitat capability estimates in the DEIS were based on the quantity and quality of habitat available. Enhancement projects which increase the quantity of habitat accessible to

anadromous fish are shown as the "enhancement" level in Chapters II and IV of the FEIS. Smolt increases associated with increases of the quantity of habitat outweigh the differences between alternatives. What differences there are between the alternatives were estimated based on riparian management, the amount of sediment, and hydrologic recovery, and the accuracy of the assessment is not improved by displaying estimated production by watershed. Appendix B of the FEIS provides more detail about the methods used to identify differences between the alternatives. The need for improved models to estimate smolt production has been identified as an additional information need in Chapter II of the Final Forest Plan.

While fish habitat enhancement structures no doubt positively affect the capacity of the Forest to produce fish, the degree to which the Forest relies upon them to maintain the fishery is unclear. What is the scientific basis for that level of reliance?

Response: This information has been clarified in Chapter IV of the FEIS. Estimates of the effectiveness of enhancement projects are based on available data from assessing existing stream conditions before enhancement projects are undertaken and then monitoring the subsequent effects of the project on stream conditions. Some of this data is from published research; and some is based on the professional judgment of Forest and ODFW biologists. The monitoring plan in Chapter V of the Final Forest Plan will provide the method by which the implementation and effectiveness of enhancement projects can continue to be evaluated and appropriate corrective actions undertaken if indicated.

The DEIS failed to discuss adequately the relative merits and costs between leaving large woody debris in streams compared to installing gabions, log sills, and other "constructed" enhancements.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan protect future sources of large woody debris for streams in differing amounts. The analysis of the relative costs and effectiveness of different enhancement methods is discussed in Chapter IV of the FEIS.

Funding for many of the mitigation, enhancement, and monitoring projects seems tied to timber harvest activities (e.g. Knutson-Vandenberg Act). It seems illogical to need first to initiate activities which degrade the fishery in order to obtain the funding necessary to then restore, perhaps enhance, and later monitor the condition of the fish habitat.

Response: The fisheries management program is funded both through direct allocations from Congress and with collections authorized by the Knutson-Vandenburg Act. Planning a timber sale includes development of a Sale Area Improvement Plan (SAI plan) to determine the amount of KV funds collected. that can be funded through collections authorized by the Knutson-Vandenburg Act. As a minimum, the projects in SAI plans mitigate for the direct impacts of the sale. Frequently, the SAI plan identifies opportunities to either improve upon the quality of the natural habitat or to rehabilitate habitats damaged by some previous natural or man-caused event.

Monitoring activities identified in the SAI plan may either document the effects of the timber sale activity or the results of the fish habitat projects (FSH 2409.19, section 16.4). Monitoring results will guide future projects as well as document either the effectiveness of the specific plan being monitored or the need for revision.

Although the DEIS states that no estimates of abundance of resident cold water have been attempted (DEIS III-63), it also asserts that the overall supply of native resident cold water fish has not changed

significantly over time (DEIS III-62). How do you know there have been no significant changes in supply if you do not have estimates of how many there were and are now?

Response: The statement has been clarified in Chapter III of the FEIS to indicate that the abundance of fish are not known to have changed significantly over time. Chapter II of the Final Forest Plan identifies the need to obtain this information, and the monitoring plan in Chapter V of the Final Forest Plan provides for monitoring of resident fish populations in cooperation with ODFW.

The DEIS inadequately addresses the habitat needs of nonsport species. Nor is the discussion about the Forest's anadromous fish potential complete.

Response: The analysis is limited to anadromous and resident trout species because they were selected as Management Indicator Species (MIS). The basis for this selection included their commercial and recreational importance, as well the assumption that their sensitivity to habitat changes could adequately represent the habitat needs of nonsport species.

The discussion about the Forest's anadromous fish potential has been expanded in Chapter IV of the FEIS.

The DEIS seems to imply that fish passage improvements increasing access to presently blocked habitat are all that are needed to increase anadromous fish production. Such an implication would be in error. Further, even allowing that fish passage improvements would help somewhat, reliance on many of the activities seems misplaced. For instance, it seems highly unlikely that fish passage over Cougar Dam is feasible and will occur. Elimination of passage barriers on the South Santiam River seems of questionable value when the real problem is downstream passage at Foster Dam, and even passage there would be of little benefit until the Oregon Department of Fish and Wildlife (ODFW) places spring chinook above the dam. Hauling fish around barriers has yielded little success; and the pre-smolt release program above Green Peter Dam has not been successful, either.

Response: The technology of improving fish passage around barriers will continue to be developed by several public agencies in the Northwest. One goal of the Final Forest Plan is to maintain and enhance anadromous and resident fish populations, which is consistent with the Northwest Power Planning Council's goal to double anadromous fish runs by the year 2000. This requires continuing to work cooperatively with the various agencies to find solutions. Projections of increases in smolt resulting from possible solutions are based on the success of similar projects at other sites.

Concerning specific sub-basin plans, the Oregon Department of Fish and Wildlife (ODFW) was contacted to determine specific management scenarios for individual subbasins. Since ODFW recently proposed additional studies for maintaining wild fish in the South Santiam Basin (Emery Wagner 12/1/89), the Forest presumes this subbasin is intended as anadromous fish habitat.

Since the elimination of fish passage barriers is under the control of other agencies, the probability of removal should be the same under all alternatives.

Response: All of the alternatives in the FEIS include improving opportunities for anadromous smolt and adult escapement, by increasing passage on the South Santiam, McKenzie, and Fall Creek drainages. This is described in the changes between Draft and Final in Chapter II of the FEIS.

The DEIS inadequately addresses the steps the Forest will take to coordinate its activities with the plans of the Oregon Department of Fish and Wildlife (ODFW) and other agencies. For example, what is the relationship between the Forest Plan and ODFW's subbasin and other species plans?

> **Response:** The FEIS (Chapter IV - Fish discussion of the "Relation to other Plans" section) and the standards and guidelines to the Final Forest Plan have been revised to include a more thorough description of the relation of the Forest Plan to ODFW subbasin plans.

The DEIS is in error when it states that the ODFW determines the level of fishing by the issuance of fishing licenses (DEIS IV-77).

> **Response:** This error has been corrected in the Chapter IV of the FEIS.

The DEIS is in error by stating that reservoirs and road accessible lakes are stocked with both legal sized and fingerling trout and salmon.

> **Response:** The statement has been changed in Chapter III of the FEIS to read: "Concurrently, they stocked the reservoirs and road-accessed lakes with either legal-sized or fingerling trout."

Multiple Use

Reference page III-144 of the DEIS and Appendix C-6 through C-308 where the statement quotes areas "...released for multiple use management..." according to the Multiple Use Act the statement would include management for Wilderness. True, the Oregon Wilderness Act (C2 & 4) uses the same statement but then it is qualified to mean something different than the definition in the Multiple Use Act. The Forest didn't qualify the term when they used it in the roadless area dialogues. Thus these areas can still be considered for wilderness.

> **Response:** Congressional direction in the Oregon Wilderness Act of 1984 prescribes the manner in which areas that are currently in roadless condition will be considered during this round of planning. Chapter III discusses those limitations. Mt. Hagen was reviewed in this round of planning. In future planning cycles, remaining roadless areas will be considered for wilderness.

Reference the Draft Forest Plan at IV-146, MA 11C Scenic, and other MA 11's first paragraph. The term "multiple use" is used incorrectly.

> **Response:** Outdoor recreation is one of the categories for which national forests are administered under the Multiple-Use Sustained-Yield Act, and "multiple use" under that Act means the management of all the various renewable surface resources to allow utilization in combinations that best meet the needs of the American people. While visually pleasing landscapes normally enhance outdoor recreation experiences, the wording in the Draft Forest Plan for Management Area 11 was intended principally to clarify that management of those areas was not necessarily limited to visual considerations. The standards and guidelines for Management Area 11 in the Final Forest Plan clarifies this intention.

The Goal for Old Growth at IV-3 (Management Plan) is not sufficiently specific. It should provide for old growth stands representative of the variety of habitats and for their contribution as a share of the natural complexity of ecological diversity, esthetics, etc. Throughout the document one is led to believe that the Multiple Use Act has been repealed and that the dominant use theory reigns supreme. (Ref. DEIS I-18, Timber Supply).

Response: Our understanding of the contributions made by complex ecosystems such as old growth, particularly in terms of plant and animal diversity, is continually developing. The Standards and Guidelines have been modified to reflect better our improving understanding of the values that stands with old-growth structure provide. In particular, the discussions for Management Area 7 address the concerns expressed in this comment more fully and specifically.

The first paragraph at page III-193 of the DEIS implies that "...total multiple use benefits..." where timber harvest has been coordinated with other uses, be "reflected in the Forest's cash flow analysis of a timber sale." If the Forest Plan is truly a multiple use plan, then benefits would accrue to other resources.

Response: The intention of that paragraph was to explain the reasons why the direct costs of some timber sales may exceed the direct revenues collected from the sale. Since the DEIS was issued the Forest Service has implemented a method to evaluate the timber sale program on each National Forest that better reflects the total costs and benefits of the program (the Timber Sale Program Information Reporting System, or TSPIRS). The underlying objective of the Forest Plan is to maximize net public benefit, which is the combined priced and nonpriced outputs. These are described in Section E of Chapter II of the FEIS.

Reference pages IV-5 and IV-6. The description of the Forest 10-50 years hence does not imply a lot of resource coordination. For example, "...forests are managed for intensive timber harvest...", "...others managed for other specific values," "...will take on a more managed appearance." Not much indication of enhancing or even maintaining ecosystem complexity, just simplification. What options will exist in 50 years to change/reverse management direction?

Response: An important feature characterizing the Desired Future Condition of the Final Forest Plan is that, within the context of multiple use management, emphasis is placed on preserving and enhancing connective corridors between resource values and on preserving options as our understanding of forestry principles and social needs changes. Connective corridors provide the vehicle through which plant and animal diversity and complexity can diffuse throughout the landscape; and preserving options enhances the range of management choices for as long as possible, consistent with program direction. The specific options which will remain open in 50 years will be at least partially a function of both project level decisions, amendments and revisions to the Forest Plan, and new Forest Plans that are developed during that interval.

The Forest Management Goals at IV-2 are stated as "...multiple use goals," and "...responsive to issues, concerns, and opportunities," and yet lack in resource coordination and professional concerns.

Response: The Forest used an interdisciplinary approach in developing alternatives and analyzing the effects of specific management activities upon the various resources. In addition, the Forest carefully considered public input in producing the FEIS and Final Forest Plan, many of which comments were provided by scholars and agencies having not only special expertise in specific disciplines but who were also knowledgeable of the effects of proposed activities upon forest environments.

The documents inadequately addressed the effects of weekend logging activities with other public uses.

Response: The specific timing of logging activities was not considered in the alternatives presented in the FEIS. Restraints, such as limits on weekend logging activity where resource

activity conflicts occur, can be implemented under any alternative, as appropriate, consistent with applicable standards and guidelines.

The documents fail to give adequate recognition to the benefits that accrue from forest management and protection, such as protection from catastrophic fire, and insects and disease, to name a few.

Response: Recognition of these benefits is implicit in the discussion of Chapter IV of the FEIS, because the consequences which are described assume levels of management and protection consistent with the intensities appropriate to the various alternatives. In the Final Forest Plan, the Forest-wide and Management Area standards and guidelines describe more specifically the actual management practices which would be implemented and the anticipated benefits or results which would be expected to accrue.

Planning

Adequacy of Analysis

All the alternatives fail to address significant issues that would arise if actions corresponding to these alternatives were taken.

Response: Chapter IV of the FEIS addresses the consequences to the environment that are anticipated by the adoption of each alternative considered.

The DEIS fails to provide an accurate assessment of each alternative by comparing its level of outputs and economic returns to those suggested by RPA and State of Oregon Forestry programs.

Response: Each alternative presents a different, integrated "vision" of the Forest, producing a wide range of outputs (and economic returns) against principal Forest resources. Each alternative is described in detail in Chapter II of the FEIS and the environmental effects of each alternative on the principal Forest resources are discussed in Chapter IV of the FEIS. Chapters II and IV therefore provide the reader with the opportunity to make comparisions both within and between alternatives.

In the context of timber production, readers should compare the various alternatives in Chapters II and IV of the DEIS against Alternative B (RPA) and Alternative J-Departure (FPFO). These two alternatives were not fully analyzed in the FEIS, because public comment was generally negative toward departure alternatives.

The DEIS fails to incorporate the required analysis of MMRs, reveal the impact of the Vegetation Management EIS, or consider how the spotted owl SEIS affects the Plan.

Response: Neither the Vegetation Management EIS nor Spotted Owl EIS decisions were available at the time of publication of the Forest's DEIS; however, some analysis of the then-preferred Alternative F of the Spotted Owl draft supplement was presented in Appendix G of the Forest's DEIS. A sensitivity analysis of the MRs was presented in Appendix H of the Forest's DEIS, and a summary of the background and development of MRs specific to the Forest was presented in Appendix B.

Since the publication of the DEIS, decisions on both the Spotted Owl Supplemental EIS and the Vegetation Management EIS were made. Updated discussions about Vegetation Management

and the Spotted Owl SEIS can be found in Chapter III of the FEIS; and updated discussions of MRs can be found at Appendices B and G of the FEIS. In addition, since the Standards and Guidelines implement these various decisions, the S&Gs are a good source for readers to consult in determining how the decisions affect the Forest Plan.

Adequacy of Information

The Draft Forest Plan is deficient since it recommends actions that will alter roadless and riparian areas for which there are 15 topics with missing data categories listed at II-9 and II-10 of the Draft Forest Plan.

Response: Simply because information needs are identified in the Final Forest Plan does not mean that data is totally missing for the subjects and resources listed. Rather, the listing indicates areas where emphasis should be given for acquiring additional data and information. The best available data was used in the development of the planning documents. On-going research and inventories are a key part of the evaluation and monitoring phases of the Final Forest Plan. Changes will be made as needed.

The DEIS summary fails to give acreages for old growth and roadless areas now found on the Forest.

Response: A recently completed inventory of stand conditions on the Forest is referenced in the Final Forest Plan and FEIS, including estimates of the amount of old growth stands by forest type. Additional information can be found in the treatments of Old-Growth and Roadless Areas in Chapter III of the FEIS, as well as Appendix C to the FEIS dealing with Roadless Areas.

Page B-98 of Appendix B fails to provide a definition of the three categories of jobs provided.

Response: Appendix B to the FEIS now provides these definitions.

The Final Forest Plan should summarize or cite the criteria that will be used to determine when categorical exclusions, environmental assessments, and environmental impact statements will be used in Plan implementation, especially with regard to assessing impacts to water quality and beneficial uses.

Response: The section on Implementation in Chapter V of the Final Forest Plan refers to the fact that the Final Forest Plan and FEIS will be used for reference and tiering of projects and activities subject to the requirements of the National Environmental Policy Act (NEPA). The Forest Service Manual and Handbook system, available at the Supervisor's Office, provides extensive direction about the criteria used to meet NEPA requirements.

The documents fail to provide an adequate explanation for the process by which the seven key issues were identified and whether they were prioritized.

Response: The principal requirements governing issue identification are 40 CFR 1501.7 and 36 CFR 219.12(b). The process by which the seven key issues were identified is discussed in Appendix A, including refinements to those issues during the period between publication of the DEIS and FEIS. There was no prioritization between the seven key issues. As explained in Appendix A, all the issues were considered during the development of the alternatives, but the degree of response to the key issues was of greatest importance in the selection of the Final Forest Plan.

The summary fails to discuss why cumulative effects of each alternative after the fifth decade are described, particularly when new Plans will be developed in 10-15 years.

Response: The objective of keeping the summary short required draconian selectivity in the choice of topics treated there.

Each alternative is required to state, among other things, the condition and uses that will result from long-term application of the alternative (36 CFR 219.12(f)9(i)). In addition, analysis covering that period helps provide a link to national-level planning efforts mandated by the Forest and Rangeland Renewable Resources Planning Act which involve a planning horizon of similar duration.

Alternatives Considered

The lack of alternative environmental constraints or mitigation measures narrows the range of alternatives considered in the Willamette Plan.

Response: The scope of alternatives needed to be analyzed is determined by the scope of the proposed action. Since the action being considered here does not involve an irretrievable commitment of resources, the associated environmental impact is very limited. The range of alternatives that reasonably must be considered are those necessary to permit a "reasoned choice," and there is no requirement to analyze the virtually infinite number of alternatives that are possible.

In developing this Forest Plan, numerous different "visions" of the Forest were considered, producing a wide range of outputs against principal Forest resources. Except for the NC Alternative, standards and guidelines establish management minima to be responsive to the laws and regulations. Before undertaking site-specific actions further analysis following NEPA procedures will be made, at which time further consideration of appropriate environmental constraints or mitigation measures will be undertaken. In addition, Management Area prescriptions describe the practices to be applied within specific management areas to attain the goals and objectives for those areas. As the amount of area to which specific Standards and Guidelines and Management Area prescriptions apply vary from alternative to alternative, differing levels of environmental constraints and mitigation measures are contemplated.

Exclusion of the ONRC Alternative from serious comparison, public review, and consideration was arbitrary and capricious. The ONRC Alternative was evaluated by FORPLAN, represented a mix of resource uses not presented elsewhere, and did not specifically propose new Wilderness. The Summary's failure to delineate this is violative of 40 CFR 1502.14(2).

Response: Discussion of the alternatives, including those eliminated from detailed study, appropriately takes place in the Chapter entitled, "Alternatives, Including the Proposed Action," rather than in the Summary (40 CFR 1502.14). Some information about the ONRC Alternative was presented on pages II-21 through II-27 of the DEIS. The Forest's reasons for not fully analyzing the ONRC Alternative were discussed on pages II-21 and II-22 of the DEIS.

During the interval between the DEIS and FEIS, the Forest decided that it would be in the public interest to analyze fully a revised alternative provided by the ONRC. Discussions were held with the ONRC to identify changes the Forest felt were necessary to provide comparability between fully analyzed alternatives, with the result that an alternative based in large measure on ONRC input is fully analyzed in the FEIS.

A number of individuals and organizations proposed partial alternatives, frequently expressed in terms of outputs associated with specific resources. In addition, some felt the alternatives proposed by the Forest Service created an unmanageable dichotomy of choice for public respondents by only allowing choices between whole groupings of ideas.

Response: The Final Forest Plan is a framework for management rather than an absolute commitment to conducting a specific set of projects.

The FEIS reflects the estimation and consideration of a range of outputs and activities that can reasonably be expected to be produced from the natural resource base of the Willamette National Forest. In the process of selecting a reasonable range of alternatives, many possible combinations or permutations of alternatives were not developed. The process of narrowing the possible alternatives considered to a manageable and reasonable range is appropriate under the National Environmental Policy Act (NEPA).

The alternatives prepared by the Forest provided for a wide range of reasonable and integrated management scenarios for the various uses of the Forest. Each alternative was intended to provide a different response to the total set of demands considered in the planning exercise. Such alternatives cannot be completely specified by single outputs or small groups of outputs, because multiple use management affects a wide array of resource values, in both economic and noneconomic ways. The principal reason for displaying estimated output levels for the various resources under the alternatives is to assist the public in better understanding some of the possible consequences of implementing a particular alternative.

Legal Adequacy

The DEIS and the Draft Forest Plan fail to meet the original and primary purposes of the Organic Administration Act by elevating a variety of other resource values over the production of timber.

Response: Management of National Forest System lands is subject to a wide array of laws, regulations, and other binding authority. Much of the early legislation, such as the Organic Act, did emphasize water and timber supply in the establishment of Forest Reserves. Later legislation, primarily in the 1960s and 1970s, further clarified Congressional intent regarding actual management of the natural resources found within established National Forest System lands. In addition, many other laws of general applicability such as the Clean Water Act and Endangered Species Act, influence the management of the National Forests.

The sum effect of this Congressional management direction requires the Forest Service to consider, consistent with procedural mandates of the National Environmental Policy Act, a range of resource values over a variety of reasonable alternatives in Forest planning. A number of such alternatives have been developed and analyzed in this Planning round, including some which place relative emphasis on timber production.

The DEIS is inadequate since none of the alternatives are sufficiently flexible to allow for management of specific areas or circumstances which may arise. In addition, the Forest Land and Resource Management Plan (FLRMP) is an irretrievable and irreversible commitment of resources without the required worst case analysis, because all the areas of uncertainty mentioned under information needs (LMP II-9) are serious uncertainties. Finally, the process from which the documents are derived relies too heavily on projections based on past management practices.

Response: Flexibility is provided in all alternatives by the nature of the planning process. The alternative chosen by the Record of Decision is programatic in nature, and generally does not itself make site-specific irretrievable commitments of natural resources. Site-specific analyses and decisions, tiering to the Forest Plan and consistent with NEPA requirements, are made at the time specific projects governed by the Forest Plan are considered.

In some cases, consideration of proposed site-specific actions may benefit from improved scientific information available at the time project analysis is undertaken. In other cases, the local nature of a proposed site-specific action may allow for consideration of more detailed data than was available during development of the Forest Plan.

Even should some matters remain uncertain when specific projects are evaluated, however, the NEPA process does not contemplate absolute certainty in all things. Rather, if faced with unavailable information about a reasonably foreseeable significant environmental consequence, the decision-maker's duty is to summarize existing credible scientific evidence about possible adverse impacts, and to evaluate such impacts based on theoretical approaches or research methods generally accepted by the scientific community. On the other hand, if information remains unavailable about a remote but potentially severe impact, then the duty is grounded in evaluation of the scientific opinion rather than in the framework of conjectural worst case analyses.

The best available information and scientific evidence was used in the development of the Forest Plan, FEIS, and related documents. This information included, as appropriate, projections based on past management practices.

Finally, Forest Plan monitoring provides a basis for reasoned data collection and analysis to determine whether amendments or revisions to the Forest Plan are indicated, consistent with NEPA procedures.

There is inadequate integration of other national policies and interests (e.g. energy self sufficiency, trade goals, access rights for handicapped, stabilizing local economies, and strategic materials).

Response: Assisted by public input, the Forest developed a list of the vital issues, concerns, and opportunities faced by the Forest in this planning period. That information helped focus the analysis and development of an array of alternatives which provided different responses to the identified demands. The selected alternative is judged to provide for multiple use and sustained yield of goods and services in a way that maximizes long term net public benefits in an environmentally sound manner. In addition, this Forest Plan can be amended or revised as necessary in response to signficant changes in public concerns.

Planning documents fail to defend departure schedules with reference to non-timber statutory multiple-uses, namely outdoor recreation, range, watershed, and wildlife and fish. Rather, departure is predicated on the goal of insuring employment and that the wood products industry would not go through a slump (DEIS, p.IV-204).

Response: 36 CFR 219.16(a)(3) requires that departure alternatives be considered when any of four conditions exist. Alternative B was considered, in part, to meet some assigned RPA program goals. Alternative J Departure was considered, in part, to meet timber volume objectives set for the Forest by the State Department of Forestry through its Forestry Program for Oregon, thereby contributing to State efforts to avoid substantial adverse economic impacts to communities.

Both departure alternatives considered in the DEIS also produced substantial benefits to some other programs (e.g. range, minerals, organizational support, and service to the public), while meeting management requirements to retain the viability of other resource values. See DEIS, II-17, II-45-47, and II-68-71.

Public comment directed to departure alternatives was generally unfavorable. Accordingly, these alternatives have not been reanalyzed in the FEIS, but remain available to the Regional Forester for decision.

All the alternatives with the exception of "C," violate 36 CFR 219.27(E) which forbids sedimentation from riparian MMRs.

Response: A number of comments expressed concern about watershed degradation, both within and outside riparian areas. Chapters II and IV of FEIS and Forest Plan, as well as Appendix D, materially revise the treatment of riparian areas and watersheds in some alternatives, including the preferred alternative. The regulation prohibits "serious" adverse effects on water conditions and fish habitat, and no violation of State Water Quality laws are anticipated due to the use of Best Management Practices (BMPs) required by the standards and guidelines. Monitoring results will alert management should unforeseen violations of State Water Quality laws occur and remedial actions will be taken. If necessary, practices will be modified over the life of the Plan, and if further necessary, the Plan may be amended or revised.

The DEIS, Appendices, and Forest Plan do not satisfy requirements of NEPA because the documents exceed the 300 page limit set by 40 CFR 1502.7 and because the Summary suffers the opposite problem by being so brief that the public is unable to evaluate the real tradeoffs being made in the published alternatives.

Response: EISs are intended to provide a full and fair discussion of significant environmental impacts and inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. At the same time, CEQ policy clearly encourages that EISs and their summaries be kept brief: "The text of final environmental impact statements...shall normally be less than 150 pages and for proposals of unusual scope or complexity shall normally be less than 300 pages" [40 CFR 1502.7], and "The summary will normally not exceed 15 pages" [40 CFR 1502.12].

The overriding consideration, however, must be to provide the full and fair discussion. The CEQ recognized this when it said in its Supplementary Information, "The Council recognizes the tension between the requirement of a thorough review of environmental issues and a limitation on the number of pages that may be devoted to the analysis....The inclusion of the term 'normally' in this provision accords Federal agencies latitude if abnormal circumstances exist."

The Forest considers this planning cycle to represent a situation of "abnormal circumstances" contemplated by the CEQ. This Plan constitutes the first NFMA Plan for the Willamette National Forest, involves broad programmatic decisions for the next 10-15 years for a very large area of land holding many different natural conditions, and seeks to maximize the net public benefits over this significant spatial-temporal span when competing public demands exceed available resources.

The public good achieved by good decisions outweighs adherence to arbitrary page limitations.

None of the alternatives provide for mandated sustained yield.

Response: With the exception of the departure alternatives considered in the Draft EIS (Alt. B and J-Departure), all considered alternatives contain base sale schedules producing timber yields in successive decades that equal or exceed the planned sale for the proceeding decade (i.e. meet nondeclining yield principles), and all alternatives considered in both the Draft EIS and the Final EIS meet long-term-sustained-yield over the term of the planning horizon.

The documents have failed to present an adequate range of alternatives. For example: The documents failed to provide more options between J Preferred and ONRC; there was no alternative which provided enough protection of certain resource values; there was no alternative which provided enough availability of certain resource outputs; there was no alternative which provided the specific sort of protection I wanted for specific site(s).

Response: There are no specific requirements constraining the exact number or "placement" of alternatives relative to each other against particular resource outputs. The objective in developing a range of alternatives is to provide a wide range of reasonable management scenarios for the various uses of the Forest, and indeed they cannot be completely specified by any single output. Distribution between the minimum resource potential and the maximum resource potential is primarily to reflect to the extent practicable the full range of major commodity and environmental resource uses and values that could be produced from the forest, providing different ways to address and respond to the major identified public issues, management concerns, and resource opportunties. It is neither feasible nor required for informed decision making that every alternative device and thought conceivable by the human mind be considered.

The decision process is inappropriately reduced to one based solely on economic considerations by the inclusion of "economic efficiency."

Response: The decision process is intended to provide for multiple use and sustained yield of goods and services in a way that maximizes long term net public benefits in an environmentally sound manner (36 CFR 219.1(a). The term "net public benefits" by definition is "an expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index (36 CFR 219.3)."

In many cases economic considerations can be measured or estimated, and they can yield important, but by no means exclusive, indications of social benefit. By 36 CFR 219.12(e)(1)(iii), forest planners must conduct monetary benchmark analyses estimating the maximum present net value of those resources having an established market value or an assigned value to provide a basis for formulating a broad range of reasonable alternatives. In addition, costing information is important for providing a reasoned basis for selection of that particular set of available management prescriptions meeting the objectives previously established for each alternative (36 CFR 219.12(f)(8)); but cost efficiency itself does not drive the setting of the objectives for any specific alternative.

In these ways economic information was indeed used, but not exclusively used, in the formulation of alternatives. The Record of Decision discusses the types of information and rationale supporting the decision made by the Regional Forester.

1980 and 1985 RPA analysis and Forestry Program for Oregon Harvest targets for the Forest were ignored in terms of the Forest's requirement to assess environmental impact of producing harvest levels less than reported in the referenced documents.

Response: While the Forest is required to analyze the environmental effects of adopting the various alternatives, there is no specific requirement to assess the environmental impact of producing harvest levels less than the RPA and FPFO goals in the other considered alternatives. Consequently, one factor that is analyzed for each alternative is the environmental consequence of producing the harvest level that the particular alternative calls for.

Alternative B-Departure was intended, among other things, to reflect RPA harvest targets. Alternative J-Departure was intended, among other things, to reflect timber volume objectives set for the Willamette National Forest by the Oregon Department of Forestry's Forestry Program for Oregon. Descriptions of these two alternatives and the remaining alternatives which do not meet the timber harvest targets of RPA and FPFO are provided in Chapter II of the FEIS and DEIS. Comparisons between all the alternatives appear throughout the DEIS and FEIS, and in particular the environmental effects are analyzed in Chapter IV of those documents. Appendix B provides important discussions of economic efficiency analysis and social and economic impact analysis.

Only one set of MMR strategies is proposed in the Plan. Where alternative methods for achieving the same objectives are available, the documents should display them.

Response: As described at page II-30 of the DEIS, alternative methods of meeting the Management Requirements (MRs) were evaluated in the Analysis of the Management Situation (AMS). The AMS was available for public review throughout the public review period for the DEIS, and planning personnel were available to provide explanations or answer questions.

Once a strategy was developed for each MR, this strategy was applied to all alternatives (except the No Change Alternative) to provide a consistent basis against which to evaluate the alternatives.

Monitoring

The results of the FORPLAN solution for the Draft Forest Plan were completely ignored in the implementation and monitoring section.

Response: The role of the FORPLAN model is to provide a comparative basis for analyzing a range of alternatives and predicting some resource outputs. In contrast, standards and guidelines direct implementation. FORPLAN may be used again after implementation as one tool to evaluate possible responses to monitoring results.

The Draft Forest Plan is excessive in its management guidelines and needs to be more balanced. Until economic diversification plans show results, we need to protect and maintain the current base.

Response: The implementation and monitoring phases of Forest planning provide the structure through which assumptions can be tested. If the results of these activities indicate the need for an amendment or modification to the Final Forest Plan, then the Plan can be updated to reflect needed changes in management practices.

Public Participation

The decision to reduce timber production on Forest violates public participation mandates in the Administrative Procedure Act (APA) and NFMA.

> **Response:** The opportunity for public participation was afforded by following National Environmental Policy Act procedures throughout the land management planning process. Administrative appeal of the decision is available through voluntarily provided agency appeals procedures found in 36 CFR Part 217. Only the broad principles of the Administrative Procedures Act apply to such voluntarily provided agency appeal procedures, including fairly provided notice and opportunity to be heard. Upon compliance with applicable procedural requirements, appellants disappointed with the agency decision upon appeal may pursue judicial remedies.

NFMA public participation mandates were precluded by the use of linear computer models and MMRs.

> **Response:** The National Forest Management Act (NFMA) set legal guidelines for planning and management of the National Forests. National direction resulted in MRs which reflect the requirements of the NFMA. The MR direction ensures that minimum legal requirements are applied to all alternatives in Forest plans consistently across the National Forests. MRs exist for dispersal of created openings, water quality, riparian, and fish wildlife habitat as required by NFMA.
>
> Discussions in Appendix B, Appendix H, and Chapter II of both the DEIS and FEIS explain how MRs were developed and applied on this Forest. Similarly, discussions in Chapter II and in Appendix B explain the manner in which linear programming models were used by the Forest. Public review and opportunity to comment was provided by the discussions in the DEIS.

Several comments were concerned with the way in which the public responses to the Draft EIS would be used and the time allowed in which to comment. Some considered the process to be a referendum, either approving or disapproving of that result. Some believed the magnitude of the reponse represented by organizationally sponsered letter campaigns should be accorded great weight; others questioned the value of either the extent or content of the responses such campaigns produced. Some felt that not all comments would receive attention. Finally, some felt the time allowed to review the documents was inadequate for the public to formulate meaningful comments.

> **Response:** The Forest Plan is intended to provide for multiple use and sustanined yield of goods and services from the National Forest System in a way that maximizes long term net public benefits in an environmentally sound manner. National Environmental Policy Act (NEPA) procedures are used help obtain the information that is needed to produce that result; and NEPA stresses that, "it is not better documents but better decisions that count." Public involvement serves not only to disclose contemplated Federal action, but to provide an opportunity to improve the quality of decisions made.
>
> Public involvement is important throughout the process of Forest planning. It is particularly critical in helping alert agency representatives to public needs and crystalizing those issues, concerns, and opportunities which are of overriding concern. Public involvement is also critical in tapping the expertise of the public to examine the technical adequacy of the documents, and to guage the overall responsiveness of the documents to the resolution of critical issues.
>
> The public comment period did not represent a "vote" of the public binding the Approving Official to some notion of numerical plurality. The objective remains to produce a plan that provides for

multiple use and sustained yield of goods and services maximizing long term net public benefits in an environmentally sound manner. The extent and force of sentiment relative to the important issues of Forest planning, however, is extremely valuable in assessing responsiveness to the social and economic demands of the American people.

The "substantive" comments, and the responses to them, represent the bulk of this Appendix. These were the responses that upon Content Analysis and Interdisciplinary Team review were judged to provide "factual information, professional opinion or informed judgment." The other comments that are not treated here, however, are also important in their own right.

The DEIS and related documents were first released on December 7, 1987. The closing of the public comment period was originally scheduled for March 31, 1988. This date was later extended to May 16, 1988, to provide additional opportunity for meaningful review.

More information about the manner in which comments were treated can be found in other portions of this Appendix.

Principles of public involvement will be violated by failing to allow the public to review a set of alternatives with corrected data.

Response: The Forest found that public analysis of the DEIS was extremely thorough and thoughtful, resulting in numerous corrections, refinements, and indeed the development of three new alternatives, including a new preferred alternative.

NEPA requires preparation and circulation of a revised draft only if the initial draft statement is so inadequate as to preclude meaningful analysis (40 CFR 1502.9(a)). The high quality of the public response demonstrated that the public understood the issues, analysis, and consequences.

NEPA further requires preparation of supplements to draft environmental statements if substantial changes are made in the proposed action that are relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. (40 CFR 1502.(c)(1)(i) and (ii)). The development of the new alternatives were responsive to public requests for more intensive analysis of differing themes of resource management; but none of them proposed actions substantially outside the range of alternatives previously considered, nor did they propose major changes in the underlying nature of the actions considered. Rather, they explored different emphases of management. Similarly, while the quality of information constantly improves with updated data, improved technology, and research findings, the changes between draft and final were insufficiently significant to warrant supplementation of the DEIS. As changes of significance occur, the Final Plan can be amended or revised, as appropriate, to reflect the new information.

The planning process failed to solicit adequate public comment on FORPLAN models and MMRs.

Response: Both FORPLAN and MRs were discussed in the DEIS and associated documents. A discussion of FORPLAN appeared in Appendix B, MRs were discussed in Appendix H, and both FORPLAN and MRs were discussed in Chapter II of the DEIS. These discussions provided information to allow responsive comment; and Forest Planning personnel were available throughout the comment period to provide further explanation and sources of information.

The formulation of MMRs without public input or formal rule-making procedures is not lawful, and their application plus other discretionary restraints before developing ASQ prevents the exploration of

a full range of alternatives not presented when applying MMRs, then discretionary restraints, before developing ASQ.

Response: The basis for development and application of management requirements (MRs) was discussed in Appendix H. The MR development process was in accordance with applicable Forest Service direction.

Standards and Guidelines

The documents fail to clarify the difference between standards and guidelines, including the extent to which each is binding.

Response: Chapter IV of the Forest Plan discuss the types of standards and guidelines that were developed, the nature of their operation, and the interrelationships between them.

The glossary defines "standards," "guidelines," and "standards and guidelines." It is best to view standards and guidelines together as an integrated methodology for achieving the purposes for which they were established.

As the standards and guidelines establish minimum or specific management requirements for the practices or lands to which they apply, they are binding. Some are more readily measurable than others. Taken together, the three types of monitoring (implementation, effectiveness, and validation monitoring) will help determine how standards and guidelines are being used and whether results are as were anticipated. If monitoring results or changed management situations suggest standards and guidelines need to be revised, then depending upon the significance of the indicated changes, the Forest Plan might either be amended or revised.

The documents fail to resolve conflicts between management direction, which will result in compromise to Standards and Guidelines when they limit timber sell levels.

Response: Each alternative considered provided a single vision of integrated management of the various resource values present on the Forest. Standards and guidelines are developed to meet the resource objectives of the alternatives, including mitigating measures that will guide the Forest Service in managing the Forest. Implementation monitoring will confirm the extent of compliance with standards and guidelines and the associated accomplishment, benefits, and costs. Effectiveness monitoring will confirm whether the practices and activities actually accomplish what was intended. Validation monitoring will confirm whether the relationships and assumptions used in the adopted Forest Plan are valid.

Monitoring is therefore the key to whether the "contract" with the public the Forest Plan makes concerning the implementation, effectiveness, and validity of standards and guidelines is actually met. The Forest expects to keep this "contract," and anticipated continuing public scrutiny further assures faithful adherence to Standards and Guidelines.

The standards and guidelines (Chapter IV of the Draft Forest Plan, "Forest Management Direction" under sub-heading D, "Forest Management Objectives") are, broad generalizations devoid of any quantification. These "standards and guidelines" fail to provide any basis for evaluation.

Response: The average annual outputs that are estimated to accomplish the goals and address planning issues, along with resource summaries and resource schedules. These provide the basis for further development of the annual program of work and budget, and they are intended to

be general in nature. The standards and guidelines and management area prescriptions, by contrast, are intended to provide specific direction about how activities and practices will be performed during implementation. While they do not make the project level decisions themselves, they provide appropriate direction to assure that those decisions are consistent with accomplishing the desired future condition.

The inconsistency with which standards and guidelines are framed is inappropriate: timber standards and guidelines are firm and allow little flexibility in meeting objectives. Wildlife guidelines, by contrast, are flexible and ambiguous.

Response: Standards and guidelines describe how activities and practices will be performed during implementation. Sometimes they describe only the minimums necessary to meet legal and regulatory requirements; sometimes they set stricter requirements to meet the objectives of a given prescription; occasionally they are waived if not applicable to individual management areas.

Often the nature of the resource values being protected or the state of the art concerning appropriate beneficial techniques is such that relatively greater flexibility in meeting legal requirements or specialized prescriptions is needed. In those cases such flexibility is intentionally written into the standards and guidelines.

The Standards and Guidelines have been completely revised in the FEIS and related documents, however. This effort reduced ambiguity by improving consistency in terminology and, where appropriate, provided less discretion in application.

Recreation

General

The DEIS and Proposed Forest Plan violate 36 CFR 219.21(e) by failing to coordinate the supply and demand of recreation opportunities with public agencies and other providers.

Response: The development of the FEIS, Final Forest Plan, and related documents used the projected demand rates for activities and existing supply opportunities from the State Comprehensive Outdoor Recreation Plan (SCORP). Meetings and other forms of involvement with State representatives, outfitters, and special use permittees provided a further basis upon which to predicate analysis. Discussions about Wilderness and recreation in Chapters II, III, and IV of the FEIS and the Resource Summaries in Chapter IV of the Final Forest Plan provide additional information.

Recreation use projections fail to be based on historical use trends of the Forest and demographic trends of locations that provide the majority of the Forest use.

Response: Historic use information has been updated in the Chapter III discussions of Wilderness and recreation in the FEIS. The principal basis for the projections of the next two decades is the State Comprehensive Outdoor Recreation Plan's treatment of the mid-Willamette Region. Bonneville Power Administration projections were the basis for recreation estimates in later years.

As with any remote projections of human behavior, unforecast changes may occur. The planning process is a flexible process; and should significant changes occur over the life of the Final Forest Plan, it may be amended or revised as necessary to reflect future needs.

Recreation use demands are inadequately addressed. Some specific examples are: The Draft Forest Plan fails to respond or meet future demand (5th decade) for developed and semiprimitive motorized and nonmotorized uses. Trail mileages are decreasing from the effects of clearcuts and roads despite increased use pressures. There is insufficient provision for access to Wilderness type experiences for physically challenged people. There is inadequate assessment of the need for more facilities such as corrals, hitching posts, camping areas, and parking to accomodate the increasing popularity of horse and pack animal use by the elderly and handicapped to access Wilderness and other undeveloped areas.

Response: Information has been updated and additional alternatives considered in the FEIS and Final Forest Plan documents. Several places in those documents address Wilderness and a variety of recreation-related matters. In particular: Chapters II, III, IV, and Appendices B, C, and E of the FEIS; and Chapter IV and Appendices A, B, and D of the Final Forest Plan.

Semiprimitive recreation capacity remains inadequate across all alternatives; but developed recreation meets demand in one alternative and developed recreation capacity (i.e. potential for future development) exceeds demand in several alternatives. About 100 miles have been added to existing trail mileages since the DEIS and continues to increase in several alternatives and the Final Forest Plan. Access by the disadvantaged to developed recreation sites and to Wilderness by outfitter guides have been addressed in the standards and guidelines (S&Gs). The S&Gs also require analysis of user interests and needs in determining what developed recreation opportunities will be provided, so that as the popularity of differing forms of recreation change (such as horse and pack use), changes can be made in the services and facilities offered.

The Draft Forest Plan fails to emphasize recreation to the level of the Chief's recreation initiative.

Response: The Chief's recreation initiative is a strategy aimed at meeting recreation needs through a variety of innovative techniques, including partnerships with other agencies and private organizations. Neither the terms of that initiative nor any specific output levels associated with it are themselves goals for Forest planning. Instead, the FEIS considered a broad range of reasonable alternatives specific to the capabilities of this Forest to produce outputs, including recreational experiences, according to certain management scenarios.

There is an inadequate discussion of the cumulative effects of harvesting on developed sites.

Response: The discussions of Recreation in Chapters III and IV of the FEIS address the effects of timber harvest in these areas. In many cases developed recreation sites are located in areas with scenic quality standards more rigorous than those found in general forest.

There are not enough developed sites to meet the demand.

Response: Currently installed capacity is inadequate to meet projected demand in the fifth decade, but the potential to develop sufficient sites to meet the projected demand level does exist (see the Recreation section of Chapter III of the FEIS). The range of alternatives address using the potential to develop additional sites in different ways. The Final Forest Plan addresses it in a manner such that projected demands for the fifth decade are met.

The documents fail to protect the values of Waldo Lake adequately by failing to limit motorized use on the Lake to administration, emergencies, and protection of the resources.

Response: Limiting boating on Waldo Lake to nonmotorized boats was within the range of alternatives which were considered. The Final Forest Plan allows the use of motorized boats on the Lake, but it does not propose changing the speed limit currently in force.

The documents fail to consider the use and funding of information centers along I-5 to interpret the resources and natural systems of the Forest.

Response: The Resource Action Schedules (Appendix D of the Final Forest Plan) address this.

The documents fail to evaluate the effects of plans to pave the road from the Waldo Lake area to Century Drive.

Response: This programmatic EIS makes no final decision whether to pave that road or not. The standards and guidelines for Facilities in Chapter IV of the Final Forest Plan provide that the road will remain a gravel surface road until completion of an environmental analysis determining the nature of any improvements or alterations to its current condition. This process will follow appropriate NEPA procedures, including the opportunity for public involvement.

The documents fail set use limitations based on well documented and defined carrying capacity of the resource.

Response: Chapter III of the FEIS provides an updated discussion. Process papers providing greater detail about the manner in which the capacities for Wilderness, dispersed recreation, and developed recreation uses were estimated are part of the Planning Records.

The planning documents fail to comply with the South Fork McKenzie Task Force Agreement by changing the Recreation Opportunity Spectrum category from semiprimitive motorized to roaded natural.

Response: The Forest did not accept the recommendations of the Task Force as such; however, the range of alternatives did consider the basic thrust of those recommendations. The Final Forest Plan retains a majority of the subject lands within the South Fork McKenzie Special Interest Area (SIA). This SIA will be managed in a manner consistent with the general theme of the Task Force's proposal.

Permits

Proposal to limit outfitters is squarely inconsistent with at least five different provisions of Chapter IV, Section B of the Proposed Forest Plan.

Response: The broadly phrased Management Goals are achieved through a number of different management practices. Outfitter guide services occur primarily within Forest Wildernesses and on designated or eligible Wild and Scenic Rivers. Limitations to commercial services in those areas are based on direction derived from the 1964 Wilderness Act and the Wild and Scenic Rivers Act of 1968 (Public Law 90-542). Of principal concern is the maintenance of the underlying character of the lands that led their designation as Wilderness or for protection of the free-flowing conditions and specific outstandingly remarkable values of the rivers. Refer to Chapter IV and Appendix A of the Final Forest Plan for management direction pertaining to commercial services.

The Proposed Forest Plan ignores trips conducted by guides which do not use pack animials.

Response: Most outfitter guide services are concentrated in Forest Wilderness. Forest management of commercial services focuses on the effects to natural resources from guided trips and the social benefits derived from those excursions. The primary considerations for accepting outfitter guide services in Wilderness rests not so much on the use or non-use of pack stock, but on the effects of guided activities on the resource, levels of usage, and the need to provide services to visitors who would not otherwise experience the Wilderness. Other criteria include consideration for guided services which are economical and provide high quality public service. Refer to Appendix A and the standards and guidelines for Wilderness in Chapter IV of the Forest Plan.

Nowhere has the recreational use carrying capacity of the Forest been addressed. Instead, the Forest is going to limit the use of public requiring services of an outfitter based on artifical, arbitrary, and unrealistic District by District hard number service day limitations without having identified the carrying capacity of the recreation resource.

Response: The recreation use carrying capacity in nonwilderness (both dispersed and developed recreation) is discussed in the Recreation section of Chapter III of the FEIS. Similarly, the carrying capacity of Wilderness is discussed in the Wilderness section of Chapter III of the FEIS and in the individual Wilderness management plans found in Appendix A of the Final Forest Plan. Service day use by outfitters in Wilderness is limited if data pertaining to the Limits of Acceptable Change or other management considerations indicate that recreational use is approaching the maximum levels outlined in the Final Forest Plan. Day limitations may therefore change over time as conditions change. See the standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan.

The proposed use of "bid and prospectus" as set forth on page A-12 in section 13(b) for outfitters violates Forest Service national policy set forth in the National Outfitter Policy.

Response: Forest Service national policy regarding issuing permits to outfitter guides can be found at FSM 2721.53, FSM 2343.8, and FSH 2709.11. That direction does not preclude the use of bid and prospectus in opening new commercial services.

The Draft Forest Plan fails to identify the role of outfitters: what they do, and who they serve. The Draft Forest Plan does not display a fundamental and correct understanding of the industry.

Response: Since most outfitter guides operate in Wilderness settings or on designated or eligible segments of Wild and Scenic Rivers, Appendix A of the Final Forest Plan is the principal place where their role and the contribution they make to the public is discussed. The role of commercial services relative to current recreation conditions and future trends on Wild and Scenic Rivers is discussed in Chapter III of the FEIS.

The Draft Forest Plan inappropriately singles out for disparity and second class treatment members of the public who depend on outfitters. You are discriminating against people who are unskilled, inexperienced, or are physically limited.

Response: The majority of outfitter guided excursions occur in Forest wilderness settings and along segments of designated or eligible segments of Wild and Scenic Rivers. One of the important considerations in permitting outfitter guide services in Wilderness is the ability to provide needed services to visitors who would not otherwise experience the Wilderness. See

Appendix A and management area standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan. In addition, standards and guidelines encourage outfitters to provide educational services.

Trails

The documents fail to consider the effect of adjacent harvest and bisection by roads on the 356 miles of nonwilderness trails that are claimed to be retained. The Plan is inadequate by failing to consider road and sale locations and other mitigating measures to protect these trails.

Response: Site specific project analyses will occur whenever project activities under the Final Forest Plan are proposed near nonwilderness trails. These analyses will consider various alternatives and their effects on the environment, including nearby trails as appropriate. The integrated trail and transportation system planning envisioned under the Final Forest Plan should minimize existing and future road crossings, as well as other conflicts between trails and roads. See Chapter IV of the FEIS and the standards and guidelines for Recreation (trails) in Chapter IV of the Final Forest Plan.

Riparian

The DEIS fails to address the consequences of the increased blowdown occurrences on water quality and fish habitat which occur as a result of increased clearcuts adjacent to riparian buffer strips.

Response: Chapter IV of the Final Forest Plan includes management area standards and guidelines for riparian areas. The potential for blowdown is one of the factors to be considered when determining the width of the riparian areas which are maintained. Some blowdown will inevitably occur, and these consequences are considered in the riparian vegetation section of Chapter IV of the FEIS.

The DEIS fails to list an indicator species for riparian area habitat.

Response: Management Indicator Species for riparian areas are resident and anadromous fish and are listed in Chapter III of the FEIS.

Maintaining the riparian areas in mostly young or early mature trees will not provide suitable in stream habitat.

Response: Discussions of the benefits of maintaining riparian vegetation can be found in the Fish section and the Water section of Chapter III of the FEIS. These discussions address the benefits to stream habitat provided by the retention of mature trees and large woody debris.

A range of management treatments to riparian areas is provided by the various alternatives. All of the alternatives, except NC, will meet or exceed the requirement to maintain viable populations. The Final Forest Plan recognizes the important role of mature vegetation in riparian areas to the quality of stream habitat. The result is that no programmed harvest occurs in Management Area 15 (Riparian) (see Chapter IV of the Final Forest Plan).

The statement is made that riparian areas will be maintained as habitat for riparian-dependent resources (DEIS, page IV-62). This is incorrect. The plans as presented will not provide the riparian benefits desired.

> **Response:** The extent of protection to riparian areas varies across the range of alternatives. The standards and guidelines for Riparian Areas (Management Area 15) in Chapter IV of the Final Forest Plan provide specific direction to protect riparian dependent wildlife species. There will also be associated benefits to other wildlife species such as thermal cover for big game and dead and decaying tree habitat for use by cavity excavator species. The Final Forest Plan provides more protection for those resources than the Proposed Forest Plan, by scheduling no timber harvest from riparian areas along streams and lakes.

The definition of riparian areas is incorrect, particularly the statement that they are approximately 100 feet. Riparian areas can vary in width from a few feet to more than a thousand feet in width. How will the "varying width" of riparian zones along Class I, II, and III streams be determined?

> **Response:** Standards and guidelines for Riparian Management Area 15 are found in Chapter IV of the Final Forest Plan. That direction provides for project level identification of riparian areas of varying widths, based on factors such as the needs for shade, streambank stability, input of large and small wood to the stream, unique riparian habitats, and other resource values.

The Forest standard for large woody debris (LWD) is inadequate for areas that have been entered for timber harvest. The standard needs to be "90% or more of potential large woody debris." What would be the cost of such a change in terms of lost timber production?

> **Response:** The cost of retaining mature trees in riparian areas compared to harvesting at the management requirement levels is described in the Management Requirement Appendix of the FEIS.

Demonstration of consistency with the Clean Water Act could be better shown by discussions of how the alternatives satisfy the requirements of the Oregon Forest Practices Act. Particular attention should be given to the newly adopted rules for riparian area management.

> **Response:** Information about compliance with the Clean Water Act can be found in the section discussing Water in Chapters III and IV of the FEIS. All alternatives include the use of Best Management Practices (BMPs). A list of BMPs can be found in Appendix H to the FEIS and by reference to the document *General Water Quality Best Management Practices* (1988). This document states that Forest Service practices meet or exceed the Oregon Forest Practices Act.

There appears to be no coordination of riparian management with overlapping allocations, except that the most limiting harvest rate applies. It seems strange to manage these areas the same whether the riparian area is in a high recreation zone with partial retention scenic or in a more limited recreation area.

> **Response:** In areas of overlapping allocations the most restrictive prescription applies. Riparian areas are recognized as a separate management area in the Final Forest Plan; and they carry relatively restrictive prescriptions, including no programmed timber harvest. The values for which riparian areas are managed are generally consistent with high quality recreational opportunities.

The discussion of the environmental consequences of the alternatives on wildlife failed to address riparian zone or associated species.

> The Riparian section of Chapter IV of the FEIS includes additional consideration of the effects of riparian area management on wildlife.

Research data necessary to provide or to develop quantitative criteria against which to measure effectiveness of the standards and guidelines does not exist. Research is needed to answer the Evaluation Question "Are riparian areas providing the expected diversity in wildlife habitat?"

> **Response:** Section II of the Final Forest Plan identifies a number of items for which additional information is needed. These include several items related to understanding riparian areas. As more is learned about the relationships between riparian areas and the diversity such areas can provide to wildlife habitat needs through effectiveness monitoring, the standards and guidelines and management area prescriptions may be changed.

The DEIS fails to delineate and provide adequate protection for riparian areas of Class IV streams.

> The management area prescriptions in Chapter IV of the Final Forest Plan incorporate specific direction for protection of Class IV streams. Management along these streams will provide for long term stream stability.

With 13 of 26 watersheds identified as having sedimentation problems, timber harvest of any kind in riparian areas would result in an unacceptable risk.

> **Response:** The Final Forest Plan eliminates programmed timber harvest from riparian lands and carefully limits other timber felling to accomplish specified purposes consistent with maintaining the integrity of the riparian areas. Future activities must be conducted in a manner to prevent further degradation, and as appropriate to provide rehabilitation of the watersheds.

The DEIS states "Most streams and rivers are considered deficient in large woody debris" (LWD). The DEIS fails to indicate how water quality, stream stability, and fish habitat can be maintained with a continuing net decline in LWD and other timber harvest impacts in riparian areas.

> **Response:** The Final Forest Plan ensures that large wood reaching the streams will not decline significantly by requiring that the supply of large wood be considered when planning activities in riparian areas. No timber harvest is programmed in these areas, and such harvest as is allowed occurs only after consideration of riparian objectives. In addition, stream habitat rehabilitation projects will provide increases of large wood to streams in critical areas.

The Draft Forest Plan suggests that timber in riparian areas, if harvested, would provide about 6% of the annual ASQ. What is foregone and what is gained by not harvesting in riparian areas? An alternative to answer this question should be developed.

> **Response:** The FEIS considers alternatives with varying rates of harvest in riparian areas, including Alternative W which proposes no harvest. The effects of these alternatives are considered in Chapter IV of the FEIS.

The extent of timber harvest in riparian areas is out of balance with riparian management prescriptions. Figure IV-D-22 of the Draft Forest Plan shows that over 300 MMBF will be harvested from riparian areas in the first decade. If only 10% of riparian areas can be in a harvested condition at any given

time (Draft Forest Plan, IV-62), then about 6300 acres are available for harvest from riparian areas. This area is reduced further by additional protections displayed in the Draft Forest Plan on LRMP IV-60 to 63. Is removing approximately 30 MMBF annually from less than 6300 acres likely? In addition, 5% of the proposed timber harvest is planned from riparian areas, and since riparian areas represent 5% of the Forest, it appears protection of riparian areas is inadequate.

> **Response:** An error was identified in the modeling of outputs from riparian areas in the DEIS. The estimates of timber available from riparian areas have been revised to portray more accurately the overlap of allocations within the riparian areas. This has resulted in a reduction of the volume estimated to be available from these areas. The change is described in the discussion of changes from Draft to Final in Chapter II of the FEIS.

Riparian widths of 400 feet on class I and 200 feet on class II and III streams have been identified for protection. Using these widths causes some 46,842 acres of suitable forest land to have the harvest reduced by 6%-38% in order to meet this constraint. The FEIS should explain why the Forest has chosen to exceed the Regional Guide direction on protection of riparian area vegetation and should clearly show the benefits of other less constraining riparian widths.

> **Response:** The Regional Guide directs Forests to develop prescriptions which will meet Management Requirements (MRs) for water quality, based on local conditions. In the Final Forest Plan, riparian areas are managed to maximize noncommodity outputs in addition to water quality (see the riparian management area standards and guidelines, Chapter IV of the Final Forest Plan). Field data specific to this Forest were used to formulate the prescriptions to meet MRs and the widths associated with them.

The first paragraph of the DEIS at page IV-57 describes the need for protecting riparian zones. The next paragraphs imply that the importance of these ecosystems is relevant only in certain alternatives. It would seem that if constraints developed to maintain the productivity of the soil and ecosystems is good in one alternative, it should be good in all.

> **Response:** The FEIS compares a number of alternatives for managing the Forest. While all alternatives will manage at or above legal minimum levels for water quality, the various alternatives place greater or lesser emphasis on the other aspects of the riparian ecosystem. The specific vision of the desired future condition which characterizes each alternative implies the necessity for differing management emphases between alternatives.

Page IV-57 of the DEIS states that all alternatives will meet the standards and guidelines." Figure IV-4-6 and Fig. II-E-15 show acres and harvest rates in riparian areas. When this data is balanced against constraints in the standards and guidelines, it appears that either timber harvest or the standards and guidelines will have to give.

> **Response:** An error was made in the DEIS in modeling timber outputs from riparian areas, resulting in overestimating the amount of timber produced from riparian areas. This modeling error has been corrected.

Roadless Areas

Many comments identified specific inventoried and uninventoried roadless areas for which protection or preservation was requested.

Response: Alternatives in the FEIS provided different ways and amounts of protecting or preserving the roadless character of currently unroaded lands. Alternative K proposed developing virtually all of the roadless areas, while Alternative L proposed protecting or preserving most of the current inventory. Other alternatives proposed intermediate levels of protection. Several levels of protection were also considered in the management prescriptions used in the FEIS, limiting roading, timber harvest, and motorized activities. Additional information about the effects of the alternatives on roadless characteristics of specific areas can be found in Chapter IV and Appendix C of the FEIS.

The Final Forest Plan represents the approach which is judged to provide for the multiple use and sustained yield of goods and services in a way that maximizes long term net public benefits in an environmentally sound manner. The Final Forest Plan increases the acres of roadless protection over the Draft Forest Plan.

Sensitive Plants

The DEIS failed to inventory sensitive plant species populations. This makes it impossible to determine adequately the risks associated with management activities and the locations where proposed activities might adversely affect sensitive species.

Response: The current inventories of sensitive plant populations need to be improved. The standards and guidelines in Chapter IV of the Final Forest Plan provide firm direction to ensure that inventories are completed as part of the biological evaluations for all projects that might adversely affect sensitive species. The Final Forest Plan funds inventories (Appendix D, Resource Action Schedules) and monitoring sensitive plant populations (Chapter V) in all management areas.

The documents fail to provide a goal statement for the protection and enhancement of sensitive plant populations and their habitat. The DEIS also inadequately documents the types and extent of management activities that might adversely affect these plants. For example, there is inadequate discussion of the role of logging, roading, recreation, livestock, and ORV use in the degradation of habitat and as vectors for the spread of competing nonnative or noxious weeds. Another example is that the effects of commercial collection of native plants on the maintenance of viable populations are inadequately addressed.

Response: All alternatives considered in the FEIS (except NC) were designed to maintain the viability of all native and desirable nonnative plants species, as required by the National Forest Management Act. A discussion of the role and potential effect of various land management activities has been included in Chapter IV of the FEIS. Alternatives W, D, and L were developed to emphasize various nonconsumptive values, including sensitive plant species.

The Final Forest Plan has a goal statement providing for the long term viability of plant species. Sensitive plants are considered in the Wildlife section of the standards and guidelines in Chapter IV of the Final Forest Plan. These standards and guidelines provide goals, objectives, and direction for the protection and enhancement of sensitive species, including the evaluation of the potential effects of forest management activities on these species. Appendix D of the Final Forest Plan programs funding for controlling the establishment and spread of noxious weeds. Finally, implementation and effectiveness monitoring provide the mechanisms through which viability threats and the need for appropriate corrective action can be identified.

The documents fail to provide a specific monitoring protocol for sensitive plant species.

Response: The monitoring plan in Chapter V of the Final Forest Plan has been revised to include a more comprehensive program for inventorying and monitoring sensitive plant species.

Soil

Soil data used to calculate surface erosion rates are based upon only 8 SRI mapping units out of over 150. Current erosion rates, the potential for future erosion, and cumulative impacts are all misrepresented by use of this inadequate data.

Response: Surface erosion data were assembled from several studies using a variety of techniques to consider a number of ground conditions and management treatments. The data were compiled by the research community, and they represented the best available data for comparing the alternatives. Moreover, the data are used as index numbers, providing implicit recognition that precise information on all conditions is not available.

Chapter IV of the FEIS discusses the effects of surface erosion and shows that it comprises a relatively small portion of total soil erosion when compared to the contribution made by landslides. The Forestwide standards and guidelines require that Best Management Practices be implemented to minimize surface erosion and mitigate its effect on beneficial uses (Chapter IV of the Final Forest Plan).

Monitoring of the implementation and effectiveness of the Forestwide standards and guidelines, as well as the results of new research studies, will provide additional information against which to judge the issue of surface erosion. As may be appropriate from such new information, the Final Forest Plan may be amended or revised.

The DEIS inadequately discusses the effects of management practices on long term soil productivity, particularly with respect to changes in the physical or biological soil components. For example, the loss of nutrients in clearcuts has been documented by Boreman and others but is not discussed in the DEIS. Similarly, the effects of repeated applications of fertilizer and pesticides upon soil quality and productivity has not been adequately assessed.

Response: The long-term impacts of timber harvesting and various vegetation management techniques on soil productivity are not yet completely understood. Some research would suggest that little harmful effects should be expected, provided proper forest management techniques are used. For instance, reports by Larsen, Harvey, and Jurgensen ("Forest Soil Biology -- Timber Harvesting Relationships," USDA Forest Service General Technical Report INT-69) address the importance of organic material in soils. The authors concluded that "no widespread detrimental impact on site quality can be directly attributed to harvesting effects on soil microflora." Research about soil productivity is far from over, however.

The section on Soils in Chapter II of the FEIS recognizes the need to maintain organic matter in the soils. Retaining woody material on-site is of course one way to provide this; but the optimal requirements for amount, size, decomposition class, and distribution of dead woody material remains unresolved.

Specific mitigation measures used to protect soils can be found in Chapter IV of the FEIS. The Forestwide standards and guidelines and in some cases guidelines for certain Management

Areas provide for direction to maintain soil productivity and minimize erosion (Chapter IV of the Final Forest Plan). Monitoring results will provide information to evaluate the effectiveness of these prescribed activities.

Figure IV-1-3 of the DEIS projects the equivalent of about 878 acre inches of soil will be lost or displaced from sites annually due to timber activities in the first decade. An approximate additional 230 acre inches per year would also be lost in road construction. This seems significant.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan establish soil protection measures designed to limit detrimental effects on soils and to retain their long term productivity. Monitoring results will provide information necessary for determining whether these goals are being met and for evaluating possible corrective measures if the goals are not being met.

Erosion in clearcut areas is a function of slope and soil stability. In areas of steep slopes and unstable soils (e.g. Opal Creek), the rates would be greater than those expressed in the documents. Pollution due to soil erosion would certainly exceed the legal standards in the class III and IV streams in these areas (see Madej, McCashion and Swanson).

Response: The standards and guidelines (Chapter IV of the Final Forest Plan) provide direction for protection of soil cover to minimize surface erosion, as well as a number of measures to provide protection for water quality. State water quality standards will be accomplished through the use of Best Management Practices (BMPs). Monitoring will provide the information necessary to confirm compliance with the State standards or to evaluate appropriate corrective action to achieve compliance should the BMPs fail to accomplish what was expected.

Sediment and mass soil movement values are representative of areas currently roaded but seriously underestimate what will occur in the future as management activities occur on a greater number of sensitive sites. The sensitive watershed approach should also have been used in developing the fish model.

Response: The fish model included sediment as one of the influencing factors in determining smolt production. Project level analysis will consider the sensitivity of soils on a site specific basis in determining whether roading is appropriate. When the decision is made to construct roads, the standards and guidelines (Chapter IV of the Final Forest Plan) will prescribe the appropriate road construction Best Management Practices to minimize the risk of sediment and mass soil movement.

The high rate of erosion estimated in ALternative J would have a major detrimental impact on water quality, fish resources, and the future productivity of the soil. The Preferred Alternative J, is listed in Table IV-1-3 as having 31,000 cubic yards/year of erosion due to road construction. A review of professional literature indicates that a more commonly accepted value would suggest 100,000 cubic yards/year. The road erosion estimates by the Forest Service seriously underestimate the actual amounts that would occur with any of the timber harvest plans.

Response: Erosion rates vary significantly between geographic areas. The rates used in the FEIS analysis were derived from available research data for the erosion rates in this geographical area, and they provided suitable information for a comparative analysis of the alternatives. The actual decisions to construct roads will only be made after a site specific project analysis evaluating the specific area in question. The standards and guidelines (Final Forest Plan, Chapter IV) will

then prescribe the appropriate Best Management Practices to comply with State water quality standards so that beneficial uses, including the fisheries resources, are protected.

What is the current level of erosion and sediment production on the Willamette National Forest? What portion is management caused and how does the risk of erosion change by alternative? Are the standards set in Chapter 340 of the Oregon Administrative Rules?

Response: The Soils section in Chapter IV of the FEIS displays potential erosion and sediment related to natural processes and management activities by alternative. No absolute assurance is provided that all State standards (Oregon Administrative Rules, Chapter 340-41) are met and that all beneficial uses are maintained with the various alternatives that produce relatively higher sediment levels. The Final Forest Plan, however, projects that State standards will be met and there will be no significant adverse impacts to beneficial uses through the use of Best Management Practices (BMPs). Chapter IV of the FEIS discusses BMPs and the effectiveness of mitigation measures. The Watershed section in Chapter IV of the FEIS also provides information on the risk of potential sediment, allowing further comparison of the alternatives.

The rankings of the natural erosion component in Figure IV-2-2 do not correspond to the natural rates given in Figure III-E-8, and some of the reported averages are in error.

Response: The natural erosion rates presented in Table IV-2-2 of the DEIS included several transpositions of data. These errors have been corrected in the FEIS.

The Watershed Sensitivity Index may not predict true basin sensitivity to sediment impacts. One problem is the four factors are not independent of each other; for example, the discharge and elevation factors are strongly correlated (due to the importance of rain-on-snow events generating peak flows). This results in the Index being weighted towards basins which score high on these two factors.

Response: Several components of the Watershed Sensitivity Index have been changed. Chapter IV of the FEIS has additional detail.

The second paragraph of IV-26 of the DEIS states that the effect of increased peak flows are probably greatest if they occur in addition to increases in sediment load. This is not strictly true, since the increases may be compensating (i.e. greater sediment load is offset by increased stream power due to higher peak flows).

Response: Information on peak flows has been clarified in Chapter IV of the FEIS.

Erosion potential is rated severe on 73% of the Opal Creek roadless area but is only rated moderate in cumulative effects data. Quartz Creek, which is directly comparable, is rated severe in cumulative effects. Why is there a difference?

Data transpositions resulted in the inclusion of several errors in the Watershed Sensitivity Index of the DEIS. Chapter IV of the FEIS provides information on the revised Watershed Sensitivity Index.

Unstable areas need to be more precisely identified so the impacts of the alternatives on fish can be evaluated and priorities for fish habitat protection established.

Response: Lands with active mass movement have been classified as unsuitable for timber production, and have been removed from the land-base. Areas of Soil Resource Inventory landtypes

which are potentially highly unstable are mapped in the Land Management Planning Database, and the effects of management on these areas in included in the Watershed Stability Index. The Standards and Guidelines provide direction for assessment of lands which are potentially highly unstable, but not unsuited. Evaluation of potential impacts to any resource as a result of management activities will be done within a project level analysis. All proposed timber harvest units and roads are located and designed with direct involvement of engineering geologists, hydrologists, engineers, and soil scientists to minimize impacts on all resources.

Paragraph 5 of page IV-13 of the DEIS discusses ways to reduce the chances of mass movement when the harvest of timber on problem sites is considered. One of the ways to reduce mass movement included draining wet, unstable soils. Would draining unstable wet areas conflict with Executive Orders 11990 and 11988?

Response: The Wetlands Executive Order states that the values of the areas shall be assessed, and it lists factors which should be considered. Public safety and watershed resources are to be considered. The evaluation of whether any conflicts were present and the nature of those conflicts would be made during project level NEPA analysis.

Special Management Areas

HJ Andrews Experimental Forest

The Draft Forest Plan is in error when it states that the H.J.Andrews has been withdrawn from timber harvest: it has been and continues to be heavily cut over.

Response: The H.J.Andrews Experimental Forest is not part of the programmed harvest. Timber is harvested there for research purposes.

Oregon Cascade Recreation Area (OCRA)

Opening large areas such as the Oregon Cascades Recreation Area (OCRA) to ORVs constitutes a major and controversial federal action and should be accompanied by its own full EIS.

Response: A specific management plan, effective March 29, 1989, was written for the OCRA and management is in accord with the Oregon Wilderness Act. A small portion of the OCRA is open to off-road vehicle use, while the majority of it is closed to this type of use. Three Forests manage the OCRA. In that portion of the OCRA managed by the Willamette National Forest, motorized use is permitted on existing trails during snow-free periods and over the entire area when snow depths permit. Specific management direction can be found in management area 2b of Chapter IV of the Final Forest Plan. Other information can be found in Chapter IV of the FEIS and Appendix B of the Final Forest Plan.

Research Natural Areas (RNAs)

Present Research Natural Area (RNA) cell needs are not adequately addressed in the DEIS and Proposed Forest Plan.

Response: RNA cell needs in the Pacific Northwest are determined by a committee of scientists and managers at the Pacific Northwest Range and Experiment Station (PNW), and Forest scientists. All cell needs that this Forest is reasonably capable of supplying (e.g. this Forest is

not reasonably capable of supplying any cell needs for redwoods) have been considered. These are identified in Chapter III of the FEIS and arrayed by alternative in Chapter IV of the FEIS.

The Final Forest Plan was one alternative which included all cell needs this Forest was reasonably capable of supplying. These are named in the Resource Summaries section of Chapter IV of the Final Forest Plan; and the management area standards and guidelines for RNAs describes the manner in which they will be managed. Evaluation is an on-going process, and if reevaluation shows existing cell needs can be met or if additional cell needs are identified in the future, then they will be considered for establishment. If appropriate, the Final Forest Plan may be amended to include these new cells.

The documents failed to consider the extremely rare area running east of Iron Mountain as an irreplaceable resource for study on the subject of mixed forest and unusual associations.

Response: The Iron Mountain-Cone Peak area was not identified as a Research Natural Area need by the scientists at the Pacific Northwest Range and Experiment Station. In the Final Forest Plan 2432 acres of this area are allocated as a Special Interest Area (SIA) with botanical significance and afforded protection by the management area standards and guidelines for SIAs in Chapter IV of that document.

Special Interest Areas (SIAs)

The documents fail to address how the Forest will respond to potential threats to cultural resources that some developments could have in special interest areas.

Response: Federal laws and regulations require the protection of significant cultural and historical resources for future generations. The standards and guidelines for Cultural Resources in Chapter IV of the Final Forest Plan prevent the inadvertent harm or destruction to important cultural resources. In addition, Management Area 5a (see Chapter IV of the Final Forest Plan) direction requires preparation and approval of an area management guide which will provide direction for specific protection requirements, acceptable development and enhancement, and other uses and activities which are appropriate for the area.

SIAs are not adequately addressed and major cultural features are ignored in the Little North Santiam area. The Little North Santiam Mining District should be designated as a SIA.

Response: The Jawbone Flats area of the Little North Santiam Mining District has been determined eligible for listing in the National Register of Historic Places. This designation requires that both the Forest and private owners of these structures consult with the Oregon State Historic Preservation Office and the Advisory Council on Historic Preservation before making any changes to the attributes that led to that eligibility. Therefore, SIA classification for that area is unnecessary.

Other areas within the Little North Santiam Mining District were not designated on the National Register of Historic Places due to modernization of existing mining structures and lack of physical integrity. These areas are primarily of local historical importance.

The DEIS fails to provide adequate descriptions and maps of each (Special Interest Area (SIA).

Response: The SIAs are illustrated on maps of each alternative with numbers of acres, location by District, and types of classification indicated. Written descriptions and detailed maps of SIAs (1 administratively established, 48 potential) were too voluminous to include in the final document,

but are available through the planning record. Descriptions of potential SIAs are discussed in Chapter III of the FEIS, and the environmental consequences of the alternatives on SIAs are discussed in Chapter IV of the FEIS. Those areas designated as SIAs are described in Chapter IV of the Final Forest Plan.

There are inconsistencies between the DEIS and Draft Forest Plan: a) the Fall Creek Special Interest Area (SIA) was included in the Draft Forest Plan at IV-23 but is absent from the list of potential SIAs in the DEIS at III-151; b) the Oregon Central Military Wagon Road decreased in acreage from 2,688 acres in DEIS to 853 acres in the Draft Forest Plan without explanation.

Response: The omission of the Fall Creek SIA has been corrected in the FEIS. With respect to the Oregon Central Military Wagon Road, acreage differences can occur as a result of management decisions to allocate only portions of the available inventory in the Final Forest Plan.

Timber

Fertilizer

Page IV-3 of the DEIS states that fertilization "enhances soil productivity." This may be true over the short term, but it is widely known that chemical fertilizers disrupt vital biological activity in the soil. Ever increasing amounts of fertilizer are required to produce the same effects; associated chemical compounds from the fertilizers build up in the soil over time and cause increased salinity. The DEIS makes no mention of these effects or the adverse effects of fertilizer on fungus, moss, forbs, grasses, lichen, the rhizosphere in general, soil and water pollution, and plants and animals associated with riparian areas including fish.

Response: The application of 200 lbs/acre/ of nitrogen once each rotation (60-200 years) was approved by the Pacific Northwest Region for stands of 60% or more Douglas fir. The monitoring plan in Chapter V of the Final Forest Plan, along with the results of on-going research, will continue to provide information by which to evaluate potential adverse effects. The standards and guidelines in Chapter IV of the Final Forest Plan addresses the protections to water quality which will be observed during application of the fertilizer.

Some comments expressed concern about either too much or too little application of fertilizer. Some believed that the documents established timber harvest yields above the sustained yield capacity of the Forest, because fertilization was necessary to meet timber production goals. They felt it was inappropriate to rely on unproven future yield estimates based on fertilization that may or may not occur and may or may not produce predicted growth rates, concluding that sustained yield capacity instead needed to be based on natural growth rates. Others believed that the documents inappropriately limited the number of acres available for fertilization, the use of multiple applications, and the number of pounds applied per acre.

Response: Response to nitrogen fertilization has been proven through past research and application. Research continues to examine other aspects of fertilizer use, such as timing, amount, and the effects of multiple applications. The Forest has applied this information to the extent appropriate on a planning level in deciding the where, when, and intensity of fertilization. Where harvest levels based on intensified management practices occurs, they will be decreased no later than the end of each planning period if such practices cannot be completed substantially as planned (36 CFR 219.27(b)(5)). The monitoring plan will determine if the assumptions made in

the Final Forest Plan are accurate as to acres fertilized, intensity of fertilization, and response. If significant differences are identified, the Final Forest Plan will be amended or revised, or other action taken in conformance with the regulation cited above.

Harvest Effects

The DEIS fails to display the way clearcutting and reforestation mimic wildfire.

Response: This is addressed in Appendix F of the FEIS (Selection of Harvest Cutting Method).

The documents inadequately address the use of reductions in timber harvest, longer rotations, and alternative harvest systems (such as selective harvest systems and uneven-aged management) as the range of visual sensitivity increases from minor Forest roads to major highways and proposed scenic management areas.

Response: The section on Scenery in Chapter IV of the FEIS discusses the use of long-rotations, size, shape and blending of harvest units, as well as the use of uneven-aged management to meet visual quality objectives (VQOs). The VQOs reflect the changing visual sensitivity of various trail, road and highway corridors, as well as major viewpoints and recreation areas.

The rationale for even-age management is not clearly stated.

Response: Appendix F of the FEIS has been updated to provide more information on the selection of harvest systems.

Harvest Levels

The documents inappropriately hold down the allowable sale quantity (ASQ) by establishing rotation lengths longer than 95% culmination of mean annual increment (CMAI) on unconstrained acres. The documents fail to consider increasing ASQ or maintaining it on a smaller landbase in the age gap of the 6th and 7th decades by allowing earlier rotation ages on existing seeds/saps instead of carrying an average rotation age of 100 years after decade eight.

Response: The minimum rotation length allowed is set at 95% of CMAI, except in management areas with standards and guidelines that set longer rotation lengths. As a function of nondeclining even-flow, the FORPLAN model may be forced to hold stands beyond the minimum rotation.

The conclusion that this Forest's plan would emphasize timber was inappropriately made prior to conducting a full planning analysis, as evidenced by the timing and the manner in which the vegetation management issue addressed harvest volume assumptions.

Response: It is assumed that this comment refers to the Forest's use of the Preferred Alternative of the Vegetation Management EIS in the formulation of assumptions about the reforestation management techniques that would be used for the life of the Draft Forest Plan. Analysis and formulation of alternatives in the DEIS made use of the best information available about management techniques which would be utilized: at that time that information was found in the Preferred Alternative of the Vegetation Management EIS. The information has been updated in the FEIS to incorporate the Pacific Northwest Region's FEIS for Managing Competing and Unwanted Vegetation. In implementing the Final Forest Plan through project activities, the Forest will comply with the Record of Decision issued by the Regional Forester dated December 8, 1988, and the Mediated Agreement of May, 1989.

While it is true that under all analyzed alternatives, the intensity of vegetation management includes the entire range of silvicultural prescriptions available under the Record of Decision and Mediated Agreement, the relative emphasis on timber production varies considerably between alternatives (Chapters II and IV, FEIS).

The documents inappropriately include the recession years of the early 1980s when comparing the effects of the alternatives between themselves and the current plan.

Response: The documents have been updated to include the time from adoption of the current plan in 1977 through 1989. This period includes both the recession of the early 1980s and the near record harvest levels of the late 1980s. Both these extremes reflect conditions that tend to be common with the market over time.

The documents inappropriately compare amounts sold rather than amounts actually harvested.

Response: Both amounts are used for comparison. The Forest controls only the amount of timber sold. The harvest occurs at the desire of the purchaser within the time allowed by the contract.

The baseline period chosen for allowable sale quantity determinations was in error because it fails to consider years that accurately reflect demand for timber. Comparative estimates derived from the chosen period are therefore misleading.

Response: The baseline period includes both extreme highs as well as extreme lows. It is representative of demand.

Harvest Methods

The DEIS fails to consider all true costs to timber harvest, which results in fewer below cost sales than is actually the case. The Forest takes credit for the road system providing value as dispersed recreation and then closes these roads to the public.

Response: The procedures used to determine the costs of timber harvest discussed in Chapter III of the FEIS were developed in response to direction from Congress in 1984, with the help of the Government Accounting Office. Timber values and volume per acre on this Forest are such that below-cost sales have not been an issue. Road closures are used only when necessary for resource protection or public safety.

The documents inappropriately place decreasing reliance on the use of low-impact logging systems (e.g. helicopter, balloon, and horse logging to reduce dependence on roads; or one-end or full suspension of logs as a soil protection measure).

Response: The standards and guidelines (S&Gs) in Chapter IV of the Final Forest Plan provide the direction for appropriate levels of resource protection. The Final Forest Plan assumes that the mix of logging systems used in the planning period will be the same as used in the last decade. The actual decision about which logging system(s) will be prescribed to meet the S&Gs is a project level decision with appropriate NEPA documentation, and generally all logging systems will be available for consideration. If review of logging practices shows a shift from past use which results in significant differences in costs or outputs, the Final Forest Plan could be amended or revised.

The documents failed to present an alternative that considered in detail harvesting methods other than clearcutting, such as shelterwood, group selection, and other uneven aged management techniques.

> **Response:** The method of harvest is a site specific decision that will be made at the project level. While very little group selection has been used in the past, other uneven aged management techniques and shelterwood cutting have been used to some extent. The assumption that was used for planning purposes was that the future use of these harvest methods would be proportional to past use. Monitoring results will provide information whether changes in these assumptions need to be made.

Harvest Scheduling

Appendix H-29 of the DEIS states an upper limit on created openings of 60 acres. No mention is made that there are exceptions to this rule as stated in CFR 219.27.

> **Response:** Appendix H of the FEIS has been revised to include more detail, as well as making the reference clearer as it pertains to size of openings and exceptions.

The documents fail to meet the intent of the NFMA by cutting most of the Forest on short rotations (95% CMAI) in advance of full maturity.

> **Response:** The use of 95% CMAI was in compliance with National Planning direction, FSH 2409.13, Chapter 30.

The DEIS fails to consider an alternative with long rotations, thereby establishing unnecessarily frequent entries with associated impacts.

> **Response:** All alternatives include some amount of management areas carrying standards and guidelines to meet desired future condition where the rotations allowed are set for periods longer than the culmination of mean annual increment. These are displayed in Chapters II and IV of the FEIS.

Inventories

The documents fail to present important facts such as maps showing the present condition of the timber (what has been cut, the degree of planting success, and what remains to be cut).

> **Response:** Information about the extent to which timber has been cut and what remains to be cut exists in tabular form in Chapter III of the FEIS. This information exists in a computerized form which is convertible to cartographic form in GMS, which is a part of the planning record. The degree of planting success does not appear in either tabular or cartographic form; but suitability determinations were based upon historic planting success at similar sites.

The productive capacity of the Forest is understated by 25% or more due to errors including: grouping of trees of different age classes, defect and breakage errors, inaccurate growth and mortality figures, out of date inventory, and plots aggregated to such a degree that normal forest practices cannot be modelled.

> **Response:** The objective of this inventory was to develop statistically accurate data for pre-stratified timber types and size classes that could be mapped. It is important to be able to locate an area on the ground, for which yield tables have been developed and harvest schedules

have been planned. However, this method precludes the use of a post-stratified inventory process which can group plots by similar site characteristics, including age and site class. This allows the formation of strata with more detailed data and less variation, but which cannot be mapped.

The inventory was completed in 1981. The standing volume has been updated for use by FORPLAN by adding net growth from 1981 to 1994, and subtracting harvest through 1989. The results of a new inventory are expected shortly; if any significant changes occur, then the Final Forest Plan will be amended or revised, as appropriate.

The number of plots are insufficient and not stratified by site productivity or age class. The inventory needs to be reconciled with the FORPLAN suitable landbase. Overstory volume in shelterwood units was ignored, understating the standing inventory. The documents fail to compare old and new inventories as a check on growth assumptions.

Response: The inventory was designed to sample areas of the Forest that could be mapped into homogeneous stands by timber type and size class. Stand attributes like age class and site productivity cannot be mapped from aerial photos. The number of plots were calculated that would produce a sampling error within + or - 10%, which is the national standard (FSH 2409.13, Chapter 10). The inventory data has been reconciled with the Forplan data, both in terms of suited landbase and total standing volume.

The overstory volume in existing shelterwoods were sampled as part of the inventory, resulting in an accurate assessment of total standing volume.

The 1981 inventory did not consist entirely of remeasured plots from the 1971 inventory. There was not enough data to provide an accurate measurement of growth within the new Forest stratifications. The next inventory, scheduled for the early 1990s may be able to provide better data on growth. Based upon the results of that new inventory, appropriate review of the Final Forest Plan will be conducted to determine whether an amendment or revision should be made.

Inappropriate gaps in age classes occur because the model components were averaged, resulting in artificial problems with habitat diversity and the availability of stands for commercial thinning and final harvest.

Response: Mapping the Forest by timber type and size class did not provide good information on age classes of stands. Each strata has an average age resulting from the plot data, so all age classes are not represented. Between the DEIS and FEIS, the seedling and sapling stands were stratified into 10-year age groups, based on the year of harvest. This provided more flexibility in scheduling commercial thinning and harvest of these stands in the FORPLAN model. This in turn allowed more flexibility in the determination of allowable sale quantity and the application of water quality standards to timber sale scheduling, as well as additional information to analyze recovery times for wildlife habitat and manage scenic values.

Stratification of older stands (poles and larger) by age is not as critical as for seeds and saps. Diversity of habitat is more a function of size than age, once the pole category is reached.

By lumping all acres with stands over 220 years together, the documents fail to define clearly those older stands that are 400-800 years old. There are several areas of clearcut that are listed as large saw/old growth in the inventory.

Response: This situation has been addressed to the extent possible by separating large sawtimber stands from old growth. However, there is no way to further break down these size classes with the current inventory. The inventory maps and data have been updated to account for harvest that has occurred between the inventory and FY 1990.

The inventory failed to meet the 10% error in some strata.

Response: Each timber type and size stratum was designed to be sampled to a + or - 10% precision level at one standard error. The only exception was lodgepole pine which was sampled to a + or - 20% precision level. The timber estimates are statistically accurate at the stratum level and at the total or Forest level.

Land Suitability

The documents have made substantial errors in estimating the amount of land that should be included or excluded from the timber base. Some comments suggested that in excess of 10% of the land cataloged as unsuitable was in fact actually being managed as productive forest land. Other comments indicated that the suited landbase contained sizeable areas characterized by unstable soils, high erosion potential, and greatly increased risk of mass movement; these comments also indicated that some soil types were considered suited even though they contained substantial amounts of other soil types that were excluded from the base as unsuited.

Response: The Soil Resource Inventory (SRI) was done using high elevation photos and mapped at 1 inch = 1 mile. At this scale, areas of suited soil types contain inclusions of unsuited types. It is also true that the unsuited soils contain inclusions of suited types. The Forest is currently updating the SRI, using new, larger scale photos, and mapping at 2 inches = 1 mile. This effort is also incorporating on-the-ground mapping that has been done in the course of planning timber sales. If this new information results in significant changes to the suited landbase (+ or - 5%) the Forest Plan will be amended.

The Soil Resource Inventory relied upon by the documents is inaccurate with very little field verification. Of the 174,000 acres classified as unsuited, 85,000 acres have been incorrectly classified based on field reviews.

Response: The Soil Resource Inventory (SRI) is being updated and improved, and if the results of that update reveal significant changes to the suited landbase (+ or - 5%), amendment or revision to the Final Forest Plan may be needed. Even if the results of that update do not produce changes, advances in silvicultural technology may in the future allow changes in the classification of lands currently considered unsuited, leading to amendment or revision of the Forest Plan.

Review of the public comments did alert the Forest to a mistake in the application of the SRI being used for this planning analysis: four soil types were listed as unsuited, when only the actively unstable portions (landflows) were intended to be listed. This mistake was corrected in the FEIS and resulted in increasing the suited landbase by about 29,000 acres.

Reforestation and Timber Stand Improvement

Regional and Forest policies are overly lax and contrary to the National Forest Management Act (NFMA) (e.g. changes the word "insure" to "probable assurance" that land can be restocked within five years. The statement that restocking periods longer than five years may be planned as long as they do not affect the *capability* to reforest in five years misconstrues the NFMA guidelines.

Response: As a result of a lawsuit on the Bighorn National Forest, restocking periods longer than five years will not be planned under any circumstances. The five year period is measured from the time of final harvest. The standards and guidelines in Chapter IV of the Final Forest Plan further stipulate that the total time from first entry in shelterwood and seed tree harvests to successful regeneration, cannot exceed ten years.

The documents violate the National Forest Management Act five year regeneration mandate by including 80,091 acres possessing low potential for regeneration according to Soil Resource Inventory calculations.

Response: The monitoring plan in Chapter V of the Final Forest Plan will determine if the actual regeneration success meets the assumptions in the Final Forest Plan. Significant differences will result in appropriate corrective action, including possible amendment or revision of the document.

The documents inappropriately use assumptions which limit the amount of commercial thinning. They inadequately consider more intensive commercial thinning prescriptions such as earlier timing choices, more entries, and greater distances from roads. Yield tables require reexamination to determine whether one heavy commercial thinning can provide more volume to fill in the crucial age gap.

Response: Commercial thinning assumptions were based on estimates of the average condition necessary for a viable commercial operations, considering the earliest possible entry, distance from roads, and number of entries during a rotation. A prescription for one heavy commercial thinning entry was added to the list of options from which FORPLAN could choose in scheduling harvest.

The actual location and scheduling of commercial thinnings are site specific project level decisions with appropriate NEPA documentation. Silviculturists will write site specific prescriptions that schedule thins as early and as often as appropriate, and monitoring will continue to evaluate the effectiveness of those decisions.

TSI gains (release, genetics, fertilizer, precommercial thinning) are overstated in the yield projections.

Response: The projected benefits for timber stand improvement activities were based upon the results of existing research studies. Often some adjustments were required to fit species, the specific conditions on this Forest, or other details where the research results could not be directly applied. The process paper establishing yield tables provides more information on this subject and is available in the planning records.

The results of implementation and effectiveness monitoring will provide the data necessary to verify the accuracy of the projections and underlying assumptions. If indicated, appropriate corrections or Plan amendments or revisions will occur.

The documents have failed to substantiate the effects of animal damage on regeneration.

Response: The data on animal damage were used in the economic analyses of the various silvicultural treatments. The final mix of prescriptions assumes that appropriate measures will be taken to mitigate effects of animal damage on regeneration, with the result of no reduction applied to the yield tables.

Sustained Yield

The documents fail to propose cutting levels which can be sustained on a nondeclining basis. As the transition occurs from old growth harvest to smaller trees, a lower board foot to cubic foot ratio occurs, producing a declining yield in terms of board feet. Non-declining yield should be in terms of board feet and applied to the Timber Sale Program Quantity rather than the Allowable Sale Quantity.

> **Response:** 36 CFR 219.16 (a)(1) requires that the base sale schedule for any decade shall be equal to or greater than the preceding decade, provided that it is not greater than the long-term sustained yield capacity (LTSYC). This schedule is based on harvest occurring at culmination of mean annual increment (CMAI) which is required by 36 CFR 219.16 (a)(2)(iii) to be expressed in cubic measure. 36 CFR 219.16(a) requires that alternatives include determinations of the quantity of timber that may be sold each decade, meeting the management requirements of 36 CFR.27. 36 CFR 27(c) requires that the selected sale schedule provide the allowable sale quantity for each decade, without mention of the timber sale program quantity.

The inventory of standing trees decreases in every alternative except C, D, and ONRC, violating the principle of long term sustained yield.

> **Response:** 36 CFR 219.3 provides a definition of long term sustained yield, which in relevant part calls for the highest uniform wood yield from lands being managed for timber production that can be sustained under a specified management intensity consistent with multiple-use objectives. Uniformity of wood yield requires equilibrium between the production and harvest of wood. Many of the stands on the Forest have already passed the culmination of mean annual increment (CMAI) and therefore grow relatively slower than more efficient younger managed stands, so the Forest has not yet achieved this equilibrium. Various alternatives cut these older stands that have passed CMAI quicker and earlier (reducing their inventory) so that they may be replaced by the younger stands to achieve equilibrium between growth and harvest.
>
> The current growth rates on the Forest are relatively slow, due to the majority of acres in large sawtimber and old growth. In the early decades, this results in a drop in standing inventory on suited acres as timber is harvested. As the slow growing, older stands are replaced by fast growing, managed stands, this situation is reversed. By the fifth decade, growth is balanced with harvest, and the standing inventory is stabilized.

The measurement of timber volume in cubic feet rather than board feet actually results in reductions to timber production by the fifth decade which are not accurately represented in the DEIS and Draft Forest Plan.

> **Response:** It is true that when harvest is measured in board feet, a reduction occurs in the fifth decade, because the average size of trees becomes smaller as more second growth is harvested. Harvest measured in cubic feet, however, remains constant, and more accurately represents the amount of the tree that is being utilized.

Yield Tables

The documents inadequately explain and justify how the empirical yield model is appropriate for the Forest. The yield tables also suffer from a variety of problems. For instance, they have not been updated to show growth to 1994. There are signifcant discrepancies between empirical and inventory plot growth due to modelling errors. Defect and breakage deductions vary only by species and not by size class or age.

Response: A Process Paper is available which documents the Empirical Yield Model. The yield tables have been updated to reflect growth to 1994 in the FEIS. Adjustments were made in the FEIS to show varying defect and breakage according to species and size class, based upon a sample of recent timber sales on the Forest. In addition, an average age is calculated for each size class within a species group.

Managed yield tables beyond age 100 have severely reduced growth rates based on empirical yields. This is not appropriate given the problems with the empirical yield model.

Response: There are no yield models available that give satisfactory results for managed stands beyond 100 years. The gradual transition from managed growth rates to empirical growth rates (matched at common basal areas) provides a reasonable prediction of long-term yields on managed stands. Future inventories and the results of growth monitoring will provide much better data for developing more accurate yield tables in the future.

The documents fail to account for timber lost to fires. While some damaged timber may be harvestable, loss will be sustained and historical data is available from which to make statistical projections.

Response: The yield tables do account for incidental losses due to fire, based on the average number of acres burned per year. Losses due to catastrophic fires have not been considered, because they are assumed to produce such significant effects on forest resources that amendments or revisions to the Final Forest Plan would be required to account for the change in the forest inventory and age class distribution.

The documents failed to revise the empirical yield tables after discarding plots that fell in the new wilderness.

Response: An examination was made of the plots that fell in areas that became wilderness in 1984. There was not a significant difference in any of the strata between the plots in wilderness and the remaining inventory plots. No revision of the empirical tables was warranted.

The documents fail to comply with the National Forest Management Act's requirement that there be "tangible proof that intensive management practices actually produce the effects on timber growth projected by the agency". Any shortfall in anticipated increases in future yield would violate the concept of sustained yield.

Response: Much research has gone into developing the growth and yield models used to predict the allowable sale quantity and long term sustained yield capacity of the Forest. The models are based on actual measurements over broad areas, covering all the intensive management practices, in many combinations of site class, species, age, soils, and treatments. Monitoring results will provide the information necessary to evaluate the actual effectiveness of the measures taken and provide the springboard for appropriate corrective action, if indicated.

Visual Resources

The portrayal of visual management is misleading. Of the 410,411 acres of visual management, 300,349 acres provide 100% of full yield on rotations of 100 years or less. Thus 75% of the "visual" acres are a false representation of what will be provided, and the public's expectations will fail to be met.

Response: Management for visual quality is unique in forest management for its attention to matters of aesthetics. Standardization of aesthetic judgment is difficult if not impossible (or undesirable) to achieve, but desired objectives and results can be described with some degree of success. These visual management objectives (VQOs) are described in the section on Visual Management in Chapter III of the FEIS. Chapter II of the FEIS describes which lands are assigned specific visual objectives in each alternative, and the maps for the Final Forest Plan display this information more graphically for that alternative.

Frequently timber harvest can occur in a manner that is consistent with meeting certain visual objectives. The most important variables involve the rigor of the particular visual objective for the area, silvicultural practices, the period over which stands generate their highest average growth, and harvest rotations and techniques.

"Full yield" is defined as 95% of the culmination of mean annual increment (CMAI). CMAI is the point at which the incremental growth in tree or stand volume achieves its highest average value. This point can occur at varying ages depending upon the species of tree and the intensity of management, often between 80 to 120 years for douglas-fir/hemlock. Generally speaking, the span of time in which trees may continue between 95% and 100% CMAI varies between 20 to 60 years.

Consequently "full yield" is achieved consistent with the Visual Quality Objective of Modification through gradual rates of entry and associated gradual rates of change in appearance. In most cases even more rigorous VQOs may be achieved. Harvest rates for Modification Middleground is 12% per decade, resulting in 83 year rotations. Harvest rates for Partial Retention Middleground is 10% per decade, resulting in 100 year rotations. In contrast, "full yield" on a timber stand level might be very difficult to achieve on an area with a VQO of Retention.

A sensitivity analysis on the standards and guidelines is needed to show how scenic allocations affect allowable sale quantity and present net value.

Response: The evaluation of the effects of scenic allocations was reached through analysis of percent of full yield. A discussion of this evaluation can be found in Appendix B of the FEIS.

The effects displayed for viewsheds are in conflict with how the areas are allocated, and the process for evaluating the effects is unclear.

Response: The anticipated effects of management decisions on viewsheds were revised in the FEIS. The methods used to evaluate effects are discussed in Chapter III of the FEIS. The revisions to the effects analysis can be found in Chapter IV of the FEIS.

Scenic management prescriptions are vague and fail to constrain management activities.

Response: The standards and guidelines (S&Gs) have been revised for clarity and rigor. See the Forest-wide S&Gs, and as appropriate more specific direction consistent with particular objectives in various management area S&Gs in Chapter IV of the Final Forest Plan.

The scenic quality of certain areas is unsatisfactory. For instance, a scenic backdrop to Oakridge is a necessary component to its theme as a "Gateway to a Recreation Paradise," but the scenic quality of the surroundings are inadequately protected to attract tourists and residents. Another example is that every mile of every major highway was allocated to the programmed harvest under the Proposed Forest Plan.

Response: In response to public comment, some revision of scenic management allocations occurred between the DEIS and FEIS. See the maps for the Final Forest Plan to identify specific locations and the nature of those changes.

In the case of the viewsheds for major highways, many different management areas and scenic prescriptions may be traversed, including reduced harvest and no harvest areas such as Riparian, Special Wildlife Habitats, Special Interest Areas, or Wild and Scenic River management areas.

The Proposed Forest Plan's treatment of foreground highway visuals fails to satisfy the requirements of NEPA, including but not limited to the sections assuring all Americans of an aesthetically pleasing environment, preserving important natural aspects of our national heritage, and ensuring that unquantified amenities and values be given appropriate consideration.

Response: In accordance with NEPA and NFMA, a broad range of reasonable alternatives were developed to provide an adequate basis for identifying the alternative coming nearest to maximizing net public benefits, consistent with resource integration and management requirements. The entire FEIS and accompanying Appendices, but particularly Chapters II, III, and IV provide broad disclosure of the affected environment, the alternatives, and the environmental consequences of those alternatives. The consideration given to scenic, cultural, and unquantified amenities is detailed throughout the FEIS and Final Forest Plan documents.

FORPLAN inadequately modeled scenic resources by failing to: use a cutover yield that tracks recovery of cutover areas instead of a decade harvest rate constraint; loosen harvest constraints after the first decade as a reflection of decreased sensitivity to harvest; formulate first decade constraints the same as for decades 2-15.

Response: There are various ways in which scenic resources can be modeled. The decade harvest rate constraint better prevents fluctuations in rates of harvest that might otherwise occur during modeling under the present net value or maximum timber harvest objective function. The more gradual rate of entry that would be expected by the decade harvest rate constraint when compared to other modeling techniques such as cutover yield should prevent dramatic disruptions of scenic values.

The proposition that people become desensitized over time to significant changes in landscape appearance such that they can tolerate increasing rates of change presumably would be equally true about the degradation of many resource values, whether dirty rivers, dirty air, or even vanishing species, because the baseline for comparison constantly changes. Much as watershed and airshed management work from baseline information to assess acceptable levels of change and effectiveness of mitigating measures, so too viewshed management needs to be anchored to baseline quality levels that do not fluctuate or continually erode.

First decade constraints differing from those in later decades were formulated to allow as needed the restoration of existing conditions to meet Visual Quality Objectives. The standards and guidelines in Chapter IV of the Final Forest Plan provide the specific direction.

Water

Data, Statistics, and Method

Failure to use the Forest's watersheds as the basic building blocks of the DEIS and Draft Forest Plan resulted in failing to recognize the importance of the watersheds and renders the analysis used inadequate to support the conclusions made.

> **Response:** The FORPLAN model used to analyze alternatives for the FEIS was changed to incorporate watershed identifiers to increase the accuracy of the assessment. See Appendix B and the section discussing changes between draft and final in Chapter II of the FEIS.

Treating the issue of riparian zone harvest at the project level precludes planning for recruitment of large woody debris of different sizes, ages, and species composition into the entire stream channel over the course of a rotation. Planning needs to be done on at least a watershed to subdrainage scale.

> **Response:** The standards and guidelines in Chapter IV of the Final Forest Plan include direction for assessment of riparian conditions at a watershed scale.

The Forest made significant deviations from accepted standards in the application of statistics to the data. For example, at B-62 in the Appendices to the DEIS, it is stated that "in some cases where it was felt that rates from individual boxes were high and not characteristic of the site, the boxes were not averaged with the others." On the same page, a reading of the last paragraph seems to indicate that one study on one site formed the basis for assumptions concerning recovery rates from erosion.

> **Response:** The researchers who provided the data upon which the Forest relied concluded that:
>
> > It is reasonable to exclude these samples from the description of general conditions because [these sites] were selected to provide estimates of maximum rates of surface erosion for forested conditions. These sites had slopes of 80% to 100% and 5 of the 6 had ground cover of less than 100%. (Swanson and Grant, 1982)
>
> Only one study had been monitored for more than 10 years, so assumptions were made to derive decadal averages. The estimates used were made by professional researchers using the best available information. Future validation monitoring will verify the degree of accuracy of these assumptions.

The DEIS and Draft Forest Plan lack sufficient information to establish an adequate assessment of baseline water quality conditions in individual streams and therefore to assess the effects of planned activities near those streams.

> **Response:** The baseline soil erosion rates used in the analysis provide an indicator of baseline water quality. More direct baseline water quality data will be obtained by monitoring as outlined in the Final Forest Plan, including the provision for monitoring stations in subdrainages which have had no management activities. These control watersheds will provide baseline data on unmanaged conditions which will be useful in meeting effectiveness and validation monitoring goals.

Page III-17 of the DEIS states that the total water yield from the Forest is 8.4 million acre-feet/year, yet table III-E-7 on page III-27 of DEIS shows 8,895,098 acre-feet/year. Which is correct?

Response: The statement on page III-17 of the DEIS is in error. This should read 8.9 million acre-feet per year. The section on Water in Chapter III of the FEIS was revised accordingly.

Fog drip is an important factor not considered in the Draft Forest Plan. Fog drip can add up to 30% to total precipitation, and is important in certain topographical regions and features. Conservation of old growth in these areas is necessary to generate and store precipitation.

Response: Water yield and timing are discussed in the section on Water in Chapter III of the FEIS. It is true that some research results have shown that the harvest of old growth with its corresponding reduction in fog drip can result in decreased water yield in localized areas of Northwest Oregon. Despite these findings, no change in water yield is projected for any alternative in the FEIS. This is because harvest areas are mixed with unharvested and reforested areas, so the temporary decrease in fog drip in harvest areas is insufficient to result in any significant increase in stream flow from large watersheds.

The Forest Service plans to use the hydrologic recovery concept for assessing cumulative effects in watersheds. In addition, an inventory of all slope movements (debris, fill, cut, other) along with probable cause should be developed. This would help further define whether adverse cumulative effects would be generated by timber removal or road construction. By looking at the type of movement versus the Soil Resource Inventory mapping unit, one could predict the probability of occurrence as well as the type of landslide movement.

Response: Appendix B to the FEIS includes additional detail on the analysis of cumulative effects. The concepts discussed in the comment are included.

The information displayed in the DEIS for the Little N. Fork of the Santiam and Quartzville Creek appears to be nearly identical as to stream class, mileage, size, water yield per square mile, and natural rate of erosion. Despite these close similarities, the Little N. Santiam is assigned "moderate" sensitivity and Quartzville Creek is rated "high." Why is there a difference?

Response: Sensitivity assessments have been modified. Further detail can be found in Chapter IV of the FEIS.

The Watershed Sensitivity Index (WSI) only indirectly addresses a number of key factors, including: 1) the channel's efficiency at transporting material; 2) the sensitivity of the channel to changes produced by sediment transport; and 3) sources of erosion other than surface or shallow mass movement. The Index should be improved to adequately identify "sensitive" basins or reaches within basins; otherwise, there is no way of knowing whether ratings for basins need to be changed.

Response: Detailed assessment of sediment transport and channel sensitivity for over 1300 miles of perennial streams is not possible with state of the art models. Such an assessment would be more appropriate a smaller scale, but methods have yet to be developed. Monitoring will provide information on whether the goals and objectives stated for water quality and riparian areas are being met. The need for improved cumulative effects models is identified as an information need in Chapter II of the Final Forest Plan.

Effects of Management Practices

Soil and water resources should be managed to exceed Management Requirement (MR) levels and the Draft Forest Plan fails to emphasize improvements to these resources.

> **Response:** Management at the MR level meets legal requirements. A range of alternatives are considered by the FEIS, providing different levels of protection and enhancement to the soil and water resources. The goals of Alternative W, which is developed more fully as the Final Forest Plan, includes managing riparian areas above MR levels, conservative management of potentially highly unstable land areas, and strict implementation of Best Management Practices.

Increased potential for flooding and associated costs are not adequately addressed in the Draft Forest Plan.

> **Response:** The Final Forest Plan includes provisions for minimizing damage of flooding by considering the cumulative effects of timber harvest on streamflows. In addition, enhancement or corrective projects will be scheduled to reduce risks associated with existing conditions which present substantial risk for flood damage.

There is inadequate discussion supporting the statement in the DEIS at IV-76 that instream work is costly and can have potentially detrimental effects on other beneficial uses.

> **Response:** Costs of instream projects are available based on projects which have been conducted on the Forest during the past five years. The potential detrimental effects on other beneficial uses are generally related to the temporary disturbance of streambanks which may result in temporary sedimentation and reductions in soil cover, with potential adverse effects on fish habitat.

The DEIS fails to assess the possible effects of fertilizer runoff on water quality in streams.

> **Response:** Chapter IV of the FEIS provides this assessment.

The DEIS underpredicts water quality impacts, particularly in roadless areas which tend to be classified as having severe erosion potential. This is because the data used for the calculation of surface erosion rates were based on eight sites in the H.J. Andrews Experimental Forest and one other site located near Ryder Creek, which are not representative of large portions of the Forest, including many roadless areas. A supplement to the DEIS is therefore needed.

> **Response:** Predictions of the effects on water quality in the FEIS and Final Forest Plan include the assumption that Best Management Practices (BMPs) will be consistent with the identified risks and be strictly implemented to limit adverse effects. BMPs for activities undertaken on Soil Resource Inventory landtypes described as having "severe erosion potential" will minimize disturbance of the protective duff layer and to minimize delivery of sediment to the stream by retention of rough material such as slash or vegetation adjacent to the streams. The erosion rates used were adequate for purposes of drawing comparisons between the alternatives; supplementation of the DEIS is not required.

The DEIS is deficient in failing to fully explore the adverse effects of commercial thinning on soil erosion , watershed condition, and stream sediment level.

Response: The discussion in Chapter IV of the FEIS considers the effects of commercial thinning on soil erosion, watershed condition, and stream sediment levels.

It is apparent that roads will continue to affect water resources significantly. In view of these impacts, the Forest should be more explicit about mitigation measures. For example, a discussion of any road closure program would be helpful. Similarly, the road design mitigations described on DEIS IV-37 should be included as standards and guidelines (S&Gs).

Response: The Water Quality S&Gs in the Final Forest Plan include direction specifically for road construction. In addition, the Resource Activity Schedule in Appendix D of the Final Forest Plan summarize rehabilitation projects.

Long-term watershed capabilities are not addressed. What are the effects of many cuts within a watershed?

Response: The cumulative effects analysis in the Water section of Chapter IV of the FEIS includes an assessment of many timber harvest units within a watershed.

It appears that the dispersion constraints necessary to achieve or maintain hydrologic stability are 20%, 25% and 30% for high, medium, and low sensitivity watersheds, respectively. These dispersion constraints are never enunciated. A listing of the watershed dispersion constraints under which the Forest will operate should be provided.

Response: The watershed constraints have been revised in the FEIS. They are detailed in Appendix B of the FEIS.

Achieving and maintaining hydrologic stability in forest watersheds should be a goal of all alternatives in the Final Forest Plan. An explicit array of Forest activity information by watershed, along with the volume or value of timber in each, would provide a valuable yardstick by which to measure the cost of achieving hydrologic stability.

Response: The FORPLAN model used in the FEIS provides estimates of timber outputs by watershed, with some controls to distribute harvest according to watershed sensitivity. The cost of achieving hydrologic recovery was not specifically analyzed, because of the interaction with other modeling constraints.

Erosion, Sedimentation, Temperature, and Turbidity

The description of rain-on-snow events could be strengthened by additional references that were published after the DEIS was printed: Harr, R. Dennis. 1986. "Effects of clearcutting on rain-on-snow runoff in Western Oregon: a new look at old studies." *Water Resources Research* 22(7):1095-1100.

Response: These references were reviewed and considered in the analysis for the FEIS. They appear in the bibliography.

Provisions for stream surface shading are unclear. Also, stream sedimentation or turbidity standards and guidelines are not specific and cannot be measured.

Response: The standards and guidelines (S&Gs) have be rewritten to provide additional clarity and specificity. The S&Gs in Chapter IV of the Final Forest Plan require compliance with the Clean Water Act for the protection of the waters of the State of Oregon. Experience

on the Forest shows that by implementing Best Management Practices (BMPs), water quality and fish habitat will be protected. The water quality and fish habitat monitoring program described Appendix E of the Final Forest Plan provides the basis for evaluating the effectiveness of BMPs and ultimate compliance with State water quality standards.

The Preferred Alternative must provide remedial actions to correct the problems in those streams with identified temperature and turbidity problems.

Response: The Standards and Guidelines include direction to implement watershed enhancement projects where State water quality standards are not being met, or where there is a high risk of them being violated due to existing conditions.

Turbidity analysis must be done for streams in watersheds in which the Forest Service plans timber harvesting activities. This analysis may reveal turbidity values 10% or more above natural levels. Timber harvest in such a degraded watershed would require an exemption from the Oregon State Department of Environmental Quality.

Response: Final Forest Plan monitoring is designed to determine whether Best Management Practices are effective in meeting State water quality standards.

The DEIS assures water temperatures will not be compromised (DEIS, p. IV-36, H-21-22), but there is no explanation of how this can be the case when 83% of riparian areas will be logged. The Draft Forest Plan's riparian area scheduled logging appears to contemplate a violation of State instream temperature standards.

Response: Detail about the ability of the various alternatives to meet State water quality standards can be found in Appendix G. The Final Forest Plan includes direction that riparian areas shall be managed in order to meet State water quality standards, including temperature standards. No timber harvest is programmed from these areas.

Cumulative effects of erosion, mass wasting and compaction on soil and structure are inadequately addressed.

Response: Chapter IV of the FEIS now addresses these considerations in greater detail.

Cumulatively, Class IV streams provide benefits to Class I through III streams through flood-flow storage and erosion protection. The Forest should consider a greater level of protection for these Class IV streams as well.

Response: In recognition of the essential role Class IV streams in the protection of downstream waters, the standards and guidelines for the Final Forest Plan have been revised to provide specific direction for the protection of Class IV streams.

The cumulative effects rating suffers the uncertainty that current or potential impacts are only assessed indirectly through a calculated increase in erosion and a hydrologicial recovery factor. There is no real measure of past or intrinsic basin "response" to use as a yardstick for evaluating potential future response to alternatives.

Response: The cumulative effects rating is based on information available and the scale appropriate to forest planning. The scale of the analysis precludes very detailed evaluation of the myriad of local conditions involved in determining the intrinsic basin response. Cumulative

effects models have been identified in the "Information Needed" section of Chapter II of the Final Forest Plan.

At least 39% of the Forest would be in a hydrologically unrecovered condition under the Preferred Alternative in the DEIS (i.e. less than 75% of the area in trees of 8 inch diameter or greater; see DEIS at page IV-34). This is not in accordance with the management consideration described in the DEIS at page III-17 which states that watersheds will be maintained at 75% hydrologic maturity.

Response: The Forest will maintain levels of hydrologic recovery compatible with maintaining stream stability. The Final Forest Plan includes standards and guidelines in Chapter IV to distribute harvest according to subdrainage sensitivity. This was modeled in FORPLAN.

Groundwater

The document should address the subject of water supply, including groundwater, indicating measures to prevent and mitigate impacts on this resource.

Response: An expanded discussion of groundwater and more generally the supply and demand for water can be found in the section on Water in Chapter III of the FEIS. All alternatives include the use of Best Management Practices (BMPs) for the protection of water quality (FEIS, Appendix H). Specific BMPs provide for safe drinking water and the management of sanitation facilities.

The effects of timber harvest, recreation, grazing, and vegetation management on groundwater recharge should be addressed.

Response: The current condition and effects of management practices on groundwater is discussed in Chapters III and IV of the FEIS. Current research on the effects of forest management does not indicate a strong relationship between the removal of timber and road construction with groundwater problems. The primary area of groundwater recharge is the high Cascade plateau above 4000 feet. The majority of this area is designated wilderness precluding significant management activities.

The DEIS fails to provide an adequate discussion of how groundwater on the Forest will be protected. Such a discussion should include sewage disposal practices at primitive and developed sites; the effects of any municipal or industrial solid waste or sewage effluent; and chemical handling practices including herbicides, pesticides, fertilizers, and degreasing solvents at maintenance shops.

Response: The discussion of what is known about groundwater on the Forest has been expanded in the section on Water in Chapter III of the FEIS. The use of Best Management Practices (BMPs) is included in all alternatives (FEIS, Appendix H). BMPs include requirements for the management of sanitation facilities and the control of refuse disposal. The BMPs also require all chemical handling conform with the Forest's Spill Prevention and Response Plan which complies with the State Department of Environmental Quality regulations for the protection of groundwater. As appropriate, the effects of discharge at specific sites will be evaluated in project level environmental assessments.

Standards for Water Quality

Management activities conducted on the Forest must be consistent with Oregon's adopted Statewide Water Quality Management Plan, and Oregon's adopted Water Quality Standards should be incorporated

into the Plan by reference. The FEIS should describe how Management Requirements (MRs), standards and guidelines (S&Gs), Best Management Practices (BMPs), and other measures designed to minimize water quality impacts from Forest activities will ensure consistency with the State's antidegradation policy.

Response: The requirement under the Clean Water Act is that the Forest's activities comply with approved State water quality standards. The strategy used in this Final Forest Plan to achieve compliance was to require the use of BMPs; and then through monitoring assure not only that these BMPs were being used, but that they actually produced the compliance with the water quality standards that was anticipated. In the event monitoring reveals that water quality standards are not met, appropriate corrective action will be identified and implemented. A list of the BMPs is contained in Appendix H to the FEIS and interested readers are further directed to the document entitled *General Water Quality Best Management Practices* (1988) which is a part of the Planning Record. Appendix E of the Final Forest Plan describes the water quality and fish habitat monitoring programs which are the bases for the monitoring program described here.

The documents fail to consider scientific studies of Waldo Lake which have demonstrated that the use of motor boats on the lake are affecting water quality.

Response: The quality of water in Waldo Lake remains of continuing concern to the Forest. The Final Forest Plan makes no changes in the current use of motor boats on the Lake; however, the monitoring plan in Chapter V of the Final Forest Plan provides for monitoring water quality in the Lake. Appropriate site specific analysis and public involvement will occur before a decision is made to eliminate the use of motor boats on the Lake.

Page IV-31 of the DEIS states that watersheds assigned a "probable" risk rating have a high risk of cumulative downstream effects on water quality, physical stream characteristics, and fish habitat as a result of planned management activities if a 10 to 20 year rain-on-snow flood event were to occur. As the Forest's planning cycle is for a period of 10 to 15 years, there is a high probability that such a 10 to 20 year rain-on-snow event could be expected to occur, so it is very likely management induced declines will take place for each watershed rated "probable." The Draft Forest Plan rates about one-third of the Forest's watersheds as "probable," and therefore vulnerable to such management induced declines in the amount and relative long term stability of existing beneficial uses. Not only is this result unacceptable, it violates applicable law (National Forest Management Act, Clean Water Act), State of Oregon water quality standards, and criteria established by the Oregon Department of Fish and Wildlife. The Forest Plan must redistribute activities to lessen cumulative watershed effects risks. The range of alternatives must present a scenario where no watershed falls into the "probable" category.

Response: Modeling changes in the Final Forest Plan were revised to provide increased protection for watersheds. No watershed in the Final Forest Plan is projected to have a high risk of management induced decline. This accomplished by various strategies required by the standards and guidelines, such as scheduling timber harvest according to subdrainage sensitivity, maintaining full protection of riparian areas, conservative management of Class IV streams and potentially highly unstable land areas, and the use of highly effective Best Management Practices for roads.

The documents should address the development and scheduling for implementation of municipal watershed agreements with the larger municipalities relying on the Willamette watershed.

Response: As discussed in Chapter III of the FEIS, the quality of water delivered to the withdrawal facilities for the watersheds with 100% Forest land (generally the smaller municipal watersheds) has been sufficiently high that the Forest has not been approached to develop formal municipal watershed agreements. The larger municipalities also benefit from this same high quality water, but the quality of water delivered to them additionally depends upon management practices of a number of other, typically downstream, public agencies and private landowners.

The Forest's commitment to comply with State of Oregon water quality standards should assure continued delivery of high quality water consistent with beneficial uses from Forest lands. If municipalities approach the Forest with specific concerns, the Forest would work with them to explain practices, provide data, and develop appropriate solutions.

Under EPA-proposed rules required by the 1986 amendments to the Safe Drinking Water Act (SDWA), an agreement must be reached with the Forest Service that would allow the municipalities to have watershed control in order to continue to use water sources without filtration.

Response: The SDWA states that to receive an exemption from filtering surface waters, municipalities must demonstrate that they have an agreement with landowners of the supply watershed. Public water supplies are one of the most important beneficial uses recognized in the Final Forest Plan. Standards and guidelines in Chapter IV of the Final Forest Plan provide direction to maintain water quality which meets the needs of beneficial users. The Forest will work in partnership with municipalities to provide clean water for public use.

Water Quality Monitoring

It seems that less than one-tenth of 1% of the projected first decade annual budget will be allocated to the monitoring effort. Given the importance of water quality and riparian areas, greater attention in terms of staff and resources seems warranted to provide information as soon as possible about whether the Plan is providing the water resource protection intended.

Response: The projected budget amount for water quality monitoring has increased since publication of the DEIS (see Chapter V of the Final Forest Plan). The factors that are of critical importance are that a good monitoring plan is developed and adequately funded, rather than exactly how many dollars are involved. The monitoring plan has been revised to provide a comprehensive, efficient monitoring program. Additional monitoring detail will be developed in cooperation with the Environmental Protection Agency and Oregon Department of Environmental Quality.

If effectiveness monitoring does not occur on all watersheds, how will the watersheds which will be subject to effectiveness monitoring be prioritized and chosen?

Response: Watersheds will be prioritized for monitoring based on the importance of the beneficial use and the sensitivity of the land and stream to changes resulting from management practices. High priority will be given to sites identified in the Oregon Department of Environmental Quality's "Clean Water Strategy" which addresses nonpoint pollution.

The monitoring and evaluation program proposed in the Draft Forest Plan will do neither. It is inadequate to document the changes occurring throughout the Forest or to identify the causative agent(s) for those changes. A detailed water quality monitoring plan should be based on a list of current beneficial uses, present condition, and the desired future condition for each stream or watershed unit which can effectively contribute to protect the beneficial uses. The monitoring plan should include types of surveys,

location of sampling, parameters to be monitored, indicator species, budget, procedures for using data or results in plan implementation, and availability of results to interested and affected groups. The Final Forest Plan should increase the number of water quality and flow stations, the number of habitat and riparian index areas, and the intensity of the sampling.

> **Response:** Chapter V of the Final Forest Plan outlines a revised water quality monitoring plan that was developed in cooperation with the Environmental Protection Agency and the Oregon Department of Environmental Quality. These agencies will be consulted when developing additional detail for the monitoring plans, including identification of an adequate number of monitoring stations. The monitoring plan includes information on the parameters to be monitored; the type, location, and frequency of sampling; and availability of monitoring information.

The goal of monitoring should be to assess the changing water quality conditions, rather than the implementation of Best Management Practices (BMPs).

> **Response:** Three types of water quality monitoring may occur under the National Forest Management Act: implementation, effectiveness, and validation monitoring. Since BMPs are the methods used to assure compliance with State water quality standards, implementation monitoring is essential to be assured that BMPs are actually used. Effectiveness monitoring will also occur to assess whether the required practices provide water quality that meets standards. As appropriate, validation monitoring may also occur in response to the monitoring questions to test the validity of the relationships and assumptions used in the Final Forest Plan.

The impacts presented in the Plan are not adequately addressed by the water quality monitoring plans. Class III and IV streams should receive monitoring to help prevent adverse cumulative effects on Class I and II streams.

> **Response:** The monitoring plan has been revised (Chapter V of the Final Forest Plan). It includes monitoring of representative reaches of Class III and IV streams in the monitoring outline "Aquatic Habitat and Stream Stability."

Wild and Scenic Rivers

The DEIS, Draft Forest Plan, and Appendix E of the DEIS are inadequate by failing to assess the eligibility and to recommend Forest rivers for wild and scenic river status, and by failing to provide for interim protection of outstanding values for eligible rivers pending a suitability determination. For instance, the documents failed to comply with Chapter 8 of the Planning Handbook by limiting consideration to rivers identified by the Nationwide Rivers Inventory (NRI): the NRI is incomplete in the Pacific Northwest, and other rivers have identified potential in other studies (e.g. Pacific Northwest Rivers Study, State river assessments, and assessments by other public agencies). The documents even failed to consider a NRI listed river (the Breitenbush).

> **Response:** Early planning direction focused attention only on NRI-identified rivers. These only included certain segments of the McKenzie River and Breitenbush Rivers; and by the time the DEIS was written, the Breitenbush River was determined ineligible for further consideration by the USDI.
>
> In the interval between the DEIS and the FEIS, the Wild and Scenic River eligibility of segments of 13 rivers within the Forest's boundaries were evaluated. The river segments chosen for review

were identified through the public comment process. Among those reviewed were various segments of the Breitenbush River system.

Chapter III of the FEIS provides a complete list of the eligibility and classification status of rivers on the Forest. Management area standards and guidelines for Wild and Scenic Rivers in Chapter IV of the Final Forest Plan provide the appropriate level of protection to eligible river segments consistent with current planning direction, pending suitability determinations, or Congressional action. In addition, Appendix E of the FEIS provides narratives for each river segment describing its "outstandingly remarkable values." More detailed information is available in the process paper addressing Rivers in Forest Planning.

The DEIS and Draft Forest Plan fail to discuss how degradation of water quality will be prevented in designated and potential wild and scenic rivers (WSRs) and State Scenic Waterways (SSWs), as mandated by the Wild & Scenic Rivers Act. Similarly, the maintenance of water quality and management options for the recreational opportunities represented by free flowing rivers is not discussed.

Response: Direction about water quality in designated and potential WSRs and SSWs can be found in the management area standards and guidelines for Wild and Scenic Rivers (Chapter IV of the Final Forest Plan). Additional direction governing water quality which may also affect the special qualities of these rivers can be found in several places in Chapter IV of the Final Forest Plan, notably in the standards and guidelines for soil and water and in the standards and guidelines for dispersed recreation and riparian areas. Implementation and effectiveness monitoring will provide data to assure the desired results are occurring and to trigger appropriate corrective action if standards are not met. Information about management of recreation opportunities and water quality on designated and potential rivers can also be found in the FEIS in Chapters III, IV, and Appendix E.

The standards and guidelines (S&Gs) for interim protection of river segments eligible for inclusion as Wild and Scenic Rivers are inadequate and fail to provide the specific protections mandated through the USDA/USDI interagency guidelines and Forest Service Handbook direction in Chapter 8.

Response: The free-flowing conditions and outstandingly remarkable values of designated, study, and eligible Forest rivers are protected in a manner consistent with a variety of guidelines. These include the USDA/USDI Interagency Guidelines; the S&Gs for each river class noted in the Land and Resource Management Planning Handbook (FSH 1909.12, Chapter 8); and the management direction outlined in the Forest-wide and management area S&Gs in Chapter IV of the Final Forest Plan.

Interim management protects eligible rivers in several ways. It prevents modification of their free-flowing characteristics. It provides for protection, and to the extent practicable, enhancement of their outstandingly remarkable values. Finally, it limits activities to assure that corridors are not modified to the degree that eligibility or designation of the rivers at the highest classification for which they qualify would be adversely affected.

The proposal of the DEIS and Draft Forest Plan to downgrade management of the Little N. Santiam River, which is a designated State Scenic Waterway (SSW), is in conflict with State law.

Response: The Final Forest Plan considers the Little North Santiam River eligible for inclusion into the National Wild and Scenic River System. As such, appropriate interim management will apply. In addition, the Forest will coordinate with local, state, and other federal agencies to assure compliance with the Oregon Scenic Waterways Act. Appendix E of the FEIS lists the rivers receiving interim protection, and the management area standards and guidelines for Wild and Scenic Rivers in Chapter IV of the the Final Forest Plan sets Forest direction for eligible and designated Wild and Scenic Rivers.

The DEIS and Draft Forest Plan fail to address adequately the recreational aspects of Forest rivers, particularly the upper white water reaches used by river boaters.

Response: The FEIS and Final Forest Plan have been revised to more adequately deal with the recreation aspects of Forest rivers. Refer to the Forest-wide Standards and Guidelines and Management Areas 6a-c Chapter IV Forest Plan for specific management direction for Forest rivers, including the upper white water segments of rivers considered eligible for inclusion in the National Wild and Scenic Rivers System. See also Appendix E of the FEIS for narratives regarding the recreation aspects of eligible Forest rivers.

Wilderness

Adjacent Lands

The DEIS inappropriately addresses land uses adjacent to and near Wilderness by ignoring the Oregon Wilderness Act of 1984 by establishing de facto Wilderness and buffers to existing Wilderness.

Response: Land allocations for lands adjacent to Wildernesses vary by alternative. Chapter II of the FEIS describes and delineates the allocations which are made for each alternative. None of the Management Areas established under the Final Forest Plan are managed for the specific purposes of establishing buffers to existing Wildernesses or creating de facto Wilderness. They were established for other non-Wilderness uses. In addition, management for Wilderness does not maintain buffer strips of undeveloped wildland to provide informal extension of Wilderness, in compliance with the direction found at FSM 2320.3.

The DEIS inadequately addresses land uses adjacent to and near Wilderness by releasing potential Wilderness and backcountry values to irretrievable and irreversible harm through various management activities. Releasing such potential Wilderness is inappropriate when shortfalls in dispersed recreation opportunities are predicted and when those management activities intrude on the Wilderness values within exisiting Wilderness. In addition, the inadequate standards governing the management activities on lands near Wilderness will intrude on the values within existing Wilderness, particularly the small ones having larger relative perimeters.

Response: Chapter III of the FEIS identifies potential effects of management activities on Wilderness values. Chapter II of the FEIS considers a range of alternatives for the management of areas adjacent to and near Wilderness, and Chapter IV of the FEIS presents a discussion of the environmental consequences of these alternatives. While many different ways of treating these areas were considered, the Record of Decision chose the allocations under the Final Forest Plan.

Under the Final Forest Plan, when project activities are proposed near Wilderness areas, site specific project analyses consistent with the National Environmental Policy Act will occur. These

analyses will consider various alternatives and their effects on the environment, including nearby Wilderness values as appropriate. Appendix A of the Final Forest Plan discusses the management policy that the natural character of existing Wilderness shall not be changed to a lesser standard in order to disperse or accomodate increased use. The standards and guidelines in Chapter IV of the Final Forest Plan meet the requirements of 36 CFR 219.18(a) by managing visitor use in such a way that natural processes are allowed to operate freely and that values for which the Wildernesses were created are not impaired.

Commercial and Other Use

The documents inadequately address that Wilderness serves uses other than recreation (e.g. watershed protection, air quality, wildlife, and scenic values).

Response: Chapter III of the FEIS describes many of the values for which Wilderness is managed. Some of these include: recreational use; preservation of wildlife habitat; plant and animal diversity; unique geologic features; watersheds; and cultural resources. The goal of Wilderness management is to balance the needs for unmodified natural environments with recreational, scientific, biological, and educational uses. The management area standards and guidelines for Wilderness found in Chapter IV of the Final Forest Plan provide for the protection of Wilderness vegetation, fish and wildlife, air quality, and water and soil. Appendix A of the Final Forest Plan provides discussions of the resource values found in Wilderness.

The discussion on page A-14 of the Draft Forest Plan fails to include a reference to valid existing rights.

Response: Management area standards and guidelines in Chapter IV of the Final Forest Plan provide that where valid leases or locatable mineral interests exist, the rights of those claimants shall be met with the least possible impact on Wilderness resources.

The proposed standard for commercial use inadequately defines what will be considered "necessary use or services." Commercial permits should be submitted for public review through the EA or EIS process as appropriate.

Response: Appendix A of the Final Forest Plan provides that the primary considerations for accepting outfitter guide services in Wilderness include the affects of guided activities on the resource, levels of usage, and the need to provide services to visitors who would not otherwise experience Wilderness. The economic viability and delivery of high quality service by the enterprise should also be considered.

The standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan describe the factors which should be considered in expanding outfitter guide services, and in the disposition of existing permit rights when an existing outfitter wishes to sell those rights or discontinue all or part of the business. These factors will be considered in the context of appropriate NEPA analysis, whether categorical exclusion, environmental analysis, or environmental impact statement. The determination as to which level of NEPA analysis was used may be timely appealed.

Inasmuch as low-level overflights do have the potential to disrupt the solitude and naturalness of areas directly under their flight paths, we recommend you include consideration of low-level training missions in your discussion and decisionmaking process wherever solitude and naturalness are desirable attributes within the forest system.

Response: Many of the same features that give Wilderness special value to recreationists also provide a near ideal setting for military overflights and low altitude training routes: lands under federal jurisdiction which are relatively isolated, characterized by diverse topography, and maintain sparse human populations with minimal commercial activity. The Department of the Air Force is sensitive to such incompatibilities, and with continued involvement with the Forest Service generally directs such activities to areas with less sensitivity. Forest personnel are available to take complaints and coordinate with the military on a case by case basis.

Management

The documents fail to include historic bridges, roads, and trails within Wilderness in the list evaluated for historic significance.

Response: Specific reference to the structures and trails of particular concern within the boundaries of each Wilderness can be found in the individual Wilderness Management Plans in Appendix A of the Final Forest Plan. While inventory and evaluation is required, the evaluation of the historic significance of each of these improvements has not yet been completed. The management area standards and guidelines require that cultural resources be inventoried and historic significance determined, with the result that eligible historic sites and trails will either be maintained or adverse affects mitigated.

The source for the development of Wilderness policy should not be Regional Supplement 81.

Response: Wilderness policy for the Forest has been developed from several sources. Some of these include: the 1964 Wilderness Act; the Oregon Wilderness Act of 1984 (PL 98-328); the Forest Management Acts of 1897, 1899, and 1901; the Multiple -Use Sustained Yield Act of 1960; the National Forest Management Act of 1976; *Congressional Guidelines and Policies Regarding Grazing in National Forest Wilderness Areas*; and *Policies and Guidelines for Fish and Wildlife Management in Wilderness and Primitive Areas*. Supplement 81 provided interpretation of the various laws and directives and by its terms established interim policy only until Forest Plans could be developed. The Forest did consult Supplement 81 in developing the Final Forest Plan, but this consultation was neither exclusive nor controlling.

The interpretation of nondegradation is inadequate.

Response: "Nondegradation" seeks to assure that improvement will occur in those situations where Wilderness values have been impaired. The Limits of Acceptable Change System (LAC System) establishes acceptable levels of Wilderness use, while at the same time provides recognition that change is also a natural part of wild ecosystems. The LAC System, which is described more completely in Appendix A of the Final Forest Plan, establishes a process for inventorying existing conditions and comparing those conditions to appropriate standards. Nonconforming uses must have minimal effects on the ecosystem, as required by the Wilderness Act and other legislation.

The discussion at page IV-44 of the Draft Forest Plan states that fire restores natural ecosystems. This is in error. Rather, fires are more likely to convert one natural ecosystem to another or provide a different successional stage. Fires may even add to natural diversity. Prescribed burning as described in Chapter IV-149 of the DEIS is contrary to the intent of the Wilderness Act by allowing man's interference with natural processes.

Response: The language about fire "restoring" natural ecosystems has been dropped from the management area standards and guidelines for Wilderness in Chapter IV of the Final Forest

Plan. The discussion on the use of prescribed fire in the standards and guidelines for fire and fuels in Chapter IV of the Final Forest Plan acknowledges the natural role of fire in retaining a variety of plant communities and overall ecosystem processes. Additional discussion about fire in individual Wildernesses can be found in Appendix A of the Final Forest Plan.

Page IV-6 of the Draft Forest Plan states that heavily used trails, trailheads, and campsites will be returned to a more primitive condition. It is unclear whether this means maintenance will be neglected such that these features deteriorate and eventually disappear.

Response: Trails and designated campsites are not permitted in areas of Wilderness classified as Pristine. Heavily used facilities such as trails, trailheads, and campsites in the other three classes of Wilderness (Primitive, Semiprimitive, and Transition) will be rehabilitated, restored, or regulated in order to regain Wilderness characteristics compatible with those described in the Wilderness Act. Specific direction can be found in the management area standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan.

Recreational Use

The documents fail to indicate that higher levels of Wilderness use will result from the elimination of roadless areas and the failure to expand Wilderness under Alternative J and any of the other higher timber oriented alternatives.

Response: For purposes of this initial land management plan, the Oregon Wilderness Act of 1984 provided that lands reviewed in RARE II or in unit plans, as well as those roadless lands less than 5000 acres in size, had had adequate consideration for suitability for Wilderness.

Mt. Hagan was the only area on the Forest greater than 5000 acres which had not been previously considered for Wilderness designation in RARE II or in unit plans. 6292 acres in the Mt. Hagan area were recommended for Wilderness designation under Alternative C in the DEIS. In the FEIS, Alternative L recommends acreage in the Mt. Hagan area as Wilderness, a portion of which is coincident to a Research Natural Area (RNA). In all, Alternative L either recommends some 169,360 acres (including the Mt. Hagan portion) for Wilderness designation or Wilderness study.

The Final Forest Plan recommends no new Wilderness. The Final Forest Plan does recommend, however, that a portion of the acreage in the Mt. Hagan area be designated a RNA. In addition, the Final Forest Plan makes several areas available for semiprimitive non-Wilderness recreation opportunities, some of which are contiguous with existing Wilderness.

Use patterns resulting from the configuration of dispersed recreation opportunities in Alternative W will not be allowed to threaten the essential Wilderness character of specific areas. See generally the discussions in Chapters III and IV of the FEIS, Appendix A of the Final Forest Plan, and the standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan.

The DEIS fails to meet the need for Wilderness. Only in the Pristine category was use predicted not to exceed capacity by 2030, and then only by 2000 RVDs.

Response: Although Chapter III of the FEIS provides some revised estimates of projected use by Wilderness Resource Spectrum class, it remains true that demand is projected to outstrip the availability of many types of Wilderness experience on this Forest. Wilderness requires Congressional designation, and it is a finite resource.

The use of Wilderness is also governed by policy and regulation to protect its unique values, even in the face of high demand. For instance, Appendix A of the Final Forest Plan discusses the management policy that the natural character of existing Wilderness shall not be changed to a lesser standard in order to disperse or accomodate increased use. In addition, the standards and guidelines in Chapter IV of the Final Forest Plan meet the requirements of 36 CFR 219.18(a) by managing visitor use in such a way that natural processes are allowed to operate freely and that values for which the Wildernesses were created are not impaired. The result of these limitations is that, where appropriate, Wilderness use limitations may be imposed during the planning period.

The DEIS arbitrarily establishes user day limits by failing to document criteria and the relationships to actual environmental considerations.

Response: The management area standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan establish the group sizes, numbers of encounters, and dispersal standards for Wilderness use that will be used in the Final Forest Plan. The individual Wilderness Management Plans found in Appendix A of the Final Forest Plan also discuss the relationships between environmental considerations in specific Wildernesses and user limitations.

The process used in establishing user day limits involved carefully analyzing the Wilderness experience specific areas were capable of providing, inventorying the actual use patterns and existing resource conditions experienced in those areas, and determining the extent to which some or any limitations on use might prove beneficial. More information about this process is available in the Planning Records: the Wilderness Resource Spectrum Inventory Process and the Process for Estimation of Wilderness Capacity.

While the capacity concept and the use of "limits to acceptable change" to define capacity limits is appropriate, the proposed standard in transition and semiprimitive categories are not supported.

Response: Managing by Wilderness experience classes recognizes that portal areas and other popular areas which are easily accessible will produce more encounters than those described by the criteria. See generally the discussion of Wilderness Resource Spectrum classes in Chapter III of the FEIS, the management area standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan, and the Wilderness Management Plans in Appendix A of the Final Forest Plan.

The group size of 12 chosen for numbers of people/stock in the standards and guidelines found at 1.,1b(2) of the Draft Forest Plan fails to consider adequately that most extended trips greater than 4 days normally require 2 people and 3 horses, so the number chosen should have been 10 or 15. The discussion is also inadequate by failing to address whether administrative trips would be governed by the same numbers.

Response: Maximum group size provided by the management area standards and guidelines for Wilderness in Chapter IV of the Final Forest Plan is 24: 12 people and 12 head of stock. Larger groups of up to 12 people and 18 head of stock may be allowed by permit. Administrative trips are governed by the same maximum numbers.

Wildlife

Big Game

The DEIS fails to present the basis for the document's estimates of current deer and elk populations. Moreover, the estimates provided are high when compared to estimates of the Oregon Department of Fish and Wildlife (ODFW).

> **Response:** The FEIS has been updated to reflect ODFW's best estimates of current deer and elk populations.

The DEIS fails to provide a clear discussion of big-game modeling assumptions, procedures, coefficients, and the habitat variables used to derive population estimates. Readers cannot discern the relationships between animal numbers and habitat capability.

> **Response:** Chapter II of the FEIS expands the discussion of deer and elk modeling, while Chapter III discusses the habitat variables used to estimate habitat capability. A brief summary of the analysis process and the changes between the DEIS and FEIS is presented in Appendix B. A detailed explanation of the process used to revise the habitat capability and potential population analysis between the DEIS and FEIS is presented in a Process Paper which is a part of the formal Planning Record.
>
> There is no precise quantification of the link between big game populations and habitat effectiveness, because numerous factors in addition to habitat influence the actual number of animals in a particular area. For example, hunting regulations, hunting seasons, disease, parasites, poaching, yearly weather variation, and age class distribution of herds all influence populations. As a result, only a potential population index was used. Developed in cooperation with the Oregon Department of Fish and Wildlife, this index displays potential differences in populations resulting from habitat changes associated with management allocations and activities in each alternative. This index does not purport to display actual populations.

The Draft Forest Plan and DEIS do not adequately address the relationships of cover, forage quality, roads, and their relative positions on the landscape in providing habitat to support projected big game populations. The only model approved for use in assessing habitat effectiveness for elk in R-6 is "A Model to Evaluate Elk Habitat in Western Oregon" (Wisdom 1985). This model should be used as the minimum basis from which to estimate the effects of proposed management activities.

> **Response:** The FEIS and Final Forest Plan have incorporated the habitat effectiveness model (Wisdom 1985) into the analysis process to evaluate the effects of proposed management activities. The Final Forest Plan standards and guidelines further require the use of the model to evaluate effects and monitor trends at the project level.
>
> The variables used in the habitat effectiveness model address the relationships between the four primary habitat components of cover, forage quality, roads, and their relative positions on the landscape. Threshold values were assigned to each variable to ensure that habitat quality can support the deer and elk population objectives for specific areas. In addition, an overall habitat effectiveness objective was established for each of the three levels of management emphasis, "high," "moderate," and "low."

The documents inadequately assess the adverse impacts of current or future road densities on big-game habitat.

Response: Chapter III of the FEIS has been revised to include a discussion about the impacts of open roads on deer and elk habitat quality. Chapter IV of the FEIS includes the effects of roads as a component of the habitat capability assessment for deer and elk. Chapter IV of the Final Forest Plan includes Forestwide standards and guidelines (S&Gs) for habitat effectiveness, of which open road density is one of the four variables considered. The S&Gs also provide direction for access management in areas managed for deer and elk habitat.

The Draft Forest Plan/DEIS inadequately address potential deer and elk habitat improvement techniques, the timing of improvement techniques, and the locations for which such practices were prescribed.

Response: Each alternative in the FEIS provides some level of high or moderate deer and elk habitat emphasis, but the specific locations and relative proportions of the moderate and high habitat emphasis areas vary between alternatives. Chapter II of the FEIS describes the outputs and range of habitat emphasis in each alternative, and Chapter III includes a discussion of the habitat variables which must be addressed.

The standards and guidelines establish habitat quality objectives common to all alternatives for each level of habitat emphasis (high, moderate, low). Achievement of those habitat objectives (as measured by "A Model to Evaluate Elk Habitat in Western Oregon" (Wisdom 1985)) may require a number of habitat improvements such as road access management, forage enhancement, and maintenance of the forage to cover distribution. Since these are project and site specific decisions, the FEIS and Final Forest Plan merely provide estimates about the amount of habitat improvement work that will be required Forestwide. These estimates are provided in the Resource Action Schedule, Appendix D to the Final Forest Plan. Chapter V of the Final Forest Plan specifies the monitoring procedures which provide the information necessary to evaluate whether habitat objectives are being met and the overall effectiveness of the habitat program.

The documents fail to provide maps showing where deer and elk populations will be managed. In addition, the DEIS does not present site specific information on individual winter range condition, the location of winter range, or the definition that was used to describe winter range areas.

Response: The FEIS and Final Forest Plan include maps which were developed in consultation with the Oregon Department of Fish and Wildlife. These maps show the areas designated for high, moderate, or low emphasis habitat management for deer and elk, including delineation of winter range locations. Individual emphasis areas range in size from 3 to 10,000 acres, with some even larger areas where Wilderness comprises a significant component. Habitat quality may vary within each emphasis area, depending upon current conditions. As appropriate, however, the standards and guidelines provide direction for establishing upward trends in habitat quality with each planned activity in the area until the habitat objectives are met.

The discussion of deer and elk in Chapter III of the FEIS now includes the criteria used to determine winter range. The presence of optimal cover was used as the habitat variable forecasting the future condition of winter range. The effects of implementation of the various alternatives on deer and elk habitat and populations is discussed in Chapter IV of the FEIS.

The standards for winter range for deer and elk are worded very weakly in the Draft Forest Plan.

Response: The Forest-wide standards and guidelines have been revised to provide clear, measurable direction for deer and elk habitat effectiveness. The standards apply to entire management units (Emphasis Areas). The standards also recognize that summer range provides important habitat for healthy and productive populations.

The documents inadequately consider the role of old growth in providing quality winter range habitat, both for forage and thermal cover.

Response: The FEIS and Final Forest Plan acknowledge the biological importance of old-growth forests on deer and elk winter ranges. Chapter III of the FEIS describes the function of old growth in providing optimum cover quality and a forage resource. The amount of old growth present on winter range was used to estimate the long term habitat capability of the alternatives considered. This discussion can be found in Chapter IV of the FEIS and in Appendix B. The Final Forest Plan allocates 4100 acres of older forest specifically to winter range areas in order to meet the habitat and potential population objectives established for the preferred alternative.

Much of the scientific literature suggests that the health of deer and elk going into the winter period may be as important as winter range habitat quality, yet the DEIS fails to discuss the importance and effects of summer range quality.

Response: The FEIS and Final Forest Plan address habitat effectiveness within mapped "emphasis areas." This approach was used to recognize that all components of deer and elk home range contribute in an integrated manner to the health and productivity of these populations, including the quality of both summer and winter range. The effects of proposed management activities are assessed in Chapter IV of the FEIS and the assessment includes both summer and winter range evaluation. Project planning and monitoring provide the opportunity to test actual effectiveness of the areas.

While the importance of summer range is acknowledged in the FEIS, the ability of deer and elk to survive winter periods was considered the most limiting factor. Winter range constitutes a significantly smaller geographic area, and the amount and quality of forage is more limited during winter periods.

General

The documents failed to address comparison of issue and concern resolution for species other than elk and spotted owls.

Response: The FEIS, Chapter II, provides a comparison of issue and concern resolution as well as the estimated outputs for the alternatives considered. This comparison now includes Management Indicator Species (MISs), including primary cavity excavators, marten, pileated woodpeckers, spotted owls, deer, elk, bald eagle, and peregrine falcon. Comparisons of the environmental consequences of the management activities associated with the alternatives considered can be found in Chapter IV of the FEIS.

Many of the qualifiers used in the standards dealing with wildlife are subjective and there does not appear to be any measure against which to judge adherence to a standard. All standards should be measurable, or they serve little purpose.

Response: The standards and guidelines in the Final Forest Plan have been revised to include specific definitions for the descriptions governing the level of direction (Final Forest Plan, Chapter IV). For example, terms such as "shall," "should," and "may" are defined and contrasted. The standards and guidelines are also tied directly to specific monitoring questions designed to measure compliance with the standards. The monitoring plan (Final Forest Plan, Chapter V) describes the method of measuring the results the standards and guidelines must meet, the period for monitoring, the sample intensity, and funding needed to implement the monitoring plan.

Item 2, page IV-63 of the Draft Forest Plan fails to define "significant ground disturbance" under the standards and guidelines for threatened, endangered, and sensitive species.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan have been revised to require biological evaluations for all activities that might affect proposed, endangered, threatened, or sensitive (PETS) plant and animal species. Examples of such activities would include projects such as timber harvest, road building, and habitat enhancement projects.

Habitat

The habitat capability projections for pine marten, pileated woodpecker, and spotted owls overestimate the capability to support these populations. Models used to predict capabilities are poorly documented, as are the rationales for establishing Minimum Management (MR) population levels.

Response: The model which was developed as a part of the viability analysis made in the spotted owl SEIS was used to determine this Forest's spotted owl habitat capability. A description of the analysis process can be found in that SEIS. A description of the revised process developed for estimating habitat capabilty for spotted owls, pileated woodpecker, and marten in the FEIS can be found in Appendix B and in a Process Paper included as part of the Planning Record.

Wildlife habitat is inadequately protected in the DEIS and Draft Forest Plan documents. Big game habitat is maintained only on "key ranges." Spotted owl habitat is at absolute minimal levels. Small mammal habitat is retained in only 10% of the managed forest. No mention of "wildlife tree" habitat is made. The guidelines for management adjacent to meadows would significantly affect the quality of this important wildlife habitat.

Response: A full range of alternatives is considered in the FEIS. Alternatives A, K, and No Change place relatively greater emphasis on activities such as timber harvest which alter or destroy habitat for many different species. Alternatives A and K meet Management Requirements (MRs) for maintaining viability of species, but management at these levels leaves little room for error or catastrophic events. Broadly speaking, Alternatives J, W, D, and L (in that order) provide increasing emphasis on nonconsumptive values such as visuals, plant and animal diversity and habitat, and old growth. Chapters II and IV of the FEIS provide detailed comparisons and evaluations of the environmental consequences of the alternatives.

The Final Forest Plan is based on the Preferred Alternative, Alternative W. This alternative has moderate levels of protection and enhancement for wildlife habitat. The Forestwide standards and guidelines (S&Gs) in Chapter IV provide deer and elk habitat emphasis throughout much of the Forest, direct that wildlife trees be left on all harvest units with specific habitat objectives for all subwatersheds, and require the retention of dead and down logs on all harvest units. Meadows are included in Management Area 9d in which they receive special protection wherever they occur, including "no harvest" buffers intended to protect the plant and animal habitat values of the area. Spotted owl habitat is provided at levels meeting the Amendment to the Regional

Guide, February 1989. In addition, Forestwide S&Gs provide some additional protection for verified spotted owl nest and pair roost sites when they occur outside the designated spotted owl habitat network.

The DEIS and Draft Forest Plan fail to address the issues of habitat fragmentation and catastrophic events on Management Indicator Species (MISs) requiring mature/old-growth habitat. A discussion of these effects and strategies for providing replacement habitat over time is needed.

Response: The FEIS includes an analysis of habitat fragmentation. The habitat capability estimates made for spotted owl, pileated woodpecker, and marten (Chapter II of the FEIS) include habitat fragmentation as a habitat variable. Appendix B of the FEIS includes a summary of the analysis process. A Process Paper included in the Planning record provides a more detailed description of the analysis process.

The Final Forest Plan provides for long term replacement of mature and old growth habitat in MA10a, MA 10d, MA11d, MA11e, and MA11f. Replacement needs due to catastrophic events have not been assessed. Assumptions included in the spotted owl FEIS and Amendment to the Regional Guide suggest that options for replacing habitat areas lost due to catastrophic event will remain beyond this planning period (10-15 years). In the event they do happen, such situations would be analyzed on a case by case basis, and as appropriate might lead to amendment or revision of the Final Forest Plan or Regional Guide. The uncertainty associated with viability of species for which MRs are set is addressed as part of the Final Forest Plan Monitoring Plan (Chapter V).

The documents inadequately defend their assumptions about the capacity of spotted owl, pine marten, and pileated woodpecker to disperse from "one isolated site to another."

Response: The ability of spotted owls, pine marten, and pileated woodpeckers to diperse and interact was a key assumption in the development of the Management Requirements (MRs) for these species. No published information exists on dispersal ability or dispersal habitat requirements for marten and pileated woodpeckers in the Cascade Range; and considerable effort continues to be focused on evaluating the dispersal capability of spotted owls. Consequently, the distribution requirements in the MRs were based on the best professional judgment of the biologists. Monitoring of habitat areas and individual species will provide the means of validating assumptions used in the development of the MRs.

The Final Forest Plan provides additional emphasis on the maintenance and development of corridors. This is reflected in the overall theme of Alternative W. Corridors are provided through protection of riparian corridors (MA15), and by the emphasis placed on longer rotations and retention of large trees within harvest units in Management Areas 10b,10d, 11d, 11e, and 11f.

The list of special wildlife habitats found on page IV-16 of the Draft Forest Plan fails to include several appropriate areas.

Response: The FEIS considered a wide range of allocations for special wildlife habitats. The Final Forest Plan is based on Alternative W, the Preferred Alternative identified in the FEIS. Alternative W provides protection for all inventoried special wildlife habitats. Chapter IV of the Final Forest Plan provides Management Area (MA9d), and the Forestwide standards and guidelines provide for protection of additional areas as they are identified.

The documents fail to provide adequate standards for the protection of "special wildlife habitats." For instance, the following "operational considerations" in the Draft Forest Plan should be made standards instead: a) roads are not generally acceptable within the boundaries of these areas (IV-113 and 115); b) minimize recreation developments within the areas (IV-113); c) overnight camping is generally not acceptable (IV-116). Another example includes allowing recreation sites and trails in and near such areas, subjecting those areas to unacceptable risk. Yet another example occurs in the DEIS at III-80. That passage describes the impacts of timber management activities near special and unique habitats and reasons to avoid these impacts. Despite that, the standards for the areas allow for up to 1/3 of the perimeter of meadows 30 acres or larger to be harvested. The standards also fail to provide adequate protection for the vegetation surrounding caves, cliffs, talus, and for meadows smaller than 30 acres.

Response: The various alternatives considered in the FEIS vary as to the amount of disturbance allowed adjacent to special and unique wildlife habitats. Alternative W, which is presented as the Final Forest Plan, acknowledges the contribution of special and unique habitats to overall plant and animal diversity within the Forest. Standards and guidelines (S&Gs) provide protection to the full perimeter of these special habitats as well as providing buffers wide enough to maintain the habitat features and value. Special and unique habitats and features are protected by allocations and S&Gs in MA 9d (Special Wildlife Habitats), MA 5a (Special Interest Areas), 10f (Lakeside Zones), and MA 15 (Riparian Habitats). The Forestwide S&Gs also direct the evaluation of additional, uninventoried special habitats during project level planning.

The Forest inappropriately increased the permissible distance between habitat areas without adequate baseline data regarding current populations of pine marten and pileated woodpecker. There is no assurance that viable populations of these species will be maintained.

Response: All alternatives, except No Change, meet the Management Requirements (MRs) established by the Regional Guide for pileated woodpeckers and pine marten. These MRs use habitat capability models, relying on an assessment of habitat quality, quantity, and distribution to evaluate potential populations of species.

It is true that Forestwide inventories of marten and pileated woodpeckers have not been conducted. A key factor in the Final Forest Plan is the Monitoring Plan (Chapter V). Requirements outlined there will be used to verify assumptions made in the FEIS, as well as to evaluate the effectiveness of the habitat networks established for the two species. If appropriate, monitoring results could lead to amendment or revision of the Final Forest Plan.

Management Indicator Species and Management Requirements

The documents provide an inadequate sensitivity analysis to justify increasing populations of selected wildlife.

Response: Chapters II and III of the FEIS discuss Management Indicator Species (MISs), including the method by which they are selected and the purposes for which they are used in analysis. The principal reason for Management Requirements (MRs) is to assure continued viability of the various species. A sensitivity analysis of the effects of the Management Requirements (MRs) on the populations of MISs is presented in Appendix G of the FEIS.

Habitat capability and habitat effectiveness for MISs are used to estimate the effects of the alternatives on potential populations of wildlife species. Chapters II and IV of the FEIS display projected changes in species populations. Through implementation of appropriate Recovery Plans, habitat management for bald eagles and peregrine falcons has been provided in the hopes

their numbers can increase. The only populations of MISs without "threatened or endangered" status that are projected to increase in the future are deer and elk. These animals are considered featured species, and as such they are not considered species for which there is a viability concern. Therefore manipulations of their populations may be undertaken to achieve objectives unrelated to MRs, such as providing adequate numbers for recreational hunting. The population increases for deer and elk therefore fall outside the purpose for which the MR sensitivity analysis was undertaken.

The DEIS inadequately documents declines for each Management Indicator Species (MISs) and inadequately justifies management strategies associated with the MISs against other NFMA regulated multiple use objectives.

Response: Chapter III of the FEIS provides an assessment of the current habitat capability and potential populations for the MISs. Chapter II compares the habitat capability provided by the various alternatives. Chapter IV then analyzes the effects associated with each of the considered alternatives. The Management Requirements (MRs) for the MISs provide a process for meeting National Forest Management Act requirements for species viability, and the range of alternatives provides several integrated approaches to achieving multiple use objectives.

Wildlife Management Requirements (MRs) lack variation between all alternatives considered (habitat acreage only nominally varies).

Response: MRs for wildlife habitat establish the lower limit for providing habitat necessary to maintain viable populations. These requirements are met in all alternatives, except No Change. MRs are exceeded in Alternatives D and L. The need to designate habitat areas for specific Management Indicator Species (MISs) depends on the risk of losing habitat quality, quantity, or distribution to the extent that habitat availability becomes a limiting factor for species viability. Chapters II and IV of the FEIS provide comparisons of habitat capability resulting from the allocations and management activities proposed in the alternatives.

All alternatives (except No Change) use Management Requirements (MRs) adopting use set aside or preservation strategies. Such strategies fail to consider: 1) the potential synergistic benefits to Management Indicator Species (MISs) of mixing successional stages in a mosaic of managed stands rather than small, isolated islands; and 2) the benefits to MISs of using modified silvicultural systems that prescribe scattered structural elements of mature/old-growth habitat within younger successional stages.

Response: During the development of MRs both preservation and management strategies were evaluated. The most administratively efficient method was preservation. The range of alternatives considered in the FEIS includes both preservation and management strategies; although all alternatives maintain a preservation strategy for the northern spotted owl. Chapter II of the FEIS describes the strategies used in each alternative.

The Final Forest Plan includes a strategy for managing a mosaic of successional stages while maintaining many of the vegetative attributes of older forests. This strategy includes MA10b, MA10d, MA11d, MA11e, and MA11f. These Management Areas (MAs) are managed to provide pine marten and pileated woodpecker habitat wherever they are coincident with MA9b and MA9c. The resulting landscape will provide a variety of benefits to wildlife not found in the exclusive "island" concept proposed in the DEIS. All pine marten and pileated woodpecker habitat areas rely on the concept of combining managed and reserved strategies to meet habitat requirements. The Final Forest Plan standards and guidelines for MA9b and 9c describe these

strategies. Appendix B of the FEIS summarizes how the management and reserved strategies were combined to assess long term habitat capability.

Marten

The discussion on principal habitats used by marten in the Appendix at H-8 says the Kuchler types used are from Guenther & Kucera (1978) and that some low elevation douglas-fir habitat on west slope of the Oregon Cascades is secondary habitat. Yet the Guenther & Kucera study indicates on p. 27 that low elevation douglar-fir habitat (Kuchler type "K2 Cedar-hemlock/douglas fir forest occurring mostly west of the crest of the Cascade range") is primary habitat for the pine marten, not secondary.

Response: The habitat network for marten has been revised to correct for this. Habitat distribution is provided throughout the Forest. The Monitoring Plan (Chapter V of the Final Forest Plan) provides direction for the evaluation and inventory of marten populations Forestwide.

160 acre habitat islands are inadequate to support a viable, well distributed population of pine martens, as pine marten home ranges are documented in the literature as being 704 to 2,048 acres for males and 576 to 1,088 for females.

Response: The Management Requirement for 160 acres of mature and old growth habitat for each marten habitat areas establishes the minimum habitat level to be considered in Forest Plans. No information is currently available on the home range size of marten found in the Oregon Cascades.

The FEIS provides habitat areas which are 500 acres in size. Of this acreage, at least 160 acres must be contiguous mature or old growth habitat. The remaining 340 acres must contain snags and downed logs, but it may consist of early seral forests having greater than 50% canopy closure. These 500 acre habitat areas are designed to serve as intermediate habitat for individuals moving between larger habitat areas found in Wilderness, roadless areas, spotted owl habitat areas, and pileated woodpecker habitat areas. Combined, these areas provide the habitat capabilities needed to maintain species viability. Chapter IV of the FEIS describes the effects each alternative will have on the Forest's capability to support marten populations.

Each pine marten habitat area is only large enough to support one marten. Removal of snags and down material from lands allocated for timber harvest will significantly impact marten populations by making habitat set-asides ineffective through isolation of individual animals. The scientific literature indicates that marten show an avoidance of openings, yet the DEIS and Draft Forest Plan provide no direction for connective travel corridors between habitat islands.

Response: The alternatives considered in the FEIS provide a range of habitat capability for marten. While the literature does indicate that marten will avoid openings, early seral forests provide suitable habitat for dispersal and hunting. Chapter IV of the FEIS describes the potential effects each alternative has on habitat capability for marten and providing dispersal corridors between habitat islands.

Final Forest Plan standards and guidelines provide revised direction for leaving additional snags and large down woody debris. The Final Forest Plan also acknowledges the importance of corridors. The result was the development of several Management Areas (MAs) which combined provide a network of travel corridors within each watershed. Examples include MA15 (Riparian), MA6 (Wild and Scenic Rivers), MA 10b and 10d (Dispersed Recreation), and MA11d, 11e, and 11f

(various Scenic condition classes). Refer to the MA descriptions, maps, and standard and guidelines for specific details.

The DEIS has apparent inconsistent direction for mapping and management of pine marten habitat areas. The documents are not clear about what distribution criteria were used or upon what research a 2 or 3 miles saving criteria was based.

Response: The Management Requirements (MRs) for marten specify that habitat capable of supporting marten must be distributed every 2000 to 5000 acres. This is equivalent to distributing habitat every 3 miles as measured edge to edge from the 160 mature or old growth habitat core area. Little published information was available to estimate dispersal distances of marten. The distribution distance as stated represented the best professional judgement of the wildlife biologists who made the MR recommendations.

The DEIS failed to discuss adequately coordination efforts with adjacent Forests in placing marten habitat areas.

Response: The marten habitat network varies by alternative depending on the need to provide specific land allocations to meet the Management Requirement for habitat quantity, quality, and distribution. The Mt. Hood and Umpqua National Forests were consulted to coordinate efforts in linking spotted owl, marten, and pileated woodpecker habitat networks. A Process Paper which is part of the Planning Record describes the processes used to evaluate, change, and assess the habitat needs for marten.

Primary Cavity Excavators

The Management Requirement (MR) level for minimum viable populations for pileated woodpecker need to be reanalyzed.

Response: The analysis of habitat requirements needed to meet MRs for pileated woodpeckers has been revised in the FEIS. The analysis method is summarized in Appendix B of the FEIS. The MR habitat network in the FEIS is based on meeting distribution requirements for the appropriate amounts and quality of habitat. No specific population requirement was calculated, although habitat capability was used to estimate potential populations (Chapters II and III of the FEIS) and to evaluate effects of the alternatives considered (Chapter IV of the FEIS).

The DEIS presented no inventory of snag habitat or the primary cavity excavator (PCEs) species for which Management Requirements (MRs) were set. This throws in question how current and future conditions were projected.

Response: Chapter III of the FEIS provides a discussion of the PCEs represented as well as the current habitat capability of the Forest. While no population inventories have been conducted for the PCEs, the MR strategies were set to assure continued viability of the species. Forest monitoring will provide information to validate assumptions and the effectiveness of strategies. The snag habitat inventory was determined from a combination of data sources including the timber inventory and ecology inventory plot data. A summary of the analysis process can be found in Appendix B of the FEIS. A more detailed Process Paper describing analysis changes and assessment processes can be found in the Planning Record.

There is no biological basis for the proposition that managing for 20% potential populations of primary cavity excavators (PCEs) will support viable populations of all wildlife species dependent on snag habitat.

Response: No quantitative research has been completed to date establishing the minimum habitat levels for maintaining the viability of all species dependent on snags. The Final Forest Plan establishes a management objective of 40% potential population levels within each subwatershed, and standards and guidelines address distribution patterns. The approach used meets the Regional Guide requirements.

The Draft Forest Plan (IV-14) proposed providing only .4 hard snags per acre in all conifer types by successional stages for primary excavator species. Soft snags are not mentioned at all. Based on information in Brown, 1985, it would seem that providing only .4 snags per acre will fail to maintain 20% of the potential population levels of primary excavators.

Response: The analysis for wildlife tree habitat has been revised to reflect information in Brown (1985) and other recently published literature relevant to snag habitat use in Western Oregon (Schreiber 1987; Nelson 1988). The standards and guidelines (S&Gs) for the Final Forest Plan reflect these revisions by requiring an overall retention rate to maintain habitat capability in each subwatershed for 40% potential populations. This amounts to an average of 1.8 snags per acre. Contributions to this subwatershed average by the harvest units must be at an average rate not less than 20% of potential populations (.9 snags per acre). These revisions are described more fully in Chapter III of the FEIS and Appendix B. A Process Paper which is a part of the Planning Record provides a detailed description of the changes made between the DEIS and FEIS.

The S&Gs also provide that Class IV and V snags ("soft snags") should be retained wherever possible.

The DEIS documents fail to comply with Regional guidelines for dead and defective tree habitat by maintaining only 20% of the primary cavity excavator (PCE) biological potential. The Regional Guide requires maintaining in excess of 40% PCE biological potential. The DEIS documents also use a combination of commercial and noncommercial forest land to meet this requirement. This is in error, as the proper interpretation of the Regional Guide is to maintain 40% of the potential population capacity on both commercial and noncommercial lands instead of by an averaged combination.

Response: The 40% potential population levels are maintained at the subwatershed level. The standards and guidelines (S&Gs) for dead and defective trees have been modified to calculate snag levels at the subwatershed level. To ensure appropriate distribution of snag habitat throughout a subwatershed, an additional S&G was developed requiring that the habitat needs of the primary cavity excavator with the most limiting territory size be met within each harvest unit. Final Forest Plan S&Gs (Chapter IV) therefore specify a 5 acre distribution pattern wherever snags are left in a clumped pattern instead of being evenly distributed throughout the subwatershed. In addition, S&Gs also provide for retention of habitat levels throughout the timber rotation, as well as for increasing snag retention in planned timber harvest units to mitigate the lack of snag habitat in previously harvested units. The present forest landscape is a mosaic of commercial and noncommercial lands, and PCEs utilize habitat according to its availability and suitability. Accordingly, combining land allocations in assessing habitat availability provides a closer representation of biological potential. The approach used in the FEIS and Final Forest Plan meets the intent of the Regional Guide.

The effects discussion in the DEIS fails to address the role of snag dependent birds in Forest pest management and how the biological control of pests may be significantly reduced by providing habitat levels below 60% potential population needs for primary cavity excavators (PCEs).

Response: This discussion has been included in Chapters III and IV of the FEIS. The section in Chapter IV detailing information needs acknowledges the lack of information available on the ecological role of differing potential population levels of insectivorous birds. Chapter V of the Final Forest Plan includes several monitoring questions developed to address the need for research on cavity nesting species on the Forest.

Spotted Owl

Considering that the spotted owl is listed as threatened by the State of Oregon, the documents inappropriately permit destruction of 40% of the remaining habitat.

Response: Except for the No Change Alternative, all alternatives considered in the FEIS meet or exceed the Management Requirements established by the Amendment to the Regional Guide, Feb. 1989. Chapter IV of the FEIS provides an analysis of the environmental consequences to spotted owl habitat resulting from each of the alternatives considered in detail. A spotted owl habitat area (SOHA) network has been established for the Forest. SOHAs constitute Management Area 9a (MA9a) in the Final Forest Plan. In addition, the forestwide standards and guidelines provide protection for spotted owl pairs having verified nest or roost sites located outside MA 9a.

The DEIS documents inappropriately equate Wilderness acreage with wildlife habitat. Wilderness is less productive as wildlife habitat. Putting several SOHAs into Wilderness goes against the very idea of having SOHAs provide long-term owl population stability in the first place.

Response: Wilderness areas provide substantial amounts of suitable habitat for many species of wildlife, serving as reservoirs for biological diversity. Chapter II of the FEIS displays the habitat capability provided in Wilderness areas for mature and old growth forest indicator species including the spotted owl. While clearly not all Wilderness provides suitable habitat for the spotted owl, some portions of Wilderness areas on the Forest are highly suitable for the birds. To date, fifteen pair of spotted owls have been verified within Wilderness. A table in Chapter IV of the FEIS displays the number of verified pairs located in Wilderness, SOHAs, and in other land allocations.

The Regional Guide was amended since publication of the DEIS. The Regional Guide requires the designation of SOHAs distributed across all forest lands, except those "withdrawn by Chief's authority or higher." As Wilderness was withdrawn under Congressional authority, the result is that designated SOHAs do not occur within Wilderness boundaries in the FEIS.

Alternative J fails to protect wildlife adequately by breaking a vital link in the chain of wildlife. The spotted owl will die. As a result, many other species will also die.

Response: Management for spotted owls has been changed in the FEIS to conform with the spotted owl Supplemental FEIS and Amendment to the Regional Guide. Management Requirements (MRs) are set to maintain viability of spotted owls across their range. The spotted owl habitat network, in conjunction with other forest lands removed from timber harvest, establishes a reserved base for the protection of the species which is supplemented by other habitat within the commercial land base. The ecological role of the spotted owl was one reason for its selection as a Management Indicator Species (MIS) for mature and old growth forest habitats.

Much of the controversy surrounding the viability and habitat requirements of the northern spotted owl has yet to be resolved. The US Fish and Wildlife Service is considering listing the

spotted owl as a federally listed Threatened and Endangered Species. Based upon monitoring information and recovery plans if the species is listed, Forests will amend or revise management direction, as needed. The Monitoring Plan can be found in Chapter V of the Final Forest Plan.

The Draft Preferred Alternative manages at the Management Requirement (MR) level for spotted owl without provision for loss due to catastrophic events; an increase of at least 20% above MR should be provided to reduce risk to this sensitive species.

Response: The Final Forest Plan provides for spotted owl habitat at the level required by the spotted owl FSEIS and Amendment to the Regional Guide. Analysis conducted as part of the FSEIS indicated that options would be available to revise habitat networks (including size and distribution) at the end of the five year decision period. Some of these options were used on this Forest following the Shady Beach Fire which catastrophically damaged a proposed network SOHA. The habitat network was adjusted, and the damaged areas were replaced with ones of equal value. Uncertainty exists about how often this approach could be used. Consequently, Chapter V of the Final Forest Plan provides an intensive monitoring plan for owls and their habitats. In addition, the FEIS considers two Alternatives, D and L, which provide habitat significantly above the MR level.

There are serious questions about the validity of the Forest Service viability model. Substantive questions of the various computer models in the determination of population viability of owls (and perhaps other species) have been raised. See Boyce, M.S., A Review of the U.S. Forest Service's Viability Analysis for the Spotted Owl, U. of Wyoming, Laramie, 12/2/87, 50pp..

Response: The viability analysis for the spotted owl can be found in documents prepared as a part of the Final Supplemental EIS for Spotted Owl (SEIS) and accompanying Record of Decision, released February, 1989. This viability analysis covers the bird's entire range in Region 6. Direction issued as an amendment to the Regional Guide requires that Forest level planning undertake certain further analysis to verify the potential population estimates made in the SEIS for each affected Forest. Chapter IV of the FEIS makes this assessment. The process used for estimating habitat capability involved analysis based on a more current vegetation inventory designed to measure the vegetation attributes of mature and overmature forests. This process is described in Appendix B; and it is described in further detail in a Process Paper which is a part of the Planning Record. The results of the analyses by the affected Forests will provide valuable monitoring information for the SEIS, including data bearing on issues of modeling validity. If warranted, the data could trigger future amendments or revisions to the SEIS and Regional Guide direction.

Spotted owl habitat areas (SOHAs) have increased from 78 to 91 pairs. This addition of 13 SOHAs constitutes an illegal standard under the Administrative Procedures Act. This decision greatly exceeds all legal standards set by Congress for wildlife management; and the public has not been given the opportunity to comment on the additional 28,600 acres set aside for the 13 extra pairs. The spotted owl Minimum Requirement (MR) of 91 pairs was built into every alternative, so the alternatives do not represent a true variation in methods of spotted owl management.

Response: Management of spotted owls changed between the DEIS and FEIS as a result of the spotted owl SEIS and subsequent Amendment to the Regional Guide. The SOHA network displayed in the FEIS complies with the Regional Guide. Spotted owl habitat areas (SOHAs) have not been designated within Wilderness boundaries, but the suitable habitat within Wilderness and other lands unsuited for timber production provided the baseline from which the SOHA

network was established. SOHAs were designated wherever distribution, quality, or quantity of suitable spotted owl habitat was limited.

The documents fail to cite the Interagency Agreement signed 12/1/87 between the U.S. Fish and Wildlife Service and Forest Service concerning the coordinated efforts of the two agencies to assure the well-distributed continued existence of the northern spotted owl throughout its National Forest range.

Response: The Interagency Agreement was superceded by the Record of Decision for the spotted owl SEIS. Subsequently, the Regional Guide was amended to update the Management Requirements (MRs) for the northern spotted owl. Although this specific Interagency Agreement may have been superceded, the Forest Service has continued to coordinate with the BLM, State agencies, and National Park Service. This coordination has resulted in a spotted owl habitat network on this Forest that meets distribution requirements within and between National Forests and provides linkage with spotted owl habitat areas on adjacent BLM ownership.

The documents fail to analyze adequately the spatial distribution of spotted owls within the Forest and for connection with the lands under the jurisdiction of other federal agencies.

Response: The spotted owl habitat network has been revised between the DEIS and the FEIS. In order to comply with the Regional Guide, as amended, coordination with other National Forests and the Bureau of Land Management was required. The spotted owl habitat areas (SOHAs) in the FEIS meet the distribution requirements of the Regional Guide and provide linkage with habitat areas on the lands of other National Forests and the BLM. A more detailed description of the process used to develop the current habitat network can be found in a Process Paper located in the Planning Records.

Threatened, Endangered, and Sensitive Species

Figure III-J-1 of the DEIS at page III-70 inadequately discusses wolverines by stating that the majority of wolverine sightings occur "in Wilderness where abundant habitat exists." Relatively little is known about wolverine ecology in the U.S. In fact, evidence indicates that wolverines may make extensive winter use of Forest types other than those traditionally considered as wolverine habitat, i.e. high elevation habitat types found in most of Oregon's Wilderness. See Hornocker, U. of Idaho.

Response: Abundant habitat for wolverine does exist within the Wilderness areas of the Forest. The Forest recognizes the need to evaluate wolverine sighting data further, conduct inventories, and prepare species management plans where appropriate. The standards and guidelines in Chapter IV of the Final Forest Plan address the need to ensure adequate consideration of this sensitive species.

The DEIS fails to provide adequate consideration for bald eagles. For instance, there is inadequate treatment of winter roost sites. The 1152 acres of habitat for existing nest sites fails to provide allocations for recovery areas of adequate size and distribution to meet the Regional Forester's commitment to participate in the Pacific States Bald Eagle Recovery Plan. There is inadequate management of both occupied habitat and recovery areas within Bald Eagle Management Areas (BEMAs) by allowing the administrative use of roads built prior to nest establishment, salvage operations in BEMAs, and recreation trails.

Response: All alternatives in the FEIS comply with the Management Requirements (MRs) established for the recovery of the bald eagle. Alternatives W, D, and L increase the consideration for bald eagle habitat needs (Chapter II of the FEIS). The standards and guidelines for Management

Area 8 (MA8, Bald Eagles) in Chapter IV of the Final Forest Plan provide direction for site specific development of Bald Eagle Management Plans for all active nest sites. These Plans include habitat requirements for alternate or future replacement nests, roost sites, and forage areas. MA15 provides direction for the protection of riparian resource values associated with wetlands, lakes, and rivers. These riparian areas often provide roost areas. In addition, the standards and guidelines have been revised to increase protection of potential nest and roost sites.

The sum of the direction meets the objectives of the Pacific States Bald Eagle Recovery Plan and places appropriate restrictions on activities that might negatively affect bald eagles.

Figure IV-D-4 of the Draft Forest Plan failed to list the peregrine falcon.

Response: This has been corrected.

The standards and guidelines inadequately develop management plans for threatened and endangered species which address nesting, foraging, and roosting sites.

Response: The standards and guidelines in Chapter IV of the Final Forest Plan have been revised. They provide direction for the preparation of site specific management plans for threatened and endangered species.

Other Topics

Cultural Resources

The DEIS and Draft Forest Plan inadequately and inconsistently discuss cultural resource management. Some examples include: direct discussion in some, but not all, Wilderness areas; inconsistent standards and guidelines between management areas; only indirect treatment in SIAs; and no discussion for general management areas. Major features of the cultural resources program are omitted. The documents fail to comply with the spirit of the NHPA by failing to integrate a real concern and long term commitment to cultural resources management.

Response: The Standards and Guidelines were drafted to meet NHPA requirements and accompanying federal historic preservation legislation, consistent with the needs of the specific management areas. The monitoring plan provides the mechanism through which implementation, effectiveness, and validation of the Standards and Guidelines can be judged. If appropriate, the Forest Plan can be amended or revised to meet changing needs.

Stated direction for historic structures in the DEIS fails to comply with 36 CFR 800.3(b)(4).

Response: The standards and guidelines and management area prescriptions comply with 36 CFR 800.3(b)(4) in the FEIS.

The documents fail to treat lookouts and guard stations, in and out of Wilderness, as historic structures.

Response: Chapter III of the FEIS, Artifacts and Sites, identifies lookouts and guard stations as cultural resources which merit the same historic preservation treatment as other similar historic structures. As such, the standards and guidelines apply to lookouts and guard stations.

Firewood

Page IV-44 of the DEIS states that as much as 73,000 cords would be taken under one of the alternatives, but it does not discuss the serious environmental consequences of the fuelwood program or consistency with State/Federal policies. Specifically, the DEIS should clearly demonstrate that woodcutting fees are not subsidizing public's use of fuelwood.

> **Response:** Chapters III and IV of the FEIS discuss the environmental effects of the firewood program, and the growing concerns about the effect of woodsmoke on air quality and health. There is also a discussion of the local, State and national policies on firewood and woodsmoke. An analysis of the role of fees in the firewood program is beyond the scope of the FEIS.

Insect and Disease

The DEIS inadequately explores foreseeable adverse effects from pests, disease, and physical damage to leave trees specifically associated with commercial thinnings.

> **Response:** Commercial thinning is a common silvicultural practice that has been used successfully on this Forest for many years. Actual proposals to commercially thin an area will be analyzed based on site specific information which can better address the potential adverse effects within the proposed area than this programmatic EIS. Based upon that analysis, an appropriate NEPA decision document will be prepared. If monitoring shows that adverse effects are significantly greater than anticipated by the Final Forest Plan, then appropriate corrective action will be taken, including possible amendment or revision of the document.

The standards and guidelines in the DEIS fail to exclude insect and disease control from Wilderness areas.

> **Response:** The standards and guidelines for integrated pest management in Chapter IV of the Final Forest Plan clarify the use of control measures in Wilderness. Control measures for naturally occurring levels of insects and disease will normally be excluded in Wilderness, except where site specific project analysis shows there is an unacceptable threat to resource values outside the boundary.

LIST OF WHO COMMENTED

Federal Agencies

US Dept. of Ag., Forest Service, N.W. Range and Exp.
US Dept. of the Air Force, Western Regional Engineer
US Dept. of Energy, Bonneville Power Administration
US Dept. of Interior, Environ. Proj. Review
US Dept. of Interior, Fish and Wildlife, Portland
US Dept. of Trans., Highway Admin., Region 10
US Environmental Protection Agency, Region 10
Northwest Power Planning Council

State Agencies and Elected Officials

Oregon House of Representatives, Larry Campbell
Oregon House of Representatives, Cedric Hayden
Oregon House of Representatives, Liz VanLeeuwen
Oregon Senate, Cub Houck
Oregon Senate, Bob Kintigh
Oregon Senate, Mae Yih
State of Oregon, Governor Neil Goldschmidt
Oregon Dept. of Agriculture
Oregon Dept. of Energy
Oregon Dept. of Land Conservation and Development
Oregon Dept. of Environmental Quality
Oregon Dept. of Fish and Wildlife
Oregon Dept. of Geology and Mineral Industries
Oregon Dept. of Human Resources, Employment Division
Oregon Dept. of Transportation, Parks and Recreation
Oregon Dept. of Transportation, Highway Division
Oregon Division of State Lands
Oregon Economic Development Department
Oregon Executive Department, Office of Economic Analysis
Oregon State Dept. of Forestry
Oregon Water Resources Department

Local Governments and Elected Officials

Lane Council of Governments
Benton County Board of Commissioners
Douglas County Board of Commissioners
Lane County Board of Commissioners
Lane County Commissioner, Jerry Rust
Linn County Board of Commissioners
Linn County Sheriff, Art Martinak
Marion County Board of Commissioners
City of Albany
City of Cottage Grove
City of Creswell
City of Detroit
City of Eugene
City of Florence
City of Gates
Mayor, City of Idanha, Albert Adams
City of Lebanon
City of Lowell
City of Mill City
City of Oakridge
City of Salem
Mayor, City of Springfield
City of Stayton
City of Sublimity
City of Sweet Home

Native American Tribes

None

Utility and School Boards

AUMSVILLE ELEMENTARY SCHOOL, District 11c
CASCADE SCHOOL DISTRICT UH NO 5
EMERALD PEOPLE'S UTILITY DISTRICT
LINN-BENTON COMMUNITY COLLEGE
MARI-LINN SCHOOL, District 29-J
MARION EDUCATION SERVICE DISTRICT
STAYTON UNION HIGH SCHOOL

Businesses

ACTION MANUFACTURING
AGNEW LUMBER CO
ALTA TIMBER CORP
AMERICAN PLYWOOD ASSOCIATION
AUTOMATIC TRANSMISSION SPECIALTIES
BEISSER'S INC
BERJAC OF OREGON
BLACHLY-LANE ELECTRIC CO-OP
BOHANNON'S NURSERY
BOHEMIA INC
BRATTAIN INTERNATIONAL TRUCKS
BREITENBUSH HOT SPRINGS RETREAT
BURNS REFORESTATION & MGT
BURT'S FURNITURE

C F LAUGHLIN LOGGING CO
C J HANSEN CO
CALVERT CO INC
CANYON DRIVE LUMBER COMPANY
CARROLL, HATCH & ASSOCIATES
CB CEDAR COMPANY
CEDAR WEST
CHAPMAN BROS
COLONIAL LUMBER CO INC
COLUMBIA HELICOPTERS
COTTAGE GROVE HOSPITAL
CURTIS RESTAURANT EQUIPMENT
D STAKE MILL INC
DANLO MANUFACTURING CO
DENVER REEL AND PALLET COMPANY
DURAMETAL CORP
ECONOMY SUPPLY BUILDING CENTER
EDMAN FINE FURNITURE
EDMUND A ALLEN LUMBER COMPANY
EOFF ELECTRIC COMPANY
EUGENE CARBIDE SAW SERVICE INC
EUGENE EMERALDS
EUGENE METAL FINISHERS INC
EVERGREEN RESOURCE CO
FALLS CREEK HYDROELECTRIC PROJECT
FERRELLGAS INC
FLIGHTCRAFT
FLYING SCOTSMAN INC.
FOREST PRODUCTS SALES
FRERES LUMBER CO.
FURMAN LUMBER INC
GANG-NAIL COMPONENTS INC
GEM LOGGING INC
GIUSTINA BROS
GLEAVES,SWEARINGEN,LARSEN,& POTTER
GORDAN ZOLEZZI INSURANCE AGENCY INC
HAMBRO FOREST PRODUCTS INC
HAMILTON ELECTRIC INC
HAMMER LUMBER CO
HARRIS GROUP INC
HOYT, GAYDOS & CHURNSIDE, P.C.
HUNT PLYWOOD COMPANY INC
INTERNATIONAL PAPER COMPANY
J C BALDRIDGE LUMBER CO
J R GROBMYER LUMBER CO
JB COMPANY
JC JONES OIL CO
JELD-WEN
JIM'S OREGON WHITEWATER
JOHN W. HITCHCOCK, ATTORNEY AT LAW
KENDALL FORD
KVAL TELEVISION
L E BLAN CO
LAMON LUMBER COMPANY
LANE PLYWOOD INC.
LINCOLN BENEFIT LIFE
LONGVIEW FIBRE COMPANY
LUMBER PRODUCTS
LUMBER TECH INC
M & M SUPPLY
MARLEY COOLING TOWER COMPANY
MARX, KNOLL, DENIGHT & DODGE
MC GUIRE BEARING COMPANY
MCGINNIS LUMBER CO INC
MCKAY INVESTMENT COMPANY
MID-STATE PETROLEUM
MILL SUPPLY CORP
MODOC LUMBER CO
MONETT LOGGING INC
MONROE/PALBURN INC
MONTMORE TIMBER PRODUCTS INC
MORROW, MONKS & SHARP, PC
MOSER LUMBER INC
MOSS ADAMS-CPA'S
MW MANUFACTURERS, INC
NAPA DISTRIBUTION CENTER
NICHOLS LUMBER & HARDWARE CO
NORTH PACIFIC LUMBER CO
NORTHWEST GREENTREE INC
NORTHWEST NATURAL GAS CO
NORTHWEST STAMPING INC
ORDELL CONSTRUCTION COMPANY
OREGON EMERY COMPANY
OREGON LLAMAS
OUTDOOR ADVENTURES PLUS
PACIFIC LUMBER AND SHIPPING CO
PACIFIC POWER & LIGHT CO
PAPE BROS INC
PBMC INC
PCS CLEANING SERVICE
PENDLETON MILLING CO
PENDLETON WOOLEN MILLS
POOLE-LARSEN FUNERAL HOME
POPE & TALBOT
PRINEVILLE SAWMILL CO INC
QUALITY VENEER INC
RAPID TRANSFER & STORAGE
REFORESTATION SERVICES
RAM STEEL INC
ROBERTS & DYBDAHL INC
ROGERS MACHINERY COMPANY INC
ROGUE PACIFIC LUMBER CO
ROSBORO LUMBER COMPANY
ROY KEENE COMPANY
SALEM EQUIPMENT INC
SCHAUDT, STEMM & WILD INC
SEATTLE-TAC0MA BOX CO
SECOND GROWTH FOREST MANAGEMENT INC
SERRA LUMBER CO
SESSLER INC.
SHINY ROCK MINING CORP
SNAVELY FOREST PRODUCTS CORP
SNAVELY-WARWICK INC
SOUTHERN PACIFIC TRANSPORTATION CO
STANDARD INSURANCE CO
STRINGFELLOW LUMBER CO
ROSEBURG FOREST PRODUCTS
STU JONES LUMBER
SUISLAW VALLEY BANK
SWANSON BROS LUMBER CO
TAYLOR STRUCTURES
TBG ARCHITECTS & PLANNERS
TETON WEST LUMBER INC
TEXAS BUILDERS
THE FRANK A CONKLING COMPANY
TIDEWATER DRY KILNS

TREES UNLIMITED INC
TUMAC LUMBER CO INC
TYGH VALLEY MOULDING
U S FOREST PRODUCTS INC
UNOCAL CORPORATION
VALLEY CONTRACTORS SUPPLY INC
VOS PLUMBING INC
WEST SALEM MACHINERY CO
WESTERN COATING INC
WESTERN INDUSTRIAL LUMBER INC
WESTERN STATES FOREST PRODUCTS
WESTSIDE KASH-N-KARRY
WEYERHAEUSER
WILLAMETTE INDUSTRIES
WILLAMETTE LOGGING COMMUNICATIONS
WILLAMETTE PASS SKI CORP
WOOD PRODUCTS MFG CO
WOOD-LAM STRUCTURES INC
WOODGRAIN MOULDINGS INC
WOODWORK INC
ZANKL SALES
ZIP O LOG MILLS INC

Other Organizations

ALBANY AREA CHAMBER OF COMMERCE
AMERICAN FISHERIES SOCIETY-OREGON CHAPTER
AMERICAN RIVERS
ASSOCIATION OF O & C COUNTIES
ASSOCIATION OF OREGON ARCHEOLOGISTS
AUDOBON SOCIETY OF LANE COUNTY
AUDOBON SOCIETY-CENTRAL OREGON CHAPTER
AUDUBON SOCIETY OF CORVALLIS
AUDUBON SOCIETY OF OAKRIDGE
BROWNSVILLE PIONEER SADDLE CLUB
CENTER FOR HOLISTIC RESOURCE MGT
CHEMEKETANS
CITIZEN'S TASK FORCE-TIMBER SALE
COTTAGE GROVE CHAMBER OF COMMERCE
CRESWELL CHAMBER OF COMMERCE
DOUGLAS TIMBER OPERATORS INC.
EUGENE CHAMBER OF COMMERCE
EUGENE/SPRINGFIELD METRO PARTNERSHIP INC
FEDERATION OF WESTERN OUTDOOR CLUBS
FLORENCE CHAMBER OF COMMERCE
FRIENDS OF BREITENBUSH CASCADES
FRIENDS OF CATHEDRAL FOREST
GREEN PARTY FEDERAL EXECUTIVE COMMITTEE
HARDESTY-JUNE WILDERNESS COUNCIL
HARRISBURG CHAMBER OF COMMERCE
ISAAK WALTON LEAGUE OF AMERICA INC
LEAGUE OF WOMEN VOTERS OF LANE CO.
LEAGUE OF WOMEN VOTERS OF LANE COUNTY
LEAGUE OF WOMEN VOTERS-SALEM
LEBANON CHAMBER OF COMMERCE
MAZAMAS
MCKENZIE FLYFISHERS
MCKENZIE GUARDIANS
MCKENZIE RIVER CHAMBER OF COMMERCE
MID WILLAMETTE VALLEY TRAIL RIDERS
MID-WILLAMETTE FLY FISHERS
MIDDLE SANTIAM WILDERNESS COMMITTEE
MOUNTAIN STATES LEGAL FOUNDATION
MT JEFFERSON SNOWMOBILE CLUB
NATIVE AMERICAN STUDENTS
NATIVE PLANT SOCIETY OF OREGON
NATIVE PLANT SOCIETY, CORVALLIS CHAPTER
NATIVE PLANT SOCIETY-EMERALD CHAPTER
NATIVE PLANT SOCIETY-WASHINGTON
NATIVE PLANT SOCIETY-WILLAMETTE VALLEY
NATURAL RESOURCES DEFENSE COUNCIL
NORTH SANTIAM CHAMBER OF COMMERCE
NORTH WEST TIMBER ASSOCIATION
NORTHWEST FORESTRY ASSOCIATION
NORTHWESTERN LUMBERMANS ASSOCIATION
OBSIDIANS, INC
OREGON BANKERS ASSOCIATION
OREGON ENVIRONMENTAL COUNCIL
OREGON FUR TAKERS OF AMERICA
OREGON GUIDES & PACKERS
OREGON GUIDES AND PACKERS ASSOCIATION
OREGON HUNTER'S ASSOCIATION
OREGON HUNTERS ASSOC-EMERALD VALLEY
OREGON MR. LONGEARS CLUB
OREGON NATURAL HERITAGE DATA BASE
OREGON TROUT
OREGON WOMEN FOR TIMBER
OREGONIANS FOR PROTECTION OF ECOLOGICAL QUALITY
PACIFIC NORTHWEST 4WD ASSOCIATION
PORTLAND CHAMBER OF COMMERCE
LANE COUNTY CHAMBER OF COMMERCE
R.O.A.D.S.
SALEM AREA CHAMBER OF COMMERCE
SANTIAM FISH & GAME ASSOCIATION
SIERRA CLUB - OREGON CHAPTER
SIERRA CLUB-BLUE MOUNTAIN GROUP
SISTERS FOREST PLANNING COMMITTEE
SOCIETY OF AMERICAN FORESTERS-CAPITAL CHAPTER
SOUTH CENTRAL ASSOCIATION OF NEIGHBORS
SPRINGFIELD CHAMBER OF COMMERCE
STAYTON AREA CHAMBER OF COMMERCE
SUMMIT GRANGE #432
SUPERINTENDANT, ALBANY PUBLIC SCHOOL DIST.
SWEET HOME CHAMBER OF COMMERCE
THE AMERICAN ALPINE CLUB
THE NATURE CONSERVANCY
THE OREGON RIVERS COUNCIL
THE WILDLIFE SOCIETY
THIRD FORCE FOR FORESTRY
TIMBER FRAMERS GUILD OF NORTH AMERICA
TROUT UNLIMITED-COLUMBIA RIVER CHAPTER
VIRGINIA 4WD ASSOCIATION
WALDO WILDERNESS COUNCIL
WESTERN FOREST INDUSTRIES ASSOCIATION
WESTERN WOOD PRODUCTS
WILLAMETTE FORESTRY COUNCIL
WILLAMETTE HIKERS
WILLAMETTE KAYAK AND CANOE CLUB

Individuals

List is complete. To save paper during these reviews, the list was retained at the Forest.

LETTERS FROM PUBLIC AGENCIES

APPENDIX I

LETTERS FROM PUBLIC AGENCIES

FEDERAL AGENCIES

USDA, Forest Service, Pacific NW Range & Experiment Station L-1
US Department of Air Force L-6
US Department of Energy, Bonneville Power Administration L-8
US Department of Interior, Office of Environmental Project Review L-11
US Department of Interior, Fish & Wildlife Service, Portland L-15
US Department of Transportation, Federal Highway Adm., Region 10 ..... L-16
US Environmental Protection Agency, Region 10 ..... L-17
Northwest Power Planning Council L-26

STATE AGENCIES AND ELECTED OFFICIALS

Oregon House of Representatives, Larry Campbell L-27
Oregon House of Representatives, Cedric Hayden L-28
Oregon House of Representatives, Liz VanLeeuwen L-30
Oregon Senate, Cub Houck L-32
Oregon Senate, Bob Kintigh L-33
Oregon Senate, Mae Yih L-34
State of Oregon, Governor Neil Goldschmidt L-35
Oregon Department of Agriculture L-51
Oregon Department of Energy L-52
Oregon Department of Land Conservation and Development L-53
Oregon Department of Environmental Quality L-54
Oregon Department of Fish and Wildlife L-60
Oregon Department of Geology and Mineral Industries L-96
Oregon Department of Human Resources, Employment Division L-98
Oregon Department of Transportation, Parks and Recreation Division L-104
Oregon Department of Transportation, Highway Division L-108
Oregon Division of State Lands L-110
Oregon Economic Development Department L-113
Oregon Executive Department, Office of Economic Analysis L-118
Oregon State Department of Forestry L-121
Oregon Water Resources Department L-136

LOCAL GOVERNMENTS AND ELECTED OFFICIALSL

Lane Council of Governments L-164
Benton County Board of Commissioners L-165
Douglas County Board of Commissioners L-166
Lane County Board of Commissioners L-167
Lane County Commissioner, Jerry Rust L-170
Linn County Board of Commissioners L-171
Linn County Sheriff, Art Martinak L-173
Marion County Board of Commissioners L-173
City of Albany L-175

City of Cottage Grove L-176
City of Creswell L-176
City of Detroit L-177
City of Eugene L-177
City of Florence L-178
City of Gates L-179
Mayor, City of Idanha, Albert Adams L-179
City of Lebanon L-180
City of Lowell L-181
City of Mill City L-182
City of Oakridge L-182
City of Salem L-183
City of Springfield L-185
City of Stayton L-186
City of Sublimity L-186
City of Sweet Home L-188

UTILITY AND SCHOOL BOARDS
Aumsville Elementary School, District IIC L-188
Cascade School District UH No. 5 ..... L-189
Linn-Benton Community College L-190
Mari-Linn School, District 29-J L-191
Marion Education Service District L-191
Stayton Union High School, District UH4J L-192
Emerald People's Utility District L-192

UNITED STATES DEPARTMENT OF AGRICULTURE — Forest Service — PNW, Corvallis

017085

Reply To: 4060

Date: May 31, 1988

Subject: Willamette National Forest Plan

To: Forest Supervisor
Willamette National Forest

I am sorry my response to the Forest Plan is late. I recently had surgery and am two to three weeks behind. I do not think my comments on the Plan are particularly controversial, but I do feel they are important and hope you will still be able to consider them. My comments will pertain only to Research Natural Areas (RNAs) and I will deal with each planning document separately. I will then make some comments of a more general nature.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

p. III-132 The discussions of most of the wilderness areas are primarily oriented toward recreation, though other uses of wilderness are mandated in the wilderness legislation. The existence of the Middle Santiam RNA is discussed in the section on the Middle Santiam Wilderness, yet the importance of that research area to the wilderness and its management implications are not discussed. Scientific research in wilderness is as important as recreation and the RNA provides an excellent opportunity for this.

p. III-155 1) In the section on Middle Santiam RNA, first paragraph, the word successful is used. I am sure the plan means "successional". 2) The last paragraph on the page discusses the Mt. Washington proposed RNA. I believe the plan is actually referring to the McKenzie Pass proposed RNA. I'm not sure where the Mt. Washington name came from, but this confusion should be cleared up.

p. III-157 1) In the paragraph at the top of the page discussing the demand for RNAs I think it would add a great deal if the role of RNAs in protecting biological diversity was mentioned. 2) In the fourth paragraph reference is made to the recreation use at Torrey-Charlton RNA. I think this is probably an internal matter, but the issue of recreation use at this proposed RNA has always been controversial. Since special reference is made to it in the plan my guess is that the issue remains controversial. My understanding was that a cessation of the present fish stocking program might occur on 1 or 2 of the small lakes, but that this was to be an agreement between the forest, ODFW, and PNW (memo on 5/1/81 from District Ranger to the Forest Supervisor). I am not exactly sure what is meant by the statement in the plan, but I think that the issue needs to be discussed again when the establishment report is written.

p. IV-159 In the second to last paragraph on the page the plan states that extensive timber harvest adjacent to RNA boundaries could reduce the effective size of some of the included cells. This statement, though true, makes me somewhat nervous. I would hope the forest would go to whatever lengths necessary to protect the integrity of the RNAs and to protect the biological diversity within their boundaries.

p. IV-160 In Figure IV-15-1 two proposed RNAs are misidentified. Mt. Washington should be McKenzie Pass, and Mt. Hagan is actually Hagan Block.

p. IV-161 The figure and the discussion on the effects the different alternatives would have on the RNAs is somewhat confusing. It discusses retaining percentages of the RNAs in undisturbed conditions. I would assume that any RNA appearing in an alternative would be 100% protected. What kinds of disturbances are implied here and how are the percentages arrived at? For instance Alternative J, preferred, shows 1% of the RNAs being effected by full development. What is this referring to?

p. IV-162 Under b. other losses worth mentioning would be losses to biological diversity and losses to information gained from baseline monitoring.

LAND MANAGEMENT PLAN

p. IV-99 Under Timber Management 2. I am unaware of anywhere in the Forest Service Manual where it allows salvage timber harvest in RNAs. This entire section should be eliminated as it is not correct.

p. V-7 Under Validation Monitoring it would be useful to see the role of RNAs discussed here. RNAs will play an important role in monitoring and this is rarely, if ever, mentioned.

Appendix A-26 In the discussion of research use of the Middle Santiam Wilderness I find the statement that "only those studies and programs that absolutely require a Wilderness environment will be permitted" rather contrary to the establishment of the Middle Santiam RNA (which preceeded the Wilderness establishment) and to the goals of wilderness which include scientific use. The issues of research use of wilderness and the establishment of RNAs in wilderness were discussed in some detail in the Fall 1985 RNA meeting. The minutes of this meeting and the Forest Service Wilderness Research Policy direction were sent to every forest. The minutes and the policy direction say nothing about absolutely requiring a wilderness environment for RNAs or research. This statement in the plan is distressing because it seems to negate not only the importance of research in wilderness, but the very existence and efficacy of RNAs in wilderness. I feel the statement should be removed.

Appendix C I did not go over the proposed timber action plan in detail to see where timber sales might possibly effect RNA boundaries. In regard to timber sales (or other management activities) the Forest Service Manual states (4063.04.6):

> District Rangers...report through the Forest Supervisor to the Station Director any planned activities on, or immediately adjacent to, research natural areas.

Generally speaking the Willamette National Forest has done the most thorough job of any forest in dealing with RNAs - what they are, how they fit into overall forest management, and what kinds of problems and benefits they provide. It is hard to pin down but I sense that recreation is perceived as a legitimate use of RNAs. Though the manual does not specfically forbid

recreation use, unless it compromises the objectives of an RNA, I have seen instances where once recreation patterns are established they are close to impossible to change, even if harm is being done. I encourage the Willamette Forest to take a cautious and conservative approach to recreation use of its RNAs. As more and more of the forest is cut and as recreation use increases the integrity of the RNAs is going to be more at risk. The Forest Plan recognizes this risk to integrity, but I am not sure the connection is made to on going recreation use in RNAs. It seems much better to discourge, recreation use now and avoid conflicts that will surely arise in the future. I think this is an issue that will need to be adressed in the establishment reports and the management plans. I certainly hope to be a part of this process.

Sarah Greene

SARAH E. GREENE
Research Natural Area Scientist
Pacific Northwest Region

cc:

Fred Swanson, PL/S
Miles Hemstrom
Margaret Petersen
ASD/South, PNW

UNITED STATES DEPARTMENT OF AGRICULTURE — Forest Service — PNW, Corvallis

014657

Reply To: 1920 Date: May 12, 1988

Subject: Willamette Forest Plan

To: Forest Supervisor
Willamette National Forest

These comments concern the Willamette National Forest Draft EIS and represent part of the review of pertinent sections of the Forest Plan by scientists in the Managed Forest Watersheds work unit, U.S. Forest Service Pacific Northwest Research Station, Corvallis, Oregon. My comments are directed specifically at two sections of the DEIS: 1) Affected environment - Water (Chapter III, pages 15-37); and 2) Environmental Consequences of the Alternatives on Water (Chapter IV, pages 15-39). Taken together with the review by Dennis Harr, these comments constitute our reaction to this section of the Forest Plan.

Rather than focussing on planned actions under specific alternatives, I will address some of the procedures and assumptions underlying determination of water and sediment outputs and consequent effects for comparison of alternatives. All of the National Forests are in the difficult position of having to predict and plan for environmental effects of various alternatives on water and soil at a time when understanding of water and sediment movement in response to management is still rudimentary. Moreover, there is no consensus within the scientific community as to the best methods for conducting this analysis. Given this context, the approach outlined in the Plan, though untested, is reasonable in my opinion.

A number of items in the narrative and tables do, however, deserve clarification.

Affected Environment-Water (Chapter III, pages 15-37)

III-29, para 3-4: I think it's important to emphasize that natural and management-augmented erosion rates discussed here and presented in table III-E-8 represent material eroded by surface erosion and debris slides from the hillslope and potentially available for transport to and through the stream network. Actual volume of material delivered to streams may be greater or less, depending on factors such as how well sediment sources are integrated into the drainage network (i.e. ditch-lined roads are likely to be greater sediment producers than ungullied clearcuts) and the extent to which other sediment sources, such as deep-seated mass movements, which are not accounted for in the soil erosion rates, are active in a particular basin.

You should also direct the reader to Appendix B, pages B-61 to B-67 for discussion of how these numbers were arrived at. The issue of the watershed sensitivity index is discussed below; however, para. 4 should be clarified to read "... a sensitivity index which primarily reflects a watershed's potential to transport eroded material to its stream network has been developed."

III-29, para 6-7: From a water quality standpoint, absolute erosion rates (natural or otherwise) are more important than percent increase above natural, since sediment problems (turbidity, siltation) often accompany streams which are high sediment producers naturally. This fact is accounted for in the sensitivity index which deals in terms of natural erosion rates.

III-30, para. 1: The statement "...presence or absence of large woody debris...is the most important factor in whether sediment inputs affect channel stability or aquatic habitat" is highly questionable. Woody debris is one of several factors, volume, rate, and size of sediment delivered, channel gradient, geometry, and flow regime being others, which determine whether sediment affects channels. The claim that 30% increases in sediment load can be accommodated without deleterious effects if enough wood is present is also open to question.

Environmental Consequences of the Alternatives (Chapter IV, pages 15-39)

IV-16, para 4: The contention that small headwater streams are those most sensitive to changes in riparian condition is open to debate and depends on the riparian zone process in mind. The statement may be true from the standpoint that streams in this part of the landscape do not have well developed floodplains or riparian zones which tend to buffer disturbances such as sediment production from adjacent hillslopes. Headwater streams may be more resilient to loss of other riparian zone functions such as shading, however, because topography and proximity of hillslope vegetation may ameliorate loss of streamside stands. The reverse is true in riparian zones along larger streams.

IV-17-18. I am concerned that treating the issue of riparian zone harvest at the project level precludes planning for recruitment of woody debris of different sizes, ages, and species composition to streams over the course of a rotation and along the entire channel. Without at least some watershed- to subdrainage-scale planning, there are few guarantees that the 'mosaic of partial and no-cut areas' will be achieved. While the current round of planning is not likely to address this issue, it needs to be considered in the future.

IV-19, para 1: How will the "varying width" of riparian zone along Class I, II, and III streams to be withdrawn from timber harvest be determined?

IV-19, para 2-5: Since the 'Watershed Sensitivity Index' figures prominently in both the sediment and cumulative effects analysis, it deserves a detailed look. Overall, I think that developing an index of basin sensitivity is a reasonable approach to evaluating potential sediment impacts; in particular classing basins into Low, Medium, and High risk is an appropriate strategy where insufficient data and poorly-understood processes make more quantitative methods open to debate.

I do have some reservations, however, about how the specific index was derived and what it means. As described, it represents an unweighted average of four factors: 1) natural erosion rates (a measure of the intrinsic erodibility of a basin); 2) elevation below 4000 ft (hence susceptibility to rain-on-snow events); 3) drainage density (a measure of the probability that sediment eroded

from the hillslope will be delivered to a channel); and 4) percent of time the basin experiences flows greater than or equal to two times the average annual flow (a measure of the 'peakiness' of the hydrograph). The index is therefore a hybrid of both sediment production potential (factors 1 and 2) and transport potential (factors 2,3, and 4).

Aside from a few inconsistencies in how some of these factors were calculated (i.e. the rankings of the natural erosion component in Figure IV-2-2 do not correspond to natural erosion rates given in III-E-8 and some of the reported averages are in error), there is the question of how well the index predicts true basin sensitivity to sediment impacts. One problem is that the four factors are not independent of each other; for example, the discharge and elevation factors are strongly correlated (due to importance of rain-on-snow in generating peak flows). So the index is weighted towards basins which score high on these two factors.

Another problem is that the index only indirectly addresses a number of key factors, including: 1) the channel's efficiency at transporting material; 2) the sensitivity of the channel to changes produced by sediment transport; or 3) sources of erosion other than surface or shallow mass movement. For example, 5 of the streams with high sensitivity are described on page III-32 as showing little evidence of sediment deposition because of bedrock controlled channels. On the other hand, sensitivity ratings of two streams (Breitenbush and Middle Santiam) were increased based on outside information because the index did not treat points 2 and 3, respectively. The index should do an adequate job of identifying 'sensitive' basins or reaches within basins; otherwise, there is no way of knowing whether ratings for basins in addition to the two mentioned above should be changed.

IV-23, para 1: This is a confusing section since the statement that first decade sediment effects are not expected to decline for several of the Alternatives is at odds with Fig. IV-2-4 which shows declining yields for all alternatives except C, D, and F.

IV-26, para 2: The statement that effect of increased peak flows are probably greatest if they occur in addition to increases in sediment load is not strictly true, since the increases may be compensating (i.e. greater sediment load is offset by increased stream power due to higher peak flows).

IV-26, para 3: The hydrologic recovery threshold should be identified for each sensitivity class (i.e 'average' sensitivity = 75% recovery, etc.).

IV-31, para 1: The actual values of erosion and hydrologic recovery used to classify basins into Possible, Probable, or Unlikely categories should be specified. Similarly, the terms 'substantial' or 'small' in talking about number of basins affected by 10-year events should also be quantified.

IV-31, para 2: The cumulative effect rating suffers from the same uncertainty as the watershed sensitivity rating in that current or potential impacts are only assessed indirectly through a calculated increase in erosion and a hydrologic recovery factor. There is no real measure of past or intrinsic

Forest Supervisor page 4

basin 'response' to use as a yardstick for evaluating potential future response to alternatives.

In conclusion, these comments are not intended to detract from the considerable amount of good work and thought that has gone into formulating these sections of the Plan, but to encourage you and your staff to tighten up some of the concepts and language prior to presenting this document in its final form.

Sincerely,

Gordon Grant

GORDON GRANT
Hydrologist

cc: Fred Swanson, PL/S

United States Department of Agriculture | Forest Service | Pacific Northwest Research Station | Forestry Sciences Lab 3200 SW Jefferson Way Corvallis, OR 97

Caring for the Land and Serving People

Reply to: 1920 Land and Resource Management Planning Date: January 4, 1988

Subject: Proposed Land and Resource Management Plan

RECEIVED JAN 1988

Supervisor
Willamette National Forest

I have reviewed the Willamette's Proposed Land and Resource Management Plan and accompanying documents. I concentrated on the sections dealing with water although I did review other sections in a more cursory manner. I paid close attention to the material dealing with rain-on-snow and peak streamflows and found that the authors of this material did an excellent job interpreting my research publications.

I think the Willamette's conservative stance relative to harvest's effects of rain-on-snow runoff and landslides is the most prudent route that can be taken at this time. As more and better research information becomes available, you should be able to refine your methodologies for assessing effects of rate of harvest on rain-on-snow runoff and landslides.

Enclosed is a list of specific criticisms and suggestions to improve the Plan. If more detail is needed, I can be reached at FTS 420-4387.

R. Dennis Harr

R. DENNIS HARR
Supervisory Research Hydrologist

Enclosure

cc's: Kerrick, Edrington, Legano, Leavens
Edwards
Vandenheyden, RIG.
Jeynon
Gagne, DET.

REVIEW COMMENTS ON THE WILLAMETTE NATIONAL FOREST'S
PROPOSED LAND AND RESOURCE MANAGEMENT PLAN, DEIS, AND APPENDICES

PROPOSED LAND AND RESOURCE MANAGEMENT PLAN

page II-7,top: The statement that "all of the Benchmarks generated water yields within 3% of natural levels through the fifteenth decade" does not seem to be supported by the numbers in Table II-B-1. If "natural" water yield is 8.4 million acre-feet/year, the 8.9 million acre-feet in Table II-B-1 represents an increase of 6%, not the 3% claimed. And water yield is shown through only decades 1-5, not 15.

On page III-17 is the statement again that total water yield from the Forest is 8.4 million acre-feet/year yet Table III-E-7 on page III-27 of the DEIS again shows 8,895,098 acre-feet/year. Which is it? On page III-26 of the DEIS is the statement that it's both. I don't understand the use of the two numbers.

page IV-2: The second goal statement under Water Resources doesn't seem to make any sense. How can volume of water provided be increased by maintaining the carrying capacity of streams? What is the carrying capacity of streams as used in this goal statement?

page IV-5, para. 2: The statement "As ten years is not that long in the life of a forest..." needs to be changed. How long is "that long?" I suggest saying "ten years is only a small fraction of the lifespan of a forest" to make the point about time.

page IV-74 (and elsewhere in this section): Item 3 under "water and soil management" states that soil compaction shall not exceed limits that prevent natural plant establishment and growth..." Some rewording would be helpful. The way it is stated now, one might wonder why you are concerned about soil compaction beyond the point when plant establishment and growth are hindered. You want to prevent soil compaction that hinders plant establishment and growth, right?

DEIS

page III-28 para. 2: Stress of fish may occur at 64 degrees Fahrenheit, but this doesn't mean that once water temperature reaches 64 degrees that fish are in trouble. I think the way this is presented implies a very simple situation that belies the complexities of the real world. Fish are able to seek refuge from heat in deep pools that stay cool. I believe the studies from which the 64 degree-temperature was derived also kept fish at constant temperatures, some at 64 degrees and others at other temperatures. In streams, water temperature may be high during the day but may be lower during night and morning hours. Thus, fish aren't exposed to constant high temperatures as they are in the lab studies of the kind that produced the 64 degrees.

ure IV-2-2: The implications of two of the footnotes are disturbing to me. th the Breitenbush and Middle Santiam watersheds were placed in the high sensitivity category because of documentation supplied by Gordon Grant. Judging by the index number for these two watersheds, they would have been otherwise ranked medium. How many other watersheds are in the wrong category because of the lack of information about them? The watershed sensitivity method appears suspect if it does not take into account the situations of the Breitenbush and Middle Santiam watersheds. A watershed sensitivity methodology must take into account deep seated mass movements that are as obvious as they are in the Middle Santiam watershed. These mass movements are almost in the "common knowledge" category, and it's difficult to understand why they weren't included.

Page IV-25: If this Proposed Plan is rewritten, the description of rain-on-snow could be strengthened by including two additional references that were published after the Plan had gone to print. The two references are:

Harr, R. Dennis. 1986. Effects of clearcutting on rain-on-snow runoff in western Oregon: a new look at old studies. Water Resources Research 22(7):1095-1100.

Berris, Steven N. and R. Dennis Harr. 1987. Comparative snow accumulation and melt during rainfall in forested and clear-cut plots in the western Cascades of Oregon. Water Resources Research 23(1):135-142.

These additional references support what has already been written in the Proposed Plan. Incidentally, the Harr (1986) reference cited on page IV-25 should be Harr (1987) as the proceedings of the 1986 conference weren't published until 1987.

M0124 DEPARTMENT OF THE AIR FORCE
REGIONAL CIVIL ENGINEER, WESTERN REGION (AFESC)
630 SANSOME STREET - ROOM 1316
SAN FRANCISCO, CALIFORNIA 94111-2278

MAR 1988
RECEIVED

ROVP (Hunt/556-0415)

Willamette National Forest Land and Resource Management Plan Draft Environmental Impact Statement (DEIS)

Forest Supervisor
Willamette National Forest
221 East Seventh Ave.
P.O. Box 10607
Eugene, OR 97440

1. We appreciate the opportunity to review the subject DEIS and offer the following comments:
   a. As shown on the attached map, the Willamette National Forest is subject to military overflights in the form of low-level training missions. Inasmuch as low-level overflights do have the potential to disrupt the solitude and naturalness of areas directly under their flight paths, we recommend you include consideration of such activities in your discussion and decision-making process. Within that context, we further recommend you consider location, altitude, and frequency of flights.
   b. Areas which are appropriate for military overflights and low altitude training routes are becoming increasingly rare. In selecting overflight training routes, the Air Force must consider mission requirements and fuel costs as well as environmental constraints. Ideally, training routes are located within areas which: are relatively isolated, have diverse topography and minimal commercial activity, maintain sparse human populations, and contain lands under federal jurisdiction. It is obvious that these characteristics are also desirable to a large degree with National Forests and potential wilderness areas. Therefore, even though the Willamette National Forest is subject to air training activities, the Air Force generally supports your Land and Resource Management Plan provided such a proposal, and subsequent management thereof, does not restrict use of the airspace for military overflights.

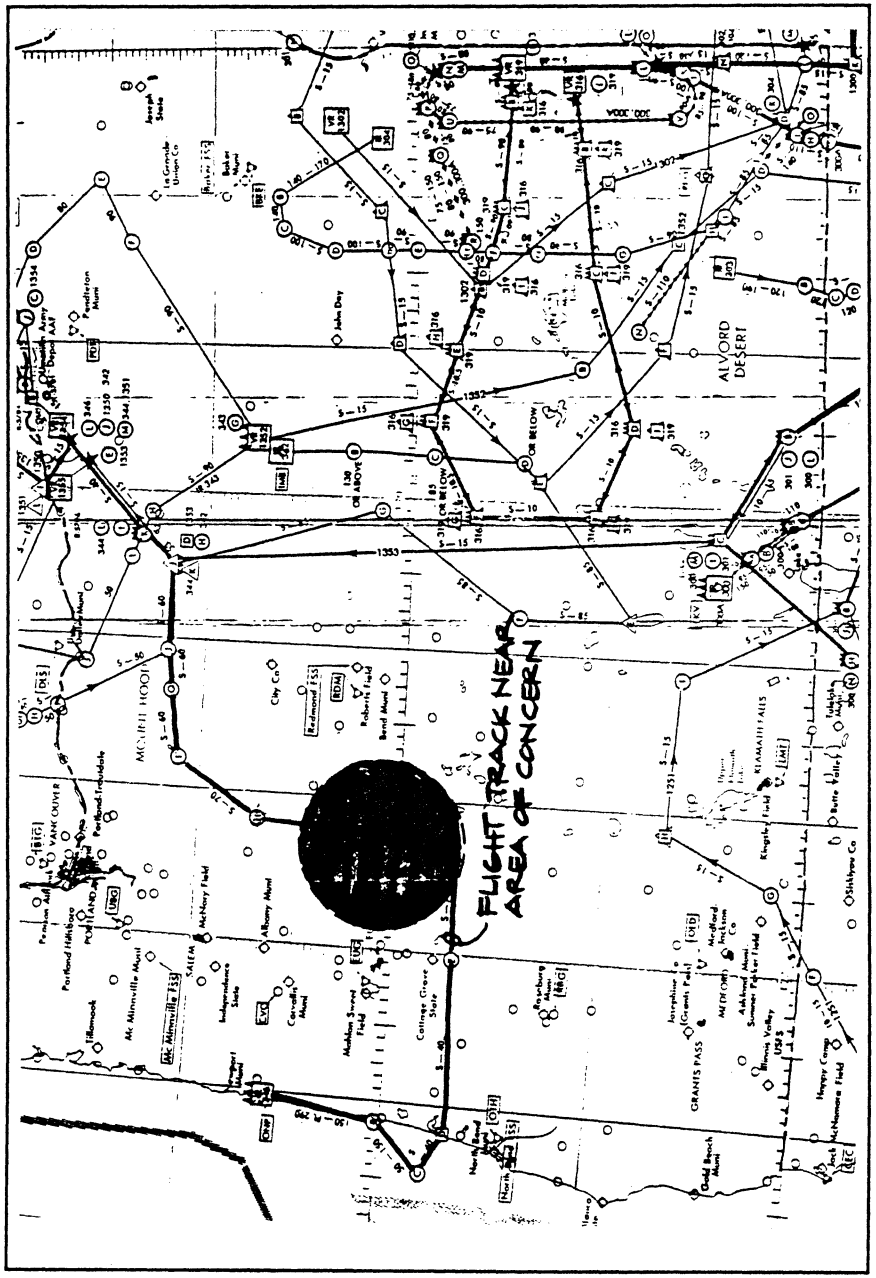
2. We hope these comments are useful in your planning process. If we can be of assistance in any manner, please contact the undersigned or Capt Kerry M. Hunt at (415) 556-0415.

Phillip E. Lammi

Phillip E. Lammi, Chief
Environmental Planning Division

1 Atch: Training Routes Map

cc. AF/LEEVX



DEPARTMENT OF THE AIR FORCE
REGIONAL CIVIL ENGINEER, WESTERN REGION (AFESC)
630 SANSOME STREET - ROOM 1316
SAN FRANCISCO, CALIFORNIA 94111-2278

001E05

MAR 2 5 1988

ROVP (Farrel/556-0882)

Draft Environmental Impact Statement (DEIS) - Proposed Land and Resource Management Plan, Willamette National Forest, Oregon

Land Management Planning
Willamette National Forest
Federal Building, 211 E. 7th St.
PO Box 10607
Eugene, OR 97740

1. We appreciate the opportunity to review the subject DEIS and offer the following comment:

As shown on the attached map, the Willamette National Forest is subject to one military overflight route (IR 346) in the form of a low-level training mission. This particular mission has been authorized to operate as low as 200 feet above ground level during daylight hours and 800 feet above ground level at night.

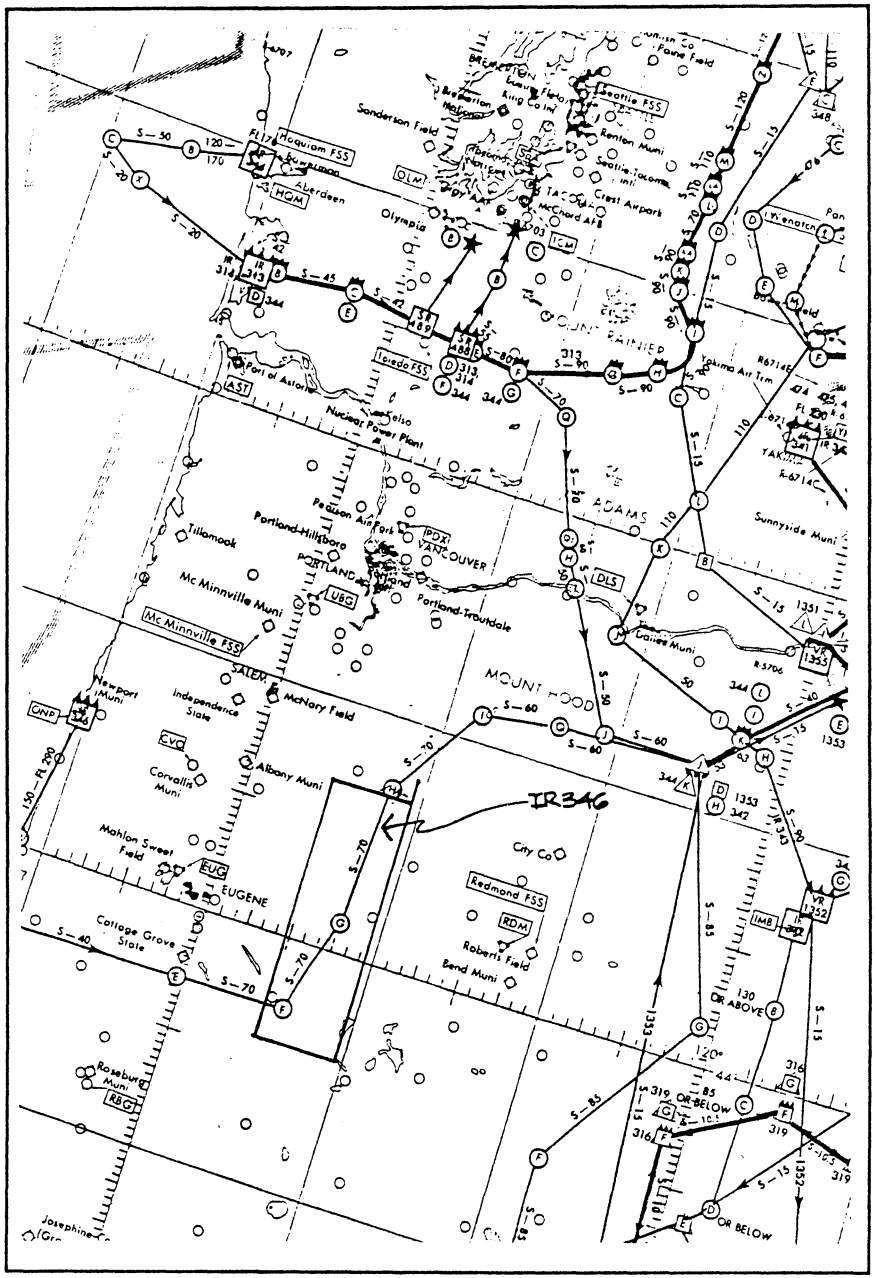
Geographic areas which are appropriate for military overflights and low altitude training routes are becoming increasingly rare. In selecting overflight training routes, the military must consider mission requirements and fuel costs as well as environmental constraints. Ideally, training routes are located within areas which are relatively isolated; have diverse topography and minimal commercial activity; maintain sparse human populations; and contain lands under federal jurisdiction. These characteristics are also generally compatible with National Forest Systems. Inasmuch as low-level overflights do have the potential to disrupt the solitude and naturalness of areas directly under their flight paths, we recommend you include consideration of low-level training missions in your discussion and decisionmaking process wherever solitude and naturalness are desirable attributes within the forest system.

2. If we can be of further assistance in any manner, please contact Mr. David Farrel, at (415) 556-0882.

Phillip E. Lammi

PHILLIP E. LAMMI, Chief
Environmental Planning Division

1 Atch: Training Routes Map



Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

017099

In reply refer to: AJ

MAY 25 1989

Forest Supervisor
Willamette National Forest
221 E. 7th Avenue
Eugene, OR 97440

Dear Sir:

We have reviewed the Willamette National Forest Draft EIS for proposed Land and Resource Management Plan.

In reviewing the proposed Land and Resource Management Plan and DEIS, it is not possible to determine specifically how the Forest standards, guidelines, and alternatives would affect energy corridors and energy resources, particularly biomass, hydro, and geothermal. Since the Willamette National Forest, manages over 109 miles of the Cascade Range, it is an important link between the majority of Oregon energy loads (which lie in the Willamette Valley) and the major energy resources to the west of the Cascades. Therefore it is important that the Forest Service make explicit provisions for managing existing transmission corridors and providing for future corridors.

Our specific comments on the draft Management Plan and EIS are enclosed. Thank you for the opportunity to review these documents. If you need clarification of these comments or additional information, please contact me at (503) 230-5136 (FTS 429-5136).

Sincerely,

Anthony R. Morrell
Assistant to the Administrator
for Environment

Enclosure
BPA Facilities Map

cc:
J. Cheek, PP&L, Portland, OR
Sipe, USFS Region 6, Portland, OR

Celebrating the U.S. Constitution Bicentennial — 1787-1987

Specific Comments

Proposed Land and Resource Management Plan

1. BPA and other utilities have transmission facilities located in the Willamette National Forest. BPA facilities found in the Forest are illustrated on the attached map. They should be specifically identified in the plan as well as in the draft EIS. By not specifically recognizing or designating existing facilities, the Proposed Land and Resource Management Plan does not recognize that some forms of resource management may be incompatible with utility siting and operations. The Plan must recognize that some areas may require restricted public access in order to protect the operation of existing utility facilities and/or the safety of the general public.

2. Chapter IV, Page IV-3, Forest Management Goals. A goal should be added which provides for cost-effective and environmentally acceptable energy transportation in accordance with regional energy policies and programs.

3. Chapter IV, Page IV-20, Forest Management Objectives (Lands). This section should also address the goals for transmission facilities or corridors, as well as electronic sites. The attached map shows BPA microwave communication sites found in the Willamette National Forest. This section should also address the need to meet regional and national energy programs, including the Pacific Northwest Conservation and Electric Power Plan, which has been adopted pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L 96-501).

4. Chapter IV, Page IV-38, Forest Management Objectives (Minerals and Energy). The Energy section should address the need for Forest-wide standards and guidelines to provide for the establishment and use of existing and planned utility corridors, and to encourage both the efficient use of energy resources and price moderation of gas and electric service in the West.

5. Chapter IV, Pages 53, 54, Forest-Wide Prescription (Minerals and Energy). This section should also address biomass and hydro energy resources. They do not fit under the definitions listed.

6. Chapter IV - 55, Forest Wide Prescription (Land Uses). We are pleased to see that the Forest has left corridor windows available through areas near Emigrant Pass, Willamette Pass, McKenzie Pass, Santiam Pass, and the North Fork of the Breitenbush River. These windows interconnect with the Deschutes National Forest, and will help maintain important energy transportation options across the central Cascades. The Windigo Pass, however, was not mentioned, and should also be included as an alternate corridor window. It was specifically mentioned in Section 4(a) of the Oregon Wilderness Act of 1984 as an energy/transportation corridor through the National Recreation Area.

It would be helpful if corridor windows were illustrated on a facilities map. The attached BPA Facilities Map illustrates the corridor windows identified in the 1977 BPA/FS Pacific Northwest East-West Corridor Study. The C-13 corridor has been eliminated by the 1984 Oregon Wilderness legislation. As a result, alternate corridor windows were identified through the Willamette and Windigo Passes by representatives of BPA, PP&L, and the Deschutes and Willamette National Forests. We also recommend that the final EIS identify the corridor avoidance area constraints which may encumber these corridor windows.

7. Chapter IV - 67 to 182, Management Area Prescriptions. The Management Areas Standards and Guidelines do not mention utility corridors. It would be useful if they were to identify specifically the areas considered avoidance or exclusion areas. The Forest should consider establishing a management area specifically for corridors, as have the Mt. Baker-Snoqualmie and Gifford-Pinchot National Forests. The prescription should focus on forest and right-of-way management practices that provide responsible protection of energy facilities from fire and other hazards that affect the reliability of these facilities. The Standards/Guidelines for the new management prescription should reference the Project Plan and Right-of-Way Maintenance Plan as important documents which guide the construction and maintenance of BPA transmission rights-of-way. These documents are required by the BPA/Forest Service Memorandum of Understanding. As an alternative, many Forests have established a management area specifically dedicated to utility facilities (including corridors), with their own management standards and guidelines. For instance, the Gifford Pinchot National Forest in Washington has taken this approach.

8. Appendix B, Page B-11, Oregon Cascades Recreation Area. As mentioned above, the Windigo Pass Corridor should be included as an energy corridor option. Other than the Emigrant Pass corridor, Windigo Pass is the nearest alternative to the Willamette Pass Corridor window for energy transfer across the central Oregon Cascades.

9. Right of Facility Access. Utilities must have access to their facilities at all times for maintenance and in emergencies. This need should be recognized in the Forest Plan. Please contact BPA's Eugene District Manager to discuss actions such as land transfers, or proposed construction of buildings/structures near BPA facilities that could affect our access to those facilities or their reliability.

Mr. Ladd Sutton
BPA - Eugene District Office
Federal Building, Rm. 206
211 East 7th Street
Eugene, Oregon 97401
Tel: (503) 687-6952, FTS 425-6952

Project Specific Comments

BPA has funded only one fish and wildlife project on the Willamette National Forest, the Little Fall Creek Passage Project (denil fish ladder), Project Number 86-90. Funding for this project was provided under the Northwest Power Planning Council's 1984 Columbia River Basin Fish and Wildlife Program, Measure 704(d)(1). Currently BPA is providing funds to Oregon Department of Fish and Wildlife to maintain and operate the facility.

The Little Fall Creek passage facility is located on Weyerhaeuser Company lands. The Forest Service has completed habitat enhancement work on forest lands just upstream of the ladder. According to the Forest Plan, they anticipate conducting additional enhancement work on Fall Creek which Little Fall Creek is tributary to. BjPA supports the Forest Service's efforts to improve fish spawning and rearing habitat on the Forest.

General Comment

The preferred alternative does not identify riparian areas or indicate whether they will be protected. BPA believes that all riparian areas should be protected from any activity which will, to any extent, adversely affect these sensitive areas.

Draft Environmental Impact Statement

1. Summary, Page S-3, (Public Issues). The list of public issues approved by the Regional Forester included energy in 1981. We do not understand why this list was revised and energy removed as a priority issue. The last paragraph indicates the reason to be changes in public opinion. This change should be explained. Is it because of the temporary power surplus we are experiencing? If so, it should be realized that this surplus is only temporary and varies considerably from one portion of the Pacific Northwest to another. BPA still considers energy corridors and renewable energy resources to be issues of significance on all National Forest lands.

2. Chapter I, Page 1-10, Issues, Concerns, and Opportunities. As mentioned above, BPA feels that energy should have received more attention in the Proposed Plan and DEIS, and should be given consideration in the selection of a proposed alternative.

3. Chapter II, Page II-40, Alternate Goals and Management Objectives, (Goals and Objectives that Differ by Alternative). The impact of alternatives on energy resources is important. The differences should be identified and considered in decisionmaking. This section indicates that the amount of land withdrawn for entry for mineral and energy development will decrease. It should be more specific, indicating the approximate number of acres (by energy resource), and should also address hydro and small hydro sites. The same comment also applies to following alternate discussions.

4. Chapter II, Page II-122, Figure II-E-27c. This figure shows effects only on mineral exploration. It should also identify the effect of alternatives on energy resources (geothermal, hydro, biomass).

5. Chapter II, Page II-133,134, Economic Comparison of Alternatives. Economic values of mineral and energy resource development will vary by alternative. Although it may be very speculative, BPA strongly recommends that the Forest make some judgment of the effects, as this is important decisionmaking information.

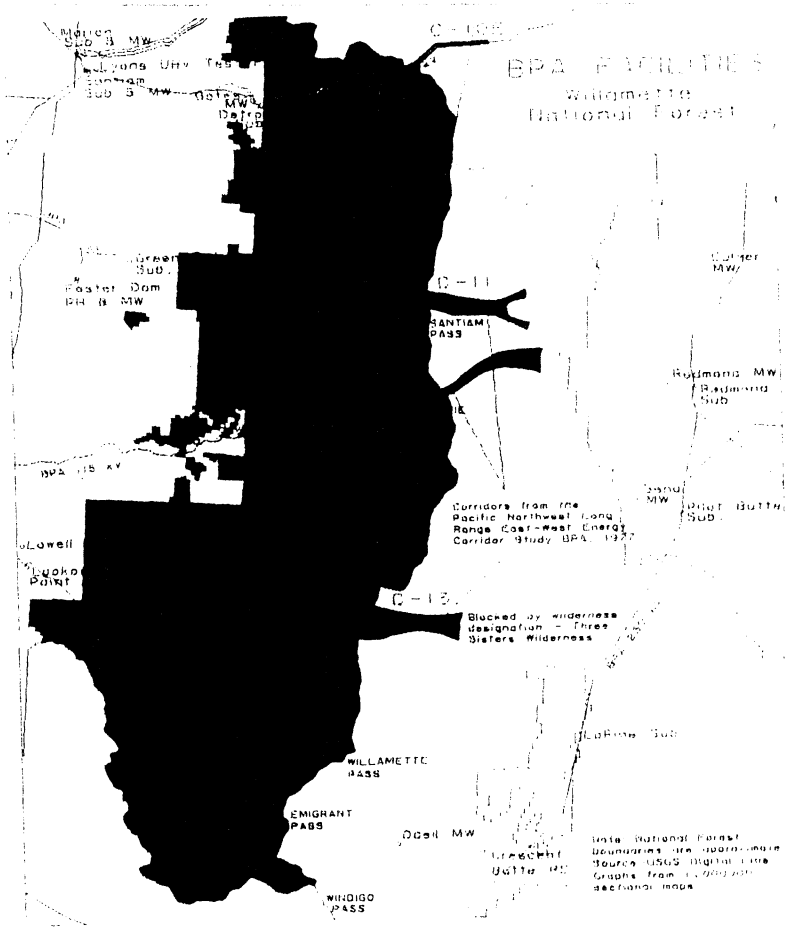
6. Chapter III, Page III-161, Affected Environment (Facilities). We recommend that a large-scale map be inserted here to illustrate the facilities found in the Forest. It should specifically point out the existing and potential corridors of BPA, PP&L, and Eugene Water and Electric Board.

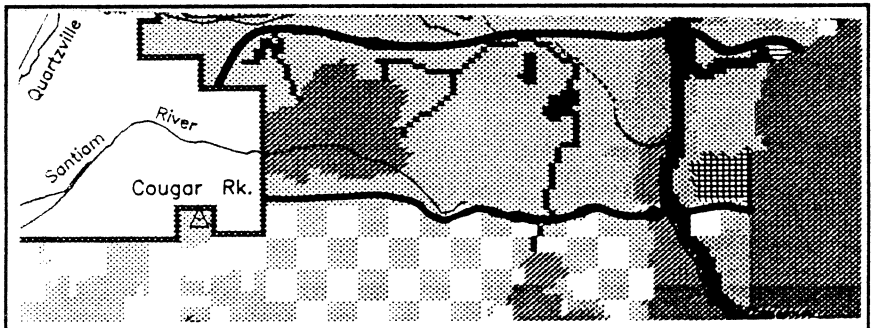
7. Chapter III, Page III-201 to 202, Affected Environment (Mineral Withdrawals). This section points out the extent of mineral withdrawals. If the alternate plans individually affect the amount of land withdrawn, then this information should be presented.

8. Chapter IV, Environmental Consequences of the Alternatives. There is no discussion of facilities or lands included, a major omission. The impact of the alternatives should be clearly defined. Such a discussion should include the impacts of alternatives on existing and potential corridors, as well as on electronic sites. The number of avoidance areas crossed should be discussed, along with a summary of the potential impacts, by alternative.

   The Forest Plan also does not evaluate the impact on energy policy and programs. As mentioned above, energy transportation is an important regional and national issue which the Forest has not adequately addressed.

9. Chapter IV, Page IV-185, Environmental Consequences of the Alternatives, (Environmental Consequences of the Alternatives on Minerals and Energy). The seventh paragraph references the other EIS documents for information on leasable minerals, including geothermal. The impacts of alternatives on these resources should at least be summarized, rather than leaving it to the reader to obtain these documents and do so himself. The Forest Plan and DEIS and the other documents referenced were written to aid in separate and distinct decisionmaking processes.





A) ALTERNATIVE J

B) ALTERNATIVE C

C) ONRC PROPOSAL

Figure 1. Alternatives for the Middle Santiam Wilderness-Mt. Jefferson Wilderness corridor.

United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW
500 N.E. MULTNOMAH STREET, SUITE 1692
PORTLAND, OREGON 97232

May 16, 1988

014652

ER 88/25

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
211 E. 7th St., P.O. Box 10607
Eugene, Oregon 97440

Dear Mr. Kerrick:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan (PLRMP) for the Willamette National Forest, Oregon. The following comments are provided for use and consideration when preparing the final documents.

GENERAL COMMENTS

Fish and Wildlife Resources

The Forest Service has done a credible job in addressing the impacts of each alternative on a variety of resources. Threatened, endangered, and sensitive species have been covered in a particularly thorough manner.

An interagency agreement signed on December 1, 1987, by the Director of the Fish and Wildlife Service (FWS) and the Chief of the Forest Service commits the Forest Service to ensure the continued existence of a well-distributed northern spotted owl population throughout its National Forest range. Under the agreement, both agencies have agreed to coordinate efforts, including research and monitoring. An annual progress report will be supplied to the FWS and the agreement provides for emergency action if a viable population is not maintained. The final documents should refer to this interagency agreement. The terms of the agreement should be reflected in relevant sections such as standards, guidelines and monitoring.

Alternative J, the preferred alternative, appears to be a "middle-of-the-road" choice. Two other alternatives (F and D) provide greater protection to the environment and do not deviate significantly from the allowable timber cut associated with Alternative J. Since the Willamette Forest contains most of the available old-growth left in the Willamette Valley (most of the old-growth on private lands having been cut), it is important that more of this valuable resource be conserved (on a percentage basis) on this Forest. Selection of a preferred alternative should, therefore, reflect this conservation need.

Threatened and Endangered Species

Comments pertaining to threatened and endangered species have been provided by the FWS in a separate letter (dated April 26, 1988) to the Forest. A copy of that letter is attached. Briefly summarized, the Forest planning documents and the Biological Evaluation provide adequate Forest-wide standards and guidelines to ensure that each Forest action will be reviewed in a manner consistent with the Endangered Species Act of 1973, as amended. In general, proposed monitoring programs are also satisfactory. The planning documents could be improved by listing the sensitive species present on the Forest, adding productivity and winter roost surveys to the monitoring programs, and by developing site-specific management plans for bald eagle winter roost areas.

Wild and Scenic River Resources

The National Park Service (NPS) has expressed two major concerns with the analysis of Wild and Scenic River potential in the Forest Plan. The first is with the scope of the analysis. Section 8.11 of the Land and Resource Management Planning Handbook clearly directs the Forest to study rivers that have been identified in other assessments, including the Pacific Northwest Rivers Study. The Breitenbush; Little North Fork, North Fork, Middle Fork, and South Fork Santiam; South Fork and other mainstem segments of the McKenzie; and the Middle Fork and North Fork Middle Fork Willamette River were all recognized as having outstanding values in the Pacific Northwest Rivers Study. We feel that the Forest Plan is incomplete without an evaluation of the Wild and Scenic River potential of these rivers.

The second concern is with the procedures used to evaluate the Wild and Scenic River potential of the one segment of the McKenzie River that was evaluated. Despite ambiguities in the definition of outstandingly remarkable values, the eligibility analysis is adequate. However, in the assessment of classification we found no discussion of the criteria for land use, access, and degree of disturbance that are integral to a classification analysis. The classification analysis should include an analysis of the "scenic" potential in addition to the "recreational" potential. In addition, we have two problems with the suitability assessment which was conducted. First, a discussion of values foreclosed and curtailed in each of the options should not be done without a similar evaluation of values enhanced by designation. Second, there is no discussion of other Handbook criteria for suitability, including the characteristics which do, or do not, make the river a worthy addition to the System, status of land ownership, State and local interest in protection, and estimated costs of the protection program.

Given the significance of the rivers on the Willamette National Forest, a more careful and comprehensive analysis of Wild and Scenic River potential is essential. Another public review (of the river analysis), prior to the finalization of the Forest Plan, is in order. Two options are suggested: 1) The Forest revise the analysis, publish it as an amendment or a supplement to the PLRMP and DEIS, and incorporate the analysis and review comments in the final plan and FEIS; or 2) The Forest defer the Wild and Scenic River analysis until after release of the final plan and FEIS, provided that all potentially eligible rivers are managed in a manner that is consistent with section 8.12 of the Handbook, "Interim Management of Study Rivers."

Cultural Resources

Much of the information from the DEIS would be more appropriately discussed in the PLRMP. We found the Preferred Alternative to be deficient in detail for cultural resources.

The final Plan should summarize (1) what, and where, Section 110 (National Historic Preservation Act) inventory is now being done (if any), and (2) what inventory is targeted for the next 10 years.

The Plan should provide evidence that the Forest is working with the State Historic Preservation Office to carry out its cultural resource investigations in accordance with Statewide planning priorities.

Although the Cultural Resource Inventory Plan is still under preparation, the final Forest Plan should incorporate at least the essential ingredients of the Inventory Plan as discussed on page III-88 in the DEIS.

Mineral Resources

In general, the treatment of minerals is somewhat cursory and non-specific compared to other National Forest Plans. Nevertheless, the DEIS does contain a reasonable historical account of mineral resource activity. Unfortunately, the discussion does not address mineral potential, which is essential for planners to know how to address future activity.

This may be due to the preceived low mineral potential throughout the Forest. As a result, there is little description or analysis to effectively compare the impacts on potential mineral resource development for the various management alternatives. Furthermore, the Summary of the Analysis of the Management Situation omits discussion of mineral resources, except for the notation that refined information regarding the location of mineral and energy related resources, and probabilities of development, is needed.

The mining district map on page III-199 (DEIS) is inadequate to portray mineral potential. It should be at the same scale as the alternative maps and should provide more detail than is presently available. This would allow an easier comparison of the data through the maps and thus permit the reader to visually evaluate how mineral resources will be affected. The best example to date is the Okanogan National Forest (Washington) EIS.

The current map shows four mining districts which include the majority of the larger mines; however, Bureau of Mines records show eight additional areas within the Forest that have had mineral activity. Two of those have recorded production.

The text should explain how the geology is related to ore deposition. Some geologic environments suitable for mineral deposits may not have been explored or claimed by individuals or companies. Examples of such environments which could exist in this Forest are gold, mercury, and other metals occurring in a geothermal environment or deeply buried porphyry in a granitic intrusive environment. Wilderness and RARE II studies of nearby areas by the Bureau of Mines and Geological Survey mention these potentials.

Discussions of the roadless areas in Appendix C are quite brief and could be expanded. More data on mineral resources, as well as illustrations showing where the areas of mineral potential exist within the roadless areas, are needed.

Figure IV-19-1 uses a comparison format that is most helpful; however, a reference to the criteria used to determine mineral potential could not be found. We suggest that the Forest consider the one used on the Wallowa-Whitman National Forest, Oregon.

We suggest the Forest provide a narrative section on minerals containing history of development and mineral production, value of past production, projected mineral demand, and current operations in locatable, leasable, and salable minerals. The Wallowa-Whitman EIS contains one of the best examples.

There is no mention of current mining claim activity. According to Bureau of Land Management records, there are 2,100 mining claims encumbering 42,000 acres of Willamette National Forest land, or 2.5 percent of the total Forest. The lack of adequacy of text and questionable minerals terminology, imply a serious lack of minerals expertise among the authors of the EIS.

The Forest needs to add a list of current mineral withdrawals to the appendices. It should contain the acres involved and the mineral potential for locatable and leasable minerals. An excellent example is contained in the Los Padres National Forest (California) EIS.

A mining information section should also be added to the appendices. This section should contain definitions of mining exploration and development terms, what the operations involve, and the effects these activities have on the Forest. The Beaverhead National Forest EIS contains an excellent example.

The effects of the proposed management plan on known mineralized areas should be more thoroughly described. What is in the "special interest area" in the Blue River mining district? How will this and the "scenic" designation in the Blue River district affect mineral development from a practical aspect? This same question can be applied to the North Santiam mining district. The management in that district is either wilderness or some variation of scenic management.

Ground-Water Resources

The documents should address the subject of water supply for the visiting public and for staff, indicating measures to prevent and mitigate impacts on this resource, such as judicious selection of water-supply sources, periodic monitoring of drinking-water quality, and treatment, if necessary. Sanitary facilities should be discussed, whether primitive or involving treatment, and the potential for ground-water impacts from these facilities should be assessed. If disposal of municipal or industrial solid waste or sewage effluent occurs on the Forest, effects should be assessed. The statement mentions the significance of the Forest for ground-water recharge. Effects of timber harvest, recreation, grazing and vegetation management on ground-water recharge should be addressed.

SPECIFIC COMMENTS

DEIS

Page II-77, Old-Growth Grove, paragraph 1. Salvage harvest limitations should be defined here. It is unclear if salvage harvest operations within the old-growth grove would be limited to annual entry, very limited amounts of timber removal, etc. If salvage operations are not specifically defined (and limited), the value of these old-growth groves for education and public enjoyment will decrease significantly.

Page II-81 through 115. A resource management program for minerals has not been included.

Page II-103, Water, paragraph 1. The final document should note that erosion in areas far removed from a stream can also cause problems if the riparian areas have been logged, i.e., there are limited amounts of riparian vegetation left to hold back soil.

Page II-112, Figure II-E-22. This figure shows the amount of large mature and old-growth timber that will remain at the end of decades 1, 2, 5 and 15. It would be helpful to know what percentage of the various acreage figures will be old-growth timber. Defining this percentage would then give a better idea of which alternatives favor old-growth retention over the timber harvest period.

Page II-113, Roadless Lands, paragraph 1. This section should point out that roadless lands, while not suitable for motorized use by highway vehicles, can be accessed, and sometimes damaged, by Off-Road Vehicles (ORVs).

Page III-29, paragraph 2. This discussion should be expanded to note that high turbidity can damage the gill surfaces of young fish.

Page III-39, Vegetation. The final document should list the acreages of each of the different plant communities associated with the Forest.

Page III-48, Riparian Zones. It would be useful to the reviewer to know the present condition of the riparian vegetation within the Forest.

Page III-86. The priorities and schedule for documenting and determining the eligibility of the 36 potential archeological and historic districts need to be clarified.

Page IV-16, paragraph 2. The final document should indicate what the percentage of harvest per decade is in drainages less than 40 square miles and what effect this harvest percentage has on water quality in smaller watersheds.

Page IV-19, paragraph 1. Because the riparian corridor is an extremely valuable habitat resource for a wide variety of wildlife species, FWS recommends that the Forest Service allow for generous buffers along Class I, II and III streams, and consider additional protection for these areas in terms of more harvest entry withdrawals.

Page IV-53, Effects on Old-Growth, paragraph 2. This section indicates a minimum of 410,000 acres of old-growth will be maintained. This statement should reflect that this acreage is a combination of old-growth and large mature timber (as stated on page II-111).

Page IV-72, paragraph 4. This paragraph should reflect the impacts on stream temperature associated with tree removal in riparian areas. Increased temperatures can have a significant impact on fish productivity.

Page IV-106, paragraph 3. The 20 percent figure referred to in this section as the potential population management goal for primary cavity excavators (PCE) is excessively low. The FWS recommends that the 60 percent management level goal provided by the Oregon Department of Fish and Wildlife be adopted for PCE populations.

Page IV-185. The effects of withdrawals, access restrictions, and stipulations placed on approvals of Plans of Operations and leasing stipulations have a very direct effect on the economic attractiveness of the Forest to mineral exploration and development activities.

Page IV-186, Effects of Alternatives on Minerals and Energy. Greater clarity would be provided by inclusion of one or more map themes and discussion depicting locatable/salable/leasable mineral potential by major commodity groups, as well as areas currently or anticipated to be affected by low to restricted access designation for each Management Alternative.

Page IV-190, Fig. IV-19-3. Acreages of moderate potential for geothermal given in this table do not agree with the 18,344-acre figure on page IV-187.

Page IV-193. In some circumstances, geothermal may be considered a renewable resource through induction of ground water.

Page L-1. We recommend that the list of companies and organizations to whom copies of the Plan/EIS are sent should include the Pacific Northwest Chapter of the Geothermal Resources Council, the Northwest Petroleum Association, the Northwest Mining Association and the Northwest Power Planning Council.

DEIS - APPENDICES

Page B-35, Management Prescription - 7b, paragraph 3. The final document should indicate how often, on the average, that salvage operations are necessary in old-growth areas.

Page B-188, Figure B-H-1. The impacts would be clearer if deer were included in the "Wildlife, Fish, and Plant Habitat" column.

Page B-202, Alternative J (Preferred), paragraph 3. This paragraph should define what the ratio of old-growth to mature timber is at the end of the second decade. The final document should also indicate the rate at which the old-growth is cut during this time period. The FWS is concerned that too much reliance is being placed on the mature timber being able to supplant the old-growth over time. Cutting the old-growth at an accelerated rate may be leaving more of the "back-up" mature timber vulnerable to catastrophic events (disease, fire, floods) which could lead to drastic, irreversible declines in the amount of old-growth on the Forest.

PROPOSED LAND AND RESOURCE MANAGEMENT PLAN

Page II-1-10. No mention is made of the existance or economic importance of minerals within the Forest even though the affected counties contain several thousand mining claim filings--a majority of which are on the Forest. The Willamette NF is encompassed by four mining districts with reported past precious metal production, includes important industrial mineral resources, and has known geothermal hot springs and KGRA's. The latter areas have potential energy resources that may have significant projected dollar value. A recent publication that may aid in reviewing geothermal potential was released by BPA: Evaluation and Ranking of Geothermal Resources for Electrical Generation or Electrical Offset in Idaho, Montana, Oregon, and Washington, by R. G. Bloomquist, et al. This apparent deficiency in mineral information is partly acknowledged by the concluding item in Part F which notes the need for refined information on mineral resources and development potential.

Page II-7, paragraph 2. The FWS suggests that the final document address any point or non-point pollution sources that could affect water quality on the Forest.

Page IV-5. Neither the 10 or 50 year future condition of the Forest mentions minerals as either a desired recreational or economic opportunity.

Page IV-17, Cultural Resources. The statement "In managing cultural resources, emphasis will be placed on conducting inventories of site areas of proposed ground disturbing projects on a stratified basis" should be clarified.

Page IV-18. It would be helpful to have some discussion in the text of the projected cultural resource actions listed in Figure IV-D-6 "Projected Cultural Resource Program." This discussion should include at a minimum the identification and prioritization of Management Plans, National Register district nominations, and non-project related inventories.

Page IV-24, paragraph 1. This paragraph should indicate that increased human use of these old-growth areas will probably lead to a decline in use of the areas by old-growth dependent species.

Page IV-38, Item p. The discussion of Minerals/Energy is non-specific and indicates that more lands will be withdrawn from mineral entry. It is strongly recommended that all lands currently withdrawn or slated for withdrawal from mineral entry be carefully and periodically reviewed. Nearly 40 percent of the Forest is already withdrawn or anticipated for high restrictions impacting mineral activity. Economic value and recreational opportunities associated with casual prospecting or mineral development should be considered.

Page IV-69-182, Fig. IV-F-1. These sections and figures should indicate or reference suitable depictions elsewhere in the Plan that show the areal extent of the Forest open, withdrawn, or restricted to mineral entry in relation to the several Management Areas (1a-14). This concern could be partly mitigated by reference to DEIS Figures IV-19-1 through 4.

Page A-14, Wilderness Management. The discussion here should include reference to valid existing rights.

We appreciate the opportunity to review these documents.

Sincerely,

for Charles S. Polityka
Regional Environmental Officer

United States Department of the Interior

00381

FISH AND WILDLIFE SERVICE
Portland Field Office
727 NE 24th Avenue
Portland, OR 97232

April 26, 1988

Michael A. Kerrick, Forest Supervisor
Willamette National Forest
221 East Seventh Ave.
P.O. Box 10607
Eugene, Oregon 97440

Dear Mr. Kerrick:

The Fish and Wildlife Service (FWS) has reviewed your December 24, 1987 Biological Evaluation for the following forest planning documents for the Willamette National Forest (Forest): the Draft Environmental Impact Statement (DEIS), the Proposed Land and Resources Management Plan (Plan), and Appendices - Draft Environmental Impact Statement (Appendices). The following comments are being provided to you as part of informal consultation 1-7-88-I-17. These comments are specific to threatened and endangered species and are being forwarded to you in addition to comments provided by the Department of the Interior on the DEIS and Plan.

GENERAL COMMENTS

Forest-wide standards and guidelines are adequately developed and appear to offer the necessary programmatic guidance for the review of forest actions and their impact on threatened and endangered and sensitive species.

Bald eagle winter roosts are not specifically targeted in the "overall" or the "specific" standards and guidelines. Special management considerations may be necessary for these areas beyond the general measures described in the Forest guidelines and the Biological Evaluation. We encourage the development of site-specific management plans as roosting and foraging habitats for listed species are identified.

The Pacific States Bald Eagle Recovery Plan identifies stable or increasing winter populations of bald eagles as a criterion for delisting this species. Therefore, it is important for the Forest to provide for long-term monitoring of known winter use areas. Annual winter monitoring of bald eagle populations should be included within the Forest's monitoring programs (Plan - Page V-11) and these efforts should be coordinated with the Oregon Department of Fish and Wildlife and the Pacific Bald Eagle Working Team.

Based upon information in the Biological Evaluation and the Forest planning documents, it appears that potential habitats for bald eagles and peregrine falcons are in areas where harvest entry will be limited or prohibited, thereby protecting potential habitat for these listed species. The FWS, therefore, concurs with your finding of no direct or long-term adverse impacts to bald eagles or peregrine falcons.

The planning documents should include a published list of the 21 sensitive species identified as occurring on Forest lands. Some of these species may be Federal candidate or proposed species and should be identified as such for conservation and monitoring purposes.

The Oregon chub, Oregonichthys crameri, is a Federal candidate, Category 2 species. The Oregon chub was not included in the Biological Evaluation.

SPECIFIC COMMENTS

Proposed Land and Resource Management Plan

Page IV-15, Figure IV-D-4. Since the peregrine falcon is a management indicator species for threatened and endangered species, it should also be listed in the figure.

Page IV-17. Threatened and Endangered Species, paragraph 2. This section should clearly identify management direction for bald eagle roosting and foraging sites, both active and potential (see GENERAL COMMENTS).

Page IV-17. Threatened, and Endangered Species, paragraph 3. The final Plan should publish the list of "sensitive" plant species referred to in this paragraph. It is not clear if Federal candidate species are included on this list (see GENERAL COMMENTS).

Page IV-47 and 48. Section A, Bald eagle and Peregrine falcon. Operational considerations should be included. General operational considerations include FSM 2670, the Endangered Species Act, and 50 CFR Part 402. More specific operational considerations include site-specific management plans, and management prescriptions listed under Management Area 8 and in specific Section 7 consultations with the FWS. The need to review all Forest actions for potential effects to listed species should be clearly stated in this section. It should also be clearly stated that the Forest is required to consult with the FWS on any action which may affect listed species.

Page IV-63. Threatened, Endangered, and Sensitive Species, paragraph 4. The FWS may be contacted for technical assistance particularly if proposed or candidate animal or plant species are involved.

Page IV-110. Management Area 8. Item 1a. Site-specific management plans should be developed for all newly discovered nests and roost sites within a specified time frame in consultation with the FWS.

Page IV-110. Management Area 8. Wildlife Management. A fourth item should be added on monitoring which emphasizes the need to conduct productivity and winter use surveys in cooperation with Oregon Cooperative Wildlife Research Unit, Oregon Department of Fish and Wildlife, and the FWS.

Page IV-111. Management Area 8. Recreation Management. Item 2. Developed recreation sites should be monitored to determine the potential for disturbance to listed species.

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Pages IV-113 and 115. Management Areas 9a and 9b. Items 3 and 4, respectively. Introduction of exotic species should be discouraged to conserve sensitive species, such as the Oregon chub, and the natural ecosystems in which they occur. These items should be expanded to specifically discourage the introduction of exotic species.

Page V-12. Figure V-C-1. Sensitive plants. The final Plan should indicate, if possible, a percentage decline figure for sensitive plant species that will trigger further protective action on the part of the Forest. Also, it should be noted that the timing of the surveys for sensitive (or candidate) plant species is critical to obtaining complete data on the presence or absence of these populations.

Draft Environmental Impact Statement

Page III-55. Threatened, Endangered, and Sensitive Plants, paragraph 4. The final document should include the list of 21 sensitive species, the habitats with which they are associated, and a brief description of how the list will be updated or maintained.

Page III-70. Figure III-J-1. Bull Trout. The final document should indicate that the bull trout is a Federal candidate, Category 2 species.

Page III-79. Threatened and Endangered Species MIS: Bald Eagle, paragraph 5. The Forest should consider developing site-specific management plans for winter roost areas as this habitat for listed species is identified (see GENERAL COMMENTS).

SUMMARY COMMENTS

Based upon available information in the Forest planning documents and the Biological Evaluation, Forest-wide standards and guidelines appear to offer adequate programmatic guidance to assure that each Forest action will be reviewed in a manner consistent with the intent of the Endangered Species Act of 1973, as amended, and its requirements. The monitoring programs presented in the Plan also appear to offer a level of monitoring that will allow for an assessment of the effectiveness of the Forest's standards and guidelines for threatened and endangered species. The planning documents could be improved, however, by listing the sensitive plant species identified by the Forest as occurring on Forest lands, adding productivity and winter roost surveys to monitoring programs, and developing site-specific management plans for bald eagle winter roost areas and nest sites as they are identified.

Sincerely,

Roger E. Forderstrasse
for Russell D. Peterson
Field Supervisor

cc:
ARD-FWE
BFA(ERT)
FWS-SE 1-7-88-I-17
Polityka
OSU, OR Coop Wildlife Research Unit (Attn: Bob Anthony)
UC Davis (Attn: Jack Williams)

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00001

U.S. Department of Transportation
Federal Highway Administration

Region 10
Alaska, Idaho
Oregon, Washington

708 S.W. Third Avenue
Portland, Oregon 97204

January 11, 1988

In Reply Refer to:
HPP-010.2

Mr. Michael A. Kerrick, Forest Supervisor
Willamette National Forest
211 E. 7th Street
P.O. Box 10607
Eugene, Oregon 97440

Dear Mr. Kerrick:

Federal Highway Administration, Region 10, has reviewed the draft environmental impact statement for the Willamette National Forest Land and Resource Management Plan and offers the following comments for your consideration.

Oregon highway routes 20, 22, 126, 242 and 58, which are on the Federal-aid highway system, are within Willamette National Forest and Recreation Area. Quite often such highways in National Forest areas do not have defined right-of-way. To make highway improvements with FHWA funds on any of the above routes, or any Forest Highway System routes which may use any lands designated as recreation, requires a determination by FHWA that there is no other feasible and prudent alternative than the selected proposal. Without an adequately defined right-of-way, this has, in similar situations, caused considerable delay in project implementation and increased taxpayer expense.

We suggest the final EIS acknowledge that when right-of-way for Federal-aid highway routes or forest highway routes are not defined, a management effort will be made to work out such details with the government officials having operating responsibilities for that route.

Ideally, in any area designated recreation by you, the designated right-of-way should be of sufficient width to allow bridge replacements, roadway widening, or elimination of safety hazards, such as bad curves. Roadway improvements within a defined corridor designated for highway use do not require a 4(f) determination. NEPA action will apply to all highway improvements.

Sincerely,

E. J. Valach, Director
Office of Planning and
Program Development

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

MAY 1 3 1988

014681

REPLY TO ATTN OF WD-136

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, Oregon 97440

Dear Mr. Kerrick:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act, we have reviewed the Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan (Plan) for the Willamette National Forest (WNF). The WNF is located along the western slope of Oregon's Cascade Mountains and includes 1,675,408 acres. The preferred alternative upon which the Plan is based provides for intensive timber management, wilderness, and special riparian areas, among other options. Mineral exploration and development would also be permitted.

Based on our review, we have rated the DEIS EC-2 (Environmental Concerns - Insufficient Information). Enclosed is an explanation of our EIS rating system. The primary reason that we have environmental concerns is that Standards and Guidelines for water need to be more fully developed in the Final EIS/Plan, as does a water quality monitoring plan. The details of our comments are included in the enclosed review report. We were very pleased to have met with your staff on January 6-7 and December 16, 1987. This interaction was very useful to us in becoming familiar with the issues and current management practices of the WNF.

We intend our comments to be constructive, and we are confident that by addressing our concerns and comments the WNF can present a Final EIS and Plan which more clearly show that important resources will be adequately protected, while providing WNF staff with the necessary flexibility to manage the forest on a day-to-day basis. While our comments are lengthy, we wish to acknowledge that most components of both documents were well done.

Thank you for the opportunity to review the DEIS and Plan. If you have any questions about our review, please contact Ann Uhrich of our Environmental Review Section at FTS 399-8516.

Sincerely,

for Robert S. Burd
Director, Water Division

Enclosures

cc: ODEQ
ODFW
USFS, R-1
USFS, R-4
USFS, R-6
USFWS, Portland
NMFS, Portland
BLM, Portland

U.S. ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON PROPOSED LAND AND RESOURCE MANAGEMENT PLAN
AND DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE
WILLAMETTE NATIONAL FOREST, OREGON

GENERAL COMMENTS

Forest Management Process

One of the ways we assessed the environmental effects of the proposed alternative was how well the Willamette National Forest's (WNF) Draft Environmental Impact Statement (DEIS) and Plan described the forest management process. By forest management process we mean those components which describe the "how to" of forest management with regard to protection of natural resources. They can include the set of actions, decisions, or data which are needed to comply with environmental standards, prevent adverse effects, and improve existing environmental conditions. Important components of the forest management process as we see them are described as follows:

A data base of existing conditions from which technical experts and the public can judge the expected effects and level of uncertainty of the predictions.

Best Management Practices (BMPs) and management area prescription development and implementation.

Selection of BMPs for a particular activity and how uncertainty of BMP effectiveness is factored into selection and implementation.

Through on-site inspection and administration during an activity, verifying that a particular activity is occurring as prescribed in contracts, leases, or permits.

Environmental monitoring before, during, and after the completion of certain activities to determine whether impacts were accurately predicted.

A feedback loop that is built into the process such that forest activities causing significant problems will be corrected before they are allowed to continue.

Upgrading of BMPs or prescriptions to correct inaccurate predictions.

The use of NEPA for project implementation.

The DEIS and Plan effectively describe the interrelationship between most of these components. The Implementation Flow Chart (Plan, p. V-2) and the Decision Flow Diagram (Plan, p. V-19) were particularly helpful in describing feedback loops. The commitment to and role of on-site inspections in meeting standards and guidelines is one component that would benefit from further explanation.

Final environmental decisions on site-specific projects will determine to a significant extent the adequacy of the level of protection provided for water quality and other resources. The Final Plan should summarize or cite the criteria that will be used to determine when categorical exclusions, environmental assessments, and environmental impact statements will be used in Plan implementation, especially with regard to assessing impacts to water quality and beneficial uses. This would provide guidance and direction to Forest staff, and a general awareness of how these assessments will be used to interested and affected publics. It would also strengthen the accountability of the Forest in implementing the Plan.

Water Quality Standards Compliance

Management activities conducted in the WNF must be consistent with Oregon's adopted Statewide Water Quality Management Plan. This includes compliance with Oregon's Water Quality Standards (WQS) and monitoring the effectiveness of achieving compliance. The Plan and DEIS do recognize, at various points, the importance of these considerations. However, there is no specific reference to OAR 340, Division 41 (Oregon's adopted Water Quality Standards) in the Standards and Guidelines Section of the Plan, in the Minimum Management Requirements, or on page IV-36 of the DEIS.

From information provided in the DEIS, there is no real assurance that Oregon Water Quality Standards will consistently be met. For instance, the DEIS mentions that anadromous fish spawning occurs in the WNF. It also states that there are 638,600 acres of old growth habitat (p. III-51). This is about 38 percent of the Forest. The location of the spawning areas relative to the old growth is not identified. If harvest occurs in old growth areas which also support salmonid spawning, use of the streams could be adversely affected due to sedimentation (DEIS, p. IV-71 to 77). This could constitute a violation of the antidegradation policy of Oregon's Water Quality Standards. Compliance with Oregon Water Quality Standards must be assured.

The FEIS should address compliance with the State's antidegradation policy. This policy states that "where the existing quality of the water is better than the standards set, that such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water and will not result in water quality less than that prescribed in the standard." This policy is reiterated in Federal regulations (40 CFR 131.13(a.2)). Many of the rivers in the Forest are high quality waters. The FEIS should describe how MMRs, Standards and Guidelines, BMPs, and other measures designed to minimize water quality impacts from Forest activities (e.g., road construction, timber harvest, mining, dam construction/operation), will ensure consistency with the antidegradation policy.

The status of Outstanding National Resource Waters is conferred to rivers designated as Wild and Scenic. For these waters, the antidegradation policy of the Water Quality Standards Regulations explicitly prohibits any lowering of water quality (40 CFR Section 130.12). There is one potential Wild and Scenic River on the WNF, and one existing State Scenic Waterway (DEIS, p. III-19). The FEIS should discuss in detail how degradation of these waters will be prevented, given the mining, timber harvesting, and roading activities which may occur in some of the Forest's drainage basins containing or tributary to these rivers.

Water Quality Monitoring Plan

NEPA requires that EISs include discussion of mitigation of potential impacts. Without a detailed monitoring plan, it will be difficult for the Forest to comply with the Council on Environmental Quality's NEPA regulations which require that an EIS shall contain: "means to mitigate adverse environmental impacts (40 CFR 1502.16(h))." When adverse effects on water quality and fisheries are potentially significant, they must be mitigated. A detailed monitoring plan needs to accompany major mitigation activities in order to measure their effectiveness and ensure that necessary corrections are implemented.

NFMA also provides the basis for a monitoring plan. The National Forest System Land and Resource Management Planning Regulations (36 CFR 219.11(d)) state that a Forest Plan shall contain a: "Monitoring and Evaluation Requirement that will provide a basis for a periodic determination and evaluation of the effects of management practices." Since the effects of management practices for timber outputs can significantly affect water quality and fisheries, a detailed monitoring plan is warranted.

The development of a detailed water quality monitoring plan should be based on a list of current beneficial uses, present condition, and desired future condition for each stream or a watershed unit which is small enough to adequately protect the beneficial uses. The present condition and desired future condition can best be expressed in terms of the beneficial use (e.g. percent fish habitat capability). The monitoring plan should include types of surveys, location of sampling, parameters to be monitored, indicator species, budget, procedures for using data or results in plan implementation, and availability of results to interested and affected groups. Enclosed is a copy of our monitoring guidance. Appendices A and O of the Final Nez Perce National Forest Plan, October 1987 includes the level of detail and approach to water quality and fishery monitoring which we believe is appropriate.

A watershed resource inventory summarizes facts, recorded measurements, observations, and other evidence which can be used to determine management objectives for rivers and streams. Oregon's water quality standards and water quality management plans, for instance, were developed using inventory information. As you are aware, an inventory is a key element needed for effective resource management. The drainage objectives derived from the resource inventory then provide a means of evaluating the effectiveness of plan implementation.

To assist with the overall water quality management program, we have developed a water quality summary sheet. The purpose is similar to that of a "Fact Sheet" used to evaluate NPDES permits. A draft copy for the Siskiyou National Forest is being enclosed as an example. The intent is to identify a form for watershed resource inventories which could be used by EPA and the Forest Service to address water quality concerns. Streams listed under "Drainage Objectives" only represent a starting point. The WNF is encouraged to expand this list.

The Plan (chapter IV) and DEIS (p. II-30) recognize that MMRs, Standards and Guidelines, and BMPs are a means to achieve and maintain WQS. It should be emphasized that implementation of these techniques does not constitute compliance with WQS. Measuring WQS compliance is accomplished through water quality monitoring programs. Evaluating the effectiveness of meeting water quality standards on the WNF will be difficult without a monitoring plan which includes stream-specific references, water quality parameters, and sampling frequency. We would support the recommendation to establish a multi-agency technical work group in Oregon to address these concerns and to assist the USFS in developing a water quality monitoring program tailored to individual forests.

Domestic Water Supplies

Other beneficial uses of the water resource may be affected and need to be more thoroughly addressed in the Plan. For example, there are several municipal watersheds in the WNF (DEIS, figures III-E-4 and III-E-5). Are these unfiltered surface-water supplies? Under an EPA-proposed rule as required by the 1986 amendments to the Safe Drinking Water Act, an agreement must be reached with the Forest Service that would allow the municipalities to have watershed control in order for them to continue to use these sources without filtration. The proposed Plan should provide a specific indication of how protection of these water supplies will be achieved.

SPECIFIC COMMENTS

Draft Environmental Impact Statement

S-9 We are pleased to see an alternative ("C") which emphasizes protection of "the soil, water, and air resources of the forest."

II-67 The preferred alternative will provide old-growth habitat for 91 pairs of spotted owls. This is lower than the full inventory of 152 verified pairs (DEIS, p. II-49). Is this reduction in existing habitat consistent with USFS policy presented in its EIS on the spotted owl? Is the MMR of 78 pairs (DEIS, p. II-106) also consistent?

II-75 We would recommend adding a footnote to the effect that all alternatives will contain about 22,300 acres of riparian lands which are to be withheld from harvest, even though riparian areas are not a management area per se.

II-128 In the comparison of issue and concern resolution, it is stated that for water quality and quantity, concerns will be met by MMRs. The WNF monitoring plan therefore assumes great importance as a mechanism to test the validity of this assumption, and to provide input for revisions to MMRs, Standards and Guidelines, and BMPs, if they are found to be ineffective.

III-3 through III-13 The discussions under Geology, Climate, and Soil are very good, particularly the recognition of the role played by each (along with vegetation) in slope stability. We are particularly pleased to see an acknowledgement of the need to incorporate information on active or potential avalanche areas into site-specific analysis during project design and implementation. We strongly support the use of watersheds and area analyses as planning tools and the Forest's effort to plan individual basin activities over space and time.

III-15 through III-32 The discussions under Water are very good, particularly the presentation of natural erosion levels (figure III-E-8) and their use in generating the watershed sensitivity index. There do appear to be a few errors in this figure, however. Salmon Creek should be "moderate" sensitivity (per p. IV-20), and "% Increase Above Natural" should be 74 for Tributary No. Santiam and 39 for Salt Creek.

III-36 We commend your discussion of potential air quality impacts from woodheating, and the role of WNF and other forests in supplying firewood.

III-64 In the third paragraph, there appears to be a typo, as 11 out of the 26 watersheds exhibit high erosion sensitivity indices.

IV-3 through IV-14 The discussion of impacts to soil resources is good, though the last paragraph on page IV-8 could be improved with information drawn from Appendix A, such as the statement that "the risks of significant, cumulative erosion and sedimentation effects in watersheds usually depend more on road quality and location, and the time of year when activities occur than on silvicultural treatments." Impacts to ground water (p. IV-3) would seem to be more appropriately discussed in the next section.

IV-15 through IV-39 The discussion of impacts to water resources is generally very good, particularly the cumulative effects assessment. Due to the higher risks of failing to meet minimum legal requirements, particularly with regard to water quality, EPA cannot support alternative NC.

IV-24 There are two errors in Figure IV-2-6. The 1986 erosion level should be 65 for Minor Tribs. McKenzie and 62 for Salmon Creek, per figure III-E-8.

IV--38/39 The discussion of monitoring on these pages would be a good addition to the monitoring section of the Plan.

Land and Resource Management Plan

II-9 We concur with the stated information needs relating to water quality and fish habitat.

IV-8 through IV-10 By virtue of the fact that every watershed on the Forest save one is the source for at least one if not several municipal water supplies and the fact that 14 of the 26 watersheds support anadromous fisheries, water is not simply a resource to protect during multiple-use management but is itself an "output." Water quantity is covered in this figure by "water yield" (p. IV-9), but water quality is not shown as an output. One could in part approximate it from "Anadromous Fish Use" (p. IV-8), but this category is not all-inclusive. We believe some method of measuring water quality (or some parameter thereof) should be added to this figure in the Final Plan.

IV-11/12 This is a very good discussion. It is one of the better "forest management process" descriptions we've seen in forest plans, in terms of how the Plan will trigger BMPs and mitigation measures.

V-2 This figure is very helpful in a general understanding of how the Forest would modify standards and guidelines. One area needs more clarity, however. What occurs between the "Execution of Annual Work Plans" and "Project/Program on Track"? Some type of monitoring?

V-5 through V-8 This is generally a good discussion; however, there is little detail nor any link to the existing or future resource inventories or plan output goals.

V-7 Under "Effectiveness Monitoring" we would assume that, due to various constraints, not all watersheds can be monitored. How will those that can be prioritized? The Plan should expand upon this issue.

In the last paragraph on this page, it is said that "monitoring will be done . . . based on relative importance." Again, how will monitoring efforts be prioritized?

V-9 Pursuant to the second monitoring question, how will permanent sampling points be selected? Will the Forest be coordinating with other federal and state agencies to take advantage of existing data bases, for example?

V-19 This figure is very helpful in a general understanding of how monitoring results will trigger further action, particularly changes in budget, schedule, or allocation.

Attachment A

USFS -- FOREST PLAN REVIEW

Water Quality Summary

Siskiyou National Forest
200 NE Greenfield Rd., P.O. Box 440
Grants Pass, Oregon 97526
(503) 479-5301

USFS File Number: OR-07
Draft Plan: August 1987

Significant Features

1,092,302 acres — Josephine, Curry, and Coos counties

Ranger Districts:

Chetco	(Brookings)
Galice	(Grants Pass)
Gold Beach	(Gold Beach)
Illinois Valley	(Cave Junction)
Powers	(Powers)

Major Basins: Rogue and South Coast

Major Rivers:

Rogue River	S.F. Coquille River
Illinois River	N.F. Smith River
Chetco River	Elk River
Sixes River	Hunter Creek
Pistol River	Euchre Creek
Winchuck River	

Aquatic Ecoregions:

Coast Range	(01)
Sierra Nevada	(05)

Special Protection:

179,850 ac.	Kalmiopsis Wilderness
26,708 ac.	Wild Rogue Wilderness
17,200 ac.	Grassy Knob Wilderness
5,323 ac.	Siskiyou Wilderness
3,414 ac.	Red Buttes Wilderness
5,226 ac.	Rogue Wild River
9,275 ac.	Illinois Wild River
2,541 ac.	Rogue Scenic River
5,436 ac.	Illinois Scenic River
3,959 ac.	Rogue Recreation River
542 ac.	Illinois Recreation River
37.0 mi.	Rogue River
50.4 mi.	Illinois River
13.0 mi.	N.F. Smith River
39.5 mi.	Chetco River

Background

The Siskiyou National Forest is located in Coast Range and Klamath Mountains of southwestern Oregon. [The forest is a diverse landscape of grasslands, sage, and juniper with mountain lakes and meadows.] Major coniferous tree species found in the Forest include Douglas fir, western hemlock, redwood, ponderosa pine, Port Orford cedar, sugar pine, and white fir. Hardwoods include tanoak, madrone, red alder, liveoak, manzanita, rhododendron, and golden chinquapin. Elevations vary from a few hundred feet to over 7,000 feet. Precipitation in the Siskiyou National Forest ranges from 30 to 150 inches annually. Most of this precipitation falls between October and April.

The Forest lies within two aquatic ecoregions: the Coast Range and the Sierra Nevada, which includes the Klamath Mountains. The Coast Range portion receives heavier amounts of rainfall (80 to 150 inches annually). Much of this region consists of perennial streams, typically having two to three miles of streams per square mile. The eastern part of the Forest is in the Klamath Mountain, or Sierra Nevada ecoregion. It receives 30 to 90 inches of rain annually and is drained mainly by perennial streams, although intermittent streams occur along headwater reaches and valley floors. In this ecoregion, there is a high potential for soil erodability.

Streams originating in the Forest support a diversified fishery, supply water for domestic use, provide for public recreational uses. Timber harvest, which has occurred extensively in some areas, is the principal industry found in the Forest. Hillslope and streambank erosion, resulting from logging and road construction, can be a serious problem as well as a major source of sediment streams. Large woody debris in headwater reaches may be transported during major storm events. This can cause scouring and increased sedimentation, which can lead to loss of habitat for stream biota. A variety of past and present mining practices, in certain areas, has also caused local disturbances to the biological habitat along streams.

The Siskiyou National Forest contains a highly diversified fishery ranging. Indicator species include fall chinook salmon, coho salmon, summer steelhead, winter steelhead, and resident cutthroat trout. Brook trout have been stocked by the Oregon Department of Fish & Wildlife in some Forest lakes. Non-salmonid coldwater fish which occur in the Forest include white sturgeon, green sturgeon, and American shad. Warm water game species include largemouth bass, bluegill, black crappie, and brown bullhead. Nongame species found in the Forest include redside shiner, carp, sucker, and sculpin.

Drainage Objectives

Drainage objectives identify the level of water quality or fishery habitat potential to be achieved in a given watershed. These are the basis of evaluating management options.

Watershed Number	Watershed Name	Beneficial Use	Current Status	Monitor. Needs
17100305-A-010	S.F. Coquille River	A/MW		***
020	Wooden Rock Creek	R		
030	Rock Creek	A		***
040	Johnson Creek	A		*
050	Sucker Creek	A		
060	Coal Creek	A		
17100306-A-010	M.F. Sixes River	A		
020	Sixes River	A		***
030	S.F. Sixes River	A		***
040	Dry Creek	A		*
050	N.F. Elk River	A		
060	S.F. Elk River	A		*
070	Elk River	A		***
080	Butter Creek	A		
090	Panther Creek	A		
100	Bald Mountain Creek	A		
17100310-A-010	Slate Creek	A		
020	Taylor Creek	A		***
030	Galice Creek	A		
17100310-B-010	Rogue River	A		***
020	Stair Creek	R		*
030	Blossom Bar Creek	A		***
040	East Creek	R		
050	Billings Creek	A		
060	Foster Creek	A		*
070	Shasta Costa Creek	A		***
17100310-C-010	Rogue River	A		***
020	Rans Creek	R		
030	Nail Key Creek	R		
040	Tom East Creek	R		
050	Wake Up Rilea Creek	R		
060	Bradford Creek	R		
070	Silver Creek	A		
080	Quosantana Creek	A		***

A: Anadromous Fish
R: Resident Trout
MW: Municipal Water

***: High Priority
* : Medium Priority

Watershed Number	Watershed Name	Beneficial Use	Current Status	Monitor. Needs
17100310-D-010	S.F. Lobster Creek	A		***
020	N.F. Lobster Creek	A		*
030	Lobster Creek	A		***
17100311-A-010	W.F. Illinois River	A		***
020	Elk Creek	A		
030	Broken Kettle Creek	R		
040	NF Rough & Ready Creek	R		
050	SF Rough & Ready Creek	R		
060	Rough & Ready Creek	A		***
17100311-B-010	E.F. Illinois River	A		***
020	Dunn Creek	R		
030	Althouse Creek	A		*
040	Sucker Creek	A		***
050	Left Fork Sucker Creek	A		
060	Cave Creek	A		*
070	Grayback Creek	A		***
17100311-C-010	Illinois River	A		***
020	Josephine Creek	A		***
030	Canyon Creek	R		
040	Fiddler Gulch	R		
050	Deer Creek	A		
060	Sixmile Creek	R		
070	Fall Creek	A		*
080	Rancherie Creek	R		
090	Dailey Creek	R		
17100311-D-010	Briggs Creek	A		***
020	Horse Creek	R		
030	Secret Creek	R		
040	Onion Creek	R		
050	Swede Creek	R		
060	Soldier Creek	A		*
17100311-E-010	Illinois River	A		***
020	Pine Creek	R		
030	Klondike Creek	A		*
040	Sulphur Creek	R		
050	Collier Creek	A		*
17100311-F-010	Silver Creek	A		***
020	Todd Creek	R		
030	Little Silver Creek	R		
040	S.F. Silver Creek	R		
050	N.F. Silver Creek	R		

A: Anadromous Fish
R: Resident Trout
MW: Municipal Water

***: High Priority
* : Medium Priority

Watershed Number	Watershed Name	Beneficial Use	Current Status	Monitor. Needs
17100311-G-010	E.F. Indigo Creek	R		*
020	Buck Creek	R		
030	Breezy Creek	R		
040	W.F. Indigo Creek	R		*
050	Snail Creek	R		
060	Indigo Creek	A		***
070	N.F. Indigo Creek	A		*
17100311-H-010	Illinois River	A		***
020	Horse Sign Creek	A		
030	Lawson Creek	A		*
040	Fox Creek	A		
17100312-A-010	Hunter Creek	R		
020	Pistol River	A		***
030	Meadow Creek	R		
040	E.F. Pistol River	R		
050	N.F. Pistol River	A		*
060	Sunrise Creek	R		
17100312-B-010	Chetco River	A		***
020	Little Chetco River	A		*
030	Carter Creek	R		
040	Baby Foot Creek	A		
050	Granite Creek	A		
060	Box Canyon Creek	A		
070	Tincup Creek	A		***
17100312-C-010	Chetco River	A		***
020	Boulder Creek	A		*
030	Eagle Creek	A		
040	Mineral Hill Fork	A		
050	S.F. Chetco River	A		***
060	Quail Prairie Creek	A		
070	Emily Creek	A		
17100312-D-010	E.F. Winchuck River	A		***
020	Wheeler Creek	A		*
030	Winchuck River	A		***
040	Bear Creek	A		
050	Moser Creek	A		
18010101-A-010	N.F. Smith River	A		***
020	Horse Creek	R		
030	Chrome Creek	R		
040	Baldface Creek	R		*

A: Anadromous Fish
R: Resident Trout
MW: Municipal Water

***: High Priority
* : Medium Priority

ATTACHMENT B

NATIONAL FOREST WATER QUALITY MONITORING RECOMMENDATIONS

GENERAL MONITORING GUIDELINES

Priorities. Greatest priority should be given to assessing fishery impacts in the following order: 1) endangered anadromous runs; 2) other anadromous runs; 3) resident salmonids; 4) and others, including warm water species.

Site Selections. Site selection for monitoring impacts on the above fish population should reflect the need for a representative range of environmental conditions, e.g., soil type, channel morphology, and erosion potential. Special attention should be given to watersheds with the greatest sediment production potential. Consideration must also be given to monitoring in heavily developed watersheds and in watersheds developed or disturbed in increments over time to evaluate cumulative effects upon fishery resources.

Paired Watersheds. Paired watersheds should be selected wherever possible, consisting of a representative stream reach in the watersheds to be developed and a comparable reach in an undeveloped watershed. Control (or reference) reaches should be selected based upon similarity in stream slope, elevation, streamside vegetation, bank stability, fishery, soil type, stream classification, etc.

Timing. Timing of monitoring should emphasize detecting impacts from first entry into a watershed. This may require prior monitoring to establish adequate baseline data in both the developed and undeveloped watersheds.

Frequency. Frequency and location of monitoring should be periodically adjusted to reflect needs or problems identified in the ongoing monitoring. Typically, monitoring at a specific site will be initially intensive, with a later shift to periodic trend verification.

Long-Term Monitoring. Certain aspects of the monitoring should be designed to evaluate impacts not detectable on a short-term basis. Examples are long-term stabilizaton of logging roads, recovery rates of degraded streams, persence of large woody debris, etc.

IMPLEMENTATION MONITORING

This on-site monitoring should evaluate the correctness of Best Management Practices (BMP) implementation. This information will be critical in determining whether adverse instream habitat impacts were caused by inadequate BMPs or improper implementation of BMPs. In general, however, we feel that the specific method used to evaluate the correctness of BMP implementation are best identified by the U.S. Forest Service (USFS).

EFFECTIVENESS MONITORING

Stream Monitoring Parameters. Both fish density (by species and age class) and fish habitat quality should be evaluated. Habitat quality should not be confined solely to substrate composition (e.g., cobble embeddedness and percent fine sediment by depth), but should also include such factors as pool/riffle ratio, amount and size of large organic debris, vegetative cover, channel morphology, etc. Data should be gathered by the most cost effective method while insuring data quality, and utilization of standard methods of measurement and analysis.

CALIBRATION MONITORING

The total monitoring effort should be carefully designed so that one outcome is to improve our ability to predict via models: 1) the actual sediment loading to a stream; 2) the actual impact of those sediments on fish habitat; and 3) the actual impacts of those sediments or other fish habitat changes on fish population.

INTERAGENCY SUPPORT/COORDINATION

Technical Fisheries Advisory Committee. To improve interagency coordination (and to provide technical assistance and support), we suggest that the USFS establish a technical fishery advisory committee in each state. This group could consist of representatives of government agencies who manage the resource or whose activities impact the fisheries resource. By meeting quarterly, or as significant issues arise, this group could identify, and hopefully resolve problems as they develop. They could also play a key role in assisting the USFS in preparing and presenting the annual monitoring report discussed below.

Annual Monitoring Report. We suggest that an annual public meeting be held to brief all parties on the monitoring results. To minimize travel costs, the USFS could review results from individual forests within a state at a single meeting. This would also facilitate comparison of results from different forests. The technical fisheries advisory committee could help the USFS develop, and present a consensus on impacts and needed actions.

Written material should focus on an analysis of planned vs actual actions and impacts. For example, where water quality problems occurred, the USFS should clearly define the nature and cause of the problems, the corrective actions taken, and the procedures to be used to prevent future occurrences. This material, together with supporting data, should be made available to all parties prior to the public meeting. A more formal written report summarizing long-term trends and impacts should be prepared periodically, possibly at 5-year intervals.

SUMMARY OF THE EPA RATING SYSTEM
FOR DRAFT ENVIRONMENTAL IMPACT STATEMENTS:
DEFINITIONS AND FOLLOW-UP ACTION *

Environmental Impact of the Action

LO--Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA intends to work with the lead agency to reduce these impacts.

EO--Environmental Objections

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3--Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment

February, 1997

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014673

May 11, 1988

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Michael A. Kerrick
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

We appreciate this opportunity to review and comment on the Willamette National Forest Draft Environmental Impact Statement (DEIS) and the Proposed Land and Resource Management Plan (LRMP). The Council recognizes the enormity of the task undertaken in developing a plan for all forest natural resource management activities and appreciates the staff's effort to date in addressing the wide variety of issues.

The Northwest Power Planning Council is charged with developing a program to protect, mitigate and enhance fish and wildlife affected by hydropower development in the Columbia River Basin. The Columbia River Basin Fish and Wildlife Program, developed by the Council, focuses direction and sets specific actions to accomplish this charge (see attachment). Extensive public participation went into the formation of the program and has continued during its fine-tuning and implementation. It is projected that during the next three years Bonneville ratepayers will invest an estimated $50 million per year to implement the program. The estimate does not include the additional costs of lost revenue to the power system which may range from $20 - $50 million per year. This level of investment in time and dollars reflects the commitment by the Council, the fish and wildlife agencies, Indian tribes, Bonneville, federal project operators and regulators, utilities, and the public to solve basin fish and wildlife problems.

Management activities on the Willamette National Forest, which contains a significant portion of the Willamette River drainage, could potentially impact Council actions designed to improve salmon and steelhead resources. They could also impact actions to mitigate for wildlife losses due to hydropower development and operation. As a result, we hope that the Forest Service will take steps to insure coordination with the Fish and Wildlife Program. In addition, since the program will continue to evolve, we believe it is important that the Forest Service revisit the plan periodically and make changes to maintain coordination with newly adopted fish and wildlife objectives within forest boundaries.

It is particularly important that the Forest Service coordinate with the Council and others during the development of the systemwide plan for salmon and steelhead in the Columbia River System, and acknowledge efforts in this regard in the Willamette Forest Plan. The Council recently initiated this significant planning effort to attempt to identify ways to double salmon and steelhead runs in the basin. The effort, which could take up to three years, includes planning at the local level to identify fish production objectives and constraints, and at the system level to integrate these objectives. Forest representatives are working with fish agencies, tribes and others at both the local level and the system level during the process. The results of this effort will guide future program activities to increase salmon and steelhead in the basin.

We recognize that certain activities on the forest could detrimentally affect the success of actions taken to increase fish production by 1) increasing the disparity between seasonal streamflow levels, 2) increasing sediment production or otherwise reducing water quality levels, 3) degrading riparian area conditions, and 4) otherwise decreasing the quality or quantity of habitat to support existing and potential forest salmon and steelhead and wildlife production. Such potential impacts will be taken into account during system planning as planners identify strategies to reach the doubling goal. We hope that by coordinating our efforts we can ensure that the watershed conditions needed to support enhanced populations will be provided.

It appears that the Forest Service may be relying primarily on funds available through the Council's program and from other sources for fisheries restoration and enhancement. While we strongly support Forest actions to improve these resources, it may be premature to depend on such funds. The majority of funds to increase basin salmon and steelhead resources will not be earmarked for specific actions until completion of the systemwide plan. We hope that through system planning the Forest Service and others may coordinate actions to effectively achieve the conditions needed to support desired future salmon and steelhead resources.

In addition, to address the effects of hydropower development and operation on wildlife in the Columbia River Basin, the Council established a process to mitigate for wildlife losses (Section 1003(b)). The process includes developing wildlife plans and mitigation programs at each hydroelectric project in the basin. Currently, a plan is being developed to mitigate for wildlife losses in the Willamette River Basin. We encourage the Forest Service to continue working with the Oregon Department of Fish and Wildlife and others in the development and implementation of this plan.

In summary, our objective is to ensure that plans adopted to direct forest management actions are coordinated with regional efforts to rebuild salmon and steelhead runs. We believe that efforts to double

existing runs will likely prove inadequate unless they are coordinated and integrated systemwide. We particularly hope the Forest Service will make necessary revisions upon completion of system planning to bring its plan into coordination with any future plans adopted by the Council.

Again, thank you for this opportunity to comment. We would be happy to meet with you or your staff to discuss system planning in more detail. If your staff would like to arrange a meeting or needs more information, please call Barbara Taylor at 503-222-5161.

Book included with original (to Hill; if not needed in copy)

Sincerely,

Edward Sheets

Edward Sheets
Executive Director

LARRY L. CAMPBELL

REPUBLICAN LEADER — January 1, 1983 - September 1, 1987
HOUSE OF REPRESENTATIVES

February 5, 1988

Mike Kerrick
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mike:

The importance of the Willamette National Forest Plan to the economic health of this area cannot be overstated. An adequate, stable timber supply is essential for a healthy timber industry; a healthy timber industry is essential for this area to participate in the "Oregon Comeback".

The Willamette National Forest is the major source of timber for mills from Salem to Cottage Grove. In addition, the taxes from harvested timber provide vital dollars for our schools and roads. Finally, it should be noted that at average annual wages of between $25,000 and $30,000, the jobs provided by the industry are at a level which allows workers to buy homes, raise families and pay taxes without looking to government for assistance. In contrast, jobs in the service sector frequently pay from $10,000 to $14,000, a level which makes it difficult for those workers to live without government help. It is clearly evident that to ensure economic prosperity we should make every effort to keep the industry healthy.

As proposed, preferred Alternative J would reduce the available supply of timber by 21%. If there was clear and compelling evidence that continuing to harvest timber in the Willamette National Forest at the current allowable cut of 797 million board feet would jeopardize the future potential supply of timber, an argument could be made for this reduction. There is no such evidence. In fact, in 1980, the Forest Service recommended, and Congress approved, an annual timber harvest of 797 mbf. Since that time, as a result of the recession and legal challenges by preservationist groups, the actual harvest has been less than the forest's potential, further increasing the net growth of the timber resource in the Willamette.

In view of the evidence that current harvest levels are not jeopardizing the future supply, it appears that this proposed reduction is an unwarrented concession to the small, vocal minority that would lock up our forest. I urge you to develop a plan between the draft and final plans which reflects true multiple use of our resource.

Sincerely,

Larry Campbell

LARRY L. CAMPBELL
State Representative
District #43

STATE CAPITOL, SALEM, OREGON 97310-1347
Phones: Salem 378-8772 Eugene 484-2201

CEDRIC L. HAYDEN
EASTERN PORTIONS OF
CLACKAMAS, LANE, LINN,
AND MARION COUNTIES
DISTRICT 38

REPLY TO ADDRESS INDICATED:
☐ House of Representatives
Salem, Oregon 97310-1347
☐ PO Box 28
Fall Creek, Oregon 97438

HOUSE OF REPRESENTATIVES
ASSISTANT MINORITY LEADER

005387

May 16, 1988

TESTIMONY OF CEDRIC L. HAYDEN
STATE REPRESENTATIVE DISTRICT 38
CONCERNING THE U.S. FOREST SERVICE
FOREST MANAGEMENT PLAN FOR THE
WILLAMETTE NATIONAL FOREST AND THE
MT HOOD NATIONAL FOREST

I represent a rural legislative district in Oregon. We are 4500 square miles of family farms, mountain homes, and small communities. Almost three-fifths of this district lies within The Mt. Hood and Willamette National Forests. Our mountain communities exist because of their history as logging towns and supply centers. For five generations Oregon families in these small towns have lived within and from the forests. The trees of the Willamette forest built the towns of Oregon's cities, the barns of her farms, and in some cases the earliest roads between them.

In our rural communities are many small mills that depend almost entirely on timber supply from public lands. These mills have been family operations for two and three generations in these forest areas. These are the "family farms" of our forests. They have demonstrated their commitment to on-going economic viability in these towns, and are here for the long term. They are NOT cut and run operations. They do not send basic resources out of the area or out of the country. These mills and the logging families that supply them provide local jobs and long range economic and social stability.

Through the past 150 years, we have changed some uses for our trees, become more efficient in their harvest, and grown to understand the special stewardship each of us has with our forest environment. In the past decade alone, productivity and greater utilization of fiber resources have been remarkable. The timber industry and the citizens of Oregon, particularly this timber dependent area of small communities, have shared a long and beneficial association.

The Proposed Alternative for management of this forest in the decade ahead is flawed in fact and in process. The process from which this proposal is derived relies too heavily on projections based on past management practices, it fails to provide an integration of other national policies and interests, and it has created an unmanageable dichotomy of choice for public respondents setting production against preservation.

If we were somehow able to begin with a blank canvas and design a forest--and a plan for its management--we would certainly allow for the grandeur, the majesty, the hushed beauty so many of us have experienced in the forest on spring days such as this. We might also include some of nature's most interesting creatures, some of its geologic wonders, some of its most dynamic processes. We would design for all the sensory pleasures of the soul to be there. But, we are not beginning with a blank canvas. We have an existing forest, a living, changing resource, and we need to keep in mind this aspect of change--the DYNAMICS of this resource. Our forest is not static and no amount of planning will stop the dynamic processes of our natural world. We must define our management in terms of the forest's own ability to change.

One of the primary difficulties in responding to the development of this management plan is that the proposals tend to create an either/or dichotomy. I do not believe there is a forest worker in Oregon who does not have a strong personal sense of stewardship and reverence for the forest. Just as a farmer knows his livelihood depends on his stewardship of the acres he tills, foresters understand their tie to the trees they harvest and replant. It is no coincidence that one mill in the Santiam Canyon has a dozen father-son employee teams. It is a strong sense of pride in good work and a commitment to future forests which has kept our small towns vital over the years.

The either/or alternatives in developing this plan are unrealistic. Perhaps this dichotomy is its most important flaw. It doesn't allow individuals to truly help prepare the management guidelines, it only allows choices between one grouping of ideas versus another. It is like having only combination plates at a restaurant and no substitutions. There are attractive aspects in most alternatives suggested, but unacceptable elements as well. This means either choosing an alternative knowing part of the choice is unwanted, or choosing not to choose at all. I believe that a better decision-making process would be to separate management areas and allow comment on the extent and conditions of management for each topical area. Then, and this is most important, we must refine each recommendation IN RELATION TO EVERY OTHER NEED in the forests. We have a zero-based forest budget here and every decision impacts every other decision. For that reason, my recommendation is "none of the above" but "some of most of the above." The alternatives as proposed unnecessarily polarize user groups and interested citizens. They

limit the specific recommendations a reviewer may make.

The second greatest flaw in this process is that there is very poor and certainly unclear coordination with other federal priorities and processes. Setting MMRs (Minimum Management Requirements) for particular creatures and species has been accomplished (sometimes without public participation and on data known only to forest gnomes) in separate decisions. Once established, these guidelines become indestructible, non-negotiable legal regulations. And, unfortunately, they are inconsistent. Many are specific and detailed enough to give clear guidance on actual management expectations. Where they give standards for maximum allowable clear cuts, or define the timber available for harvest by dimensional size, or define when contractual obligations are closed on evidence of measurable regrowth, these are useful and practical guides. But, where adopted MMR guidelines are so vague as to require "viable populations of all species" or require the agency to "maintain plant and animal diversity" they are not only useless, but obstacles to making everyday management decisions by public agencies and by private contractors. The potential for rule change or legal challenge is much too great. This is an unmanageable uncertainty for long range business planning.

National policies on energy self sufficiency, on trade goals, on access rights for handicapped, on stabilizing local economies, or on strategic materials have not been sufficiently integrated in this planning process. We must not allow piecemeal management decisions for resources that have broad interties with other federal goals and policies.

The reason I make such a strong case for the human factors in this planning is because we must keep always in mind that we are planning for people here, not salamanders, insects, birds, rocks, fish, or even trees. It is the economic and aesthetic values to humans that is important. The basic question is whether we shall use our forest resources or set them aside as some independent legal entity. While humankind cannot be dissassociated from the natural setting the forests provide to our world environment, there is a great capacity to manage them rationally, carefully, and perpetually for human benefit.

There are errors in the proposals because the process of developing them has made the assumption that the future may be accurately predicted from past and present management experience. But, this is probably not so. Things have and will change. Forest industry practices, Congressional action concerning forest management, and social needs are likely to change markedly in the coming decade, and these plan processes should be forward-thinking to suit the change. For example, federal agencies' costs will probably rise, perhaps dramatically, from

activities like the recent spate of lawsuits and administrative legal delays involving buy-back re-sales.

Clearly, product marketing changes, worldwide timber supplies and demands, further industry productivity improvements, and population bulges demanding increased housing during the coming decade are important changes as well.

The Oregon timber industry is still struggling to recapture momentum lost to the devastating recession of the early 1980s. The industry has responded by making more with less. It has already sharpened its budget axes and altered production practices, improved technology, and trained a stronger work force. In our small towns, this was only possible because the longtime workers in our mills re-trained, they made benefit concessions--they were partners in the very survival of many companies. A reduction of the timber supply now, especially at the drastic levels preferred in this plan will reward their patience, their hard work, and their foresight with lost jobs, a need to leave their homes (and perhaps their families) to find new work, and possibly personal economic ruin. I cannot emphasize enough this HUMAN element because it is the very essence of this public decision. It is as many as 2,000 families in my district alone.

Oregon lumber products are just now becoming competitive in mid-western US markets because of domestic rail deregulations. Oregon lumber products are finding new and expanded markets overseas. Oregon lumber products are again competitive with Canadian producers who dumped subsidized products on the world markets in the past decade. For the proposed plan to recommend harvest levels based on past averages, and not to account for these changes is unrealistic.

In these matters of policy and public planning we must be especially attentive to the human impacts our decisions produce. I speak to this process for the hundreds of loggers, millworkers and local support businesses in my rural district. I also speak for our recreation business industry, and for the individual users of the forests. My voice is to urge true multiple and balanced forest uses and to plea for multiple consideration for all responsible alternative forest users.

I have never met a logger or anyone else who has ever suggested we cut down every tree or foul our streams, or decimate our wildlife. These are real people providing useful and productive products from a renewable resource to the benefit of many. Oregon's timber industry is a responsible neighbor--a major partner in our small towns. The timber supply elements of the proposed alternative fail to provide a stable and adequate materials base for our primary economic partner.

I believe there are significant errors of fact in the documents supporting the Proposed Alternative and the management plan as presented. I do not profess special expertise in analyzing forest economic data but I am convinced that the discrepancies demonstrated in the CH2M HILL review are sufficient to require major re-examination of numerous portions of the proposed alternatives, especially the economic impact premises. While economists seem to have the luxury of ivory towers and hypothetical images of what it means to meet a payroll, our small mills and independent loggers live reality not theory. There must be no "voodoo environomics" in this process. We cannot compare some make-believe dollar value of an insect to a tree or the family it supports.

After reviewing full documents for the Mt Hood National Forest and for the Willamette National Forest, I urge that no change in present management goals for timber supply be implemented. I vigorously oppose reductions in supply which will jeopardize employment and local public revenues in these rural areas without significant economic benefit in return.

I would be pleased to supply any further information I can about the economic and social needs in this rural district. We are communities of "can do" pioneer stock, and we wish to be part of this plan. We wish to have it reflect the real people who are represented in the charts and graphs that accompany public decisions.

Respectfully,

Cedric Hayden

CEDRIC L. HAYDEN
State Representative District 38
Oregon State Legislative Assembly

LIZ VanLEEUWEN
LINN COUNTY
DISTRICT 37

REPLY TO ADDRESS INDICATED:
☐ House of Representatives
Salem, Oregon 97310-1347
☑ 27070 Irish Bend Loop
Halsey, Oregon 97348

Home Phone
369-2544
Capitol Message

017097

HOUSE OF REPRESENTATIVES
SALEM, OREGON
97310-1347

May 13, 1988.

Forest Supervisor, Mike Kerrick
Willamette National Forest
P.O.Box 10607
Eugene, OR 97440

Dear Mike,

I'm attaching a copy of the presentation I made to the Governor's forestry plan task force which I trust you will personally take time to read.

You know as well as I do that the issue is so complicated it's even tough for many of us involved people to sort out what we should say. Working people, especially those with jobs and businesses that require lots of hours don't have time to study out pages and pages of material --- so please don't minimize the importance of the form letters you receive.

People do know that community stability and continuing jobs are real essential to them. I firmly believe that with proper management we can achieve a sustained yield. I am a supporter of the Willamette Forestry Council's alternative plan.

For your information I'm attaching a piece of material sent to many of my constituents who are greatly impacted, one way of the other, by the end decision on the Willamette National Forest Plan.

You have forced me into spending quite a bit of time on this issue.

Sincerely,

Liz VanLeeuwen

Liz VanLeeuwen, State Representative, District 37.

LVL/dd

HOUSE OF REPRESENTATIVES
SALEM, OREGON
97310-1347

2/9/88

To: Norm Johnson, Coordinator, Governor's Federal Forestry Plan Task Force

Re: Willamette National Forest and Linn County

Dear Norm:

The future of Linn County and its citizens is dependent upon the management plan adopted by The Forest Service for The Willamette National Forest. Community stability and Linn County jobs must play a major role in deciding how our forest should be managed.

465,613 acres of the Willamette National Forest lie within Linn County.

105,840 acres--nearly 1/4 -- of this forest in Linn County is already permanently preserved and closed to multiple use!

If the Forest Service's preferred alternative is selected as a management plan, additional forest in Linn County will be set-aside for single use and no harvest. Additional set-asides will result in less revenues to Linn County for schools and roads, and fewer jobs.
If the harvest level on The Willamette National Forest is reduced by 150 million board feet per year as suggested by the Forest Service, the result will likely be a loss of 1000 industry jobs and 2000 associated jobs. Many of these lost jobs would be in Linn County. Recovery would not be possible because the timber supply will be permanently reduced.

We must not allow this to happen! The forest has, and can, provide a harvest level necessary to promote community stability and still address all the other concerns of the forest. Wildlife habitat can be maintained without setting aside an additional 27,000 acres (42 square miles) in Linn County for single use forest wildlife habitat.

The forest has been managed very well under the present multiple-use forest management. There is NO reason to change from what has worked so well.

I might add that I have real problems with The Forest Service's Preferred Alternative J as they compare it to the past 10 year average for jobs and timber harvest. That average includes the early 80's when the timber industry was experiencing its WORST DEPRESSION in history! We are only now recovering. The forest plan should be commpared to the forest resource output we experienced in 1987, not those other years.

Sincerely,

Liz VanLeeuwen, State Representative Dst. 37

LARGE MATURE AND OLD GROWTH TREES IN LINN COUNTY
(ACRES BY LAND ALLOCATION)

LAND ALLOCATION	LARGE MATURE/OG	OTHER	TOTAL
NO HARVEST AREAS:			
WILDERNESS	41,487	59,447	100,934
H.J. ANDREWS	1,450	811	2,261
RESEARCH NATURAL AREAS	704	299	1,003
ADMINISTRATIVE SITES	149	1,493	1,642
MINIMUM MGT. REQUIREMENTS:			
SPOTTED OWLS	18,962	0	18,962
PILEATED WOODPECKER	2,154	85	2,239
PINE MARTEN	5,333	0	5,333
BALD EAGLE	128	0	128
OPTIMUM THERMAL COVER	896	0	896
UNSUITED SOILS	18,109	19,453	37,562
NON-FOREST	0	17,235	17,235
HARVEST AREAS:			
RIPARIAN	7,295	7,060	14,355
TIMBER MANAGEMENT	116,057	147,006	263,063
TOTAL	212,724	252,889	465,613

The above figures were ...lied to Rep. Liz VanLeeuwen on 2/5/88 by James Mayo, Timber Planner for the Willamette National Forest, 211 East 7th Ave, PO Box 10607, Eugene 97440. (Phone 687-6915)

SENATOR C.T. (CUB) HOUCK
SENATE REPUBLICAN LEADER
(503) 378-8178

OREGON STATE SENATE
STATE CAPITOL
SALEM 97310-1347

014668

May 13, 1988

Mr. Mike Kerrick, Forest Supervisor
Willamette National Forest
PO Box 10607
Eugene, OR 97440

Dear Mr. Kerrick,

As Republican Leader of the Oregon State Senate, and as a private citizen concerned about the economic future of this state, I would like to offer the following comments on the draft Willamette National Forest Plan.

Oregon's forest land has historically provided the sustenance for Oregon's economy. In my view, there is no question that our forest land is biologically capable of continuing to be the primary source of jobs, prosperity and economic stability for many generations of Oregonians to come. Since the majority of our forest land is owned by the federal government, however, the question of whether that land will in fact continue to serve as the foundation of our economy is largely dependent on public policy decisions made by the responsible federal land management agencies.

On that key point, I find the preferred alternative in the draft Willamette National Forest plan to be troubling. It would authorize an annual "allowable sale quantity" of 568 million board feet, 21 per cent lower than the 1987 harvest level.

It appears that the main reason for this severe reduction is that, if the preferred alternative is adopted, 49 per cent of the Willamette National Forest would be off limits to timber production under the new plan.

It is impossible to lock up that much land and at the same time be able to adequately provide for the needs of timber-dependent communities. It is also hard to conceive that these kinds of massive set asides were intended by Congress in 1976. Such a result would also seriously distort the historic policy of Congress and the federal government of sustained yield management. If the total amount of land available for timber production is drastically reduced to the extent contemplated in the preferred alternative, the most conscientious application of sustained yield management techniques imaginable will still not be sufficient to provide the wood fibre output needed to keep Oregon's economy on a solid footing.

It is my sincere hope that the final management plan for the Willamette National Forest will more adequately reflect the key role of the National Forests in the economic future of this state. Thank you for considering my comments on this critically important issue.

Sincerely

Senator Cub Houck
Senate Republican Leader

CTH/tc

BOB KINTIGH
DISTRICT 14
REPLY TO ADDRESS INDICATED:
☐ Senate Chamber
Salem, Oregon 97310-1347
☒ 38865 E Cedar Flat Road
Springfield, Oregon 97478

OREGON STATE SENATE
SALEM, OREGON
97310-1347

014175

May 13, 1988

Forest Supervisor Mike Kerrick
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mike,

As an Oregon citizen, professional forester with 40 years experience and a State Senator I cannot support your recommended management alternative for the Willamette National Forest. The primary reason is that such a small percentage is to be retained for general multiple use.

By its very name multiple use means that the land is available for many uses not just timber production. Multiple use land can provide wildlife, fish and many forms of recreation as well as high quality water under proper management techniques. I believe you and your staff are technically competent to do such a job.

Therefore, it is not reasonable in addition to the present 23% set aside for wilderness to set aside an additional 26% in "Special Uses" plus 19% in Restricted Multiple use. I feel a more reasonable allocation would be to designate approximately 60% of the Forest for multiple use management with restrictions on maybe one tenth of that part. This would still leave 40% for wilderness and special set asides.

The 1984 Oregon Wilderness Act stipulated that the unroaded areas not included in Wilderness be managed for wildlife use. Why aren't you going to do it?

I expressed confidence above in your professional management ability but you do disappoint me in one area. You have designated a large number of acres unsuitable for timber production because of the perceived reforestation problems. With the great amount of research that has been done in this area I feel there is know how to reforest almost any land on the Willamette. If trees grew there before they will grow there again.

In regards to recreation, I feel that rather than more wilderness there is a real need for dispersed family type recreation. There needs to be places where individuals and families can go who have only a limited amount of time or are not physically able to take a wilderness trek. Low elevations should be favored so that they can be used for a longer season and possibly all year around. How about some provisions for seniors and handicapped people?

I believe too much emphasis is placed on visual management. I doubt that 5% of the people can tell an old growth from a second growth tree. For some time I have been trying to obtain evidence that tourists stay home because of clear cuts along a highway but have found none. Having grown up in the East I know that people there recreate in and enjoy viewing second growth forests because that is the only kind there. The Great Smokey Mountains National Park and the eastern "wilderness" were all logged at one time. The lower McKenzie Valley where I live is all second growth is considered scenic and there are many other similiar valleys in Oregon. As foresters we need to be extolling the beauty of a young vigorous forest instead of hiding our activities behind the ridge. If we must hide our activities I have some ideas of better ways to do it than leaving a strip of old growth along a road to blow down which I would be glad to discuss with you sometime.

With the hundreds of comments you are no doubt receiving you probably don't need a longer letter from me. In closing I'll just say again, put more land in the Multiple use category and then do a good job of managing with emphasis on the "Multiple."

Sincerely,

Bob Kintigh

MAE YIH
LINN AND BENTON COUNTIES
DISTRICT 19

REPLY TO ADDRESS INDICATED:
☐ S 214 - State Capitol
Salem, Oregon 97310-1347
Phone (503) 378-8847

☐ 34485 Yin Lane NE
Albany, Oregon 97321
Phone (503) 327-2666

COMMITTEES
Member:
Ways and Means
Government Oper
Human Resources

OREGON STATE SENATE
SALEM, OREGON
97310-1347

014879

May 9, 1988

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick,

I am the State Senator representing Oregonians in Linn and portion of Benton counties. The Oregonians I represent will be greatly effected by the final management plan adopted for the Willamette National Forest. The livelihood and way of life of all Oregonians is at stake. It is for this reason that I have been involved in the analysis of your Draft Environmental Impact Statement for the Willamette National Forest. I offer these comments for consideration in formulating your final plan for forest management.

Management decisions must be based on accurate data and scientific facts. Analysis of your draft plan has revealed many technical errors and assumptions based on conjecture and not facts. This is not acceptable considering the potential impact to the citizens of Oregon and Oregon's economy. The Forest Inventory, Empirical and Managed Yield Tables, Land Suitability Classifications, and Economic Assumptions must all be corrected to represent actual conditions on the forest. It is inconceivable that final forest plans be adopted without correcting these basic data deficiencies.

It is apparent through the plan analysis that the stability of communities dependent upon the Willamette National Forest was not a major consideration when formulating land allocations for the forest. In fact, it appears in most cases that it was not a consideration at all. Managing for timber production as a forest use was not given equal status with other forest uses. Only after other predetermined forest uses were fully met was consideration of timber harvest made. There was no chance for economic and social trade offs to be considered. This is a basic flaw in your planning effort. The economic and social needs of a community's citizenry dependent upon the Willamette National Forest deserves at least equal status with other forest uses.

I strongly urge that such emphasis be put into your final management plan. The Organic Administration Act of 1897, which grandfathers all forest planning, specifically addresses the needs of timber dependent communities.

> "No public forest reservation shall be established except to improve and protect the favorable conditions of water flows, and to furnish continuous supply of timber for the use and necessities of citizens of the United States"

No legislation has ever withdrawn these primary purposes of National Forests.

I feel very strongly that too much emphasis was put on Single-Use land allocations like Roadless Areas, Old Growth Preserves, and Wildlife Habitat Areas in your draft plan. More emphasis should be put on Multiple-Use Management of the forest. You should recognize that timber harvest is compatible with other forest uses.

In conclusion, I am not pleased with the direction the Forest Service has taken to date in their planning for the Willamette National Forest. I do, however, realize that I am talking about a draft plan. I will be greatly disappointed if the final plan resembles the draft Alternative J as proposed by the Forest Service. There is no doubt that the Willamette National Forest can continue selling timber at current levels (1987 net sell level 717MMbf - 1988 net sell target 710MMbf) while protecting and providing other uses of the forest. I recommend that you continue managing the Willamette National Forest in a manner that will benefit the citizens of Oregon. This cannot be done if you reduce the sell and harvest levels of the forest.

Sincerely,

Mae Yih
State Senator

MY:krm

Executive Department

155 COTTAGE STREET NE, SALEM, OREGON 97310

May 19, 1988

TO: Interested Citizens

FROM: K. Norman Johnson, Federal Plans Coordinator

SUBJECT: STATE OF OREGON'S COORDINATED RESPONSE TO THE WILLAMETTE NATIONAL FOREST PLAN

Enclosed you will find the State of Oregon's coordinated response to the Willamette National Forest Draft Environmental Impact Statement and Proposed Land Resource Management Plan. This response was submitted to the forest supervisor on May 16, 1988.

The primary objective of this coordinated response is to identify technical problems with the planning documents rather than to recommend an alternative. Further indepth analysis of the data and discussion with the Willamette National Forest staff are necessary before the State can recommend an alternative.

Additional copies of the coordinated response and detailed agencies comments can be obtained from the following locations:

State Department of Forestry
3150 Main Street
Springfield, OR 97478

State Department of Forestry
4690 Highway 20
Sweet Home, OR 97386

State Department of Forestry
22965 N. Fork Road, SE
Lyons, OR 97358

Oregon Department of Fish and Wildlife
506 SW Mill Street
P.O. Box 59
Portland, OR 97207

State Department of Forestry
2600 State Street
Salem, OR 97310

Oregon State University
College of Forestry
Forest Management, Peavy 202
Corvallis, OR 97331

KNJ:rjl
Attachment

NEIL GOLDSCHMIDT
GOVERNOR

OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM, OREGON 97310-1347

May 16, 1988

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
P. O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

Active participation in federal forest planning is a high priority for all Oregonians. It is essential that the hopes, needs and ideals of Oregonians be incorporated into these important resource plans. The plans must be environmentally sound and provide stable, predictable supplies of commodities and amenities. In that context, this letter provides the State of Oregon's comments on the Willamette National Forest Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan (LRMP).

The state depends upon the Willamette National Forest for resources critical to Oregon's economy and environment. These lands provide a significant share of the employment in Lane, Linn, and Marion Counties through their impact on the timber, recreation, fishing, and agricultural industries. These counties also derive much of their revenue from use of Forest resources. In addition, the Forest contains critical watersheds and big game habitat, anadromous fish streams, spectacular wilderness areas, majestic stands of old growth timber, the Detroit Reservoir and Waldo Lake recreation areas, and the scenic Santiam, McKenzie and Willamette River corridors.

The State's objectives for management of the Willamette National Forest are twofold. First, these lands should be managed in an environmentally sound manner so that future generations have the same opportunities we do to enjoy the bounty the lands can provide. Second, these lands should produce the a high-level and sustainable flow of economic benefits and amenities. Our comments here focus on evaluating your resource management planning from these perspectives.

Thirteen State agencies have reviewed the DEIS and LRMP. In addition, we held public meetings in Lebanon and Eugene to hear what issues relative to the proposed Plan were of special interest to the public. This letter and the detailed agency comments which are attached highlight the State of Oregon's questions, concerns, and recommendations on these documents. Please consider them in development of your Final Environmental Statement (FEIS).

THE STATE RESPONSE

We recognize the tremendous effort that went into constructing the DEIS and LRMP and we appreciate your staff's help to us as we reviewed these documents over the last few months. Your staff should be commended for the depth of analysis and detail of presentation in your DEIS and LRMP. Nonetheless, the State of Oregon cannot support any of the alternatives in the DEIS because the planning documents do not provide all of the information we believe is needed to make a reasoned decision. We also believe that your analysis is faulty in not recognizing the geographic detail needed to assess the environmental implications of the proposed plan.

With your help, we intend to construct our own State alternative for the Forest. We had hoped to do this during the comment period, but our difficulties with your analysis and the existing data gaps prevent us from constructing that alternative now. We still plan to construct a State alternative. We view this letter as a vehicle to help you understand our difficulties with your analysis and the additional data about your Forest that we need.

The rest of this letter highlights our major information needs. In outlining our problems, we want to emphasize that we wish to work with you in a cooperative manner to solve them. Both the Federal Plans Coordinator and the agency contacts mentioned on the attached list are willing to discuss these comments further and meet with you to explain our suggestions for clarification and improvement, and to clear up any misunderstandings that we may have. The Federal Plans Coordinator and key state agency heads will also visit and tour the Forest to help me understand the issues involved.

Our comments on your Plan are organized into four main sections: A) development of alternatives, B) estimation of resource effects, C) estimation of economic effects, and D) other considerations. Our principal concerns with the DEIS and the LRMP relate to your timber management proposals, treatment of watershed and visual quality issues, and your evaluation of recreation demands and opportunities.

The proposed plan would reduce your annual timber offerings by about eleven percent from historic levels, and reduce your maximum allowable sales level by about 29 percent. Such reductions have major impacts on Oregon's economy and must be fully justified. We believe that potential deficiencies in your timberland suitability determinations, your timber inventory and yield projections, and your consideration of management intensification opportunities may heighten resource conflicts and unnecessarily reduce timber harvest levels.

Water is a critically important resource on the Willamette National Forest, yet you project that your proposed plan could cause significant deterioration in some Forest watersheds. While the discussion of watershed impacts is comprehensive, we believe that your planning analysis should be rebuilt by recognizing watersheds as the basic building block. Doing so should enable you to adjust your activities to avoid significant watershed deterioration, and do so at least cost to other Forest outputs such as timber.

Our tourism industry is largely based on outdoor recreation. Without high quality recreation opportunities the potential for tourism development is uncertain. We believe more analysis is needed on your provision of trails, scenic drives, and developed recreation facilities.

A. Development of Alternatives

We are concerned that the alternatives you developed may be unduly restrictive and may overemphasize the conflicts among commodities, amenities and environmental effects more than need be. We believe a wider range of choices should be examined, or else you should explain more completely why this wider range would not improve the results. Toward that end, we focus in this section on six key outputs and effects from the Forest: 1) timber production; 2) streamflow and watersheds; 3) the fishery; 4) big game; 5) visual quality; and 6) recreation opportunity and facilities. In addition, we discuss the need for coordination of your proposed plan with plans of affected communities and with the Oregon Natural Heritage Plan.

1. Timber Production

The wood products industry forms the backbone of manufacturing employment in Lane, Linn, and Marion counties. In addition, timber receipts from Forest Service and Bureau of Land Management forests make critical contributions to sound school and road programs. Understanding the significance of your proposed timber sales level requires that the public be able to relate your current proposal to your past timber harvest levels. To help us (and the public) gain this understanding, we developed the following table showing past and proposed timber outputs:

		Type of Timber Output (MMBF/year)			
		ASQ	Other Sawtimber	Other Timber	Total
1.	The Existing Timber Resource Plan (1977)				
	Potential Yield	797	53	146*	996
	Programmed Harvest	641	31	121*	793
2.	Average volume Sold				
	1977-1986	627	26	131	784
	1985-1987	669	30	133	832
3.	Average Volume Harvested				
	1977-1986	486	20	101	607
	1985-1987	649	27	135	811
4.	Preferred Alternative (J)	568	23	119	710

MMBF/year--million board feet per year
ASQ--allowable sale quantity
*Not in the Timber Resource Plan but estimated here to allow comparison.

This table represents four quantities:

1) ASQ--the allowable sale quantity--the sawtimber from regular timber sales on land suitable for timber production. It almost exclusively comes from live, sound trees and its estimate is a major focus of the forest planning analysis.

2) Other sawtimber--sawtimber from salvage sales, other dead sawtimber from regular timber sales not counted in the allowable sale quantity, and the estimated sawtimber sales that will occur on land designated "unsuitable" for timber production.

3) Other timber--timber that is submerchantable due to small size or because it is not sound. Here it consists largely of "cull" volume that is incidental to regular timber sales--volume that does not meet Forest utilization standards because too small a proportion of it is sound (not rotten).

4) Total--the sum of allowable sale quantity, other sawtimber, and other timber--now called "timber sale program quantity" by the Forest Service.

These terms need to be carefully defined and used, as you know.

The existing Timber Resource Plan has guided timber sales on the Forest since 1977. It is represented here by two quantities: 1) potential yield and 2) programmed harvest. Potential yield is the ceiling on the amount of sawtimber volume (ASQ plus other sawtimber) that can be offered under the 1977 plan. Programmed harvest states the target for sawtimber volume under the 1977 plan, considering likely budgets and an estimated yield from lands marginal for timber production. It can be less than or equal to potential yield. Here the programmed harvest is 156 million board feet less than potential yield in terms of ASQ, and 178 million board feet less in terms of ASQ plus other sawtimber. The programmed harvest provided the basis for the actual quantities offered and sold during the 1977 plan period.

We concentrate our discussion below on the ASQ because this output produces most of the employment, income and county revenues from timber production. Here, the ASQ portion of the programmed harvest in your existing Timber Resource Plan is 641 million board feet and the average annual ASQ volume actually sold during the period 1977-1986 was 627 million board feet. Thus sales achieved 98 percent of their target.

Timber sales set an upper limit on timber harvest, and timber buyers have a number of years to harvest the timber after purchase. Thus the harvest tends to fluctuate with market conditions and purchaser raw material needs. Looking at the 10 years reported in your DEIS (1977-86), average ASQ harvest (486) fell well short of average ASQ sales (627) as the deep recession of the early 1980's made it difficult for timber buyers to harvest profitably the timber they had purchased. Looking at the last three years, though, ASQ harvest (649) was much higher as good lumber and plywood markets returned, with the 1987 harvest of approximately 720 million board feet (including some contract default volume) being the highest harvest in recent memory. In a period long enough to include the ups and downs of wood products markets, harvests and sales should come into balance.

The preferred alternative in your forest plan proposes an ASQ of 568 million board feet/year and a total harvest of 710 million. This proposed sale level merges the features of potential yield and programmed harvest. It is both an upper limit and a target. Thus 568 million feet is both the intended sale quantity and the maximum sale quantity for the ASQ portion of total timber output.

If our analysis of these data and your definition is correct, we can reach some important conclusions. First, comparing your proposed ASQ (568) to the ASQ portion of the programmed harvest (641) in your 1977 Timber Resource Plan, it appears that you intend to offer for sale approximately 73 million board feet (11 percent) less volume than you offered in the past. Since you were generally successful in selling your programmed harvest in the past, we count on you to have the same success in the future. Therefore, we conclude that the proposed ASQ in your preferred alternative would provide somewhat (11 percent) less opportunity to contribute to the economic health of timber-dependent communities than did your existing plan. The actual contribution that will be made, of course, depends in part on the level and cycle of demand for wood products and the productivity and efficiency of the wood products industry. Over the last years, the productivity of our mills has increased dramatically. In 1979, it took 4.5 sawmill workers to produce one million board feet of lumber; by 1986 it took 2.8 workers.

Comparing your proposed ASQ (568) to the ASQ portion of the potential yield (797) in your 1977 Timber Resource Plan, it appears that the maximum sale level will decrease by 229 million board feet (29 percent). Therefore, we must conclude that your ability to make a relatively increasing economic contribution to the economic health of timber-dependent communities (which previously could have happened as you moved toward achieving potential yield) will no longer exist if your preferred alternative is implemented.

Based on our understanding of the concepts discussed above, we outline below the additional timber management information we need to enable us to understand the merits of your proposed plan, and suggestions we have for increasing the compatibility and efficiency of timber production on your Forest. This discussion is divided into three parts: a) timberland suitability, b) timber inventory and yields, and c) timber management intensification.

a. Timberland Suitability

From the standpoint of timber production, no decision is more important than your determination of the land base on which you will regularly schedule timber harvest. Your LRMP points out that your preferred alternative has 858,170 acres suitable and available for timber production out of a total forested area of 1,507,225 acres and a total national forest acreage of 1,675,407 acres. You give the reasons for reduction in this timberland base as follows:

I.	Forested lands		1,507,225
II.	Forested lands unsuitable for timber production		501,791
	A. Withdrawn from scheduled harvest	327,525	
	1. Wilderness	305,915	
	2. Research Natural Areas (established)	1,450	
	3. Oregon Cascades Rec Area	5,695	
	4. H. J. Andrews Exp. Forest	14,505	
	B. Risk of irreversible resource damage	42,705	
	C. Regeneration difficulty (5+ years)	131,561	
III.	Forested lands tentatively suitable		1,005,394
IV.	Additional forested lands unavailable		147,224
	A. Meeting minimum management requirements precludes timber harvest	53,255	
	1. Spotted owl habitat	42,634	
	2. Pileated woodpecker habitat	3,144	
	3. Pine marten habitat	6,500	
	4. T and E species--bald eagle	977	
	B. Meeting multiple-use objectives precludes timber harvest	93,969	
	1. Research Natural Areas (proposed)	3,029	
	2. Special interest areas	15,251	
	3. Old growth groves	3,925	
	4. Special wildlife habitats	11,348	
	5. Dispersed rec areas	52,386	
	6. Developed rec areas	2,931	
	7. Elk/deer thermal habitat	4,971	
	8. Mining claims	128	
V.	Forested land suited and available for scheduled timber harvest		858,170
VI.	Total forested land unsuited (II A+B+C) and unavailable (IV A+B)		649,055

In total, your preferred alternative has 57 percent of your forested land suitable and available for scheduled timber harvest.

Your definition of the lands suitable for timber production could both reduce the timber output possible from your forest and heighten resource conflicts on the lands that are suitable for both timber and other uses. The DEIS points out two major reasons for these reductions, beyond those lands statutorily withdrawn from scheduled timber harvest (II A) or withdrawn to achieve other resource management objectives (III A&B): 1) lands that have the risk of irreversible resource damage (II B-42,705 acres); and 2) lands where you are not sure that reforestation can be achieved in five years (II C-131,561 acres).

The large acreage declared unsuitable due to regeneration difficulty (11 percent of your forestland outside of Wilderness) especially concerns us. We do not understand why you should have difficulty regenerating lands on your Forest, except perhaps the high elevation Mountain Hemlock. Looking at your suitability maps we were surprised to see that most of these difficult-to-regenerate lands lie among your low elevation Douglas-fir/hemlock types.

We did not find in your DEIS an explanation of how these timberland suitability designations were made. Were they site-specific or based on general land and soil typing? In addition, we could not find evidence that your analysis looked beyond the problems encountered with past practices in assessing potential for reforestation success. We believe that the forest industry is now able to regenerate most of its lower elevation lands similar to yours. We urge you to reevaluate your lands declared unsuitable due to regeneration difficulty, incorporating the latest research results and successes on similar sites held by other owners.

We are also interested in better understanding how you determined that 42,705 acres were unsuitable due to risk of irreversible resource damage and other high-risk soil loss acres were suitable for timber production.

b. Timber Inventory and Yield

The starting timber inventory and the yield projections for existing and future stands form the basis of any estimate of the sustainable timber harvest level. We had significant difficulty understanding how your modeling assumptions affected these key components. Specifically, we would like to know: 1) how the acres and volume by age class represented in your forest planning analysis for potentially suitable timberland relates to the results from your last timber inventory; 2) how the growth projected on your existing stands in your planning analysis relates to the growth found on the suitable acres in your last timber inventory; and 3) the rationale for any differences uncovered between assumed and actual inventory and growth.

Assuming that your Record of Decision is approved next year, your plan will begin in 1989, and the midpoint of the first decade of its applicability will be 1994. Therefore, your inventory should account for acres harvested through 1988. Because your forest planning analysis looks at timber scheduling a decade at a time and assumes that actions take place at the decade's midpoint, you should update forest growth to 1994. Your planning documents seem to use 1990 as the midpoint of the first decade.

For representation in your forest planning analysis, your timber inventory has been condensed into only a few categories that aggregate over age, site, and stocking level. Age classes represented in the 857,000 acres that allow regularly scheduled timber harvest in the preferred alternative are:

Age	10	20	30	40	50	60	70	80	90	100	110	120	130
Acres (1000)	79	165			23	41						112	

Age	140	150	160	170	180	190	200	210	220+	Total
Acres (1000)	11		13					42	372	858

You show no stands aged 30-40, 70-110, 130, 150, and 170-200. Such an approach can increase resource conflicts and reduce timber outputs in a number of ways. First, the approach can erroneously make it appear that diversity of wildlife habitat of certain key ages has been greatly reduced. Second, the approach increases the unevenness of the inventory which can accentuate the problem of the availability of immature stands needed to meet the nondeclining yield requirement in future decades.

Third, this approach can result in overlooking intensification opportunities in existing stands. Your analysis shows little commercial thinning opportunity in the first few decades, and you note that reduced timber harvest volume from thinning is, in fact, one of the major reasons for the difference between the No Change alternative and the preferred alternative. With only 64,000 acres shown in the prime thinning ages, between 40 and 110 years, those results are not surprising. But do they reflect your forest or are they an artifact of your data aggregation? When dispersion constraints control the amount of clearcutting, commercial thinning can be an important tool for increasing wood harvest. You should reexamine your aggregation across ages, sites, and stocking levels to ensure that it has not caused the problems discussed here.

Fourth, lumping all acres over 220 years into one age class makes it difficult to grasp how much acreage your forest has in the very old stands for which the Willamette is justifiably famous (400-800 years of age). These stands are sought by a variety of users for their superlative qualities and should be more clearly identified.

You use an unpublished and hard-to-understand growth model for your existing timber stands beyond the sapling stage. Please explain and justify this empirical yield model in your FEIS. In addition, we urge you to reevaluate its appropriateness for your Forest. With your Forest inventory now in a deficit condition (more discussion below), accurate projection of growth on your existing stands becomes a crucial ingredient in determining your starting harvest level under nondeclining yield. Please see the comments of Oregon State Department of Forestry (OSDF) for detailed suggestions.

c. Management Intensification

The harvest schedule for the Willamette National Forest displays the characteristics of a "deficit timber inventory" in which the nondeclining yield harvest level starts below the long run sustained yield of the forest. Moving that starting harvest level toward long run sustained yield requires either increased growth on existing merchantable timber stands or earlier availability of young stands that now exist or that will be created when the existing timber is harvested. According to your forest planning analysis, growth will begin to exceed the starting nondeclining yield harvest level by the sixth decade, but the harvest level does not increase until the 15th decade because of restrictions in your analysis. Making it possible to take advantage of that increased growth in decades 6-14 could ripple all the way back to the starting harvest level.

One way to provide that earlier availability would be to allow shorter rotations on the second growth timber than allowed in your proposed plan. You now require that even-aged stands must "generally have reached" culmination of mean annual increment before final harvest can be considered. Applying these shorter rotations to a portion of your Forest could enable a higher starting nondeclining yield level or produce the proposed harvest level on a smaller land base, thus reducing possible conflicts with other land uses. Please further examine the implications of such an approach and see the comments of the OSDF for more discussion.

Forest fertilization is another approach to providing more volume earlier that merits close examination. It is especially important in your harvest schedule because it shortens time to reach 95 percent of culmination (and therefore rotation age) by 10 years. You currently allow fertilization to be considered in your forest planning analysis for the 30 percent of your Douglas-fir/hemlock type (22 percent of your suitable timberland) whose soil types have demonstrated a response. We have a number of questions here. At what rate will you finish testing your soils? Do you have a procedure set up to incorporate these results as they occur, or will they have to await some other triggering event for inclusion? The Umpqua National Forest, with whom you share a long common border, assumes that all of its Douglas-fir/hemlock type will respond to fertilization. Are they ahead of you in their soil testing or are they using a different criterion to judge the merits of this intensification measure?

2. Stream Flow and Watersheds

No output from the Willamette National Forest is more valuable than the water you produce. Municipal, recreational, and fish and wildlife demands ensure that this water is used over and over again as it flows to the sea. While you have no formal municipal watershed agreements, you provide the principal source of drinking water for over 200,000 people in the Willamette Valley and surrounding area, including over 70 percent of the water used in Eugene and Salem. Water provides the focus for much of the recreational use of your Forest, whether it is a water skier carving a wake on Detroit Reservoir, a canoeist gliding across the pure waters of Clear Lake, or a fly fisherman casting her line onto the rolling McKenzie River. The salmon and steelhead fishery in the major rivers of the Forest (discussed in the next section) make an important contribution to the downstream sport and commercial catch.

You have done an outstanding job of portraying the implications for your proposed plan on water quality, peak flows, and the health of your watersheds. In fact, you have revealed more information about these implications than has any other Forest we have reviewed. What you report is very disturbing indeed. You state that your plan will increase erosion rates and further accentuate the peaks and valleys of your water flow on many of your 26 watersheds leaving the more sensitive of them as probable candidates for significant deterioration. Assuming that this analysis stands up to professional scrutiny, you need to work on improving this aspect of your proposed plan more than any other.

We have outlined your conclusions below, to enable you to assess our understanding. We have also made a number of suggestions for improvement. Fundamentally, though, we believe that your forest planning analysis, as currently structured, is inadequate to support the conclusions you make and the analysis you need to do. We recommend that you recast your analysis to reflect the importance of your forest watersheds by recognizing them as basic building blocks in your forest plan.

We divide our discussion on the effects of the proposed plan on stream flow and watersheds into three parts: 1) effects on sediment production; 2) effects on peak flows; and 3) cumulative watershed effects.

Fundamental to your analysis of these effects is the development of a "watershed sensitivity index" that describes a watershed's inherent susceptibility to disturbance and the likelihood of that disturbance resulting in an effect on sediment or streamflow which is transmitted to and through the stream system. Four parameters are used in this index: natural soil erosion rate, perennial stream density, peak discharge, and watershed area below 4,000 feet. Higher rates or amounts of each parameter indicate greater watershed sensitivity. Considering these four factors, you then construct an overall index of sensitivity, and based on that index put each watershed into a high, medium, or low sensitivity group.

a. Sediment Production

You state that you measure potential sediment yield by combining estimated soil erosion with the watershed sensitivity index. Soil erosion, in turn, is keyed to natural erosion rates and the amount of activities planned in each watershed. According to your estimate, Alternative F most closely approximates the actual level of activity during the last 10 years. In comparison to that alternative, you project that your proposed plan will increase erosion rates in 75 percent of your watersheds and decrease it in 25 percent in the first decade. Over time, according to your estimates, erosion will diminish under all alternatives as the effects of past unsatisfactory roadbuilding and logging practices dissipate.

What model are you using to estimate erosion rates? We could find no reference to it in your planning documents. Also, you do not show sediment production in total or by watershed, but wait until the cumulative effects analysis to integrate soil erosion with watershed sensitivity.

b. Peak Flows

Peak flows are important in any assessment of watershed impacts of an alternative because of their potential for damage to stream channels, riparian areas, and forest facilities such as bridges and roads. Especially when combined with large amounts of sediment and landslides, increases in peak flows can cause significant damage. You state that these increased flows are largely a function of compaction of large areas of soil and increase in the volume of snow accumulation in the transient snow zone (below 4000 feet). You further state that increasing the impact of rain-on-snow events is the principal cause of larger peak flows on this Forest.

To minimize the chance of increased peak flow and landslide incidence, the Forest developed a risk assessment tool called "hydrologic recovery" which our Water Resources Department (WRD) suggests you might more descriptively call "hydrologic stability." This tool enables you to assess hydrologic recovery (stability) based on watershed sensitivity (described above) and percentage of watershed disturbance in the last few decades. You construct a hydrologic recovery percent from amount of disturbance for each watershed under each alternative and then assess whether a watershed has gone beyond a "threshold of concern" relative to increased peak flow. This threshold is a function of the watershed's calculated sensitivity.

Based on these calculations, you conclude that 12 of your 26 watersheds are at high risk of experiencing increased peak streamflow and landslide incidences under your propsed plan--four more than under Alternative F which represents, in your eyes, the actions and output levels of the last 10 years. Included in these 12 are such important streams as the Breitenbush River, Fall Creek, and the North Fork of the Middle Fork of the Willamette.

c. Cumulative Watershed Effects

You base your cumulative effects assessment on a risk analysis which compares watershed sensitivity to watershed condition under each alternative, with each watershed assigned a risk rating of "Probable," "Possible," or "Unlikely." A "Probable" rating, as an example, indicates a high risk of cumulative downstream effects on water quality, physical stream characteristics and fish habitat as a result of the activities planned under the alternatives. To receive a "Probable" rating, a watershed must be anticipated to experience high rates of erosion and low hydrologic recovery.

Your preferred Alternative J has 11 watersheds in this "Probable" risk category--five more than Alternative F. Thirty percent of the Forest falls in these watersheds including the parts of the Breitenbush, Santiam, Fall Creek, and various forks of the Willamette. Thus one third of the Forest's watershed area is vulnerable to management-induced declines under your proposed plan--a disturbing result.

d. Conclusions

These results cause us great concern. Consciously planning to put key watersheds at risk seems inconsistent with the mandate you have for protecting the resources under your control on a publicly owned Forest. You must make every effort to redistribute the activities to lessen these risks. As an example, you should present the benefits and costs of constraining your forest planning analysis to require that none of your watersheds fall into the "Probable" category, and then that none fall into the "Probable" or "Possible" categories. In addition, you need to demonstrate these results over a number of decades into the future to insure that unacceptable cumulative effects are not building over time. Unfortunately, your forest planning analysis is not easily amenable to this kind of critically needed assessment. Because you do not recognize your watersheds as building blocks in your forest planning analysis, you cannot easily model controls on the rate of activities that occur in them nor do this modeling with any assurance that you are finding solutions to these difficulties that minimize the impact on other outputs such as timber harvest.

Forests around you such as the Siskiyou, Rogue River, Umpqua and Mt. Hood have constructed forest planning analyses that allow them to recognizes 25 watersheds or locator areas in their analysis and to control the activities that occur in them over time. You might consider these formulations as you revise your analysis.

3. The Fishery

The spring chinook and summer steelhead fishery on the your McKenzie, Santiam, and Willamette Rivers provide 80 percent of the spring chinook catch on the lower Willamette, a significant portion of the catch by commercial gillnetters on the Columbia and a growing source of steelhead. Your resident fishery, primarily cutthroat and rainbow trout, contribute greatly to recreational experiences on your Forest. Maintaining and enhancing these resources should be a major focus of your Forest plan.

As you point out, the fishery on the Willamette National Forest has deteriorated over time due to construction of reservoirs, past roadbuilding and logging practices near streams, and the severe 1964 storm that degraded habitat in several streams. Now and in the future, you expect to reverse these trends by eliminating barriers to fish movement, improving roadbuilding and logging practices, improving riparian protection and increasing instream investment.

In the DEIS, you state that the key factors in anadromous fish habitat capability are water temperature, spawning gravel, food, and living space. You state that three major man-controlled factors influence the effects of an alternative on habitat capability and anadromous fish populations: 1) elimination of major barriers to fish passage by other agencies (such as the Army Corps of Engineers); 2) instream enhancement; and 3) control of timber harvest in and adjacent to riparian areas. You further state that given the current population of approximately 169,000 smolts in your waters and the levels of improved escapement (due to elimination of major barriers) and additional enhancement proposed by the alternatives, there will be little difference in anadromous fish production between the alternatives. All alternatives project a threefold increase in smolt production in the first decade, approximately returning the fishery to the level attained before its decline.

Because the alternatives differ considerably in sediment produced, we conclude that you feel sediment levels have little effect on the fishery. Appendix B to the DEIS, however, states that "...a fish model then integrated the erosion data from the forest planning analysis with riparian condition data to produce fish estimates," leaving out entirely instream investment and fish passage as contributing factors.

These statements in your DEIS lead us to the following points:

1) Investments in fish structures and facilities can certainly affect the capacity of the forest as a fish producer, but we are uncertain of the relationship between these investments and fish production assumed in your preferred alternative. This analysis should be expanded substantially. We need to know the opportunities here. In that discussion, you should document the past performance of such structures and the degree to which your preferred alternative depends on them to maintain the fishery.

2) We could not find a quantitative assessment of the benefits and costs associated with different combinations of instream investment and riparian policy. As an example, we need to know the least-cost way, in terms of timber production impact, of improving the fishery beyond the level in your proposed plan.

3) We need more discussion on how forest management activities can influence the fishery through their impact on sediment and stream temperature. As an example, how will the rate of harvest allowed in your watersheds influence stream sediment and temperature, and through that impact affect the fishery? This discussion should highlight watersheds containing your key spawning and rearing streams, such as the McKenzie River system. Information on this interaction will be an important ingredient in development of a State alternative.

4) You should explain the role of sediment in your fish production models. You appear to assume that the level of smolt production is largely independent of the level of timber harvest activity and road building. Have we misinterpreted your results here?

Your analysis of fishery impacts relates directly to various enhancement projects. As noted by the Oregon Department of Fish and Wildlife (ODFW), many of these projects will be funded and performed by other agencies like the Bonneville Power Administration (BPA). Yet the DEIS contains virtually no discussion of how you propose to coordinate your plans with their plans. Such coordination is imperative if the projects are to be successful. In the DEIS, other agencies' plans are merely cited (page IV-5); the consistency of the Forest Service's alternatives with these plans is not analyzed. Coordination with ODFW's subbasin plans is especially critical.

4. Big Game Habitat

Hunting and viewing black-tailed deer and Roosevelt elk are important recreational activities on the Willamette National Forest. We are concerned that adequate habitat be provided for these species. ODFW has set benchmarks for wintering animals at 120 percent of current levels for deer and 167 percent of current levels for elk.

Your preferred alternative projects the following population numbers for deer and elk over time in terms of a population trend index with 100 being the current level:

Year	1990	2000	2030
Deer	98	115	111
Elk	97	119	113

We believe that you are projecting habitat for each species rather than the populations themselves. According to these projections, though, your big game populations will rise over time but will not achieve ODFW benchmarks by the fifth decade of your plan--especially the elk habitat will fall short.

Your deer and elk analysis is extremely difficult to follow. Although you acknowledge winter range as the critical factor in habitat provision, you do not show the winter range on any maps and did not make it one of your "Management Areas". You state that (LRMP, IV-4), " Emphasis is placed on management of thermal cover, forage and roads to improve the conditions and quality of big-game habitat. With major areas of the Forest managed to maintain relatively high levels of habitat effectiveness for big game and other wildlife species, elk populations are planned to increase." In addition, you show that 37 percent of your winter range will produce "optimal thermal cover."

Exactly how do you place this "emphasis" to improve big game habitat and what are its costs? Could you achieve ODFW's targets through even more emphasis such as producing more forage through rotations shorter than currently allowed? Where are these "major areas managed to maintain high levels of habitat effectiveness" and the 37 percent of the winter range to which you refer? Since they are not Management Areas, and are not shown on maps, how will you achieve the goals for these areas? You should provide ODFW with the maps they seek, define a management area for winter range that will receive special treatment, and develop standards and guidelines for it.

How have you combined cover, forage, and roads to estimate habitat effectiveness? Your description of your wildlife model in Appendix B of the DEIS concentrates almost entirely on forage analysis, and, even here has inadequate depth. The deer and elk model in the DEIS of the Umpqua National Forest is an example of type of information needed. In addition, ODFW feels that you have underestimated the impact of open roads on habitat effectiveness. Please review ODFW's comments and discuss the implications of adopting its proposed open road density levels in your FEIS.

The Umpqua National Forest applies an intricate four-part strategy to its winter range in a sophisticated attempt to produce the combination of forage and cover that will maximize big game numbers. Yet they project that deer and elk habitat will diminish by one-third over the next fifty years. With seemingly less effort and focus, you project increasing big game habitat. Yet, to the untrained eye, your forests appear similar. Have you found a more productive approach to producing big game, or are your forests that different? Or do you simply measure habitat in a different way? Please work with the Umpqua to resolve or explain these seeming inconsistencies.

Finally, ODFW feels that the Forest is too large an area to use as a base for measuring habitat effectiveness as is done in the DEIS. While it is difficult to tell the size of the area you will use in implementing your plan, please consider the agency's comments.

5. Visual Quality

Oregon's tourism marketing campaign relies heavily upon the scenic splendor of Oregon's national forests. The natural beauty for which Oregon is famous is due in large part to the lakes, rivers, and forests that form the Willamette National Forest. Without a high quality view from high-use recreation sites and along the most traveled routes, the potential for tourism development is uncertain. The Forest plan should place a high priority on maintaining the scenic quality of key travel routes such as the Santiam, McKenzie, and Willamette River corridors. In addition, the forest around important recreation sites such as Detroit Reservoir, Clear Lake, Waldo Lake, and the Hoodoo and Willamette Ski Resorts should be given scenic protection, as should state scenic waterways such as the Little North Santiam.

You have more clearly presented the implications of your plan for visual quality than we have found in any other forest plans we have read. We appreciate your division of your "Scenic" Management Area into six subcategories based on distance (foreground, middleground) and visual quality objective (retention, partial retention, and modification). It would be helpful, though, if you could add highway travel statistics for the viewsheds so we could better understand levels of use.

You have inventoried your forest to assess relative scenic importance based on attractiveness, proximity to travelways and use areas, and the concern Forest users have for scenic quality. Through this process, the entire Forest is assigned one of five Visual Quality Objectives (VQOs), each representing a relative degree of acceptable alteration of the natural landscape with "preservation" allowing the least alteration and "maximum modification" allowing the most.

In developing an alternative, a VQO is assigned to each acre based on the Management Area to which it is assigned and the activities that will take place on it. The percentage distribution of your Forest as inventoried and as assigned in your proposed plan is as follows.

VQO	Inventoried (%)	Preferred Alternative (%)
Preservation	23	30
Retention	14	5
Partial Retention	29	8
Modification	29	14
Maximum Modification	5	43
	100	100

You have apparently reserved "preservation" for your Wilderness areas and for your Research Natural Areas (RNAs), special interest areas, and some of your old growth groves and dispersed recreation areas that do not allow timber harvest. Thus 23 percent (385,000 acres)--your Wilderness areas and established RNAs-were given the VQO of preservation in your visual inventory and five percent more--the proposed RNAs, special interest areas, old growth groves, and some of the dispersed recreation areas--were added to that VQO under your proposed plan.

The remainder of your forest was allocated to the VQO's other than preservation. In your proposed plan, we see a distinct shift in acres to less restrictive visual categories in comparison to the visual inventory, with almost nine times as many acres allocated to "maximum modification" as were inventoried that way.

We presume that the allocation in your preferred plan does not match that of the inventory because the cost of doing so would be too high, especially in terms of lost timber production. You have estimated timber production possibilities in your different visual areas as follows:

VQO	Foreground	Middleground
	% of full yield	
Preservation	0	0
Retention	62-84	74-84
Partial retention	74-94	95-99
Modification	95-99	98-99
Maximum modification	100	100

These results raise three questions:

1) Does the 84 percent of full yield in foreground retention and the 94 percent of full yield in foreground partial retention completely reflect the standards and guidelines for this management area? The yields seem high for even-aged management given the visual quality required. In all cases, you should check that the forest planning analysis correctly reflects the standards and guidelines of each VQO especially relative to the restrictions on type and rate of harvest.

2) If you can achieve the yields stated here (98-99 percent of full yield) in middleground modification, where most of the modification lies, why were so many acres allocated to maximum modification? Did you feel that the improvement in the view by shaping harvest units so they fit into the landscape and keeping them relatively small was not worth the loss of one or two percent in timber production? Even in your key viewsheds discussed below?

3) Have you considered uneven-aged management for your visual areas as a way to decrease the conflicts between scenic quality and timber production? In your Douglas-fir/true fir and true fir types, such an approach might cause the amount of true fir to increase over time. Still, that species change should not rule out uneven-aged management in your key viewsheds.

See the Economic Development Department's (EDD) comments for more details on these issues.

You have divided your forest into viewshed and nonviewshed areas, with the 10 viewshed areas covering major travel corridors and recreation sites such as the McKenzie Highway and Detroit Reservoir. One thing that would help our analysis is a map showing the VQO's for each viewshed under each alternative, or at least under the preferred alternative. The percentage distribution of the viewshed and nonviewshed areas as inventoried and as assigned in your proposed plan is as follows:

	Viewshed Areas (535,000 acres)		Nonviewshed Areas (1,140,000 acres)	
VQO	Inventoried	Preferred Alternative	Inventoried	Preferred Alternative
Preservation	--	14	34	37
Retention	34	14	5	1
Partial retention	43	19	23	3
Modification	20	41	33	2
Maximum modification	3	12	5	57
	100	100	100	100

In the viewsheds, under the preferred alternative, retention generally occurs in the foreground (near the road or recreation site) and partial retention and modification occurs in the middleground (up the hill or across the river from the critical view spot). The increase in modification over what has been inventoried will mean that fairly visible clearcuts will be seen in the middle distance in many viewsheds.

In the nonviewshed areas, your Forest will be one of stark contrasts: 1) the higher elevation lands, which are mostly in wilderness or in your proposed semi-primitive allocation, will be managed under preservation; and 2) the lower elevation lands where timber harvest is permitted will be managed with only minimal attention to scenic beauty. While the effect on the lower elevation lands will be diluted somewhat by the intermixed unsuitable and unavailable land on which timber harvest is not permitted, it is clear that some "visual shock" will occur because of how little inventoried partial retention and modification will be implemented.

In addition to describing the visual inventory and allocation by VQO, you describe the current visual condition and future visual condition of your viewsheds in terms of a rank of one to four with the relationship between VQO and visual condition defined on page III-110 of your DEIS:

Visual Condition	VQO
Natural appearing	Preservation-retention
Slightly altered	Retention-partial retention
Moderately altered	Partial retention-modification
Heavily altered	Maximum modification

You then rate the existing visual condition of each viewshed and the visual condition under each alternative (DEIS IV-35). These results puzzle us for a number of reasons which can be illustrated with two of your viewsheds:

	Little North Santiam		North Fork/South Fork	
VQO	Inventoried	Preferred Alternative	Inventoried	Preferred Alternative
Preservation	--	25	--	8
Retention	47	--	42	9
Partial retention	50	19	36	16
Modification	3	50	17	62
Maximum modification	--	6	4	5
	100	100	100	100

You state that both watersheds now have a "natural appearing" visual condition and that Little North Santiam will be "slightly altered" under the proposed plan while the North Fork (of the Willamette)/South Fork (of the McKenzie) will retain its "natural appearing" condition. By the definitions given above, both viewsheds will be largely a combination of partial retention and modification, which is the definition of "moderately altered". A similar result occurs on many of your other viewsheds meaning, by our estimate, you have underestimated the amount of visual degradation that will occur in your viewsheds under your proposed plan.

You compound the confusion surrounding this description by describing the table in which these results appear as "Expected Changes to Existing Visual Condition" when these definitions on visual condition refer to absolute condition, not change in condition. In addition, you describe the table in terms of change in condition. All this leads us to a number of questions:

1) Does "existing visual condition" refer to the actual appearance now of the viewshed or how it was inventoried? If it refers to actual appearance now, how is that measured and where are the results of this measurement?

2) Why does your interpretation of the visual condition in each viewshed under the preferred alternative seem to differ so much from the data you provide on distribution among the VQO's?

3) Does the visual condition estimated for the viewsheds under your preferred alternative refer to the plan period or some period farther into the future? And are these absolute measures or change measures? See EDD's comments for more detail on these issues.

We need more information on costs of different VQO's applied to foreground and middleground, such as the absolute impact on the allowable sale quantity for an acre allocated to each of the six categories of the "Scenic" Management Area. Please see the comments of OSDF for more detail on our needs. In addition, we would like to know the impact on the allowable sale quantity in your preferred alternative of implementing the VQO's as inventoried in the viewshed and nonviewshed areas.

6. Recreation Opportunity and Facilities

Recreation is second only to timber in its contribution to the local economy. Recreational opportunities are especially important on the Willamette National Forest because of its proximity to the most heavily populated and most rapidly growing parts of Oregon. The Willamette National Forest is the only one in Oregon accessible by public transportation facilities, making it accessible to people who cannot otherwise enjoy forest recreation experiences. In our review of the DEIS and LRMP we did not find the depth of analysis of recreation opportunities and demand that we need to develop our State alternative. We hope the FEIS can be expanded to address these concerns.

a. Trails

You recognize in the DEIS the increasing public interest in low elevation hiking trails close to urban areas. In fact, the 1983 SCORP shows a net need for walking and hiking trails by the year 2000 for Lane, Linn and Marion Counties. You proposed to build only 20 miles of trail in the next 10 years. In addition, your DEIS shows that timber harvest and other activities will impact many of the trails that now exist. In your planning documents, however, you analyze impacts of the alternatives on the trail system solely in terms of trail miles impacted. We appreciate and applaud this effort on your part--other forests did not even do this, but people do not think about trails in terms of mileage. Where are these trails that will be impacted? Are they the ones made popular by published trail guides? Are they the ones that are most utilized? We believe you need to add some type of quality evaluation for the trail system so that people can figure out whether popular areas are going to be impacted, not just abstract miles of trails. One way to do this would be to simply compare the trails impacted by the various alternatives with the trails listed in leading published trail guides, but there may be other ways.

In addition to better information on the actual trails impacted, we recommend that you consider the Parks and Recreation Division comments on the need to mitigate the impacts of timber harvesting on trails. They recommend that you show the cumulative impacts of timber harvesting on the recreational characteristics of the land area the trails traverse. They also suggest considering other timber harvest and road building techniques designed to minimize impacts on recreation values. We hope that you consider and evaluate their suggestions.

b. Waldo Lake--Century Drive Road

The various alternatives treat the Charlton Lake Road differently. In some alternatives it would be upgraded to two-lane paved and in others it would not be. There is little discussion in the DEIS of the impacts on recreational use of upgrading the road. What kind of traffic increase is expected? Would it improve recreational access and spread recreation use better across the forest, or would it have a greater effect on changing timber market areas? We urge you to consult with the Highway Division on anticipated traffic impacts as you expand the analysis of this proposal in the FEIS.

c. Developed Recreation Sites

Need for developed recreation sites is increasing. Several alternatives, including the preferred, only propose a 108 day season for these sites, rather than 120 days. We found no analysis of the impact of the difference in season of use and no consideration of whether distinctions should be made between sites, with popular sites, especially low elevation ones, remaining open longer. This information should be included in the FEIS. As pointed out by the Parks and Recreation Division, the impacts of timber harvesting on existing and new developed sites also needs to be displayed. The comments they make about mitigating timber harvest impacts and evaluating the cumulative effects on trails apply to developed recreation sites too.

The Parks and Recreation Division also believes that greater facility development is needed to accommodate existing and future demand in the Little North Fork Santiam canyon. We urge you to consider this recommendation carefully in development of the FEIS.

d. Shortfalls in Meeting Recreation Demand

The major potential shortfall in meeting recreation demand on the Willamette National Forest is in opportunities for semi-primitive motorized (SPM) and nonmotorized (SPNM) recreation. The shortfall is especially critical since many of the existing areas that will be lost under the preferred alternative are those most accessible to our growing urban population. Substitutes for these areas will be hard to find. Because of this we urge you to develop a Region 6 plan describing the cumulative impacts of the proposed forest plans on the availability of SPM and SPNM recreation opportunities. The Parks and Recreation Division has additional specific suggestions that you should consider as well for mitigating the impact of these shortfalls.

In the DEIS and LRMP you discuss various strategies for improving recreation use of wilderness areas while minimizing its impact on resource values. One way of doing this is by limiting group size and duration of stay. In adopting any such restrictions we urge you to be fair and equitable to all users, including professional outfitters.

e. Driving Guide

One public suggestion included in the DEIS was the idea of developing and printing special maps aimed at driving recreationists, whether ORV users or those using developed roads. If such a map were developed it could help minimize conflicts between forest users and improve drivers' recreational experiences. We believe the costs and benefits of this suggestion should be considered in the FEIS.

f. Special Interest Areas/Old Growth Areas

Several of the alternatives propose development and interpretation of Special Interest Areas. We did not find any discussion of what this meant or what affect it might have on use levels. We assume that it would mean developing marked, readily accessible nature trails with interpretive information and displays. This could be very beneficial to many recreational users of the Forest who are not interested in strenuous recreation, but would like an educational experience. Please discuss what you propose to do and the benefits and costs of it in the FEIS.

Many people attending our public meetings expressed their interest in maintaining the cathedral-like old growth groves on the Forest where they find spiritual renewal. You recognize this concern in your identification of old growth as an issue. Yet in your analysis you largely consider old growth from a silvicultural standpoint rather than in terms of recreational demand. In the FEIS we urge you to identify low elevation cathedral-like old growth groves responsive to this demand. The impact of the alternatives on them should be analyzed. Consideration should be given to how such groves should be managed from a recreational standpoint.

7. Other Considerations

a. Coordination with Local Land Use Plans

The DEIS and LRMP show little or no consideration of state and local planning efforts. We strongly urge you to study the Umatilla National Forest planning documents and adopt their approach. They showed county zoning districts in relation to surrounding and interspersed federal holdings. They also listed the affected county plans and implementing regulations. This type of information strengthens federal-state-local coordination and assists us in developing a state alternative. This is especially important for the areas adjacent to unincorporated towns within the Forest boundary.

b. Oregon Natural Heritage Plan

Nowhere in your discussion of Research Natural Areas (RNAs) and Special Interest Areas (SIAs) could we find any discussion of the consistency of your proposal with our state Natural Heritage Plan. It would help us if you could state whether particular potential RNAs or SIAs meet specific unmet natural area needs under our state plan. The FEIS should analyze the consistency of the proposed plan with our Natural Heritage Plan.

B. Resource Effects

The Forest needs to be more specific in describing the resources on the Forest and the specific consequences of proposed management activities. A number of questions and information needs remain before we can develop a State Alternative. More detailed discussions about them can be found in the agency comments. We highlight here some of our major information needs relative to resource effects. Our discussion is divided into five parts: 1) minimum management requirements, 2) fish and wildlife, 3) water and air quality, 4) roadless areas, and 5) wild and scenic rivers.

1. Minimum Management Requirements

All choices for managing the Forest must embody standards and practices to ensure basic protection of the environment such as maintenance of air quality, water quality, and the diversity of plants, animals, and ecosystems. In fact, we rely on your setting of these requirements to ensure that any forest planning alternative will not deprive future generations of their rightful share of the commodities and amenities that your Forest can provide.

You use "minimum management requirements" (MMRs) to disclose this baseline level of environmental protection, and, as you know, few aspects of national forest planning have generated more controversy. In part because of this controversy, the requirements are still somewhat unsettled since the Final Environmental Impact Statement for the Northern Spotted Owl has not yet been released.

We believe there is a need for further documentation and analysis of MMRs. Not only is it unclear what data were used in formulating the MMRs, we are also concerned that only one set of MMR strategies is proposed in the Plan. Where alternative methods for achieving the same objectives are available, displaying them would be beneficial. We also note that adjacent national forests model their MMRs differently. Where this occurs, display of the analysis to support these differences is needed.

One of the major criticisms about the setting of these requirements is that they were done without public involvement. Your "Sensitivity Analysis for Minimum Management Requirements (Appendix H)" is a major step toward alleviating this criticism. We feel, however, that it should go further. Specifically, we believe that you should more systematically demonstrate that you have examined the possible ways of meeting each management requirement and have selected an efficient method of doing so, given the objectives and constraints of your preferred alternative.

2. Fish and Wildlife

a. Management Indicator Species

ODFW is concerned with the adequacy of proposed management strategies for three management indicator species: 1) spotted owl, 2) pileated woodpecker, and 3) pine marten. For the spotted owl, ODFW recommends more and larger habitat areas then your proposed plan would maintain. We look forward to completion of your final supplemental EIS on spotted owl management to resolve this issue. For the pileated woodpecker, ODFW recommends larger nesting, roosting, and foraging habitat than you propose, larger nest trees, and a more contiguous habitat. For pine marten, ODFW recommends that continuous travel corridors be maintained with high levels of down logs. Please examine their comments carefully and assess the benefits and costs of their proposals so that we can consider their recommendations in developing the State alternative.

b. Old Growth Habitat

ODFW has two concerns about the proposed old-growth habitat management on the Forest: 1) whether these habitats have been properly distributed, particularly at lower elevations; and 2) whether there will be adequate old growth in each plant community. The Forest should display the amount and location of current and planned old growth habitats by plant community to help ODFW sort out the adequacy of your provisions. In addition, the Forest should follow the habitat definitions from "Regional Guide for the Pacific Northwest Region" when identifying old-growth habitat acreage by plant community.

c. Stream Habitat

It is essential that you protect and carefully manage your aquatic and riparian resources. Yet ODFW found your provisions for this management questionable. Provisions for stream surface shading are unclear. Stream sedimentation or turbidity standards and guidelines are not specific and cannot be measured. Please correct these problems.

Because large woody debris is an essential component of stream channels for dissipation of stream energy, channel and stream bank stability, and fish habitat, ODFW supports the Forest standard to maintain large, woody debris at 90 percent or more of the current level existing for any given stream or lake, but feels that the standard should be changed to 90 percent (or more) of the potential for areas that have already been entered for timber harvest. What would be the cost of such a change in terms of lost timber production?

d. Lake Habitat

Your nonwilderness lakes such as Clear Lake and Lost Lake are heavily used by wildlife and recreationists alike. We generally support the application of MA 9c (special lakeside habitat--protection) or MA 9d (special lakeside habitat--enhancement) to all nonwilderness lakes. It affects relatively few acres per lake and provides a much needed cushion that prevents activities that might damage the lake environment from intruding to the lake edge.

ODFW, though, found your criterion for application of these strategies somewhat unclear: all 30 candidate lakes on the Blue River, McKenzie and Rigdon Ranger Districts are assigned these prescriptions, yet none of the twelve lakes on the Oakridge Ranger District receives them. Please clarify.

e. Road Management

Road management and selective closure have gained prominence in recent years as a crucial element in maintaining habitat for big game. You should work with ODFW to develop specific criteria for establishing road closures to meet wildlife objectives that are fair to forest users. These standards are especially important for roadless areas you propose to develop. A transportation map showing location of existing and planned roads, including existing and planned closures, is also needed.

3. Water and Air Quality

Regarding air quality, the Department of Environmental Quality's (DEQ) primary concerns are those of air quality impacts from prescribed burning and burning of the Forest's fuelwood by the public in nearby urban areas. Prescribed burning smoke is a major source of fine particulate emissions within the State. More analysis should be presented on projected versus baseline pollutant emissions and on the potential for intensive utilization of woody residues for industrial purposes.

Regarding water quality, DEQ's concern is that the Plan be consistent with Oregon's adopted Statewide Water Quality management Plan for forest practices as required by the Clean Water Act. The Plan recognizes goals of meeting water quality standards and protecting beneficial uses of water. DEQ feels, however, that needed information is lacking in the DEIS and LRMP to assess adequately the water quality effects of activities, including analysis of baseline water quality conditions in individual streams and the effects of planned forest activities on those streams.

To demonstrate consistency with the Clean Water Act, we suggest you discuss how the alternatives satisfy the requirements of the Oregon Forest Practices Act. Particular attention should be given to the newly adopted rules for riparian area management.

4. Roadless Areas

Roadless areas containing approximately 209,000 acres in over 31 parcels remain from the Rare II inventory. These areas, by and large, were considered for Wilderness but not selected by Congress in the 1984 Oregon Wilderness Act. The Forest Plan will determine whether they will be available for development during the next 10-15 years. Many border newly created Wilderness on the Willamette. Others are undeveloped islands surrounded by lands on which a variety of activities take place.

These areas receive many types of recreational use in their roadless condition including hiking, camping, fishing, and hunting. In addition, they provide habitat for a variety of wildlife and are the source of clean, clear water. While some remaining roadless areas lie at higher elevations and are covered by grassy meadows or timber stands of low value and growth potential, many others, such as Middle Santiam , have timber stands of economic consequence.

Your proposed plan would assign 32 percent of this roadless acreage to Management Areas, such as nonmotorized semiprimitive recreation, which would allow no development; 13 percent to Management Areas which allow limited development; and 55 percent to full development. Because few of these roadless areas lie within your designated viewsheds, much of the area allowing full development will be under the VQO of maximum modification.

We believe that the 1984 Oregon Wilderness Act, by and large, determined which roadless areas should be left in a wild and untrammeled condition. They were designated as Wilderness. Remaining roadless areas should not be placed in roadless recreation management status simply because they border existing Wilderness. Rather, we believe this allocation should be reserved for areas whose properties stand on their own as a reason for prohibiting roadbuilding and timber harvest. This summer we will visit each roadless area on the Forest during development of the State alternative. Then we will make a site-specific recommendation on each one.

Because we plan to make site-specific recommendations in our State alternative, we need to know the benefits and costs of different treatment of these areas. Your discussion on the allocation of each roadless area by alternative and on the resource outputs, environmental effects, and activities is among the best we have seen. Still, we lack needed information such as acres suitable for timber production in each roadless area and an estimate of the impact on allowable sale quantity under each alternative. In addition, a summary of these results over all roadless areas would have helped considerably in our attempt to achieve an overview.

We were disappointed that you chose not to give equal attention, or even acknowledge, the 24 "roadless" areas that you have mapped outside of your RARE II inventory. Included in this group are such well known areas as Browder Ridge and The Pyramids whose fate is of importance to many people. We find no analysis of these areas and, as an example, see Browder Ridge mentioned only once in the DEIS and LRMP when you acknowledge that your plan proposes to manage it as "semi-primitive, nonmotorized."

We will need information on the resource outputs, environmental effects, and activities under each alternative for these 24 areas, much like you provided for the 31 Rare II roadless areas, before we can develop the State alternative. Also, please include this information in your FEIS.

On page II-61 of the DEIS, you describe very briefly four special areas where you worked with consensus groups to reach agreement on future management. These are Three Creeks, South Fork, Fall Creek and Hardesty Mountain. Brief references to these "agreements" for South Fork and Hardesty Mountain are also made in Appendix C. We support consensus decision making when possible, but we cannot determine where these areas are or what the agreements were, or who was involved in reaching consensus. It would help us if you could elaborate on these "agreements."

5. Wild and Scenic Rivers

We agree that the McKenzie River from Tamolitch Falls to McKenzie Bridge is eligible as a Recreational River under the federal Wild and Scenic River Bill. While we will not make our final recommendation until consideration of Senator Hatfield's Omnibus Rivers Bill is further along, we believe your discussion of your conclusion needs to be improved.

Several other rivers on the Willamette Forest are either designated State Scenic Waterways (the North Fork of the Middle Fork of the Willamette including Waldo Lake and the Little North Fork of the North Santiam) or are included in the House version of the Omnibus Rivers Bill (the Breitenbush, North Santiam and the Little North Fork of the Santiam including Opal Creek). Oregon State Parks Division studied Opal Creek and concluded it did not meet the criteria for our state system. We believe that all of these rivers should be examined for eligibility as candidates for designation in the federal system to provide Congress with the information it needs for its deliberations. The State's Opal Creek Study is available from the Parks and Recreation Division.

Finally, our state studies indicate that the South Santiam from its source to Foster Reservoir, the South Fork of the McKenzie and the Middle Fork of the Willamette are good potential scenic rivers or have outstanding recreation values. They should also be examined for eligibility in the federal system. See State Parks and Recreation Division comments for detail.

As noted above, the State has not yet decided what to recommend on pending federal legislation regarding federal designation of these rivers, but until Congress acts these rivers should be managed to protect their eligibility. We also would like assurances that your lands along existing designated State Scenic Waterways will be managed consistent with that designation. Please see the comments of the Parks and Recreation Division regarding the viewshed impacts along the Little North Fork of the Santiam. As noted in our earlier discussion of visual quality, under your preferred alternative the Little North Fork is the only major viewshed to decline in appearance and yet it is specially protected under state law.

D. Economic Effects

We have several suggestions for improving your analysis and portrayal of the economic affects associated with your preferred alterative. We have highlighted six major areas of concern here: 1) employment impacts of the preferred alternative; 2) estimation of timber supply and demand; 3) recreation activity value; 4) recreation supply and demand; 5) mineral exploration; and 6) O & C lands/county revenues. Please see the comments of EDD, the State Economist, Department of Geology and Mineral Industries (DOGAMI), Parks and Recreation and OSDF for more details.

1. Employment Impacts of the Preferred Alternative

Your DEIS defines the activities of the years 1977-1985 as the historical base for comparing the economic effects of the plan alternatives. The 1977-1985 averages for timber harvest and sale quantities do not represent what the surrounding counties have experienced over the last few years. This period includes a severe recession and does not incorporate the recent upturn in the industry. During the period 1985-1987, the counties have had much higher harvests than the 1977-1985 average as companies cut their accumulated timber under contract with the return of high stumpage prices.

Your conclusion that the timber harvest under your proposed plan will rise in comparison to the 1977-85 average may cause people to believe that the timber supply will expand which in turn will enhance economic growth. In reality, though, the projected increase in jobs, personal income, and payments to counties has already been realized through the higher harvest levels of the last two years, and your proposed allowable sale quantity is lower than the 1985-1987 average harvest. As a result, we face a contraction in timber-based employment under the proposed Plan in relation to the current situation.

We believe that it is imperative that the Forest compare the proposed allowable sale quantity and associated economic effects to the most recent three years in addition to the longer period. You should expand your base period to include 1986-1987 giving you 11 years (1977-1987) for comparison.

You constructed your IMPLAN model and removed part of the selling value of the stumpage to account for leakage from local economies to the Federal Government for stumpage. This adjustment makes comparison of employment and income among forest inaccurate because the coefficients are not comparable. You should also document whether an adjustment was made for stumpage that was returned because of contract relief, or was defaulted on, or processed unprofitably.

2. Estimation of Timber Supply and Demand

Your projections of private timber availability are based on a decade-old study. The Southwest Oregon Subregional Market Model from the Pacific Northwest Station will soon be available to make reasonable estimates of stumpage demand. Also, the aggregate timber supply analysis from Oregon State University will be available this summer. Both should be consulted in preparing the FEIS.

3. Improving Recreational Activity Valuation

Your analysis apparently reduced the value of recreational activities by 37 percent. In addition, you assigned a 0 percent real price trend to these activities while applying a one percent real price trend for timber. We believe that these assumptions can result in a serious undervaluation of the contribution recreation makes to the wealth derived from the Forest, and you should support these assumptions or change them.

Another problem with your presentation of the value of recreational activities if the present net value for recreation is only presented forestwide. Yet recreation activities contribute various economic returns and the activities themselves are often concentrated in specific areas, like river corridors. Some site- or area-specific analyzes should be made if we are to make informed decisions about the economic trade-offs involved. Otherwise, as noted by the Parks Division, we face a risk of unwittingly trading high value recreation sites for marginal timber values.

4. Recreation Supply and Demand

We believe that you should base your projections of recreation use on historical use trends on the Forest and demographic trends from locations that provide a majority of your use where such data exist. Your trends seem activity-specific reflecting public preferences for different types of recreation activities but we are unsure of the sources of your information. Your analysis should also highlight the different growth rates in demand by in-state and out-of-state recreationists.

As suggested by the State Economist, we were disappointed that you did not attempt to value the economic impact of recreation. Other National Forests, like the Umpqua, did so. Since recreation is an important use of the Forest, second only to timber in its economic contribution, more valuation analysis is needed.

5. Mineral Exploration and Geothermal Resources

The Willamette National Forest is a geologically diverse area. While the demand for Forest minerals is highly variable, many are strategically important and maintaining access to them is of state concern. While you integrated the concept of mineral potential into development of alternatives, the economic potential of mineral development is not adequately recognized.

The Forest should quantify the value of the mineral resource to the extent feasible, and factor that value into the various alternatives. These values can be very high on particular sites and should be considered in evaluating different alternatives. The vague qualitative estimates used in the DEIS are of real concern to DOGAMI, especially when much better information is readily available (for example on geothermal resources). We encourage you to maintain exploration access to as much of the Forest as possible, particularly for low impact exploration measures. Instead, in the DEIS and LRMP you appear to be planning access restrictions even on existing patented and unpatented mining claims. We believe you should recognize the legal right of access miners have to their claims.

In several alternatives you propose restricting use of Forest common mineral materials to Forest Service and cooperative agencies only. It is not clear in the DEIS how much use by others actually occurs and how much "outside" demand exists for such materials. Before we could make any recommendation on this policy choice, we need to know this information. It would also be useful to know where the major quarry sites area.

We are also concerned about the effect of certain management prescriptions on geothermal development. You do not appear to recognize the difference between direct and indirect use of geothermal energy. The environmental impacts of these types of development are quite different. Direct use of geothermal energy may be quite appropriate even in sensitive areas like the McKenzie River corridor. If areas with high geothermal potential are going to be managed to protect other values (like the Partial Retention management in the Santiam Pass area), we need to know what the impact will be on geothermal development. Please see comments of DOGAMI and the Oregon Department of Energy for details.

6. O & C Lands/County Revenues

The Willamette National Forest manages 51,000 acres of O & C lands. These lands are particularly important to local governments since 50 percent of the timber revenue is transferred to the counties. The FEIS should show the location of these lands, how they are treated in the various alternatives, and their contribution to county payments. See comments of OSDF for additional detail.

Unlike other Forest DEISs we have reviewed your DEIS does not indicate the extent to which the six counties in which the Forest is located depend upon revenue from the Forest. At least for the three main counties, you should determine the percentage of the total county revenue represented by timber sale and other National Forest revenues. This will help us evaluate the impact of your proposed plan on local government. See the comments of the State Economist and OSDF.

D. Other Considerations

The Willamette National Forest is the twelfth of the thirteen national forests in Oregon to publish a management plan. The State may modify its position and recommendations on individual plans when the aggregate effect of these plans has been determined on resource outputs such as timber, salmon and steelhead, big game, and recreation opportunity. Therefore, we urge the Forest Service not to adopt any plan until the cumulative effects of all draft, revised draft, and supplemental national forest plans are known by the public.

Further, we urge you to continue managing the Willamette National Forest under the existing management plan until a new plan is in place or until amendments to the existing plan are developed and approved with participation by the State of Oregon. In the interim, constraints should not be applied to existing plans in contemplation of the new plan without full public participation.

Attached to this letter are reviews of the Willamette National Forest DEIS and LRMP completed by affected State agencies. These reviews consider economic, social, environmental, and legal aspects of the planning documents. They contain substantive technical comments, on the quality of analysis and the information needed to make an informed assessment, that should be considered an integral part of the State response. In addition, the reviews contain suggestions on how your proposed plan can be changed to better meet State agency goals. After we construct the State alternative for your Forest, you will be able to assess the State position on each of these agency suggestions regarding which outputs should be emphasized on your Forest.

Thank you for the opportunity to respond to the Willamette National Forest DEIS and LRMP. The State of Oregon stands ready to help you as you move forward in completion of your Forest Plan. For assistance on our comments about the overall planning process and procedures, feel free to contact Norm Johnson, Federal Forest Plans Coordinator. For assistance on particular resource issues, please contact the appropriate individual indicated on the enclosed list of agency contacts.

Sincerely,

Neil Goldschmidt
Governor

NG:cs

Enclosures

1557N

STATE AGENCY REPRESENTATIVES FOR
NATIONAL FOREST COORDINATED RESPONSES

CONTACT PERSON	DEPARTMENT/ADDRESS	PHONE
Dan Carleson	Department of Fish and Wildlife P.O. Box 59, Portland, OR 97201	229-5677
Rick Roberts	Department of Fish and Wildlife P.O. Box 59, Portland, OR 97201	229-5677
Don Eixenberger	Parks and Recreation Division 525 Trade St SE, Salem, OR 97310	378-6597
Rick Bastasch	Water Resources Department 3850 Portland Road, Salem, OR 97310	378-3671
Pam Wiley	Division of State Lands 1600 State St., Salem, OR 97310	378-3805
Alex Sifford	Department of Energy 625 Marion St., Salem, OR 97310	378-2856
John Beaulieu	Dept. of Geology & Mineral Industries 910 State Office Bldg., Portland, OR 97201	229-5580
John Jackson (Water Quality)	Department of Environmental Quality 811 SW Sixth, Portland, OR 97204	229-6035
John Core (Air Quality)	Department of Environmental Quality 811 SW Sixth, Portland, OR 97204	229-5380
Jim Knight	Department of Land Conservation & Development 1775 Court St., NE, Salem, OR 97310	373-0085
Reis Hoyt	Economic Development Department 595 Cottage St NE, Salem, OR 97310	373-1200
Ann Hanus	State Economist, Executive Department 155 Cottage St NE, Salem, OR 97310	378-3405
Jeff Hannum	Employment Division 875 Union St NE, Salem, OR 97311	378-2736
Phil Ward	Department of Agriculture 635 Capitol St NE, Salem, OR 97310	378-3810
Robert Schumacher	Intergovernmental Relations Division 155 Cottage St NE, Salem, OR 97310	378-5937
Bob Brown/ Ray Miller	Department of Forestry 2600 State St, Salem, OR 97310	378-2664
Norman Johnson	FEDERAL PLANS COORDINATOR 2600 State St, Salem, OR 97310	378-8715

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2/88

Oregon Department of Agriculture

635 CAPITOL STREET NE, SALEM, OREGON 97310-0110

DATE: February 18, 1987

TO: K. Norman Johnson, Federal Plans Coordinator

FROM: Bill Kosesan, Assistant Director

SUBJECT: DRAFT COMMENTS ON THE WILLAMETTE NATIONAL FOREST PROPOSED LAND AND RESOURCE MANAGEMENT PLAN AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Oregon Department of Agriculture is pleased to submit the following comments on the above referenced documents.

General

As implied in the Proposed Land and Resource Management Plan (LRMP) and Draft Environmental Impact Statement (DEIS), the Willamette National Forest is a resource of tremendous economic, social, and environmental importance, not only to the state of Oregon, but the entire nation. Its status as the top timber producing forest in the United States, its proximity to Oregon's major population centers for recreational use and its water yield of 8.4 million acre feet, are all indicative of the importance of the Willamette National Forest to Oregonians and the impact the proposed LRMP has for the state. For these reasons, the department is pleased with the comprehensive manner in which critical resource issues are addressed in the LRMP and DEIS.

Livestock Forage

The planning documents state that a goal of the forest is to provide forage for domestic livestock and to facilitate use of the forest's transitory range, consistent with demand. It is also stated that the heavily forested Willamette has limited capacity for grazing use. Even though a goal of the forest is to provide domestic livestock forage, the physical characteristics of this particular forest in large measure preclude this. As stated, plant forage potential is under utilized, yet the economic realities of grazing available transitory allotments are no doubt primarily responsible for the limited demand for grazing on the Willamette.

Economics of the livestock industry have improved since the statement was authored in the DEIS: "Given current market conditions there will be no significant changes in livestock grazing in the foreseeable future". However, due to the specific forage characteristics on the Willamette and the lack of proximate home ranch properties, the department concurs, for the most part, with the above referenced conclusion. However, the forest is encouraged to maintain currently held allotments and to consider future increases based on industry needs.

Soil and Water Resources

Throughout the LRMP and DEIS, considerable attention is given to the management of riparian areas. An excellent discussion of the nature and importance of these areas is provided. The department agrees that this is a critical element of the draft plan. To assist in our evaluation of current riparian conditions and assessment as to the adequacy of the plan in relation to this important resource, a chart detailing the condition of specific riparian areas would be useful.

One important consideration for successful riparian management is the realization that riparian areas cannot be treated as separate entities from the rest of the watershed. Successful riparian enhancement efforts must involve the associated uplands as well. Management must be extended to these areas or riparian improvement will be limited. The plan could more completely tie together the management of riparian areas with that of associated uplands.

The DEIS states that riparian areas and fish habitat are protected through mitigation measures which reduce timber harvest entries, require directional felling, and maintain adequate supplies of large woody debris. However, in reading through the LRMP and DEIS, a clearly defined strategy for riparian recovery and watershed enhancement is not, in our opinion, well articulated. Considering the intense interest in these resources and their attendant impact on water quality, etc., a strategy of this nature could be more completely detailed in these documents.

Both the LRMP and the DEIS contain a superior discussion of the characteristics of forest soils and the impact of these characteristics on management activities. The DEIS provides an excellent treatment of mitigation measures planned to maintain soil productivity and decrease erosion, mass wasting, etc. It is interesting, however, that these measures yield no projected decline in negative soil effects during the first decade. It would be our hope that implementation of activities of this nature could be tied to a reduction in negative soil effects.

Noxious Weeds

The DEIS contains a limited treatment of noxious weeds under the section dealing with mitigation measures for range. It is the opinion of the department that noxious weeds impact more than range management and that a more comprehensive strategy for their control on forest lands should be identified in a plan of this nature and duration. It would be helpful if a listing of weed species present on forestlands were provided in the DEIS. As the state agency with statutory responsibility for weed control in Oregon, the department stands ready to assist the forest in the development of a plan for noxious weed control.

Threatened and Endangered Plant Species

The issue of threatened, endangered and sensitive plants is addressed under Section G (Vegetation) of Chapter III (Affected Environment) of the Willamette National Forest DEIS. The proposed plan correctly indicates that there are no federally listed threatened or endangered plants on the Forest. It states, however, that 21 species on the Region 6 sensitive list occur, or are suspected of occurring, on forest property. It would be helpful if a table could be provided that identified these species, and indicated which are federal candidates for listing and which are not.

Some wording exists in paragraph 4 (page 3-55, DEIS) that requires clarification. Sentence 3 implies that the forest currently employs field methods that can predict demographic trends within populations of sensitive species. Depending on the methodology, there is some question as to whether such predictions are sufficient to determine the "viability" of a species, as suggested in sentence 2. Does the forest have in place, or plan to initiate, long-term analyses of populations? If not, then it is impractical to identify or predict significant downward trends in numbers or density. In paragraph 5, the sixth sentence indicates that if a sensitive species is found in an area of proposed activity, "then a determination needs to be made as to the extent of the population in the area occupied so as to determine the impacts on the plant if the activity should occur..." Quantifying a population is an obvious first step in the mitigation process, but what other types of studies does the forest propose to use to evaluate potential impacts to a species? These, along with the earlier implied demographic methods, need to be spelled out in more detail somewhere in the plan. It is clearly not feasible to attempt to outline a plan of action for each of the sensitive species present on the forest. However, a general discussion of the types of data that could be gathered in response to typical forest management practices (i.e., logging, road building, herbicide application, etc.) would be appropriate.

The department applauds the forest's decision to include the management of threatened and endangered plant species as part of its long term planning process. The proposed level of funding for this activity ($7,000 per annum for a potential 21 species) may be inadequate, however, based on appropriations by other state and federal agencies involved in similar work. In contrast, an estimated $99,000 yearly is being allocated for the management of four sensitive bird species, including $30,000 for one (the Peregrine falcon) that is not even known to nest on forest property.

bmR11-3N

NEIL GOLDSCHMIDT GOVERNOR

Department of Energy

625 MARION ST. NE, SALEM, OREGON 97310 PHONE 378-4040 TOLL FREE 1-800-221

TO: Norm Johnson, Executive Dept. Date: Feb. 10, 1988

FROM: Alex Sifford, Department of Energy

Ref.: Willamette National Forest Proposed Plan

The Oregon Department of Energy (ODOE) has reviewed the Willamette National Forest Proposed Land and Resource Plan, DEIS and Appendices. The comments below are for the coordinated state response.

For the Willamette National Forest, ODOE is interested in policies and standards for developing forest energy resources, siting large power projects and transmission line corridors.

Forest Energy Resources

The likelihood of finding exploitable energy resources on Willamette National Forest lands varies with the resource. Fossil fuels and hydroelectric are generally the least likely to be found in economic quantities. Geothermal energy on Willamette National Forest lands is evidenced by both hot springs and geology. Geothermal industry exploration continues. ODOE agrees with the Overall Standards and Guidelines Section A, Minerals and Energy #2 regarding geothermal energy development. The restrictions to geothermal resources proposed under the preferred alternative are acceptable to ODOE. Any future development would be in accordance with Environmental Assessments & Impact Statements for the Belknap-Foley, Breitenbush and McCredie Known Geothermal Resources Areas (KGRAs).

Wood residues resulting from timber harvesting include biomass energy resources. The standards cited in the proposed plan refer to these resources under the fuel loading and air quality sections. It is suggested that in response to the need to reduce slash burning, environmentally acceptable use of these resources as fuel (and fiber) be considered under whichever alternative is adopted.

The Oregon Department of Energy is an Equal Opportunity Employer

Siting Large Power Projects

Should a power plant larger than 25 MW in size be proposed on Willamette National Forest lands, it would likely use forest energy resources. The above comments therefore apply. ODOE concurs with the statement in the DEIS that "...in the near term, it seems unlikely that any large scale energy production or development will occur on Willamette NF lands". More importantly, any such facility would come under Energy Facility Siting Council review and requirements.

Transmission Lines

Oregon's Energy Facility Siting Council reviews and approves electric transmission lines in excess of 230 kilovolts and natural gas lines at least 16 inches in diameter. ODOE agrees with the Overall Standards and Guidelines Section A, Land Uses #2 regarding utility transmission corridors. The interagency coordination spelled out in that section will include participation by the state Energy Facility Siting Council.

If either you or Bob Brown need more information please call me at 378-2778.

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4041J

Department of Land Conservation and Development

1175 COURT STREET NE, SALEM, OREGON 97310-0590 PHONE (503) 378-4926

February 1, 1988

TO: Norm Johnson, Federal Plans Coordinator

FROM: Jim Knight, Special Assistant for Coordination

SUBJECT: Preliminary DLCD Issues and Comments on Willamette National Forest Plan

Our Department's preliminary issues and comments on the Willamette National Forest Plan and DEIS fall under the general heading of coordination of the proposed plans with the statewide planning goals and acknowledged comprehensive plans of cities and counties in the Willamette's planning area.

As you know from our comments on other forest plans, the statewide goals and acknowledged comprehensive plans of cities and counties are not technically binding on federal resource management activities outside of Oregon's coastal zone. Nevertheless, it continues to be DLCD's position that the state's overall response on each forest should stress the importance of having the Forest Service's various alternatives be as compatible as possible with the comprehensive plans of affected cities and counties.

It is clear that the Willamette's planning team has attempted to produce a forest plan and DEIS with considerable interest group and citizen involvement. Our review of the Willamette's documents, however, reveal that coordination with state and local planning efforts is not directly discussed. For example, it appears that there is nothing in the Willamette DEIS which is comparable to the Umatilla National Forest's depiction of county zoning districts in relation to surrounding and interspersed federal holdings. The Umatilla also listed the affected county comprehensive plans and implementing regulations, including their dates of adoption. Finally, the Umatilla prepared some general findings explaining the overall effect of the forest alternatives on the statewide planning goals.

Inclusion of this type or similar information in forest plans is valuable not only for strengthening federal-state-local coordination also for assisting the state in deciding upon a preferred alternative for each forest.

DLCD requests that the state's response on the Willamette ask the Forest to do more to demonstrate that it management alternatives are compatible with the state land use goals and with the comprehensive plans of the surrounding communities. Specifically, the Willamette should attempt to obtain from local government planning authorities written indications concerning the relationships of city and county land use policies, map designations and implementing regulations with the alternatives being proposed by the Forest.

While the relationship of each comprehensive plan with the Willamette will vary, an assertion by the Forest that its plan (and the various alternatives) are compatible with the plans of the communities in the area should be based on the following factors:

--Identification and discussion of applicable resource concerns, geographic areas, issues or problems described in comprehensive plans which relate to or are affect by the Forest;

--Compatibility, where possible, of comprehensive plan policies with the Forest's resource use and management recommendation and standards;

--Avoidance and mitigation of specific use, activity and resource conflicts (e.g., dwellings and structures in areas of high fire danger or resource value) which may occur in and along the boundary area between federal and nonfederal ownerships; and

--Coordination of federal and local land use classifications and designations in areas of scattered tracts and intermingled ownerships. Such coordination can relieve problems and expedite procedures involving land exchanges between various owners, transfers or leases to other agencies and the public sale of federally-owned holdings.

In the interests of time, this memo consolidates DLCD's issues identification and preliminary comments on the Willamette National Forest. Please feel free to contact me if your have any specific questions concerning our comments.

JBK
<sac>Willamette Prelim.Comments.

cc: James F. Ross, DLCD
Craig Greenleaf, DLCD
Brent Lake, DLCD
Mel Lucas, DLCD
Bob Rindy, DLCD
Jim Sitzman, DLCD

Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

May 13, 1988

NEIL GOLDSCHMIDT GOVERNOR

K. Norman Johnson
Federal Plans Coordinator
Executive Department
155 Cottage St. N.E.
Salem, Oregon 97310

Re: Draft Environmental Impact Statement for the Willamette National Forest Plan

Dear Mr. Johnson,

The Department has reviewed the draft Environmental Impact Statement (DEIS) for the Willamette National Forest Plan and provides the following draft comments for use in preparing the coordinated state response. These comments are related to air quality and water quality impacts of the proposed Plan. The deficiencies outlined below must be resolved before we can determine the consistency of the alternatives with respect to federal and state environmental rules, regulations and policies. The Department will not be supporting a "preferred alternative" unless it is determined that one or more of the alternatives fails to meet these requirements.

Regarding air quality, the Department's primary concerns are those of air quality impacts from forest prescribed burning and the burning of the Forest's fuelwood by the public within urban areas.

The Forest Plan DEIS indicates that prescribed fire emissions will be declining below the historical (1979-1985) average of 14,173 tons of particulate per year. It is not clear, however, how the 1979-85 average emission level compares to the PSD baseline period (1976-79) being used for forest planning. The DEIS should clearly specify the baseline emission level to assure that the Plan is consistent with Clean Air Act PSD provisions.

In addition, the Plan should show that the Forest Service is not subsidizing the public's use of fuelwood. Both of these issues focus on the Forest's policy of the highest and best practicable use of forest residues. The Forest Plan should work toward better develop management alternatives that will minimize prescribed burning smoke while supporting the utilization of woody resides.

Regarding water quality, the Department's concern is that the plan be consistent with Oregon's adopted Statewide Water Quality Management Plan for forest practices as required by the Clean Water Act. It is important to ensure that the proposed activities of timber harvest, road construction,

chemical handling and usage, sewage disposal, livestock grazing and other forest land activities comply with Oregon's Water Quality Standards and Guidelines and be monitored for the effectiveness in complying with these standards. The plan does recognize goals of meeting water quality standards and protecting beneficial uses of the water. However, important information is lacking in the Plan and DEIS to adequately assess the water quality effects of the activities in a multiple use forest, including sediment production and management controls in specific watersheds. In addition, findings need to be made regarding the relationship between baseline water quality conditions and the effects of the planned forest activities.

Thank you for allowing us the opportunity to review the DEIS. The Department looks forward to reviewing the proposed state response.

Sincerely,

Fred Hansen
Director

FH:p
MP1493
Attachment

Willamette National Forest Plan DEIS Comments

Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204

I. Air Quality

The following comments summarize Department of Environmental Quality, Air Quality Division concerns that should be addressed in the Draft Willamette National Forest Plan. Comments are organized into 3 sections, each of which should be addressed in the Draft Forest Plan:

A. Prevention of Significant Deterioration Requirements

B. Consistency with respect to Federal and State of Oregon Environmental Policies.

C. Other Comments

Forest Planning Impact Analysis

The principal issue of concern to the Department is that of air quality impacts related to forest prescribed burning, urban air quality impacts resulting from residential use of fuelwood from the Forest and the highest and best practicable use of forest residues.

A basic requirement of all National Forest Plans is presentation of an analysis of planned prescribed burning in relation to past burning activities. If it can be shown that projected annual and daily air pollutant emissions do not exceed, or are expected to be less than that which occurred during the 1976-1979 baseline period (using emission estimation methodology for baseline and future years developed by Sandberg, et al, USDA Forest Service), then issues discussed below are satisfied and no additional technical analysis of these issues is required.

A. Prevention of Significant Deterioration

While the DEIS indicates that emissions will be decreasing from the 1979-85 average, no reference is made to the 1976-79 baseline emissions. If it is clear that prescribed burning emissions will not exceed those during the baseline period, a broader technical analysis of expected impacts on PSD increments to clearly demonstrate that planned increases in prescribed burning emissions are consistent with federal and state air quality regulations, rules and policies is not required.

Part C of the Clean Air Act, requires the Department to insure that pollutant increments in Class I areas (Table 1) do not exceed specific limits adopted by Congress irrespective of the originating source. To assure that these increments are not exceeded due to planned increases in prescribed burning emissions, a technical analysis of the impact of

planned burns on nearby Class I wilderness and Class II lands would be required. As noted above, such an analysis would not be required if it can be shown that the proposed burning activity would not exceed that which occurred during the baseline period. If the analysis indicates significant impacts, specific measures designed to mitigate the impacts must be described in the Draft Forest Plan.

B. Consistency With Federal and State Environmental Policies.

Department policy (OAR 340-20-001) requires that Highest and Best Practicable Treatment and Control be applied to pollution sources within Oregon. OAR 340-13-005, Environmental Standard for Wilderness Areas, set forth policy on environmental impacts within wilderness lands while USDA Forest Service Region VI policy (Service Manual No. 2400, Supplement 347, March 1985) requires that, in recognition of the value of forest residues utilization, prescribed burning only be accomplished for those units where all other alternative treatments are unacceptable.

1. Fuelwood cutting program consistency with environmental policies:

The Department has become increasingly concerned about residential wood smoke impacts on urban air quality. Fuelwood cutting programs managed on the Willamette National Forest is a major and inexpensive source of fuelwood for Oregon residents. Although the DEIS does note (page IV-44) that as much as 73,000 cords of fuelwood would be taken from the Forest under one of the alternatives, the DEIS does not discuss the serious environmental consequences of the fuelwood program and it's consistency with Federal and State environmental policies. Specifically, the DEIS should clearly demonstrate that woodcutting fees are not subsidizing the public's use of fuelwood.

2. Highest and best use of wood residues:

Department policy (OAR 340-20-001) requires that highest and best practicable treatment and control be applied to pollution sources within Oregon. Since prescribed burning smoke is the largest source of fine particulate emissions within the State, the Draft Forest Plan should include consideration of an alternative that assures the highest and best practicable treatment of forest residues focusing on intensive utilization of woody residues for industrial purposes. As noted in the DEIS, it is important that the Forest Service work toward alternatives that will minimize prescribed burning smoke while continuing to support utilization of woody resides.

C. Other Comments

The DEIS notes (page IV-41) that "no emissions from forestry burning have yet been identified by the Environmental Protection Agency (EPA) as hazardous to human health...". While the statement is true, it is also true that EPA does not categorize the health effects of pollutants

in terms of sources. The health hazardous of emissions are identified on a pollutant basis, including carbon monoxide, particulates and toxic air pollutants which are emitted from a variety of sources including prescribed fire. The statement in the DEIS is misleading and in conflict with other Forest Service environmental impact statements. The DEIS on Managing Competing and Unwanted Vegetation notes that (page IV-120) "The various components of smoke include, among others, polycyclic aromatic hydrocarbons (PAH's) benzo-a-pyrene (BaP), dioxins, formaldehyde, acetaldehyde, phenol and manganese" and that (page IV-123) "Our confidence that no adverse human health effects will occur due to exposure to fire smoke at levels reaching population centers is uncertain." We feel that the final EIS should more accurately reflect what is known about the health effects of smoke.

II. Water Quality

The Management Plan and DEIS were reviewed within the concept that land management activities have the potential to beneficially or adversely impact the quality of the waters in the forest land downstream from the forest. The Management Plan has the opportunity to improve existing degraded resources and to maintain or protect existing desired resource conditions. The level of emphasis placed on water quality conditions and the processes used to protect that quality, play an important role in providing guidance to the managers on a project-by-project basis in the future.

The Water Quality Division comments are detailed in the following sections.

A. Consistency with Provisions of the Clean Water Act.

Fish habitat, recreational uses and water for domestic use are all recognized beneficial uses of the waters within and emanating from the Willamette National Forest. The Department of Environmental Quality's statutory obligation is to protect, maintain, and improve water quality for these uses. The Department does this, in part, with the help of the Federal Clean Water Act and Oregon water quality standards contained in the Oregon Administrative Rules (OAR).

The draft Willamette Forest Plan provides a goal for meeting state water quality standards. The Plan also provides standards and guidelines for water that will meet standards through application of Best Management Practices (BMP) at the project planning level. We believe these are compatible statements, both of which, if achieved will maintain or improve water quality in the forest. To strengthen these statements and avoid misinterpretation of goals, we suggest specific references to Oregon's water quality standards (OAR Chapter 340, Division 41) and Oregon's forest practice rules (OAR Chapter 629, Division 24) be added to the water resources goal statements (p. IV-2, proposed Plan) and the statements in the forest-wide standards section beginning on page IV-39 of the proposed Plan.

The Plan should also provide standards for wastewater systems. We request that the following language be added to the forest-wide standards section beginning on page IV-39 of the proposed Plan:

> "Sewage treatment and disposal facilities shall be approved by the Department of Environmental Quality or its contract agents and shall be in compliance with rules of the Environmental Quality Commission".

The forest staff should be commended for the following work that went into producing the proposed Plan and draft Environmental Impact Statement (DEIS).

- The discussion of environmental consequences that accurately portray land management impacts on water quality and soil values.
- The in-depth compilation of recent studies of mass wasting into an understandable component of erosion yield.
- The conclusions arrived at concerning timber harvest and road construction activities effect on surface and debris sludge erosion.

To further strengthen the proposed Plan and DEIS we offer the following comments:

1. Delineate riparian areas for the Forest's 6,621 miles of Class IV streams as was done for the Class I, II, and III streams (DEIS, Figure III-G-5). Though they do not have water flowing down them year around the vegetation is of riparian nature, and when they do flow they have a cumulative effect on the downstream perennial streams.

2. Throughout the DEIS and Plan the Allowable Sale Quantity (ASQ) given for the preferred management direction over the next decade has been at a 568 MMBF annual rate. The rate for road construction over that same period has been 56 miles of local roads per year.

   However, in Appendix C of the Plan listing the Timber Sales Ten-Year Action Schedule we come up with figures different than those listed above. Over the ten year period the average ASQ annually, excluding miscellaneous salvage, comes to 684 MMBF. The road construction figure is 75 miles annually. This is an increase of 20 percent and 34 percent respectively.

   The Ten-Year Schedule rates for timber harvest and road construction could have a significant effect on sedimentation rates and water quality if they are indeed the correct figures. Please review these harvest figures to determine if the apparent discrepancy is valid.

3. With thirteen of the 26 watersheds identified as having sedimentation problems we question the prudence of timber harvest of any kind in the riparian areas. With most of the roadless areas opening up to harvest activities perhaps the time is right to give the riparian areas more recovery time from harvest impact. We would like you to consider a no-harvest prescription in the riparian areas of the troubled watersheds. Perhaps the roadless areas can fill the harvest void.

4. Quantitative indicators for water quality - Adverse Watershed Impact and Amount of Erosion - show virtually no change for the next decade over the previous decade (Figure III-B-1 page 5 of the Plan). Thirteen of the 26 major Forest watersheds cited as having the most prominent sediment related problems have 1986 erosion levels ranging from 42 percent to 140 percent above natural levels. Several other watersheds fall within this range of values, but have not experienced the same readily observable problems. Most of these watersheds, however, have individual subdrainages in which sediment related effects have occurred. Many of the alternatives, including the Preferred, state in their goal statements that soil and water resources will be managed to meet Minimum Management Requirements. We recommend that you manage soil and water resources to exceed MMR and emphasize improvements for these resources in the proposed Preferred Alternative.

B. Review of Water Quality Monitoring Plans

The proposed Plan addresses the issue of monitoring and evaluation of management activities on various resources including soil, water, fish and cumulative effects. We agree with the approaches displayed in the Plan. However, we do have concerns for what is proposed and the need to improve the approach to be most effective.

1. The goal of a monitoring program to protect the water resource should be to assess the changing water quality conditions, not assessment of BMP implementation. The BMPs are tools to achieve water goals and should be monitored for their effectiveness to achieve water quality protection. However, BMPs are not the end products. Good water quality is the end product and, therefore, should be the focus of monitoring.

   We suggest the forest staff use the Nez Perce National Forest final plan, Appendix A, Forest Fishery/Water Quality Direction by Prescription Watershed approach and specific elements as a starting point for improving the Willamette monitoring plan. Please pay particular attention to the focus on beneficial uses of water in the streams and to the stream and water quality parameters monitored.

2. It is unclear in the proposed Plan how the results of the water monitoring efforts will be displayed to the resource managers to modify their management strategies as necessary.

A more frequent contact with the resource managers is necessary to ensure timely and effective decisions to protect water quality. We suggest that the plan be improved to show: (a) the mechanism for the results of water quality monitoring to be transmitted to other resource managers and (b) how frequently these communications will be made.

3. Adequate and guaranteed funding of a monitoring program is necessary. The proposed plan displays costs for monitoring, but this does not ensure that the monitoring will actually take place. It is our position that plan implementation monitoring is not voluntary or optional, but mandatory. Our position is based on the monitoring requirements inherent in the National Forest Management Act (NFMA) which states, "(E) insure that timber will be harvested from National Forest System lands only where -

   (iii) protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat" (Section 6, NFMA).

4. The forest staff should be commended on their in-depth assessment of environmental consequences of the alternatives on water/soil- Chapter IV of the Draft Environmental Impact Statement (DEIS). Recent studies referenced throughout the discussions are some of the most up-to-date and meaningful we have encountered.

   However, we feel the impacts presented here are not adequately handled by the water quality monitoring plans (Chapter V of the Forest Plan). We would recommend Class III and IV streams receive monitoring to help prevent cumulative effects on Class I and II streams. Most of the harvest and roading activities are in subdrainages with small perennial and intermittent streams. Much of the upper drainages have potential for severe surface erosion. This was identified in the discussion on Roadless Areas in Appendix C of Appendices - DEIS. One would assume these areas are representative of other upper drainages throughout the forest.

C. Review of Management Strategies and Alternatives

The DEQ made no attempt to determine a preferred alternative for water quality. We recognize that this is a land management plan, so we are concerned with the various levels of potential water quality impacts from those land activities. We also recognize that differences in management intensity of an activity will create varying potential impacts on water quality.

We reviewed all alternatives and management strategies and prescriptions found in the Plan and DEIS with interest in the potential for water quality impacts and the opportunities available to ensure water quality protection. We assume that the higher the level of soil disturbance by activities the greater the potential for erosion problems; also the greater the encouragement for recreation, the greater the potential for additional water quality problems.

If the proposed preferred plan alternative can maintain or improve water quality, then the DEQ could support the preferred alternative. However, we are not convinced from what we have been presented for review that this goal can be fully achieved.

The Plan and DEIS, as written, present problems for the reader to compare management alternative impacts on water quality on the following discussion areas:

1. The DEIS page II-30 mentions that "Techniques for meeting riparian requirements were also the primary means of meeting water quality requirements". Granted, each is affected by the other, but we feel that adjacent harvest and roading activity, past, present and future, play an equal, if not greater, role on water quality. This is particularly true with regards to sedimentation.

2. With regards to the Preferred Alternative (J), water was not part of the focus on major issues. Yet during the issue development survey, concerns for water quality received the second highest rating. The attention given to this issue was not given major focus in many of the alternatives. Please give it the attention the survey intended for it with regards to concerns and opportunities as was given the other major issues.

D. Review of Standards and Guidelines for Soil, Water and Riparian Areas (Chapter IV, page IV-60 - Forest Plan)

- All prescriptions are contained in Section B - Specific Standards/Guidelines. Management Area prescriptions reference Section B with regards to water, soil and riparian standards. This seemed cumbersome and somewhat confusing. This could be clarified with a Riparian Management Area prescription.

- Section B #3 describes minimum boundaries for riparian area as being approximately 100 feet from the edge of perennial streams, etc... Does this exclude intermittent (Class IV) streams?

- Section B #5. "Limit the mass failure rate on a given project area... to a rate that is less than twice the weighted average of the natural rates, etc..." This approach seems to be after-the-fact. How does one limit mass failure? The limitations should be on activities that may cause mass failure.

- Section B #10. appears to subscribe to activities that may deteriorate Class III and IV streams as long as water quality in Class I and II streams is maintained. Is this not inviting a problem?

- Section B #12. "... Where adverse effects are anticipated, they will be formally declared with notification to the public." This approach appears to condone adverse activities to a certain extent.

- Section B #13a. Does this mean there will be roading activities permitted that will increase sedimentation to the point of damaging water quality?

E. Review of the Plan for Groundwater Quality Protection.

The Plan virtually ignores the groundwater component of the hydrologic cycle. Although groundwater probably will be minimally affected by forest management activities, the Plan should recognize the importance of groundwater quality protection and discuss the following points.

1. Activities that affect groundwater quality will eventually affect surface water quality. Conversely, changes in surface water quality might be reflected in groundwater quality.

2. Lakes with unique pristine water quality may need special groundwater protection requirements to prevent nutrient enrichment, particularly with regard to sewage disposal practices associated with intensive recreational use.

3. All sewage disposal practices need to be in compliance with state requirements. Please state those requirements by reference in the Plan.

4. Groundwater protection planning should be included in all chemical handling practices, in the forest. This would include, but not be limited to herbicides, pesticides, fertilizers, and degreasing solvents at maintenance shops.

5. Activities and procedures that minimize erosion, and surface water runoff also will increase infiltration, allowing for more stable year rounds stream flow.

For further information regarding Water Quality, contact John Jackson at 229-6035.

Table 1
Maximum Allowable Increases
(PSD Increments)
(Micrograms Per Cubic Meter)

Class I Areas

Pollutant	Annual	24-Hour	8-Hour	3-Hour
SO2	2.0	5.0		25.0
TSP	5.0	10.0		

Class II Areas

Pollutant	Annual	24-Hour	8-Hour	3-Hour
SO2	20.0	91.0		512.0
TSP	19.0	37.0		

Class III Areas

Pollutant	Annual	24-Hour	8-Hour	3-Hour
SO2	40.0	182.0		700.0
TSP	37.0	75.0		

Department of Fish and Wildlife
OFFICE OF THE DIRECTOR
506 SW MILL STREET, P.O. BOX 59, PORTLAND, OREGON 97207 PHONE (503) 229-5406

March 17, 1988

Mr. K. Norm Johnson
Resource Planning
Department of Forestry
2600 State St.
Salem, OR 97310

Dear Norm:

Enclosed is a copy of the Department's draft comments for the Willamette DEIS and Proposed plan. The Department is concerned with the proposed short rotation management on nearly 700,000 acres of the Forest. This strategy would have a significant adverse impact to habitat diversity on the Forest. The Department is also concerned with proposed fish habitat management and the lack of specific standards and guidelines.

Sincerely,

Randy Fisher
Director

rro
enclosure

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Oregon Department of Fish and Wildlife Comments
on the Willamette National Forest
Draft Environmental Impact Statement and
Proposed Plan

April 18, 1988

		Page
1.	General Comments	1
2.	Concerns and Recommendations	3
3.	Draft Environmental Impact Statement	14
	A. Purpose and Need (Chapter I)	14
	B. Alternatives (Chapter II)	14
	C. Affected Environment (Chapter III)	17
	D. Environmental Consequences (Chapter IV)	26
	E. Appendices	34
4.	Proposed Land and Resource Management Plan	40
5.	ODFW Fish and Wildlife Habitat Protection Criteria for Forested Lands	53

GENERAL COMMENTS

The Oregon Department of Fish and Wildlife (ODFW) congratulates the Willamette National Forest (Forest) on the completion of its Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan.

ODFW comments and recommendations are intended to be constructive and lead to positive results. They are based on ODFW understanding of the National Forest Management Act (NFMA), the clean Water Act, Executive Order 11990, and key provisions of he Wildlife Policy of the State of Oregon.

In March of 1985, ODFW presented the Forest with fish and wildlife habitat protection criteria for use in planning. The criteria set minimum standards felt necessary to meet the State of Oregon Wildlife Policy (Oregon Revised Statue [ORS] 496.012). The focus of ODFW recommendations is on implementing actions to meet those habitat protection criteria.

ODFW generally objects to departure alternatives because forest wildlife resources would be rapidly diminished by accelerated modification or loss of habitat. Departure timber harvesting risks the evenflow of recreational and commercial opportunities associated with fish and wildlife.

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ODFW objects to management that creates an extensive area of even-aged stands across the Forest. Under even-aged timber management, structural and vegetation diversity would be greatly simplified and it may be difficult to maintain the desired amounts of dead and down woody habitats. A mix of even-aged and uneven-aged timber management across the Forest would provide diversity necessary for the variety of wildlife inhabiting the Forest. The Forest is urged to mix harvest prescriptions among adjoining units and emphasize uneven-aged management in all timber types.

Evaluation of the planning documents was difficult due to the lack of:

1. A map displaying the distribution of plant communities and seral stages;
2. A map of range allotments and information on range condition and trend;
3. Information on plans for access and travel management to protect sources and meet big game hunter demands;
4. Proper identification of big game winter range capability areas;
5. Recognition of ODFW big game benchmarks;
6. Proper use of elk habitat effectiveness models and adherence to interagency agreed to definitions; and
7. Specific information on habitat conditions; most data was based on a forest-wide analysis which is of little or no value for habitat management purposes.

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OREGON DEPARTMENT OF FISH AND WILDLIFE CONCERNS AND RECOMMENDATIONS

ODFW considers its position on the amounts and condition of resources comprising or affecting fish and wildlife habitat to be realistic and reasonable. Recommendations consistent with this position are presented for:

1. Aquatic/Riparian Habitats
2. Big Game Habitat
3. Management Indicator Species
4. Access and Travel Management
5. Roadless Areas
6. Old Growth Habitat
7. Dead Tree Habitat
8. Habitat Diversity
9. High Elevation Forests
10. Standards and Guidelines
11. Monitoring

1. Aquatic/Riparian Habitats

The provisions for protecting and managing these resources are questionable. Provisions for stream surface shading, if any, are unclear. Class IV streams are afforded little or no protection unless in unstable areas. Five percent of the proposed timber harvest is planned from riparian areas, and since riparian areas represent five percent of the Forest, it therefore appears protection of riparian areas is inadequate.

Stream sedimentation or turbidity standards and guidelines are not specific and cannot be measured, such as those provided for water temperature. High water temperatures are recognized as a problem in several watersheds. The Forest preferred alternative must provide remedial actions to correct identified temperature and turbidity problems.

Many areas of the Forest have unstable soils and pose a high risk of debris torrents and mass soil failures. The Forest recognized that, due to these risks, some alternatives will reduce: (1) soil and channel stability, (2) water quality and, (3) input of large woody material. ODFW cannot support any alternative that would degrade aquatic habitats.

Because large woody debris is an essential component of the stream channels for dissipation of stream energy, channel and stream bank stability, and fish habitat, ODFW supports the Forest standard to maintain large, woody debris at 90 percent or more of the current level existing for any given stream or lake. This standard is appropriate for areas that have not been entered for timber harvest; however, for areas that have been entered, the standard needs to be "90 percent or more of potential large woody debris."

In order to assure a high level of maintenance and protection of riparian-dependent resources, ODFW recommends the Forest develop a riparian management strategy similar to the Supplemental Resource

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Strategy developed by the Siskiyou National Forest. This strategy would not allow programmed harvest within riparian zones or livestock grazing in areas that have a range condition rating less than "good."

ODFW supports the application of MA 9c and 9d to nonwilderness lakes; however, how the application of these strategies was determined is unclear. For example, all of the approximately 30 candidate lakes in Blue River, McKenzie, and Rigdon Ranger Districts are assigned these prescriptions, yet none of twelve lakes on the Oakridge Ranger District are provided this protection. ODFW strongly recommends all nonwilderness lakes be given MA 9c and/or 9d designations.

2. Big Game Habitat

The following recommendations are designed to meet ODFW benchmarks for black-tailed deer and Roosevelt elk, and would require additions to and modification of the proposed standards and guidelines for Management Area 11 (Scenic) and Management Area 14 (General Forest) classification. The deer and elk benchmarks can be met through increased production and distribution of quality forage and cover.

ODFW's deer and elk population planning benchmarks for the Forest amount to 6,200 wintering elk and 21,400 wintering deer (20 June 1980 report to Rod Canutt, Region Six). In 198?, elk and deer were at 60 and 83 percent of the benchmark, respectively. When wintering herds are at the benchmark level, adult elk and deer numbers allocated to Forest summer ranges amount to 5,700 elk and 24,500 deer. The DEIS and Plan need to acknowledge ODFW planning benchmarks and provide an alternative that assures maintenance of those levels without diminishing hunting opportunities.

The 1980 report to Region Six also provided ODFW's definition of west slope Cascades winter range upon a request for specific planning information:

> "All slopes below 3,500 feet within a 180° aspect between N.W.-S.E. true bearing" and "other specific wintering locations that could be outlined."

ODFW recommends the Forest use the above definition to identify winter range capability areas on all maps. ODFW will provide a map identifying and delineating specific wintering locations at higher elevations.

The desired level of big game forage production is based on the quality of the forage, the length of time sites produce forage, and the distribution of forage sites. Forage quality is determined by the species seeded and the application of appropriate fertilizers. Permanent forage sites should be established at a rate of 100 acres per year over the planning period. These permanent sites should be managed under the MA9b prescription for special habitats, and evaluated for effectiveness at the end of the planning period. The number of trees planted on clearcuts needs to be reduced by the Forest to prolong their production of quality

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forage. Well distributed clearcuts adjacent to optimum thermal cover should be enhanced for big game forage with seedings and fertilizer at a rate of 1,000 acres per year.

In addition to forage production, the standards and guidelines for big game need to address three cover types (hiding, thermal, optimal thermal) as defined in "Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington" (Brown 1985). Cover management objectives are tied directly to forage site management, since hiding and thermal cover are lost on clearcut areas, and thermal cover is reduced on thinned units. The relationship of forage areas to hiding and thermal cover should, therefore, meet the guidelines presented in Brown (1985). These guidelines would ensure adequate thermal cover was near planned thinned units, or postponement of thinning until elk hiding cover developed in the forage area. The guidelines also provide for visual barriers between openings and roads to reduce vehicle disturbance to deer and elk.

To stabilize cover and forage relationships over time in an attempt to meet deer and elk population benchmarks, ODFW recommends the Forest's final plan set management direction to achieve evenflow controlled by acreage on the 1,000-6,000 acre permanent resource scheduling areas (RSA's) on timber management lands. RSA boundaries must not overlap adjacent unavailable or unsuitable lands by more than one-quarter mile. Ten-year harvest dispersion on the RSA's would be dictated by existing conditions, and stability would be attained with an average harvest of 10-12 percent per decade in regulated forest units. To maintain appropriate forage and cover relationships, clearcuts should not exceed 40 acres per block, with 5-20 acres preferred. Hiding cover succession criteria on created clearings should be changed to 10 foot tall trees, accounting for slope.

The RSA should also be the habitat effectiveness (HE) monitoring unit, involving all HE attributes (including roads), along with project area evaluations. To achieve desired big game outputs, the goal by RSA should be at least 0.5 HE and at least .75 on the forage quality attribute. The Forest must use "A Model to Evaluate Elk Habitat in Western Oregon" (Wisdom 1986) in forest management and planning, as agreed upon by USFS, BLM, and ODFW.

3. Management Indicator Species

ODFW is concerned with the proposed management strategies for management indicator species (MIS) and offers the following recommendations are to resolve those concerns:

Spotted Owls

The Forest is the most important area within the range of the northern spotted owl due to its size, central location, and amount of occupied habitat. Every effort needs to be made to provide the best remaining habitat and distribution pattern. Based on research conducted on the

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Willamette and elsewhere, ODFW recommends at least 2,200 acres of old-growth/mature forests be maintained for each selected pair.

As a result of the risk analysis conducted by Region 6 USFS for the spotted owl SEIS and current thought on island biographic theory, ODFW continues to support management of existing large blocks of contiguous, suitable habitat to maintain the spotted owl and associated species over the long term. Large block areas would include multiple pairs of owls and replacement habitat.

Using the Region 6 MMR distance guidelines for single pair SOHA's, ODFW concludes that at least 19 additional SOHA's are needed to fill gaps between SOHA's identified in Alternative J, particularly those providing connection to adjacent BLM lands and other national forests. These include both occupied and capable (future) spotted owl habitat areas (SOHA). Recommended additional SOHA's are listed below:

A. To Connect to BLM SOHA's

1. Elkhorn (AQ)
2. Moose Creek (EJ)
3. Moose Creek (EJ)
4. Cone Creek (MI)

B. To Connect With Adjacent Forests

1. Potato Hill (IA)
2. Paddy's Valley (3H)
3. Dome Rock (3E)

C. To Improve Distribution Within the Forest

1. Tidbuck Creek (MB)
2. Brush Creek (RB)
3. Cabin Creek (RF)
4. Cayuse Creek (ZE)
5. Warm Springs (ZD)
6. Cedar Creek (ZG)
7. Fuji-Marilyn (ZV)
8. Wolf-Hills (3R)

D. Capable SOHA's (approximate locations)

1. T11S, R6E, S.36
2. T13S, R4E, S.30
3. T15S, R4E, S.06
4. T15S, R7E, S.15
5. T23S, R4E, S.26

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Pileated Woodpecker

Based on recent work by Mellen (1987, M.S. Thesis, OSU), and Brown (1985), ODFW recommends guidelines be changed to provide at least 500 acres of mature and old-growth forest habitat for nesting and roosting habitat. Potential nest trees should average 28 inches dbh. Foraging habitat should also be increased to at least 500 acres with two snags (17 inch or larger dbh) per acre to meet minimum needs of other primary cavity excavators. Habitat blocks should be contiguous. Additional comments are provided under Standards and Guidelines.

Pine Marten

Pine Marten populations will suffer if habitat areas are isolated from one another by extensive stands of unsuitable habitat. ODFW recommends maintaining forested corridors and streamside buffers with high levels of down logs as travelways throughout higher elevation forests. (See comments for high elevation forests).

Other

ODFW recommends the Forest select a management indicator species for riparian habitats and resident fish habitat. ODFW will work with the Forest to identify these species.

4. Access and Travel Management

The Forest is required (FSM 4/87 R-6 Supp. 40 2635.02) to develop a comprehensive road management plan that includes fish and wildlife objectives, and coordination with ODFW. Through this process ODFW will provide specific input for desired open road densities on the Forest. The Forest must use federal authorizations to address vehicle use restrictions of roads and areas in the Land and Resource Management Plan (FSM 7110, FSM 2355.1).

Seasonal management of motorized travel is needed to assure habitat effectiveness on summer range and protection on critical winter range, to protect special habitats (e.g. calving meadows), and to improve buck and bull escapement. During statewide elk management workshops in 1984, Oregon big game hunters identified forest roading as their foremost concern and favored increased road closures to resolve roading impacts. The Forest does not address this issue. The Forest needs to fully discuss the effects of open roads and open road density on big game. The Forest has approximately 232 miles of arterial, 1,815 miles of collector, and 4,317 miles of local roads - with plans to build 5,288 additional miles of roads. Because each mile of open road reduces habitat effectiveness ODFW's focus is on management of local roads and some collector roads.

ODFW recommends an average of 1.5 miles of open road per square mile of developed area. The Forest must find a way to effectively bar motorized traffic on closed roads.

Nonessential roads on winter range should not be open to motorized travel from December 1 to April 15 each year. Any areas where ORV activity conflicts with wintering big game would also require an area closure.

ODFW recommends closure to public vehicle use on all new road systems developed in the now existing unroaded areas. This direction would help meet habitat objectives for big game and would not allow a use pattern to develop.

In summary, the following need to be implemented in the Forest's comprehensive road management plan:

1. Establish an average open road density not to exceed 1.5 miles per square mile of developed area;
2. Eliminate all motorized travel in area closures;
3. Establish special seasonal closures on big game winter ranger areas;
4. Screen forage areas from roadsides;
5. Emphasize year-round closures; and
6. Agree (ODFW and Forest) on definition of a "closed road."

ODFW recommends the Forest summarize the road management plan and include large scale maps in the final environmental impact statement.

5. Roadless Areas

ODFW supports the proposed allocation of roadless areas in Alternative J for:

Bull of the Woods	Mt. Hagen
Menagerie	McLennen Mountain
Mt. Washington (North)	Waldo Lake
Mt. Washington (South)	Charlton Butte
Huckleberry	Maiden Peak
Frog Camp	Bulldog Rock
Gold Creek	Diamond Peak (North)
Rainbow Falls	Diamond Peak (South)
French Pete (A and B)	

The Forest needs to manage the Maiden Peak and Hardesty Mountain roadless areas with a strategy (MA 10e or equivalent) to protect the SOHA's in these areas.

ODFW recommends a dispersed recreation allocation for the following roadless areas:

	MA		MA
Opal Creek	10e	Roaring River	10d
Elkhorn	10e	Chucksney Mountain	9a,b/10e/10d
Mount Jefferson North	10d	Waldo-Fuji	10e/10d
Mount Jefferson South	10d	Waldo-Salmon Creek	10e
Middle Santiam	10b	Waldo-Many Prairies	9a

Echo Mountain	10d	Waldo-Koch	10d
Moose Lake	10b	Waldo-Moolack	10e
Gordon Meadows	10d	Cornpatch	9b/10d
Mt. Washington West	10d	Hardesty Mountain	10b/10e
Mosquito Creek	10e		

Site-specific recommendations for each roadless area are found in comments to DEIS Appendix C.

The management of those areas recommended for dispersed recreation strategies would help meet the wildlife policy of the State of Oregon by providing for optimum fish and wildlife recreational and aesthetic benefits for present and future generations of the citizens of the State.

Roadless areas respond in part to those big game hunters who identified forest roading as number one of 32 concerns expressed at statewide workshops. In addition, water quality is better within roadless areas and nonroaded areas help provide bull and buck escapement while maintaining the hunting opportunity. Roadless areas also provide natural habitat diversity and solitude for a variety of nongame species.

6. Old-Growth Habitat

ODFW has two concerns with the proposed old-growth habitat management on the Forest: (1) the lack of proper distribution of these habitats, particularly at lower elevations, and (2) the amount of old growth by plant community. ODFW habitat protection criteria for forested lands is met where "A minimum of 5-15 percent of each major plant community on the forest is dedicated old-growth stands, well distributed by slope, aspect, and elevation throughout the forest." The Forest needs to display the amount and location of current old-growth habitats by plant communities, since ODFW cannot determine if this criteria is met based on the information provided in the DEIS.

Old-growth habitats are important for the production and stability of watersheds and many plant and animal species.

The Forest should follow the habitat definitions from "Regional Guide for the Pacific Northwest Region" when identifying old-growth habitat acreage by plant community.

7. Dead and Down Woody Habitat

ODFW recommends the Forest adopt a minimum snag policy of 60 percent potential population level for the general forest allocations (MA-14), and a 100 percent level for all other allocations to meet ODFW protection criteria. Areas of past management activity or firewood cutting with less than 60 percent of potential population snag levels should be surrounded by an area of equivalent size that is managed at the 100% level.

ODFW is not aware of any coordinated monitoring of snag habitat on the Forest. Observations by ODFW biologists indicate an insufficient number and variety of snags has been retained on past logging sites to maintain even minimum viable populations of cavity nesting species on managed forest areas. These inadequate snag management efforts of the past must be rectified through this current planning process.

It is essential that hard snags of varying diameters and heights be provided to maintain populations of all species of cavity nesters. Where suitable snags are lacking, live trees should be designated for future snag management. Public education and enforcement against unlawful wood cutting and other destruction of wildlife trees should be a part of the snag management program. The Forest needs to display the methods that would be used to protect these habitats from management activities.

Management of primary cavity excavators at the 20-40 percent potential population level assumes that these animals can be concentrated in a lesser number of snags. This assumption does not adequately address the ecology of these species. The behavioral and territorial requirements of some animals would preclude occupancy of snags by others; therefore, ODFW recommends the Forest leave more wood in project areas. An increased amount of wood residue would increase habitats for nongame species and provide for increased nutrient recycling. Traditional practices, such as yarding unutilizable woody material, often leaves too little woody material on the site for nongame species. Guidelines for leaving more wood in project areas should follow Brown (1985).

8. Habitat Diversity

ODFW is concerned with the impact of the General Forest (MA 14) land allocation on the diversity of plant and animal species. Seral stage IV, as illustrated in Figure III-G-3 of the DEIS, approximates the rotation of the MA 14 prescription, and provides the least plant and animal diversity of the six stand conditions presented in Chapter III of the DEIS. With a typical 100 year rotation, 50 to 70 percent of the managed acres would be in seral state IV, and the remainder of the managed acres would be in lower successional stages.

The adverse impact of seral stage IV on plant and animal diversity is a direct result of a closed crown cover condition. The closed crown cover greatly reduces the amount of sunlight reaching the forest floor; this, in turn, reduces the production of understory vegetation.

Another impact of intensive timber management on plant and animal diversity is the reduced amount of time that regeneration units stay in the lower stand condition classes. Intensive management practices, such as vegetation control, decrease the duration of grass/forb and shrub stand conditions by one-half.

The Forest has used the amount of old-growth acres on a Forest-wide basis as an indicator of diversity, which is an unacceptable method of measurement. All six stand condition classes, and the habitat components of

each class (i.e., snags, down woody material, forage production), should be included in diversity measurements.

ODFW recommends the Forest: (1) re-evaluate habitat diversity and the consequences of the proposed alternatives and management strategies on that diversity, (2) redesign the MA 14 prescription to meet a much higher level of plant and animal diversity than currently proposed and, (3) provide a detailed map for the preferred alternative showing all management allocations. This effort must adhere to the intent of the following planning regulations:

36 CFR 219.26 (Diversity) states, "Inventories shall include quantitative data making possible the evaluation of diversity in terms of its prior and present condition. For each planning alternative, the interdisciplinary team shall consider how diversity will be affected by various mixes of resource outputs and uses, including proposed management practices. [Refer to 219.27(g)]

219.27(g) Diversity, "Reductions in diversity of plant and animal communities and tree species from that which would be expected in an natural forest, or from that similar to the existing diversity in the planning area, may be prescribed only where needed to meet overall multiple-use objectives."

The reduction of habitat diversity from implementing the MA 14 strategy on nearly 700,000 acres of the Forest would be the result of a prescription designed to meet a single-use objective. Planning regulation 36 CFR 219.27(g) states "Reductions in diversity . . . may be prescribed only where needed to meet overall multiple-use objectives."

9. High Elevation Forests

ODFW is concerned with the proposed management strategies for high-elevation forests, such as the mountain hemlock/lodgepole pine working group and with associated species. Resident wintering wildlife associated with these high elevation habitats are adversely affected by openings. Current literature indicates these habitat types: 1) produce poor quality timber; 2) have the lowest average volume per acre; 3) have the lowest market value; 4) are expensive to harvest; 5) experience extremely slow height and diameter growth; and 6) are extremely difficult to regenerate. The last two points are of concern to ODFW because proven regeneration difficulties and slow growth significantly increase the length of time these high elevation forests are in an open condition.

The amount of information about and experience in managing these habitats is limited. There is a need for both agencies to fill the information void that exists regarding the management of the high elevation forests. Therefore, ODFW recommends no programmed harvest for the high-elevation forests during this planning period. When better information is available, an informed management decision could be made concerning the disposition of these habitats.

10. Standards and Guidelines

The Regional Office briefed ODFW on Forest Planning on 15 November 1984, at which time a document titled "Forest Plan Contents (1982, USDA Forest Service)" was explained. A reference from page 10 of the above document states:

> "Standards and guidelines state the bounds or constraints within which all practices will be carried out in achieving the planned objectives. Therefore, standards and guidelines should be measurable to be meaningful. There is little purpose in defining standards and guidelines for which no methods of measuring the degree of compliance or attainment exist."

ODFW recommends development of a strong set of specific standards for the Plan. By definition, a standard is a point to measure against or a basis for comparison. The qualifiers used (such as some, sufficient, where needed, significant, should, etc.) are subjective and do not allow for comparison. The Forest must develop clear and objective standards which would provide guidance for implementing the final plan. Toward this end, ODFW recommends the Forest use the definitions (below) developed by the Siskiyou National Forest for four of the most often used terms. In addition, the Willamette National Forest would need to define other terms used in the standards and guidelines that can be subjective in nature.

> "The type of direction and degree of restriction are identified by the terminology in the Standards and Guidelines. To understand the intent of the direction, the interpretations of the terms used are critical.
>
> "The first intent is conveyed by the word 'shall.' With this degree of restriction the action is mandatory in all cases.
>
> "The second is conveyed by the word 'should.' With this degree of restriction, action is required, unless justifiable reason exists for not taking action. This direction is intended to require a practice unless it entails unacceptable hardship or expense. Exceptions to "should" restrictions are expected to occur infrequently.
>
> "The third type of direction uses the word 'practicable' and acknowledges that a given practice is not always feasible and practical in every situation. It is intended to encourage, but not require, a practice.
>
> "The fourth uses the word 'may' and has to do with activities which may or may not be appropriate, depending on circumstances. For example, grazing may be consistent with the objectives of certain management areas, but

> specific sites may or may not contain suitable forage. This direction is intended to allow for taking advantage of compatible opportunities, or to provide for exceptions when objectives of a particular standard can be met through alternate methods."

An established set of standards would lead to more consistent management across the Forest. For this reason, ODFW recommends the use of more specific standards in the final plan.

11. Monitoring

ODFW considers most of the species and habitat monitoring programs proposed in the Forest Plan inadequate due to the low reliability of the results. Because the Plan deals with theoretical minimum level populations, a high level of monitoring reliability is necessary; therefore, monitoring methods must be detailed so reviewers can assess the reliability of the results.

ODFW recommends modification of monitoring methods to obtain a high level of reliability. The use of an index figure is an inadequate monitoring scheme for primary cavity excavator populations. Instead, snag retention (hard and soft) and dead and down material should be monitored annually in units not to exceed 80 acres. A method needs to be developed to monitor pine marten population trends and should be agreed to by ODFW. Elk populations should be monitored using Wisdom's Habitat Effectiveness Model.

Fish and wildlife monitoring activities should be conducted through a cooperative effort between ODFW and the Forest. ODFW recommends the Forest consider development of a cooperative position with our Northwest Regional Office for the purpose of conducting most of the fish and wildlife monitoring activities.

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DRAFT ENVIRONMENTAL IMPACT STATEMENT

PURPOSE AND NEED (DEIS CHAPTER I)

P.I-16 Water

The paragraph appears overly optimistic and conflicts with the cumulative effects information listed in Chapter IV of the DEIS.

P.I-19 Wildlife, Fish, and Plant Habitat

In this discussion, the Forest failed to mention the impacts of timber harvest on old-growth and snag-dependent species. The Forest needs to state that old-growth stands provide available forage during the winter when harvested areas are covered with snow.

ALTERNATIVES (DEIS CHAPTER II)

P.II-19 The discussion of alternatives considered but eliminated is well done.

P.II-31 Paragraph 3

The Forest has presented a good discussion of how minimum management requirements (MMR's) act on present net value; however, ODFW believes MMR's should be considered as methods to produce and protect resource values, not as "constraints."

P.II-33 Mitigation Measures

"Rectifying by repairing" and "compensation by replacement" or "substitute resources" are considered by ODFW to be low priority or the least acceptable of the measures listed. The option of not taking a habitat degrading action is generally more cost effective than mitigation after the fact. Seeding to improve big game forage is a proven mitigation measure on cutover forestland in the Coast Range. The Forest needs to consider the use of these forage enhancement techniques.

In addition, the Forest needs to establish protection measures for wildlife trees in timber sale areas and test the effectiveness of building nest structures.

P.II-36 Threatened, Endangered and Sensitive Species

The Forest needs to include the bald eagle in this discussion.

P.II-37 Alternatives C, D, and F appear to be the only ones that will meet or exceed ODFW requirements for dead and down woody material on harvested acres. Only Alternatives C and D will meet riparian and lakeside protection guidelines, but Alternatives C, D, and F will meet buffers around meadows, talus, cliffs, and caves. None of the

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alternatives meet current ODFW guidelines for spotted owls. Only Alternatives C, D, and F maintain some optimum thermal cover for elk, and provide for forage enhancement.

All the alternatives suggest that roads may be closed to protect threatened and endangered species, and deer and elk winter range. These are good reasons; however, closures are also needed to mitigate a loss of cover when high road densities exist, and when access creates undue disturbance or resource overuse.

P.II-48 Alternative C goal statement for fish and wildlife is good.

P.II-49 Alternative C and D

(d) Fish and Wildlife

These two alternatives offer the only comments on forest-wide optimal thermal cover on winter range. Optimal thermal cover is a key habitat component on summer range as well. ODFW recommends the Forest provide an alternative with adequate forest-wide optimum thermal cover.

P.II-52 Alternative D - Goal statement to provide for fish and wildlife resources above MMR level is good.

P.II-56 Bottom of page

The specified ten percent harvest rate near lakes and reservoirs recognizes ODFW concerns; however, application of prescriptions 9c and 9d are preferred.

P.II-59 Alternative I will not meet ODFW criteria, since fish, wildlife, soil, and water resources would be managed at minimum levels.

P.II-62 Alternative J

Like Alternative I, Alternative J does not meet ODFW habitat protection criteria. This alternative displays four options for timber management; however, the consequences of each option on other resources is not discussed in Chapter IV.

P.II-66 (d) Fish and Wildlife

"Big game habitat will be maintained at current levels with proper forage and cover on key ranges." There is no definition of "key ranges" or where they are located. The Forest needs to explain how big game habitat will be maintained at current levels with proposed increases in harvest levels. The Forest assumes a direct relationship exists between big game numbers and amount of forage areas. This assumption is not valid, as other factors of habitat effectiveness would act to suppress this increase.

Habitat manipulation projects in Alternatives J and J Departure (d) Fish and Wildlife, para 6, sentence 2. "Habitat manipulation projects will be undertaken to improve habitat for key species." The Forest needs to define "key species."

P.II-104 d. Water

ODFW finds the harvest rate indicated in Figure II-E-15 and acres suitable is unreasonably high considering that 39 percent of the adjacent areas have already been impacted.

P.II-105 The Forest does not explain the methods and accuracy of the smolt modeling. The enhancement projects listed are largely influenced and controlled by agencies other than the U.S. Forest Service.

P.II-109 Bald Eagle Habitat

ODFW recommends provision be made for replacement habitats if some are lost due to blowdown or fire.

P.II-110 (5) Deer and Elk

The Forest's discussion on habitat capability for deer and elk is incomplete. The arrangement and quality of cover and forage areas, and impacts from open roads all determine how animals will survive on winter range.

The Forest has mixed the use of the terms "thermal cover" and "optimum thermal cover." The Forest needs to consistently use each term where appropriate.

P.II-115 J. Recreation

ODFW finds no options to mitigate the fifth decade failure to meet dispersed hunting and fishing recreation demand.

P.II-119 Figure II-E-27a

The Forest shows a different local road construction figure in the Proposed Plan Figure IV-D-1. Which is correct?

P.II-120 Figure II-E-27b

Why do big game WFUD's in Alternative J increase over Alternative A, while the elk and deer population trend index in "J" generally decreases or remains stable when compared to "A?"

P.II-121 Figure II-E-27b

The outputs displayed for Primary Cavity Excavators are misleading. The outputs are derived by averaging forest-wide snag levels, which tends to mask serious impacts on some managed timber lands. The

outputs need to be developed on a subwatershed basis on timber management.

The outputs for old growth are misleading because seral stage V (mature) acres are included in the figure. Seral stage V and IV need to be displayed separately.

P.II-128 Figure II-E-29

In this Figure and related narrative, expected differences in water quality, by alternative, are poorly documented except for expected erosion rates. Water quality MMR's are listed as either "met" or "exceeded." The Forest needs to describe the magnitude of these differences by alternative.

AFFECTED ENVIRONMENT (DEIS CHAPTER III)

P.III-11 2. Current Situation

Good recognition of reduced soil productivity from the loss of large woody material. Entire discussion of the Current Situation on pages III-11 and III-12 is good.

P.III-17 2. Current Condition (paragraph 2)

The breakdown and display of stream mileage by class is good. However, this is one of the few mentions made of class IV streams. ODFW recommends class IV stream information be recognized throughout the riparian and water quality sections. On page DEIS I-7, the Forest states "...more than 2,700 miles of perennial streams and rivers." Which page (I-7 or III-17) has the correct figures?

P.III-22 Figure III-E-4

The Forest should show hatchery water use from Quartzville, Middle Santiam, and South Santiam Rivers. The Blue River and McKenzie watersheds also influence hatchery waters.

P.III-24 Figure III-E-5

How does Brownsville use the South Santiam River for a municipal water source?

P.III-25 Paragraph 3

"Willamette" and "Oakridge" are now a single hatchery.

Paragraph 4

The annual generation of $17,359,000 by water oriented recreation is good recognition of a resource value by the Forest.

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P.III-26 c. Water Quality (Paragraph 2)

Why is lake and reservoir water quality "of lesser concern" than streams quality? Hills Creek Reservoir and Waldo Lake are examples of high concerns for water quality.

P.III-28 Paragraph 1

The state water quality standard for temperature is recognized and stated. The Forest needs to display other state water quality standards.

Paragraph 2

Are the high temperatures mentioned a result of natural conditions or Forest management activities?

Paragraph 3

ODFW recognizes Quartzville Creek, and Middle and South Santiam Rivers as streams where maximum water temperatures can also be critical, and watershed canopy protection should be emphasized.

Last Paragraph

Oregon water quality standards (Oregon Administrative Rules [OAR], Chapter 340) measured as turbidity are stated, but measurable limits are not shown. These standards need to be displayed.

P.III-29 Paragraph 3

"In the 26 major watersheds on the Forest, current erosion and sediment production are well above natural levels." How far above natural levels? Do they exceed OAR Chapter 340 limits?

P.III-30 Paragraph 6

The Forest states "...most streams and rivers on the forest are considered to be deficient in large woody debris...." How would continued harvesting in riparian areas in the next decade impact this important component of stream stability?

P.III-31 Figure III-E-8

How does the data in this Table compare to Oregon Stream Turbidity Standards?

P.III-47 Figure III-G-4

This is an excellent display of the interrelationships between stand conditions and habitat components.

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P.III-48 Riparian Zones

The discussion and recognition of conflicts are good.

Figure III-G-5

Class I, II, and III stream miles in this table differ from those on page III-17 (paragraph 7). Which figures are correct?

P.III-51 3. Old-growth (Paragraph 1)

The Forest should state how much of the existing old growth is in wilderness; and how much old growth has been liquidated since the 1981 inventory. The Forest provided a good delineation of existing old-growth and large-mature acres. Continued discussions group these seral stages together, making it impossible to determine acres by the separate ages. The Forest needs to display the acres of each seral stage by plant community in a table format, and provide a small scale map that shows the distribution of these stands.

The Forest needs to discuss the importance of old growth in providing thermal cover and snow intercept values for big game.

P.III-52 Paragraph 1

In this discussion, the Forest makes no mention of the structural component of multi-layering which is so characteristic of old-growth habitats. Multi-layering allows for snow intercept and improved thermal cover values for wildlife, especially deer and elk.

Old-growth stands, through snow intercept, provide an area where shrubs are often available for browse. In addition, lichens falling from trees are a very important food in old-growth stands during critical winter periods.

P.III-58 Future Trends (Paragraph 1)

The Forest should include protection of wildlife values as a resource objective.

P.III-61 Figure III-1-2

In view of recent ODFW data precluding re-establishment of winter steelhead above Green Peter Dam, the Forest should subtract 18.2 miles of potential anadromous fish habitat from the South Santiam River.

P.III-62 Paragraph 6

The Forest should display the data supporting the statement that the overall supply of native resident cold water fish has not changed significantly.

Paragraph 7

ODFW does not stock all lakes accessed by roads with both legal-sized trout and salmon.

P.III-63 2. Current Situation (Paragraph 1)

Change sentence 2 to read: "These include native species of spring chinook, winter steelhead, rainbow trout, cutthroat trout, bull trout, and mountain whitefish, as well as introduced species of summer steelhead, brook trout, brown trout, and sockeye salmon that have become naturalized."

Figure III-1-3

Correct the "Table of Anadromous Fish Spawning Populations" to read:

Drainages	Spring Chinook	Summer Steelhead	Winter Steelhead
Little North Santiam[a]	50	30	50
South Santiam River[a]	0	0	300
Quartzville Creek[a]	0	0	0

[a] In USFS ownership only.

Last Paragraph (Sentence 3)

Correct to read: "Fish reared in the Santiam, McKenzie, and Middle Willamette watersheds account for 80 percent of the average annual catch of 15,000 fish."

P.III-64 Paragraph 4

ODFW believes instream enhancement structures are often worthwhile projects, but the costs/benefits for increasing trout production may not always be feasible.

Paragraph 5

ODFW stocks lakes one-acre or larger in size. Helicopter stocking of remote lakes is conducted every other year. West slope cutthroat trout are being used experimentally with some success.

P.III-65 Figure III-1-4

Add spring chinook species as present in Detroit Reservoir.

P.III-66 Paragraph 2

ODFW is not placing spring chinook above Foster Dam; therefore, fish passage improvement at Foster Dam would have no bearing on increasing spring chinook populations in the Willamette River.

Paragraph 3

ODFW considers fish passage improvements at Foster and Green Peter Dams to be of questionable value. The Forest implication that fish passage improvements are all that is needed to increase anadromous fish production is in error.

P.III-69 Historical Trends

The Forest needs to discuss historical trends for deer and elk.

P.III-71 Old-growth and Mature Conifer Habitat

The Forest needs to recognize that these habitats also provide food and cover for MIS during winter. In all but the most mild winters, ODFW considers old growth to be a critical habitat.

P.III-73 MIS: Spotted Owl

This discussion is very well done.

P.III-74 Pileated Woodpecker (Paragraph 1)

The Forest states the average of a nest tree diameter for pileated woodpeckers is 25 inches. ODFW questions if habitat of this size would occur on lands designated for timber production in the future (100-150 years). ODFW recommends habitat for pileated woodpeckers be dedicated. (See Recommendations).

Pine Marten (Paragraph 4)

ODFW is concerned about the adequacy of the 160-acre habitat areas for pine marten. (See Recommendations).

P.III-75 Paragraph 4

The Forest states the existing habitat conditions for primary cavity excavators is 74 percent of potential populations according to standards in "Wildlife Habitats in Managed Forests, Blue Mountains" (Thomas 1979). ODFW recommends the capability be recalculated using "Management of Fish and Wildlife Habitats in Forests of Western Oregon and Washington" (Brown 1985), since this reference is more appropriate for westside forest communities. See comments for DEIS II-121.

Figure III-J-3

This figure does not provide usable information to determine current habitat conditions. The Forest needs to display percent of potential population level by subwatershed for each plant community.

P.III-76 Winter Range Habitat MIS: Deer and Elk

This section does not sufficiently address the big game resource issues; a number of statements are vague or misleading.

Paragraph 1

While deer and elk are dependent on winter range habitats, they are also dependent on summer range habitats and have special habitat needs during the spring and fall. The Forest needs to describe the condition and use of all habitats important to deer and elk. ODFW's 1987 estimates for wintering populations on the Forest were 3,700 for elk and 17,800 for deer.

The Forest needs to correctly acknowledge ODFW big game planning targets. The following information is provided for that purpose:

			Winter Targets			
			Unitwide		Forest	
Unit	Bulls/ 100 Cows	Bucks/ 100 Does	Elk	Deer	Elk	Deer
Santiam	7	25	5,900	51,600	4,600	21,100
McKenzie	7	25	4,500	37,000	4,200	14,500
Indigo	7	25	4,300	30,000	3,550	14,800
TOTALS			14,700	118,600	12,350	50,400

After seasonal emmigrations and immigrations, the expected numbers of adult elk and deer on the Forest in relation to the previous table are as follows:

	Summer On-Forest Benchmarks	
Unit	Adult Elk	Adult Deer
Santiam	5,000	25,700
McKenzie	3,250	16,500
Indigo	2,800	18,000
TOTALS	11,050	60,200

P.III-77 Figure III-J-4

This Figure is misleading in that it deals only with forage produced in the various stand conditions but does not specify wintertime availability. Since the discussion is about winter range, forage availability to wintering animals is important. Large sawtimber and old growth do not appear important in Figure III-J-4, when in reality these stands provide most of the available forage during severe winter months.

Paragraph 1

Sentence 1 needs to be clarified. Forage intake rates are not expected to change appreciably during winter months. Big game do require forage with a high energy content during winter months. The Forest has cited a study describing weight loss of wintering elk in Wyoming, but has not discussed the relationship of that study to elk in the Cascade Range. This relationship needs to be addressed.

Paragraph 2

See Recommendation section.

P.III-78 Paragraph 1

What is the condition of the thermal cover and optimal thermal cover components on the winter ranges? This information needs to be provided by subdrainages.

Paragraph 2

The Forest statement in parenthesis is misleading. These ratios need to be adhered to on a 1,000-6,000 acre permanent planning and record keeping area, as stated in ODFW's Habitat Protection criteria for deer and elk habitat.

Figure III-J-5

This Figure has little value as presented. A display of Forage/ Hiding/Thermal percentages on 1,000-6,000 acre winter range planning areas which represents individual winter range conditions would provide useable information.

Paragraph 4

In the first sentence, the Forest states that elk are found throughout the Forest. ODFW finds that an abundance of suitable elk habitat is currently unoccupied.

ODFW has not been supplementing the Forest elk population through transplanting since 1980, with the exception of a 1987 release of 11 elk on Lowell Ranger District.

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Paragraph 5

The statement that high quality and abundant forage has increased herd numbers to a point of conflict with adjacent landowners is not correct. Elk damage on adjacent lands does not result from an abundance of high quality forage on the forest; it is usually the result of the lack of cover, or too much disturbance on the forest.

Contrary to the Forest's statement, ODFW does not "road count" elk.

Last Paragraph

This paragraph needs to address deer as well as elk.

P.III-80 Future Trends

This section does not adequately describe the future trends for wildlife. The Fish and Wildlife standards and guidelines are, for the most part, designed to meet minimum viable population levels, not desirable levels.

P.III-89 Paragraph 1

The Forest should recognize hunting as an important recreational use of the forest.

P.III-93 Paragraph 6

ODFW does not believe Lost Lake experiences heavy boating use.

Paragraph 8

ODFW disagrees with the implication that some Ranger Districts are more important for hunting than others, and recommends this information be deleted.

P.III-118 Current Situation

ODFW finds no mention of its "McKenzie Subbasin Fish Management Plan" in this section. ODFW recommends the Forest recognize the plan. See recommendations.

P.III-145 Paragraph 2

The Forest needs to display the range of other multiple use values for individual roadless areas.

P.III-150 Future Trends

The future trends discussion for special interest areas is well done. It is especially good to see potential conflicts detailed.

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P.III-160 Current Situation

This discussion could apply to any National Forest in Region Six. The range allotment information specific to the Forest needs to be described (Refer to 36 CFR 219.20).

P.III-166 Figure III-V-1

How many miles of non-inventoried roads exist on the Forest?

P.III-169 Paragraph 1

The Forest needs to define the meaning of "closed road" and describe what activities can take place behind the closure.

(a) Wildlife - Closures

This is a good discussion and recognition of road closure benefits to wildlife. Add the following to the paragraph:

"Quality fishing is yet another reason to support some road closures. In some cases, road closures could be implemented to return some lakes to a hike-in experience, which would have the added benefit of reducing vandalism."

Future Trends

This section includes language to "complete the system" and discusses the "potential need for about 7,460 miles of road" (more miles than in Alternative J). Neither this nor other plan sections sufficiently stress the need to minimize road construction and encourage alternative harvest methods to improve protection of other forest resources.

P.III-180 Figure III-W-7

By lumping large saw/old-growth into a single category, the Forest creates the false impression that all of this timber is suitable for old-growth dependent species or old-growth set asides. ODFW recommends separation of these categories.

P.III-217 Paragraph 4

ODFW believes both commercial and sport fisheries are significantly affected by changes to fish habitat and water quality on the Forest. Commercial fisheries are affected along the lower Columbia; however, recreational effects are felt throughout the Forest's zone of influence, especially in the McKenzie and Santiam River systems.

P.III-231 Other Influenced Areas

The Forest makes little mention of or emphasis on the value of the spring chinook and summer steelhead recreational fisheries under "other influence areas." ODFW considers these values especially important, particularly the spring chinook fishery on the Portland metropolitan stretch of the Willamette River.

ENVIRONMENTAL CONSEQUENCES (DEIS CHAPTER IV)

P.IV-3 Paragraph 6

The potential for instability and mass soil movement increases with increased timber harvest levels. How does this risk increase by alternatives, and does the Forest expect a proportionate increase in sediments?

P.IV-9 Figure IV-1-3

Sediment yields due to erosion, as shown in the figure, will have significant and lasting adverse effects on fish and other aquatic life.

P.IV-12 Figure IV-1-5

Alternative J permits removal of 11.7 percent of the harvest from potentially unstable soils. If 14,848 acres of unstable soils are harvested in the first decade, will timber yields from these acres be reduced in the future due to soil loss?

P.IV-13 Paragraph 5

Would draining unstable wet areas conflict with Executive Orders 11990 and 11988?

P.IV-16 Paragraph 4

The Forest recognizes that the smallest headwater streams are the most dependent on and most readily influenced by changes in associated riparian areas. ODFW finds little emphasis given to protection or recognition of these class IV streams.

P.IV-17 Paragraph 2, Sentence 1

Does the Forest have more current information available on the percentage of class I, II, and III streams adjacent to harvest units or roads? How many miles of class IV streams are affected?

Paragraph 3

The Forest recognizes that most sediment from timber harvest enters from class III and IV streams. ODFW recommends these streams be given more protection in the final plan.

P.IV-18 The Forest makes no provision for restricted harvest along most class IV streams, even though these areas are identified in the text as a primary source of stream sedimentation. This oversight should be corrected.

P.IV-19 Effects of Sediment On Water (Paragraph 1)

The last sentence implies that a full discussion of sediment is given in Chapter III, Water. ODFW finds no disclosure of increased costs for water users located on or off the Forest as a result of sediment problems created by forest management activities.

P.IV-23 Paragraph 1

The Forest states mass wasting "...is the most significant in terms of potential impacts to water quality, fish habitat, and channel stability." What portion of erosion yields and stream sediment are a result of mass wasting resulting from natural as opposed to man caused disturbances?

Paragraph 3

Because of the loss of soil productivity, as well as reduction in water quality and fish habitat productivity, ODFW believes it is unrealistic to harvest timber from these potentially unstable acres. ODFW questions the use of the qualifier "potentially" in describing these areas. ODFW understands the probability of mass soil movement is very high and, therefore, recommends dropping the qualifier and withdrawing these acres from the timber base.

Figure IV-2-5

The Forest indicates the preferred alternative will have final harvest on more acres of potentially unstable soils than Alternative A (current direction). ODFW finds this contrary to the need to protect soils, water quality, and future productivity of the land base.

P.IV-25 Paragraph 2

ODFW finds discouraging the expressed need for increased water treatment due to greater turbidity, particularly in light of the Forest's mandate to meet the Clean Water Act and State Water Quality Standards. The Forest needs to develop better protection standards to ensure water quality is maintained or improved.

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P.IV-26 Paragraph 3

ODFW supports the development of the hydrologic recovery concept and its use for timber sale scheduling. Watershed sensitivity and hydrologic recovery rates should be incorporated into the water quality standards and guidelines.

P.IV-27 Figure IV-2-7

Alternative J has the same number of watersheds at risk as does the No Action Alternative, with ten of the twelve being in the high risk sensitivity areas. Quartzville Creek and Middle Santiam River watersheds influence hatchery water supplies and should be given greater consideration for protection.

P.IV-28 Paragraph 2

Alternative J's harvest level, which causes twelve watersheds to fall below threshold levels for hydrologic recovery, is an unacceptable risk.

P.IV-31 Cumulative Effects On Water

The cumulative effects section is well done; however, doubling the percent of the forest at risk of degraded water quality is contrary to direction given by NFMA, the Clean Water Act, Oregon Water Quality Standards, and ODFW criteria. ODFW suggests greater stream protection be provided.

P.IV-36 d. Mitigation Measures for Water

Paragraph 1

The agreement that BMP's satisfy the requirements of the Clean Water Act is misleading, according to a 1986 ruling by the Ninth Circuit Court. ODFW recommends the paragraph be re-written to reflect the requirement that the Forest meet water quality standards.

What are the costs and benefits of leaving large woody debris in streams as compared to the costs of installing gabions, log sills, etc.?

P.IV-51 Figure IV-4-1

If rotation age averages less than 80 years on approximately 700,000 acres (Alternative J), then vegetation and wildlife species diversity will be maintained at a very low level on about one-half of the Forest. See Recommendations.

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P.IV-57 Effects on Riparian Zones

Paragraph 2

All alternatives will meet the Forest's standards and guidelines for riparian areas, but those with higher rate of harvest will reduce soil and channel stability, water quality, and will result in less input of large woody material. ODFW finds standards and guidelines are inadequate, to maintain adequate soil and channel stability and large woody material levels. See Recommendations.

Paragraph 3

The Forest lists acres of riparian habitat by stream class and around lakes. Please explain criteria and process leading to the acre figures.

From 52,045 acres of riparian (Class I, II, III) 21 percent of these aces (13,600) are withdrawn to meet MMR's (Page IV-17) and 39 percent (20,280 acres) are already impacted (Page IV-17). This leaves 18,165 acres remaining to be harvested or programmed during the plan process. Are these the only acres figured into the various rates shown on Page IV-58, or are yields based on some other level?

If the Forest finds 30,438 acres of Class I and II riparian acres are in land suited for timber harvest, and 25,500 acres of Riparian I, II, and 19,500 acres of Riparian III are harvested, how does this relate to a 200 and 143 year rotation schedule?

P.IV-59 Cumulative Effects on Diversity

Paragraph 4

The Forest discussion of the effects on diversity emphasize age diversity and have ignored species diversity. ODFW believes intensive regeneration of Douglas-fir will have a detrimental effect on future vegetation species diversity. See Recommendations.

P.IV-61 (4) Cumulative Effects On Riparian Areas

The impacts to downstream areas from actions which alter temperatures, large woody debris input, sediment, and turbidity on class IV streams should be discussed.

P.IV-62 Paragraph 4

The impact on riparian habitat of maintaining only 60 percent of the existing cover along perennial streams should be discussed here. ODFW finds the 60 percent level unacceptable. See Recommendations.

P.IV-71 MIS: Anadromous Fish

Since the elimination of fish passage barriers is under the control of other agencies, the probability of removal should be the same under all alternatives. ODFW finds the production of 800,000 smolts questionable. Fish production should be displayed by watershed. Smolt production will vary in relation to varying timber harvest levels.

P.IV-72 Paragraph 3

The Forest discusses eliminating fish passage barriers on the South Santiam River, yet downstream passage at Foster Dam is the real problem. Hauling adult fish around barriers has had little success. The pre-smolt release program above Green Peter Dam also has not been successful.

P.IV-72 Paragraph 5

The Forest needs to estimate the current habitat productivity of streams in relation to historic levels.

P.IV-73 Figure IV-6-1

ODFW finds this figure highly subjective, as it is based on broad assumptions regarding fish enhancement projects, some of which are under the jurisdiction of agencies not required to coordinate their activities with the Forest Plan Alternatives. Why do the two smolt levels differ so little between Alternative B-Departure and Alternative C when the amount of timber harvest is radically different?

P.IV-74 MIS: Resident Trout

ODFW does not agree that the majority of trout production occurs in reservoirs and wilderness lakes, or that in-stream production of trout is small. Reservoir trout populations are mostly hatchery oriented programs. This section should emphasize the significant numbers of wild trout produced in hundreds of miles of tributaries. With the emphasis on ODFW's Wild Fish Policy - these fish have high priority.

P.IV-75 Paragraph 2

The Forest refers to 1,335 acres of reservoir improvement which ODFW assumes are shoreline seeding projects. ODFW believes that this may improve water quality, but will do little to increase the trout fishery. What and where are the 118 acres of streamside improvement for trout?

Cumulative Effects On Fish

Cumulative effects on fish should discuss the effect a continuation of current harvest rates or the preferred alternative will have on headwall failures, and impacts to class IV streams and downstream reaches.

Other Agency Plans

The final Forest Plan should acknowledge coordination with ODFW's McKenzie Subbasin, North Fork Willamette, Gold Lake, Lookout Point, Steelhead, and Trout Plans.

P.IV-76 Mitigation Measures

Paragraph 2

The Forest states K-V funds would be available in alternatives with high levels of timber harvest to mitigate for adverse conditions caused by timber sales and road construction. ODFW prefers to prevent adverse conditions so mitigation will not be necessary.

Paragraph 4

Does protection of vegetation within 100 feet of streams mean no harvest?

See Recommendations.

This section needs to describe past project successes or failures. The cost of leaving riparian areas or withdrawing them from timber harvest should be compared with the cost of rehabilitation and lost fish production.

P.IV-77 Paragraph 3

ODFW does not determine the level of fishing by issuing licenses.

P.IV-81 Paragraph 1

ODFW supports the withdrawal of SOHA's from the timber base.

P.IV-94 Paragraph 6

The assumption that snag habitat for primary cavity excavators will increase in the fourth decade is not valid. Thinning has generally removed cull trees and future snag habitat. Knowing this, it would be correct to predict further declines in snag habitat and snag-dependent species throughout the planning horizon.

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P.IV-96 Paragraph 4

This paragraph should acknowledge old-growth habitat also provides forage.

See Recommendations.

P.IV-101 Peregrine Falcon (Paragraph 3)

Vegetation manipulation (clearcuts) adjacent to nest sites may provide a greater forage base, but will have severe implications for visual buffers and protection of cliffs and talus slopes. ODFW recommends prescriptions for vegetation manipulation near nest sites as proposed in the Umpqua National Forest draft plan.

P.IV-103 Cumulative Effects on Wildlife

The Forest should discuss the cumulative impacts of roads on wildlife.

P.IV-104 Paragraph 3

ODFW spotted owl position statement signed by Director Jack Donaldson should be mentioned.

Paragraph 5

Good acknowledgement of ODFW criteria for primary cavity excavators.

Paragraph 6

ODFW's elk collaring objectives are not to determine population trends or herd composition, but to define animal movements, habitat use, and wintering areas.

P.IV-105 Mitigation Measures for Wildlife

The Forest needs to discuss road closure programs as a method to mitigate for areas of high road densities and insufficient cover. ODFW considers a road closure program as mitigation rather than enhancement.

Providing MMRs does not mitigate for lost habitat or the effects of intensive timber management. Managing any resource on public lands at a minimum level is not acceptable. Monitoring would track changes in habitat conditions as a result of management direction, but has little relationship to mitigation.

P.IV-106 Paragraph 6

The assumption that nest boxes can provide nest sites for cavity nesters is unlikely. Where is that being done successfully.?

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P.IV-130 Paragraph 1

The Forest has given excellent recognition of the impact of recreation in riparian areas. ODFW supports prohibiting camping within 100 feet of lakes and streams.

P.IV-139 ODFW recommends application of MA 6 prescription to that portion of the McKenzie River from the Forest boundary upstream to Clear Lake. This prescription is warranted to protect the high quality water, wild trout populations, and extensive recreation associated with this section of the river. Allocation of the river to the MA 6 prescription would complement ODFW's McKenzie River Subbasin Fish Management Plan, which designates most of the upper river for wild fish management. Many of the 51,000 recreational boating days identified in a 1983 ODFW river use survey originated in the upper McKenzie.

P.IV-152 Paragraph 1

The Forest should discuss the adverse effects of developing roadless areas.

P.IV-153 Other Agency Plans

ODFW sees potential conflicts in the development of roadless areas with the North Fork Willamette Plan and Trout Management Plan.

P.IV-154 Figure IV-13-2

Alternative J was developed to allow a slower rate of change in roadless areas; however, it still impacts two-thirds of the roadless areas and 50 percent of the land. ODFW recommends an aggressive road closure program as mitigation to reduce the severity of impacts.

P.IV-165 Paragraph 7

How many acres are removed from production for each mile of Arterial, Collector, and Local roads? The Forest needs to discuss the effects of the permanent loss of productivity from roads.

P.IV-169 Relationships With Other Agencies

The Forest should mention cooperative road closures with ODFW, and discuss the possibilities for or benefits from road closures. ODFW recommends the Forest discuss the benefits of an aggressive road closure policy on future habitat effectiveness and other resource uses.

P.IV-175 Figure IV-18-2

In the fifth decade, 10 percent or more of the harvest would come from commercial thinning in all alternatives. ODFW believes this practice would create undesireable impacts to forage/cover ratios, optimal thermal cover values, and overall habitat diversity.

P.IV-201 Paragraphs 2 and 3

The Forest states elk and deer numbers drop in decade one, then rise in decade two. Does the Forest assume natural population increases account for this change or is it due to changing habitat conditions?

P.IV-203 Relationships With Other Agency Plans

ODFW has adopted a Willamette Basin Fish Management Plan, a Trout Management Plan, several species and standing water body plans, and has an adopted McKenzie River Fish Management Plan. All of these plans are responsive to fish resources and socio-economic needs of the area. The new Forest Plan will have direct influence upon objectives in these ODFW plans, and the relationship between plans must be discussed.

P.IV-205 Paragraph 3

The Forest acknowledges increased erosion in major watersheds. The DEIS states landslides reduce the productivity of the site for many years, debris torrents in streams can reduce fish habitat productivity over many years, and some uses of land cause irretrievable loss of soil productivity. How does the Forest propose to protect soil and avoid damage?

P.IV-209 Paragraph 6

The Forest should recognize the value of winter range thermal cover for forage.

Paragraph 7

The Forest use of the word "temporary" is misleading. Research findings indicate silt loads from ground disturbance often have long-term effects (several decades) on fish production and other aquatic life.

APPENDICES TO

DRAFT ENVIRONMENTAL IMPACT STATEMENT

B-19 Big Game Winter Range

The winter range definition is not consistent with the definition ODFW provided in 1980 in response to a Region Six request.

ODFW recommends the Forest also use the definition for optimum thermal cover found in Brown (1985).

B-44 Figure B-C-4

This figure provides a good display of prescriptions and guidelines for each management prescription.

B-68 Wildlife Coefficients

The snag yield discussion is very difficult to follow. ODFW recommends the Forest develop a table or figure to display the snag coefficients.

B-70 Paragraph 1

Future roading densities are projected to exceed 3.3 miles of road per square mile in the secondary road category. This projected density would have the effect of reducing elk habitat effectiveness by nearly 70 percent. ODFW recommends closure to public vehicle use on all new road systems, particularly in current roadless areas. See Recommendations.

B-106 Paragraph 3

The Forest analysis of MMR for snags outside of areas dedicated to old-growth management used a snag size of 12 inches dbh or less. Data provided in Brown (1985) indicates only four species would use snags under 12 inches diameter. ODFW recommends the Forest consider larger snag sizes (up to 25 inches) to benefit approximately 35 more wildlife species.

B-172 Top of Page, Third Inset

The assumption that big game WFUDs are directly linked to big game habitat capability is not valid. ODFW has found that user days are influenced by many factors, such as economics, weather, season lengths, and bag limits.

B-192 Figure B-H-2

The Forest has provided an excellent display of tradeoffs of economic benefits.

APPENDIX C - ROADLESS AREAS

ODFW supports the Forest's proposed allocation of 19 roadless areas in Alternative J (see Recommendations). ODFW recommends the following for the remaining roadless areas:

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Opal Creek

Opal Lake and Creek should be retained in an undeveloped condition, since there is potential for a SPNM hunting and fishing experience. Opal Lake has a naturally producing brook trout population. Although isolated from major lake basins, it receives a fair amount of pressure. Recommend allocation to MA 10e.

Elkhorn

Both wild winter steelhead and cutthroat trout spawn and rear in Elkhorn Creek. Because of high erosion potential, ODFW recommends MA10e roadless designation primarily for watershed protection and SPNM hunting opportunities.

Mt. Jefferson North

This area is important spring, summer, and fall deer and elk range. ODFW recommends limited development under MA 10d on the basis of big game habitat and continued SPNM hunting opportunities.

Mt. Jefferson South

The Big Meadows area includes Pike and Fir Lakes, which get moderate angling pressure. ODFW recommends these lakes, as well as the North Santiam drainage, be allocated to MA10d. Some secondary access roads have already been constructed north and south of the lakes and should be closed. The area includes important foraging and calving areas for elk from spring through fall, and an important summer range for deer.

Middle Santiam

These areas have high potential for erosion which could degrade the water quality in Quartzville Creek and the Middle Santiam River. The Middle Santiam has already had major slides affecting water quality.

Daly, Don, and Riggs Lakes have self-sustaining trout populations receiving moderate use, and should be fully protected. Pyramid Creek and the Middle Santiam have wild trout angling opportunities, and provide a solitude type experience. Daly Lake would provide a more desirable recreational experience if the road wasn't so close to the lake. This area is big game winter range and should be managed as such; therefore, ODFW recommends allocation to MA 10b for this area with roads closed to public access.

Echo Mountain

This is a unique area that can easily be accessed from Highway 20. It has open meadows, peaks, and outstanding vistas. Crescent and Cougar Lakes both have self-sustaining brook trout populations, but North Peak Lake has proved too shallow to support fish. The meadows are an important foraging area heavily used by elk throughout spring, summer, and fall. ODFW recommends MA10d allocation for minimal development and maintenance of SPNM hunting opportunities.

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Moose Lake

Moose Lake and Creek are the main features of this area. Moose Creek is an important spawning and rearing area for native winter steelhead, and the watershed should receive high priority for water quality maintenance. This is big game winter range and should be managed as such. ODFW recommends the area be allocated MA10b with roads managed closed to public use.

Gordon Meadows

The two Gordon Lakes and the meadows are the main features of this area. The Lakes have self-sustaining cutthroat populations and are popular, with moderate angling pressure. A spur road now provides access within 1/4 mile of the lake. ODFW recommends MA10d allocation with provision for an extensive buffer zone around both the meadows and the lakes. This is an important spring, summer, and fall range for big game. ODFW recommends aggressive implementation of a road closure program in this area.

Mt. Washington West

This area is very popular with horsepackers and pack-in hunters, and is heavily used by summering elk and deer. ODFW recommends designation of this roadless area to MA10d, allowing some development but maintaining an SPNM hunting opportunities.

Mosquito Creek

This Horse Creek tributary, contiguous to the Three Sisters Wilderness, possesses an outstanding native cutthroat population in an essentially undisturbed watershed. The draft plan states "The area is made up of soils that are prone to severe surface erosion, droughty on south slopes, stable and may be locally low in fertility. There are about 256 acres (over half) that have potential for severe surface erosion." For these reasons, ODFW recommends protection under MA10e.

Roaring River

This area is used by hunters who have expressed concerns regarding roading in the area. ODFW recommends this area be allocated to MA10d to allow some harvest and maintenance of SPNM hunting opportunities.

Chucksney Mountain

This area has outstanding habitat diversity, including an extensive meadow complex on the ridge between Grasshopper Mountain and Chucksney Mountain. The area is very popular with hunters who use the extensive trail system. The higher elevations are used heavily by summering elk, and the lower south facing slopes along the North Fork by wintering elk. The Forest needs to protect the extensive meadows and the winter range on the southern slopes from Glade to Minute Creeks, and maintain the high quality SPNM hunting experience now provided.

ODFW supports allocation of the 9556 acres to MA10e as proposed in Alternative J, and further recommends the extensive meadow complex, along with a wide forest buffer, and the winter range habitat from Glade to Minute Creeks be designated as special wildlife habitat (MA9a/b). ODFW recommends the remaining areas be managed under MA 10d allocation.

Waldo-Fuji

The extensive meadows (Mt. David Douglas, Fuji Meadows, Pothole) should be designated as special wildlife habitat (MA9a). ODFW supports the Forest proposed allocation of 9,855 acres to MA10e and recommends all remaining areas be allocated to MA10d.

Waldo-Salmon Creek

ODFW recommends allocation to MA10e to retain the Ranger Creek SOHA to meet MMR distribution.

Waldo-Many Prairies

This area contains an extensive network of meadows along ridgetops and in wet areas, and it is used by elk during the spring and summer. The preferred alternative recognizes only North and Spring Prairies as special wildlife habitats (MA9a). ODFW recommends Captain Prairie, Salt Rock Prairie, Long Prairie, and Etta Prairie, along with an expansive no-cut buffer, also be designated as special wildlife habitats (MA9a). Devil's Lake is popular with anglers and should be allocated to MA9c. ODFW further recommends the Cayuse Creek SOHA be allocated to MA10e to meet MMR distribution, and the remaining area allocated to MA10d.

Waldo-Koch

This area is an important summer range for deer and elk, and a focal point for calving and fawning. ODFW recommends MA10e for the Cedar Creek SOHA to meet MMR distribution and allocation of the remaining area to MA10d to allow for improvement of habitat conditions.

Waldo-Moolack

This area includes parcels along Fisher Creek and the North Fork which are winter range for deer and elk. This 2-3 mile long area also fronts the North Fork Willamette River adjacent to the Waldo Wilderness; the upstream half straddles the lower end of the North Fork Trail. This river is an Oregon "Wild and Scenic" stream containing a healthy population of native rainbow and cutthroat trout. It is managed as a "wild trout" stream by ODFW.

Much of the roadless area contains large old-growth conifers, and the upper end adjoins a swamp encompassing several acres along the river. Because of its special fish resource and wildlife values, ODFW recommends this area be allocated to MA10e.

Cornpatch

This area contains two large meadow complexes (Big Bunchgrass and Cornpatch Prairie) along Big Bunchgrass Ridge which are used heavily by elk during the spring and summer. The northern portions along Black Creek include a large hardwood and cedar swamp used by wintering elk. ODFW recommends these two meadow areas and the Black Creek Swamp, along with wide no-cut forest buffers, be classified as special wildlife habitat areas (MA9b). ODFW recommends allocation of the Warner-McCready SOHA to MA10e, and the remaining area allocated to MA10d to meet the demand for SPNM hunting opportunities.

Hardesty Mountain

This area includes portions of two SOHA's (Lower and Upper Goodman). ODFW recommends allocation of the SOHA acres to MA10e, and the remaining areas to MA10d to meet demand for SPNM hunting opportunities.

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PROPOSED LAND AND RESOURCE MANAGEMENT PLAN

P.I-3 ODFW recommends the Forest establish a completion date for each of the implementation and action plans. To be meaningful for this planning period, the plans should be completed within the near future.

P.II-10 Information Needs

The Forest indicates there is need for information/research on spotted owls (9,10,11) and big game cover/forage (12). While ODFW supports continuing research, rigorous research on spotted owls has produced a voluminous database on habitat needs and agency management decisions have been made for now. The cover/forage requirements for big game result from ongoing investigations since initial research was conducted on the Millicoma Tree Farm in the early 70's. The Forest choose not to employ the cover:forage criteria that ODFW provided in its habitat protection criteria. Minimizing habitat constraints to the limits of species viability assures an uncertain future for the species.

FOREST MANAGEMENT DIRECTION (CHAPTER IV)

P.IV-2 The wildlife/fish section or the recreation section should have a specific goal to maintain or enhance fishing and hunting opportunities.

P.IV-3 Range/livestock grazing should mention compatibility with wildlife and riparian habitats.

P.IV-5 Paragraph 5

The Forest could mitigate some of the loss of dispersed recreation opportunities by road closures. ODFW recommends that these measures be explored and implemented when possible.

The projected shortages of thermal cover in the first decade is unacceptable to ODFW. To be meaningful for big game habitat, management cover/forage ratios need to be analyzed on an area basis (1000-6000 acres) for both summer and winter ranges. The proposed plan appears to provide adequate conditions on the winter range; but this would be to no avail if adequate conditions are not also provided on summer range. The shift of timber harvest to higher elevations due to the proposed plan could result in serious problems if cover/forage ratios are not followed. Since recent telemetry studies indicate a substantial summer movement of elk across the summit into Central Oregon, ODFW recommends cover/forage ratios be maintained to provide for this movement. Existing large blocks of summer thermal cover in wilderness areas should not be justification for overcutting the rest of the summer range. The Forest's projected downward trend over time for most wildlife species conflicts with ODFW's management goals.

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P.IV-6 The Forest's objectives for deer numbers are about the same as ODFW's. The elk objectives (projected outputs) are considerably less than ODFW desires in the fires decade. ODFW sees problems with projecting deer and elk numbers based on forage, especially for elk. Animals do not just appear where forage is created. If elk are to respond as projected there will need to be an aggressive trapping and transplanting program on the Forest to assure that animals are able to take advantage of forage provided. Adequate cover must also be provided where forage areas are created.

P.IV-9 The Forest's levels of primary cavity excavators on lands suitable for timber harvest appear to be overly optimistic. ODFW finds no current inventory of snags by size class. The standards and guidelines for protection of these species do not contain positive direction or measureable standards. If 20 percent of timber sale program quantity made up of cull/salvage/firewood, ODFW believes that a large part of primary cavity excavator habitat would be lost.

The Forest's increase in volume from both pre-commercial and commercial thinning will also severely reduce both quantity and quality of snag habitat in the future.

P.IV-10 Figure IV-D-1

In the DEIS Page IV-166, Figure IV-17-1 the miles of road construction is shown as being much higher. Which is correct?

P.IV-12 Figure IV-D-2

Over one-third of the watersheds indicate a potential risk of damage if disturbance occurs; therefore, special standards and guidelines must be developed to reduce potential impacts to fish and water quality.

P.IV-14 Paragraph 1

The Forest should use the term "legal-size wild trout," since ODFW defines "catchable trout" as hatchery yearlings stocked for the creel.

Paragraph 3

The 70 percent biological potential for primary cavity excavators cannot be maintained with 0.4 snags/acre (Brown, 1985).

P.IV-16 Figure IV-D-5

ODFW commends the Forest for the adequacy of special wildlife habitats and prescriptions. ODFW strongly supports the special wildlife habitats listed in Figure IV-D-5 and recommends MA 9e prescription be applied to the 17 streams listed in an ODFW letter to the Forest dated 14 July 1983. These streams possess large

populations of wild trout, high quality water, and high quality angling and recreational opportunities. ODFW recommends the following areas for inclusion as special wildlife habitats:

Lowell Ranger District

Sourgrass Meadow - Extensive high elevation meadows and tag alder openings are used heavily by deer and elk during spring, summer, and fall. Lowell Ranger District protects their portion and designates it as special wildlife habitat; however, Oakridge Ranger District does not. ODFW recommends the area be expanded to include those portions on the Oakridge Ranger District.

Rigdon Ranger District

Bristow Prairie - High elevation meadows and adjacent forest cover are used extensively by radio-collared elk from both the Willamette and Umpqua Forests. ODFW recommends protection of 405 acres as proposed in Alternative F.

Paddy's Valley - Extensive hardwoods and swamp are located along the Middle Fork. ODFW recommends protection of 470 acres as provided in Alternative D.

Groundhog Mountain - The area provides high elevation meadows and associated forest cover which are heavily used by elk and deer during spring, summer, and fall. ODFW recommends inclusion of the area into the Juniper Mountain/Joe's Prairie complex.

Oakridge Ranger District

Captain Prairie, Salt Rock Prairie, Long Prairie, and Etta Prairie - These are areas which have an extensive complex of meadows and adjacent cover, and are within the Waldo-Many Prairies Roadless area. They are important for big game during spring, summer, and fall. Recommend designation of these areas as special wildlife habitat areas.

Black Creek Swamp - The extensive swamp, hardwoods, and surrounding forest cover are used by wintering big game.

Heather Meadow - The area provides critical elk and deer winter range along Salt Creek and Highway 58. Past enhancement has included blasting potholes in the wet area to enhance waterfowl nesting.

Big Bunchgrass Meadow and Cornpatch Prairie - High elevation meadows and associated forest are used by elk and deer during spring, summer, and fall.

Horse Pasture Meadow - Alpine meadows and wet areas with associated forest cover are used extensively by radio-collared elk during spring and summer.

Grasshopper Mountain/Chucksney Mountain - The complex of meadows, wet areas, tag alder patches, and talus openings is heavily used by elk and deer during spring, summer, and fall.

Brock Meadow - This area provides critical winter range habitat for elk.

Major Prairie - This area, consisting of open meadows and shrubby hardwoods, provides critical winter range for elk.

Blue River Range District

Wolf Rock - ODFW recommends enlarging this area to approximately 600 acres (as proposed in Alternative D) to include the wet meadow, marsh, and adjacent forest cover.

McKenzie Ranger District

Horse Pasture Mountain/Taylor Castle Area - The mixed wet meadows, tag alder, talus slopes, and associated forest cover are important for deer and elk use.

Smith Ridge Lost Meadow Complex - The high elevation meadow with associated forest cover are important for deer and elk.

Sweet Home Ranger District

Daly-Parish Lake
Parks Creek
Lava Lake
Cone Peak
Browder Ridge
Two Girls Meadow

- Each of these areas are a focal point of elk and deer activity. Calving and fawning areas are found in all listed areas. All areas are important for forage production and are heavily grazed by deer and elk throughout the spring, summer, and fall. Lava Lake and Pigeon Prairie are used as resting areas for migrating Sand Hill Cranes each year.

Detroit Ranger District

Pigeon Prairie
Big Meadows
Bruno Meadows
Twin Meadows

P.IV-17 Threatened and Endangered Species

The Forest needs to include a category for sensitive species, listing the Oregon chub, bull trout and other species in this classification (see DEIS III-70, Figure III-J-1). State listed threatened and endangered species should also be mentioned.

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P.IV-20 ODFW supports the development and management concerns addressed for Oregon Cascades Recreation Area.

P.IV-21 Off-Road Vehicles

The Proposed Plan would open sixty-eight percent of the forest to ORV use. ODFW recommends regulated ORV use in big game winter range and other sensitive wildlife habitats.

P.IV-22 ODFW supports the Forest's wilderness management prescriptions. These are well done and show concern for maintaining high quality recreational experiences.

P.IV-24 The management prescriptions and descriptions given for old-growth groves are good. ODFW recommends a major portion of the Waldo-Moolack roadless area as an old-growth grove.

P.IV-25 The Forest needs to mentions management area prescriptions for H.J. Andrews and Research Natural areas. ODFW recommends that SOHA's within the H.J. Andrews be fully protected and maintained as higher priority than research goals of the H.J. Andrews.

P.IV-26 The Forest should mention compatibility with wildlife and specify which resource has priority in its range discussion.

P.IV-27 Figure IV-D-15

The figures for miles of road construction stated here differ from those stated in Figure IV-D-1. Which figure is correct?

Of new roads constructed 16.7 percent are constructed in roadless areas in decade one and 38.8 percent by decade five. Total new road construction in existing roadless area is 58.2 percent. ODFW recommends the Forest set a high priority on implementation of an aggressive travel management program to meet hunting demands and habitat effectiveness goals.

P.IV-32 Figure IV-D-18

ODFW supports the concept of maintaining forested lands to meet important habitat and wildlife objectives. ODFW strongly recommends withdrawing all of the riparian acres from scheduled timber harvest in order to meet objectives for soil protection, water quality, and fish and wildlife habitat. Such a withdrawal from timber management is critically needed in the 13 of 26 watersheds with "demonstrated channel instability or sediment related effects" and those watersheds that have a high "watershed sensitivity index."

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P.IV-34 The Forest estimates 20 percent of the total volume removed from the Forest is nonchargeable volume. ODFW believes this volume would have significant impacts on wildlife, particularly species dependent on snags and down woody habitats. Protection of these habitats at or above 60 percent of potential population levels is needed.

P.IV-36 Figure IV-D-22

The Forest's figure indicates that the first decade riparian area harvest of 312 MMBF is five percent of the proposed total decade one harvest. If five percent of the forest is in riparian acres (as the Forest has stated) it appears to ODFW that riparian areas will be managed on the same rotation and at the same intensity as the general forest. It also appears that if this level of harvest occurs on an areas that has 21.5 percent of the acres withdrawn and 39.5 percent of the miles already impacted, it will result in severe environmental degredation.

Using the Region 6 MMR distance guidelines for single pair SOHA's, ODFW concludes that at least 19 additional SOHA's are needed to fill gaps between SOHA's identified in Alternative J, particularly those providing connection to adjacent BLM lands and other national forests. These include both occupied and capable (future) spotted owl habitat areas (SOHA). Recommended additional SOHA's are listed below:

A. To Connect to BLM SOHA's

1. Elkhorn (AQ)
2. Moose Creek (EJ)
3. Moose Creek (EJ)
4. Cone Creek (MI)

B. To Connect With Adjacent Forest

1. Potato Hill (IA)
2. Paddy's Valley (3H)
3. Dome Rock (3E)

C. To Improve Distribution Within the Forest

1. Tidbuck Creek (MB)
2. Brush Creek (RB)
3. Cabin Creek (RF)
4. Cayuse Creek (ZE)
5. Warm Springs (ZD)
6. Cedar Creek (ZG)
7. Fuji-Marilyn (ZV)
8. Wolf-Hills (3R)

D. Capable SOHA's (approximate locations)

1. T11S, R6E, S.36
2. T13S, R4E, S.30
3. T15S, R4E, S.06
4. T15S, R7E, S.15
5. T23S, R4E, S.26

As indicated under General Recommendations, ODFW recommends the Forest should emphasize the retention of existing large blocks of suitable habitat with multiple pairs of owls rather than small islands of habitat (single pairs).

Sustaining Habitat (SH): Based on research conducted on the Willamette and elsewhere ODFW recommends that at least 2,200 of old growth mature habitat be retained for each pair. Potential replacement habitat should be identified for each SOHA.

SOHA nesting, roosting, and feeding habitat areas should be consolidated into contiguous units over time. Management of fragmented habitat areas should be to incorporate young plantations into the SOHA overt time. Boundaries of SOHA's should be based on a known nesting core area and the best available habitat. Guidelines should be developed to address SOHA's lost to fire or wind. Salvage logging and road construction should be prohibited within SOHA boundaries.

Pileated Woodpecker

Based on recent work by Mellen (1987, M.S. Thesis, OSU) and Brown (1985), ODFW recommends the following changes to pileated standards and guidelines:

A. Nesting and roosting habitat areas should be increased to 495 acres of mature/old-growth forest. Home ranges of individual pileated averaged 1,100 acres and 500 acres represented the minimum amount of mature/old-growth found within the home range.

B. Potential nest trees should average 28 inch dbh (Mellen, 1987); roost tree averaged 47 inch dbh, thus old-growth is preferred.

C. Foraging habitat should be increased to 500 acres plus, with two snags/acre equal to or greater than 17 inches to meet needs of other primary cavity excavators.

D. Distribution of habitat areas are to be based on measurements from core center, according to regional MMR direction, not edge-to-edge as indicated in the DEIS. Additional SOHA's recommended by ODFW should provide for improved distribution without remapping pileated areas.

(Note the 500 acre nesting area is rounded off from 480 in Mellen (1987).

P.IV-47 Pine Marten

Pine marten areas should not become isolated islands of suitable habitat. Forested corridors and streamside buffers with high levels of downed logs should provide travelways for movement between areas and additional foraging habitat.

It is unclear what is meant by "lower level habitat will reflect actual use in secondary habitat areas." How will the districts determine actual use and what is a secondary habitat area?

Bald Eagle

ODFW finds that except for a few isolated parcels, there is little suitable FS land near Green Peter Reservoir. One active nest is currently located on BLM lands. ODFW suggests this potential site be allocated to the Marion Lake area. ODFW also recommends that the habitat areas at Waldo Lake be moved to lower elevations because of the lake's high elevation and artificial food supply.

P.IV-48 Peregrine Falcon

The recovery plan does not provide specific guidelines for nest site management. Acceptable guidelines are not in place for active sites on the Umpqua NF and should be referred to.

Primary Cavity Excavators

The Forest is to be commended for their attempt to provide suitable habitat for population levels above 40 percent. However, ODFW recommends a target level of 60 percent (2 snags/acre, soft and hard, with replacement trees over the rotation) considering the uncertainty of managing for minimum level. (See Dead and Down Woody Habitats).

Although a 60 percent subpopulation level will probably be met during the life of the plan, our field observations indicate insufficient existing snags are surviving current logging operations to meet the 40 percent level now, let alone during an entire rotation. Small blocks of green timber and snags must be left in addition to scattered snags in order to improve the survival level of snags through logging and burning.

ODFW recommends that forest stands surrounding areas of past management activity with less than 60 percent potential population level be managed at the 100 percent level. Snag habitat must be distributed throughout commercial forest lanes to maintain the functional value of PCE.

P.IV-48 Roosevelt Elk/Black-tailed Deer

1.1. Change to read: 20 percent forage, 12 percent optimal thermal cover, at least 26 percent thermal cover, and the rest in hiding cover.

Add to 1.1.: "For each major drainage on the winter ranges, a 1/4 mile corridor will be established on each side of the stream to provide optimal thermal cover. Forage areas will be well distributed throughout the drainage."

The timber rotation needs to be programmed to meet the optimal thermal cover requirements. Optimal thermal and thermal cover need to be well distributed within RSA's.

2. Rewrite to read: "Provide effective hiding cover (conifers at least 10 feet tall)...adjacent to forage areas."

P.IV-49 2.3. On lines one and six of the standard, strike "when necessary" and "as necessary."

4. What is meant by "as expected?" The standard should meet ODFW benchmarks.

4.4. See Recommendations.

3. Oregon Chub

The Forest should add a provision to expand distribution of Oregon chub. Waters with Oregon chub should be allocated to Management Area 9b.

P.IV-50 Dead and Down Woody Material

The Willamette Wildlife Tree plan only briefly discusses logs and the proposed guidelines recommends leaving Class I and II logs only on selected forest lands (Page IV-32 of 1984 Snag Plan). Guides for general forest are not present. Forest plan guide recommends Class 3,4,5 logs as priority in conflict with the Snag Plan. Woody debris needs to be maintained on all treated acres. Eliminate "should" and insert will.

Guidelines should follow Brown (1985). Leave at least two Class I and 2 logs per acre, 12 to 17 inches at the large end and 20+ feet long. All Class 3, 4, and 5 logs with little commercial value should also be retained. See Recommendations.

Natural Opening, Cliffs, Caves, and Talus

Although natural openings, cliffs, caves, and talus may not be at risk due to management actions ODFW believes the Standards and Guidelines need to be stronger in order to protect these habitats.

P.IV-51 Range Management

Forest guidelines are needed for resolving conflict with wildlife use on range allotments.

P.IV-56 Timber Management

2. Harvest units need to be stocked before final overstory or seed tree removal.

3. Created openings should not exceed 40 acres in size.

4.b. The standard needs to be trees 10 feet tall, not 4-1/2 feet tall.

P.IV-58 Fuel Management

Standards and Guidelines for riparian and special habitat areas need to be strengthened with positive wording and expanded to protect wildlife trees, buffers on bogs, wetlands, meadows, cliffs, talus, or other special habitat areas, wherever they occur.

P.IV-60 Integrated Pest Management

ODFW recommends minimal vegetation control on winter range be restricted to non-chemical means.

Soil, Water, and Riparian Areas

Giving preferential consideration to dependent resources during conflicts is an excellent standard. The Forest mentions various required water quality standards, yet only water temperature is specified in the Plan. ODFW recommends items 9 and/or 10 include measurable criteria for turbidity or sedimentation. ODFW recommends standards such as those proposed by the Siskiyou and Umpqua Forest draft plans.

P.IV-61 4. Scheduling timber harvest to maintain hydrologic recovery is a valid method to help maintain fish habitat. ODFW recommends measurable threshold levels be established.

7. ODFW believes maintaining at least 90 percent of beneficial large woody debris may be adequate for undisturbed areas; however, 100 percent is needed for areas that have been degraded due to past management activities.

P.IV-62 9. The Forest needs to change "should" to "will not" cause temperature increases.

11. The Forest's operational consideration for fire protection is good.

11. and 13. The use of unmeasurable standards such as "maximum practical extent" is insufficient to address stream sediment concerns.

13.a(1) The Forest needs to add dry months construction to operational considerations.

14. and 15. The Forest's proposed standards for timber harvesting in riparian areas require a high level of professional input and sophistication. ODFW recommends placing all 46,842 riparian acres

in Management Area 9 - Special Habitat and under the several categories as appropriate. The importance of these areas for soil conservation, water quality, and fish and wildlife habitat deserve special recognition with a communsurate high level of protection.

14.b. ODFW believes that 80 percent shade should mean "stream surface shaded." This shade reference should also apply to both pre-activity and regenerated areas; as presently worded, such intent in unclear.

ODFW recommends that methods for, and recovery rates of, vegetative recovery should be specified, and be measurable.

14.c. The Forest's standard of seven percent harvest along Class III streams is 143 year rotation. ODFW does not believe this standard will provide an adequate size of material needed in the future for large woody debris component.

14.d. ODFW recommends an undisturbed area adjacent to all Class I and 2 streams be provided; only "probable cumulative effects" streams are afforded this protection as proposed.

Standards to determine minimum vegetative buffer widths applicable to each stream class should be included; ODFW previously recommended this be in the plan.

P.IV-63 15.a. ODFW recommends that unstable areas in riparian areas along all streams have restricted activity, nut just unstable Class 4 streams. Also, Class 4 streams should have specific protective provisions whether unstable or not.

MANAGEMENT AREA PRESCRIPTIONS

P.IV-69 MA9e is not utilized on any acres. ODFW previously suggested streams appropriate for this prescription and recommended their adoption. ODFW again makes this recognition.

P.IV-71 Wilderness

Under "Wildlife Management" for MA 1a, 1b, 1c, and 1d, the Forest states "Wildlife may be harvested under State regulation..." ODFW recommends the Forest change the title of this practice to "Habitat Management" and delete the reference to wildlife harvest.

P.IV-92 4. Motorized Use

ODFW recommends regulation of off-road vehicle use on the Indigo Lake trail to maintain popular semi-primitive angling, camping, and associated recreational uses of this lake.

P.IV-106 Recreation Management

1a. What is the time table for developing the old-growth grove plans?

Timber Management

2. Removal of salvage materials should not be permitted. Hazard trees should be felled and left on site.

P.IV-113 Wildlife Management

1. Planning

What is the timetable for plan preparation? Before monitoring can begin, the Forest must establish baseline data against which to monitor.

3. Habitat Protection

ODFW recommends snag habitat levels be maintained at 100 percent of potential in MA9a areas.

P.IV-115 Wildlife Management

Same comments as IV-113.

3. Enhancement

Forest enhancement projects must be prioritized and based on site specific needs.

4. Habitat Protection

ODFW recommends MA 9b designation for all big game winter ranges.

P.IV-118 Management Area 9c

ODFW concurs with the standards and guidelines for nonwilderness lakes.

Wildlife Management

Hazard trees may be cut but not removed from the site.

P.IV-122 Wildlife Management

Same comments as IV-118.

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P.IV-125 MA 10a through 10e

Under All Design and Implementation Practices it states; 1a. Soil, Water and Riparian, except 3b. In Section B Specific Standards there is no 3b.

P.IV-154 Developed Recreation

ODFW recommends development of meaningful and measurable standards and guidelines for riparian habitat for inclusion here. See Recommendations.

P.IV-163 Management Area 14 (General Forest)

ODFW cannot support the Standards and Guidelines for Management Area 14. The standards are inadequate for fish and wildlife management. Management activities for this allocation will effect fish and wildlife habitat diversity on nearly 700,000 acres. See Recommendations.

The Forest has proposed six timber management strategies, yet the acreage per strategy is not provided. Evaluation of the effect each of these strategies would have on other resources cannot be completed without knowing the acreage and location of each.

IMPLEMENTATION AND MONITORING (CHAPTER V)

P.V-1 What is the process for public review of the implementation monitoring documents?

P.V-6 Effectiveness Monitoring

The description, including Figure V-C-1, is too sketchy to provide firm direction. The Plan should address necessary written records, public involvement and review, and how to apply findings in order to avoid problems identified by the monitoring.

P.V-9 2. ODFW recommends annual water quality monitoring of selected Class I and II streams. The Forest needs to define the number and distribution of sites to be monitored. It would be beneficial if the Forest would promote a habitat deficiency inventory to document specific streams or areas that would benefit from enhancement projects.

A temperature monitoring program is needed for key drainages, such as the South Santiam River and Quartzville Creek, where cumulative effects of the watersheds are now borderline.

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P.V-10 3. "Sample by subdrainage" is not a method. ODFW recommends the Forest establish photo trend plots to monitor changes in diversity. The number and distribution of sites need defining.

4. ODFW recommends the Forest use LANDSAT to monitor old-growth standards.

P.V-12 ODFW recommends monitoring deer and elk range conditions using the Habitat Effectiveness Model developed by Wisdom et al. This monitoring should be combined with annual reporting and clearly display each factor in the HE model. Monitoring is needed to assure that Special Wildlife Habitats are managed to achieve protection goals.

The Forest needs to include monitoring of meadows, cliffs, and other special habitats.

ODFW recommends development of monitoring provisions for MIS resident trout. Monitoring fish populations before and after enhancement projects is needed to determine the effectiveness of those projects.

ODFW recommends annual monitoring of resident and anadromous fish spawning and smolt production indices in selected areas.

PROPOSED PLAN APPENDIX

D-15 Little Fall Creek fish ladder was completed by Weyerhaeuser Company in 1986 to benefit spring chinook not coho. Fall Creek/Winberry Creek steelhead hauling is done by the U.S. Army Corps of Engineers. McKenzie River hauling of spring chinook, not summer steelhead, is done by ODFW. No egg incubators for summer steelhead are permitted by ODFW in the Willamette Basin.

Figure D-6

ODFW recommends deleting this Figure because seven of the eleven projects do not depend on USFS, and of the remaining four, the USFS is not certain of its involvement.

D-19 Why does the schedule of snag creation for cavity excavators range from ten on Detroit to 75 at Lowell? What types of structures are proposed for bald eagles and peregrines?

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ODFW FISH AND WILDLIFE HABITAT PROTECTION CRITERIA FOR FORESTED LANDS, MARCH, 1985 (Revised September, 1986)

Old-Growth

1. The Forest meets standards.
2. Dedicated acres for spotted owl questionable.

   Dedicated acres for pileated questionable.

   Other species appear adequate - distribution of acres OK if increases made in SOHA's and pileated areas.
3. Acres of managed stands provided for.
4. Some areas have roads and woodcutting, or salvage may be permitted, does not meet criteria in managed old-growth areas.

Snags

1. No inventory is presented.
2. Criteria is met only in dedicated old-growth areas.

   Areas managed for primary cavity dwelling species do not meet criteria.
3. Forest does not meet criteria on areas programmed for harvest. Forty percent level proposed.
4. No methods discussed for protection of snags from fire or woodcutting.
5. Snag monitoring program is inadequate. Funding is questionable.

Dead and Down Woody Material

1. Habitat planned for ten to 100 percent level.
2. Protection strategies are not addressed.
3. Monitoring is not assured.

Hardwood and Minor Conifer Species

1. No information presented. Criteria not met.
2. Criteria not met.
3. N/A.

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Riparian

1. Acreage and condition are partially disclosed.
2. Evaluation parameters are not fully disclosed.
3. The preferred alternative does not appear to provide protection needed to meet water quality criteria other than temperature.

4 and 5. Restoration is discussed for degraded habitats. A majority of improvement and enhancement is dependent on actions of other agencies.

6. Habitat monitoring, as drafted, lacks specifics and is infrequent and dependent on questionable funding.

Meadow, Freshwater Wetlands, Natural Openings

1. Criteria are met through MA process where applied. Does not meet criteria on all meadows, freshwater wetlands, and natural openings.

2 and 3. Management strategies may not protect all listed habitats.

4. Permitted management activities meets criteria on designated areas only.
5. Current acreage is protected for wetlands only.

Cliffs, Rimrock, Caves, and Talus

1. Protection meets criteria.

Aquatic Habitats

1. Maintenance, enhancement, and restoration are described. ODFW criteria will probably not be met if water quality is degraded as appears probable under the preferred alternative.
2. Changes by decade are discussed, although measurable standards are lacking.
3. Baseline is current or natural condition.
4. Monitoring is planned but is subject to funding. Frequency and specific parameters are inadequate or undefined.

In-Stream Habitat

1. Criteria are not met in all alternatives.

   Preferred Alternative poses high degree of risk from actions on unstable areas.

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Water Quality

1. Desired temperature and turbidity criteria are not shown and may not be met.

2. Monitoring standards are inadequate.

Elk and Deer Habitat

1. N/A.

2. Described conditions meet criteria on described winter range. Conditions on MA 14 may not meet criteria.

3. Record keeping is by sub-basin.

4. Forage cover and scheduling are discussed.

   Road density and a habitat effectiveness model are not discussed.

5. a1. N/A.

   a2. Distribution not discussed.

   b1. N/A.

   b2. ODFW criteria generally met. Habitat effectiveness model not used.

6. Winter range is only special habitat identified and given adequate coverage. All others are inadequately described, evaluated, and protected.

7. Description of current condition winter range is discussed.

   Summer range condition is not discussed.

   Changes by alternative discussed for winter range only.

   Potential outputs are described.

8. Monitoring is planned for winter range.

   Frequency of observations and funding are questionable.

9. Habitat effectiveness models not used.

Species of Special Concern

Bald Eagle

1. and 2. Recovery plan to be followed.

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3. Monitoring planned subject to funding.

Peregrine Falcon

1. Habitat inventory discussed.

2. Potential sites protected.

3. Monitoring is planned.

Northern Spotted Owl

1. Defer to SEIS comments.

Western Snowy Plover

N/A

Western Spotted Frog

Not addressed.

Road Management

1. Plans included describing measures but are inadequate.

2. Impacts do not address HEI for elk or deer.

3. Criteria generally not met.

4. Not discussed.

Grazing

1. Grazing is discussed. Allotments are not described or illustrated on maps.

2. Forage allocations are not fully discussed. Resolution of conflicts not discussed.

Fish and Wildlife Habitat Protection Criteria for Forest Lands

March, 1985

Reformatted and Revised September 1986

Environmental Management Section
Oregon Department of Fish and Wildlife
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CONTENTS

	Page
Special Wildlife Habitats and Habitat Features	1
Old Growth	1
Snags	1
Dead and Downed Woody Material	2
Hardwoods and minor Conifer Species	2
Riparian	2
Meadows, Fresh Water Wetlands, Natural Openings	3
Cliffs, Rimrock, Caves, and Talus	3
Aquatic Habitats	3
In-stream Habitat	4
Water Quality	4
Water Quantity	4
Elk and Deer Habitat	4
Species of Special Concern - Federal and State Threatened and Endangered Species	6
Bald Eagle	6
Peregrine Falcon	6
Northern Spotted Owl	6
Western Snowy Plover, Western Spotted Frog	7
Road Management	7
Grazing	7
Glossary	9
References	11

Special Wildlife Habitats and Habitat Features

The Department's habitat diversity objective on managed forest lands throughout the state is to encourage perpetuation of the naturally occurring mix of habitat types, and plant communities in sufficient amounts adequately distributed to maintain wildlife species in compliance with Oregon's Nongame Wildlife Plan ORS 635-100-001 through 635-100-030.

Old growth	1. A minimum of 5% to 15% of each major plant community in the forest is dedicated old growth stands, well distributed by slope, aspect, and elevation throughout the forest. 2. Dedicated old growth[1] stands must include a sufficient amount and distribution of existing stands to maintain the existing populations of old growth dependent species. 3. Managed old growth stands will be in addition to, and not in lieu of, dedicated old growth stands. 4. Criteria will not be met in old growth areas where fuel wood cutting and open roads are permitted.
Snags	1. An inventory of existing snags and potential snag habitat is included. 2. A sufficient amount of habitat is provided to maintain cavity dwelling species at 100% of the population potential in areas managed especially for old growth, old growth species, and cavity dwelling species. 3. On the remainder of the forest, habitat is provided to maintain cavity dwelling species at or above 60% of the population potential. 4. Methods to protect snags and leave trees from slash burning and fuel wood cutting are assured. 5. A snag habitat monitoring program is assured.
Dead and down woody material	1. Dead and down woody material is planned for and provided, based on published guidelines, to maintain dependent wildlife species in the planning area. 2. Strategies are included to protect the habitat components from fuels management, slash disposal, fuel wood cutting, and yarding activities. 3. A habitat monitoring program is assured. (Brown 1985 and Thomas 1979).
Hardwoods and "minor" Conifer Species	1. At least 10 percent stocking of naturally occurring hardwood species and at least 10 percent stocking of "minor" conifer species should be retained. 2. In contiguous hard-wood stands (i.e., alder, oak, tan oak) at least 25 percent of the stand should be retained through the natural succession, except for migratory deer winter ranges in southern Oregon. 3. Migratory winter ranges are generally composed of oak-grassland habitat interspersed with scattered conifer groves (generally 5 to 40 acres in size). All existing acreage of this habitat type should be retained (including the conifer groves) with management activities limited to those which will ennance winter range values.[1]
Riparian	1. Total riparian acreage and existing conditions are shown. 2. Evaluation parameters for management of riparian habitat are: (a) stream surface shaded (b) streambank stability (c) streambed sedimentation (d) Grass-forb cover (e) shrub cover (f) tree cover.

[1] See glossary for "old growth".

[1] These criteria are not intended to conflict with special management prescriptions for riparian zones or stream buffers which may include more restrictive retention standards.

	3. Riparian habitats are managed to maintain or improve water quality and fish and wild life habitat values.
	4. Restoration of degraded riparian habitat to at least 80 percent of potential is planned.
	5. The habitat restoration target to be achieved within the life of the plan (10 years) is included. (8).
	6. Habitat monitoring system is assured.
Meadows, Freshwater Wetlands, Natural Openings	1. Integrity and effectiveness of the habitat for wildlife use is maintained.
	2. Ninety percent of the peripheral vegetation is maintained one sight distance wide.
	3. Two-thirds of the cover outside the periphery must remain at all times in natural condition.
	4. Livestock grazing, logging practices, recreational use (horses, ORV's, etc.) and other activities are managed to protect the natural conditions of these habitats.
	5. The current acreage in each of these habitat types is preserved. Protective measures will be based on published guidelines and considerations. (Brown 1985; Thomas 1979; (5), (a), (b), (c); (8)).
Cliffs, Rimrock, Caves, and Talus	1. Management considerations in published guidelines are used to achieve maximum protection of these habitats. Conflicting uses and activities include: (a) physical alteration (b) road construction and location (c) quarries (d) clearing of adjacent cover (e) recreational activities and other human disturbances. (Brown 1985; Thomas 1979).
Aquatic Habitats	1. Maintenance, enhancement, and restoration of aquatic ecosystems to meet Oregon Department of Fish and Wildlife objectives is described.
	2. Changes expected by decade using FHI (Fish Habitat Index) or other accepted models are displayed.
	3. The baseline for changes should be the current management level or condition.
	4. A monitoring plan is assured.
In-stream Habitat	1. In-stream integrity is maintained, enhanced or restored to acceptable levels, including flow, channel stability, cover, substrate quality and fish passage opportunity.
Water Quality	1. Water quality parameters (especially temperature and suspended sediments) are maintained or restored to acceptable levels.
	2. Monitoring procedures are assured.
Water Quantity	1. No less than the minimum existing stream-flows[1] and seasonal patterns are maintained.
	2. Monitoring is assured.

Elk and Deer Habitat

1. Eastern Oregon

Habitat conditions for Rocky Mountain elk and mule deer (includes white-tailed deer) based on published guidelines are provided which will sustain no less than ODFW management objectives (based on conditions in 1977-1980). The objectives identify, by wildlife unit, the size of the overwinter population and the ratio of males per 100 females. An optimum habitat condition is required to meet the recruitment goals based on reproductive performance up to 1980.

2. Western Oregon

Optimum habitat conditions based on published guidelines are provided which will allow for an increase in elk and deer populations and will meet recruitment goals based on herd performance up to 1980.

3. Permanent habitat planning and record-keeping areas will be of the following sizes:

   a. Eastern Oregon - approximately 10,000 acres.
   b. Western Oregon - 1,000 to 6,000 acres.

[1] State Water Resources Board, Salem.

4. Habitat conditions in the permanent planning area are described using size and spacing and road density. In western Oregon forage quality and cover quality must be included.

5. Elk and deer cover and forage requirements by geographic area are included using the following descriptions:

   a. Summer Range

      (1) Eastern Oregon - a total of 40% cover well distributed over the summer range comprised of the following components: 10% thermal cover[1], 20% hiding cover[2]; and 10% of either hiding or thermal cover (thermal, preferably). Thomas 1979. (p. 121, fig. 72.

      (2) Western Oregon - a total of 50% in well distributed thermal cover stands (of which at least 25 percent is optimal thermal cover)[3], and about 20% in forage areas.

   b. Winter Range

      (1) Eastern Oregon - 50% of the area in well distributed thermal cover stands.

      (2) Western Oregon - a total of 50% in well distributed thermal cover stands (of which at least 25 percent is optimal thermal cover), and about 20% in forage areas.

      West Slope Cascades - In addition to the above, on each major drainage corridor in winter range a belt 1/4 mile wide on each side of the stream will be in optimal thermal cover (21" d.b.h. and greater on approximately a 200 year rotation). Forage areas (clearcuts 0" to 5" d.b.h.) will not exceed 10 acres in size and will be well distributed throughout the drainage. The rotation produces a sustainable ratio of 50% optimal thermal cover, 25% thermal cover, 15% thermal shade (hiding cover) and 10% forage.

6. The following special elk habitats are identified in the permanent planning area for special management or protection: (1) calving and fawning areas; (2) calf rearing and fawn rearing areas; (3) travelways; (4) known breeding areas; (5) winter range; (6) high use areas such as riverine habitat, basins, meadows, grass/timber mosaics, benches, and mineral licks.

7. The plan describes the following:

   a. Current situation.
   b. Changes by alternative.
   c. Maximized deer and elk output or potential outputs.

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1 See glossary for definition of thermal cover.
2 See glossary for definition of hiding cover.
3 See glossary for definition of optimal thermal cover.

8. The plan assures monitoring of the cumulative affects of habitat conditions in the permanent planning areas through time.

9. The plan predicts changes in habitat using habitat effectiveness procedures. (11), (14).

Species of Special Concern - Federal and State Threatened and Endangered Species

Federally threatened and endangered species are provided for as required by the Endangered Species Act of 1973.

Bald eagle	1. Protective measures for existing nests, roosting, feeding and wintering areas meet the requirements of the Bald Eagle Management Guidelines, Oregon-Washington, USDI Fish and Wildlife Service.
	2. Potential habitat is protected as set forth in the Bald Eagle Recovery Plan.
	3. Adequate habitat monitoring is assured to determine the effectiveness of planned action and recovery efforts.
Peregrine falcon	1. Habitat inventory is displayed.
	2. Existing and potential nesting and feeding habitat is protected in a sufficient amount to meet the objectives in the Pacific Coast Recovery Plan for the American Peregrine Falcon, August 1982. Objectives will be revised as necessary to reflect the most current scientific information.
	3. Adequate habitat monitoring is assured to determine the effectiveness of planned action and recovery efforts.
Northern spotted owl	1. Habitat areas of proper size, distribution and spacing to maintain the species in perpetuity are provided and protected that meet or exceed standards contained in the Oregon Interagency Spotted Owl Management Plan. The standards will be revised to meet the most current scientific information.
	2. Adequate habitat monitoring is assured to determine the effectiveness of planned action.

Western snowy plover Western spotted frog (W. Ore.)	1. Existing habitat is maintained. 2. Degraded habitat is restored with the objective of building populations of appropriate species sufficient to cause delisting. 3. Habitat is provided for snowy plover in accordance with the Draft Western Snowy Plover Plan for Oregon. 4. Adequate habitat monitoring is assured to determine the effectiveness of planned action.
Road Management	1. Road management plans are included which describe measures to: (a) protect fish and wildlife habitat values (b) minimize disturbance of fish and wildlife (c) promote increased quality of recreational experiences 2. Impacts of roading must be addressed in overall habitat effectiveness evaluations for deer and elk using appropriate guidelines. (Brown 1985; Thomas 1979; (1); (6); (12)). 3. Criteria will generally not be met if new road systems are not designed to avoid important wildlife habitat areas such as winter ranges, thermal cover areas, known elk breeding areas, travelways, riparian areas except at crossings, and dedicated old growth stands. 4. Existing roads are managed to minimize conflicts in these areas. For the purpose of road management and closures to motor vehicles, motor vehicles will include any motor propelled vehicles, regardless of width.
Grazing	1. Existing and proposed livestock grazing systems are described by allotment. Descriptions of allotments will include: (a) a map showing allotments (b) range condition and trend data (c) proposed range improvements (d) a monitoringprocedure (e) a management adjustment procedure

2. If forage is allocated for big game, allocations are based on realistic evaluations of livestock and big game competition as described in reference (10), Chapter 10, page 415. Evaluations must be based on:

(a) animal distribution
(b) timing of grazing
(c) forage availability
(d) height of reach
(e) diet similarity

GLOSSARY

CROWN CLOSURE	The percent of ground area covered by the tree and shrub canopy when viewed from overhead.
HABITAT DIVERSITY	The relative degree of abundance of various habitat types, plant species or plant communities on a given area.
HIDING COVER, ELK/DEER	A vegetation stand at least 600 feet wide which is capable of hiding from human view 90 percent of a standing adult animal at 200 feet or less, generally meaning any vegetation used by deer or elk for security or escape purposes.
OLD GROWTH	Generally a forest stand several hundred years old, characterized by a mixture of large, old seral-dominant trees and a subcanopy of shade-tolerant trees, some showing decadence, and an understory of shade-tolerant herbs and shrubs. Key elements of old growth forests are: (a) large live trees; (b) large snags; and (c) large down logs, both in stream and on land. Snags and down logs are in various stages of decomposition. Other common features are dense, deep, multi-layered canopies and a range of tree sizes and ages. Exact composition, structure, and age vary regionally (e.g. sitka spruce in coastal forests, noble fir in subalpine forests, and white fir in the Blue Mountains) and locally depending on moisture and temperature regimes. Mixtures of several tree species are common (Brown 1985; Thomas 1979; (2), (9)).
THERMAL COVER, OPTIMAL THERMAL COVER	A multi-layered forest stand 40 feet or more in height, with 70% or greater average crown closure 30 to 60 acres in size and from 400 to 1,200 feet wide. In addition Optimal Thermal Cover, as used in western Oregon, is a stand of trees with 21 inches d.b.h. or greater for maximum snow intercept capability.
	Where mule deer are the primary species, thermal cover is a stand of saplings or shrubs, evergreen or deciduous, at least 5 feet tall, with 70% or more crown closure; or a forest stand of at least pole size or larger with a crown closure of 70% or more. Optimum sized areas from 2 to 5 acres. On winter range all thermal cover must be evergreen and may include any of the following: (a) a forest stand of at least pole-sapling stage; (b) tree and shrub combinations such as juniper/big sagebrush; (c) juniper; and (d) shrub stands such as Mountain big sagebrush, Mountain mahogony, or Bitterbrush (16); Thomas 1979; (5)(a).

TRAVELWAYS	All routes used by animals to move from one area to another. Includes terms: travel route, travel corridor, migration route, and migration corridor. It is generally the most suitable route in that it has the easiest access (i.e., on ridgetops or floodplains), and cover to meet climatic needs.

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D4-8

Department of Geology and Mineral Industries
ADMINISTRATIVE OFFICE
910 STATE OFFICE BLDG., 1400 SW 5th AVE., PORTLAND, OR 97201-5528 PHONE (

January 25, 1988

Bob Brown, Director
Oregon Department of Forestry
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Salem, Oregon 97310

Dear Mr. Brown:

The Oregon Department of Geology and Mineral Industries has reviewed the Draft Environmental Impact Statement for the Willamette National Forest. From our minerals perspective some very fundamental issues are either not addressed or are insufficiently covered in the impact statement. This letter briefly summarizes the issues in hopes of enabling the Forest Service to better address the minerals problem.

A major concern is the need to approach minerals from the perspective of national mineral policy and economic potential. There is a need to better quantify the value of the resource and to factor the resource value into the various alternatives for land use. In terms of quantification, we find that numerical dollar values for the mining resource are not provided. From an economic standpoint, this is particularly troublesome because the per-acre value of mining land greatly exceeds any other per-acre value for other uses. In terms of alternative land uses, we find very little discussion of minerals access or mineral policy direction in the alternatives.

Inadequate quantification of the value of energy and mineral resources in the forest is a problem in the following parts of the forest plan and EIS: (1) (ref. p. B-9) large-scale maps were used to show wildlife habitats but a 1:500,000-scale map was used for minerals; (2) (ref. p. B-88) no value was listed for minerals; (3) (ref. p. III-5-6) the word "minor" was used to describe historic gold and silver production from the forest's mining districts which, is presumably based on Figure III-X-1 (p. III-198), a table

listing mineral production in 1890-1940 dollar values. These minerals at today's prices would be worth approximately $4-5,000,000 -- not a "minor" amount; and (4) (ref. p. B-92, C-8-13, C-18-21, C-24-29, C-34, C-42-43, D-9, II-124, II-133, III-5) mineral and geothermal resources are affected by the management options listed on these pages and other parts of the EIS, but no estimates of potential value lost or retained are given, although statements like "low value" or "small, isolated pockets with questionable potential" (e.g. p. III-197-202) are used to characterize mineral and geothermal resource areas, even areas with extensive active lease positions.

The department recommends quantitative estimates rather than the above vague, qualitative estimates of mineral and energy resource potential. On pages II-133-134 of the EIS, lack of quantitative estimates of future mineral and energy production is defended because these estimates are "highly speculative." Whereas these estimates are by their very nature speculative, they are scientifically defensible, unlike the qualitative statements utilized in the EIS as written. Estimates of geothermal potential are given in the four-state geothermal assessment sponsored by BPA (Bloomquist and others, 1985, WAOENG-85-92a DOE/BP-13609-1, WAOENG-85-92b DOE/BP-13609-2, available from the Washington State Energy Office or BPA). Competent geologists could be assigned the task of doing preliminary estimates of the value of the metallic resources in the mining districts based on published data from, for example, OSU and PSU geology masters theses which cover virtually all of the districts.

A number of the management areas have a negative impact on mineral resource development. This negative impact is partly explicit (i.e. the EIS states that lands are withdrawn from mineral extraction), or it is implicit, owing to competition from vaguely defined visual or recreational resources. The latter issue is much more serious than the former in terms of the amount of area affected. For example, much of the Santiam Pass area, where active volcanism and extensive geothermal leases indicate high geothermal potential, is classified "Partial Retention" for visual quality objectives illustrated on Figures III-N-2 and III-N-3, p. III-111-112. The definition of this category does not explicitly state the effect on geothermal power plants or production wells. Geologists in industry have found that the effect is to zone the area "no surface occupancy" for geothermal power plants. If this is the case, it should be explicitly stated, and the reasoning

behind the zoning should be defended by quantitative studies of the actual effect of facilities which might reasonably be expected to be sited (e.g. in the case of a geothermal plant, small modular units). The department recommends that these studies be accomplished by experts who are experienced with the design and siting characteristics of geothermal or mineral resource extraction facilities.

In the case of geothermal energy, the resource extraction facility can be either (1) direct use of the fluid for heating or (2) conversion of the fluid to electrical energy in a geothermal power plant. The environmental impact of these two uses is very different, but this is not discussed anywhere in the EIS. The issue is directly relevant to zoning along the McKenzie River, where a 1-mile-wide corridor is exempted from geothermal development (ref. p. E-9-11). This area has a number of active hot springs and almost certainly has a shallow geothermal resource between the hot springs (e.g. see Geothermal Resources Map of Oregon, 1982, available from DOGAMI) which could be used for direct heating of small cabins and other modest facilities (see the above-cited BPA report for estimate of resource size and value). This use is presently occurring in the corridor at Belknap Hot Springs. It is unclear from the EIS that direct use has been distinguished from potentially more intrusive uses such as large-scale geothermal power plant construction.

A related issue is the possibility of extraction of geothermal resources by directional drilling from areas where geothermal leasing is allowed to areas where leasing is at present not allowed. Extraction of geothermal resources by directional drilling under an environmentally sensitive area is unlikely to affect the surface at all. Therefore geothermal leasing could be allowed in all forest lands with the stipulation of no surface occupancy, where appropriate. This would circumvent the need for the USFS to prejudge industry's ability to reach resources by directional drilling. The marketplace would make this judgment.

There are some specific problems with land use restrictions on active or patented mining claims. It is not clear that the USFS can restrict access or activities in these kinds of areas. Examples are (1) proposed closing of the McQuade Creek road which has active mining claims (p. C-50); (2) statements to the effect that locatable mineral development can be stopped in roadless areas (p. III-145; and see where this is contradicted by a statement on p. IV-

194); (3) land including patented claims in the Blue River-Calapooia River mining district is set aside for arrowhead collecting (p. IV-101). Access to mines and lands of demonstrated mineral potential should be an exclusion from the road closures which affect the above areas. Active mining should be allowed provided a suitable reclamation plan is developed.

A major goal of the Department is to maintain a strong well-planned mineral resource base for the State of Oregon and to see that mined lands are reclaimed. This Forest plan makes the attempt to recognize that there are minerals and mining, but does not adequately consider minerals in designing alternatives or recommendations for land classification. The data that are provided are not utilized in a meaningful way and do not display the impact of the various alternatives on mineral production.

For Oregonians, the economic productivity of National Forests in Oregon needs to be evaluated in terms of all potential revenue sources, not just timber and recreation. Our declining economic yield from forest lands in terms of employment, tax base and federal revenues is due in part to historical over-dependence on timber and recreation values. Mineral resource values should be vigorously evaluated in the current U.S. Forest Service planning process.

Sincerely

George R. Priest

George R. Priest
Regional Geologist

CC: Norm Johnson, Executive Department
Don Hull
John Beaulieu
Jerry Gray

Department of Human Resources

EMPLOYMENT DIVISION

875 UNION STREET N.E., SALEM, OREGON 97311

March 15, 1988

IN REPLY REFER TO
RES:JRI
R&S 2

TO: Ann Hanus, State Economist
Executive Department

FROM: D.R. Steward, Ass't Administrator
for Research & Statistics MDS for DRS

SUBJECT: Willamette National Forest Plan

The attached comments from Earl Fairbanks, Regional Economist for the Mid-Willamette Valley, and Ken Rocco, Regional Economist for the Eugene-Springfield MSA, address the issues you identified earlier regarding the Willamette National Forest Draft Plan. Please let me know if any revisions are necessary.

Attachments

DRS:krg

cc: Fairbanks
Rocco
Staten

0099A/58

REVIEW OF WILLAMETTE FOREST PLAN
Earl Fairbanks
Regional Economist

On the whole I agree with the concepts of plan J, the preferred plan. It is important to the continued livability of the Willamette valley to guard the quality of our water supply, to provide adequate areas for recreation for our growing population, and to provide enough raw material (trees) to the area's established lumber producers. The valley's high livability quotient is, and will continue to be, one of Oregon's strengths in its economic developement efforts.

However, the plan J seems to not provide the level of available timber for local mills to maintain established levels of product output. If the means to support current production levels are not provided, serious displacement in the local industry may well occur. Some of the problems that would come as a result of restricted raw materials supply may include high bid prices for available timber and lower than optimal productivity from existing facilities which would lead to a weakened competitive position and to a loss of jobs and income into local communities.

Although it is difficult to find straight-forward comparative data in the plan, it appears that the available timber supply will shrink considerably with plan J. The plan talks about "volume of standing trees on land allocated to timber management will be less...". This statement may sound like the forest will slowly be depleted of trees even under plan J. Unless you read elsewhere you may not know that the land allocated for harvest is to decrease from 64% of the total forest to 51% and that over a third of the 51% was to be under a restricted allocation.

Will there be a restriction in the supply of timber? Figure E-W-1, a comparison of the alternative plans says the timber supply will be reduced to 89% of the current plan. Figure IV-1é-6 shows numbers indicating that plan J would allow 86-87 percent of the more current harvest levels.

This percentage, in the high eighties, is very close to the percentage the new plan's allowable sale will be of the 1985/86 average cut. Figure III-W-2 shows the 1985/86 average cut at 766.9 MMBF while the Figure E-F-12 shows the new allowable sale quantity to be 663 MMBF. In actual practice, the volume sold has always been greater than the actual cut. Figure III-W-2 shows that between 1977 and 1986 the percent of sold that was cut averaged 77% with a high of 98% in 1985 to a low of 51% in 1982. Although the Forest Service has said that timber uncut will be put back into the market, the net effect of the restricted timber supply will be high prices to the local wood products producer with a scenario of high demand and low supply especially in years such as in the past several years when the lumber industry sold nearly all it could produce.

Of prime importance to our mid-valley economies is that the local lumber producers need to remain competative in the face of increasing foreign and domestic competition. The tighter the financial squeeze on these employers, the more likely some will cease operation or

look harder at reducing costs, including cutting labor costs by using fewer workers.

A reduction in the allowable cut to 86 percent of the 1985/86 average will translate into a loss of jobs even though Figure E-E-3 says plan J will increase the number of jobs by 1,237. The increase of 1,237 is because the base period of 1977-1985 is used which includes the recession of the early 1980s which devastated the lumber products industry in the state. About the only way this 86% cutback would not contribute to a loss of jobs would be if we entered another hard recession and the market for lumber products fell way off again.

Any loss of jobs will be especially felt in the small towns and communities of western Marion and Linn counties. Even in Marion County, payrolls generated by the lumber industry accounts for every one out of twenty dollars in payrolls and in Linn County, one in five.

The percent of families with income below povery level in 1979 tends to be above the state average of 7.7%: Lebanon, 11.6%; Mt. Angel, 9.9%; and Sweet Home, 17.4%. Since this data was collected for 1979, current figures would exceed these since many jobs lost during the recession have not returned. Also many jobs in the industry are now paying lower wages than before which means fewer dollars flowing into the communities.

March 10, 1988

TO: Michael D. Staten, LMI Programs Unit Manager
Research & Statistics

FROM: Kenneth G. Rocco, Regional Economist
Research & Statistics, Eugene

SUBJECT: Comments on the Willamette National Forest Plan

The Willamette National Forest is a resource vital to the long-term social and economic conditions of Western Oregon, especially for communities and counties in the Mid-Willamette Valley. Employment opportunities, county revenues, and recreational experiences are all impacted by the manner in which the WNF is managed. For the counties of Lane, Linn, and Marion, the Forest provided 42% of the timber harvested between 1976 and 1985, most of which was processed in the local area. The Forest returned nearly $22 million in revenue from the 25% of receipts formula towards local government operating expenses. The Forest regularly records roughly 3 million recreation visitor days worth of activity, mainly from area residents using the Forest for camping, hiking, skiing, fishing, and other outdoor activities.

Due to the variety of functions of the Forest and to legislation mandating multiple use of its resources, the Proposed Land and Resource Management Plan for the Willamette National Forest offers a set of alternative plans aimed at maximizing the forest outputs. Since the Forest has a finite number of outputs to give, not all interest groups will be able to achieve maximum goals from the Forest resources.

Economic conditions in the Primary Zone of influence of the WNF (Lane, Linn, and Marion Counties) have trended positively for nearly four years. Annual average unemployment rates during 1987 fell to their lowest levels for at least the past decade (5.7% in Lane, for example, the lowest annual average since 1969). Wage and salary employment rose to near record highs in Lane County at 104,300, nearly 99% of the peak annual average of 1979. The Primary Zone continues to be more reliant on the lumber and wood products industry than the state as a whole, 8.4% of total nonag employment in the Primary Zone versus 6.2% statewide. Lane and Linn show even more dependency on lumber employment with the industry comprising 10.5% and 16.0% of total nonagricultural wage and salary employment in 1987, respectively.

COMPARATIVE ECONOMIC DATA

INDICATOR	LANE	LINN	MARION*	PRIMARY ZONE**	OREGON
1987 EMPLOYMENT:					
Total Wage & Salary	104,300	29,290	96,000	229,590	1,094,000
Manufacturing	19,600	10,000	14,500	44,100	204,900
Lumber	11,000	4,690	3,600	19,290	67,400
Nonmanufacturing	84,800	19,290	81,500	185,590	889,100
1987 % OF TOTAL:					
Total Wage & Salary	100.0	100.0	100.0	100.0	100.0
Manufacturing	18.8	34.1	15.1	19.2	18.7
Lumber	10.5	16.0	3.8	8.4	6.2
Nonmanufacturing	81.3	65.9	84.9	80.8	81.3
1987 AS % OF 1979:					
Total Wage & Salary	98.8	94.4	106.8	101.4	103.6
Manufacturing	92.0	87.4	94.2	91.6	89.7
Lumber	76.9	83.9	85.7	80.1	83.0
Nonmanufacturing	100.6	98.5	109.4	104.0	107.4
POPULATION:					
1980 Census	275,226	89,495	204,692	569,413	2,633,156
1987 PSU	267,700	87,000	214,500	569,200	2,690,000
% Change	-2.7	-2.8	4.8	0.0	2.2
PERSONAL INCOME (000s):					
1979 Total	$2,164,905	$671,896	$1,608,104	$4,444,905	$22,383,636
1984 Total	$2,814,521	$902,571	$2,314,816	$6,031,908	$31,055,924
% Change	30.0	34.3	43.9	35.7	38.7
1979 Per Capita	$8,083	$7,549	$8,097	$8,003	$9,134
1984 Per Capita	$10,565	$10,032	$11,029	$10,651	$12,011
% Change	30.7	32.9	36.2	33.1	31.5

* EMPLOYMENT DATA FOR SALEM MSA (MARION AND POLK COUNTIES)
** EMPLOYMENT DATA INCLUDES POLK COUNTY

Although lumber and wood products continues to be the major base industry in the Primary Zone, lumber's relative position has been under increasing pressure from growth in other sectors and from general market conditions impacting the lumber industry. In each of the three counties in the Primary Zone, lumber and wood comprised a lower percentage of total nonag employment and total covered payroll in 1986 than it did during the late 1970s. Lane County's lumber industry fell from employment levels in excess of 14,000 in the late 1970s to just above 10,000 in 1986; employment did rise to 11,000 during 1987, based on preliminary data. Payroll in Lane's lumber industry fell from a 22.5% share of total covered payroll in 1977 to only 15.0% in 1986.

For the entire Primary Zone, lumber employment fell from a peak of 22,465 in 1979 to 16,728 in 1986 with an accompanying decline from 552 to 506 reporting units. Lumber payroll as a percent of total payroll steadily declined from 16.3% in 1977 to 11.0% in 1986. Average pay per lumber worker tended to rise over the time period, but well below increases in the consumer price index. The average pay rose by 51% between 1977 and 1986 compared to an 81% increase in the national CPI over the same period.

COVERED PAYROLL AND EMPLOYMENT

LANE COUNTY

YEAR	UNITS	AVERAGE EMPLOYMENT	TOTAL PAYROLL	AVERAGE PAY PER EMPLOYEE	LUMBER PAY AS % OF TOTAL PAY
1986	300	10,080	$241,927,492	$24,001	15.0
1985	300	10,723	255,138,710	23,794	16.4
1984	305	11,805	268,705,226	22,762	18.0
1983	291	10,750	245,770,666	22,862	17.8
1982	281	10,502	225,868,313	21,507	17.3
1981	305	11,948	247,220,724	20,691	18.0
1980	311	12,776	254,810,916	19,944	19.1
1979	322	14,292	266,456,713	18,644	20.7
1978	321	14,276	246,846,768	17,291	21.3
1977	310	14,131	223,268,166	15,800	22.5

COVERED PAYROLL AND EMPLOYMENT

LINN COUNTY

YEAR	UNITS	AVERAGE EMPLOYMENT	TOTAL PAYROLL	AVERAGE PAY PER EMPLOYEE	LUMBER PAY AS % OF TOTAL PAY
1986	121	4,341	$99,359,513	$22,889	19.0
1985	122	4,499	108,778,840	24,178	21.1
1984	124	4,950	115,459,002	23,325	22.9
1983	118	4,955	110,764,689	22,354	23.4
1982	119	4,652	94,273,002	20,265	20.9
1981	126	5,018	101,933,441	20,314	21.8
1980	125	5,216	99,883,974	19,150	22.1
1979	130	5,589	100,566,872	17,994	23.9
1978	122	5,549	92,879,997	16,738	24.0
1977	123	5,615	84,942,595	15,128	25.2

COVERED PAYROLL AND EMPLOYMENT

MARION COUNTY

YEAR	UNITS	AVERAGE EMPLOYMENT	TOTAL PAYROLL	AVERAGE PAY PER EMPLOYEE	LUMBER PAY AS % OF TOTAL PAY
1986	85	2,307	$44,269,603	$19,189	3.3
1985	85	2,158	43,904,259	20,345	3.4
1984	90	2,026	40,140,352	19,813	3.4
1983	86	1,782	35,219,746	19,764	3.2
1982	95	1,561	26,359,523	16,886	2.5
1981	99	2,056	35,319,948	17,179	3.3
1980	101	2,111	34,911,900	16,538	3.4
1979	100	2,584	39,421,231	15,256	4.1
1978	93	2,441	33,374,605	13,673	3.9
1977	87	2,178	27,297,477	12,533	3.7

COVERED PAYROLL AND EMPLOYMENT

PRIMARY ZONE COUNTIES

YEAR	UNITS	AVERAGE EMPLOYMENT	TOTAL PAYROLL	AVERAGE PAY PER EMPLOYEE	LUMBER PAY AS % OF TOTAL PAY
1986	506	16,728	385,556,608	$23,049	11.0
1985	507	17,380	407,821,809	23,465	12.2
1984	519	18,781	424,304,580	22,592	13.3
1983	495	17,487	391,755,101	22,403	13.2
1982	495	16,715	346,500,838	20,730	12.3
1981	530	19,022	384,474,113	20,212	13.2
1980	537	20,103	389,606,790	19,381	13.9
1979	552	22,465	406,444,816	18,092	15.2
1978	536	22,266	373,101,370	16,757	15.5
1977	520	21,924	335,508,238	15,303	16.3

Much of the public debate on the Proposed Land and Resource Management Plan for the WNF centers on the Preferred Alternative's Allowable Sale Quantity target and its relationship to employment levels. Those interested in maximizing the timber resource of the WNF contend that low ASQs mean low employment and community instability. The Plan's use of a 10-year average of sales and harvests from the 1977-1986 period is questioned due to the inclusion of exceptionally low years of demand and production in the early 1980s due to recession.

Actual sales in the period averaged 627 MMBF per year while the actual harvest averages out to only 486 MMBF per year. The allowable cut under the current plan stands at 641 MMBF. The Preferred Alternative J would provide an ASQ of 568 MMBF, more than what was harvested on average during the past decade, but less than the average sale amount. Last year's harvest of 718 MMBF is pointed out as a more normal picture of future demand levels. Concern is also centered on the reduction of full-yield lands from 55% of all land under the current plan to only 32% in the Preferred Alternative with limited yield lands rising from 9% to 19%.

In opposition to these arguments are the contentions that timber jobs are now more dependent on changes in automation, productivity, and the level of log exports than simply on national forest timber harvest. The commonly used numbers show that in 1979 it took 4.5 sawmill workers to produce each MMBF of lumber; by 1986 it only took 2.8 workers to produce the same amount. The timber for jobs trade-off no longer exists despite the recent

high level of harvest activity as employment levels remain low compared to historical peaks and wages continue to be high in relation to other industries but depressed in real dollar terms. Last year's harvest level is further perceived to not be sustainable and represents a trend toward capturing profit today at the expense of the livelihood of future generations of Oregonians.

The ASQ is actually not the total volume expected to be taken from the forest; the timber Sale Program Quantity is more representative of total volume sold and harvested as it includes the ASQ plus other sawtimber not included in the ASQ (from lands designated as unsuitable) and submerchantable volume (fuelwood, cull, and other). The Preferred Alternative's TSPQ is set at 710 MMBF compared to an average of 784 MMBF sold in 1977-1986 and 607 MMBF cut during the same period.

The employment issue is being tied directly to the ASQ levels of the alternatives in the Plan making it one of the central issues of the review process. Inherent in the Plan and in the majority of public positions on the Plan is the contention that jobs vary directly with timber harvest. This may not necessarily be the case. There are a number of intervening variables that impact employment levels. A cursory analysis of harvest and employment found no correlation at all between WNF cuts and Primary Zone lumber employment. Claiming that a set number of jobs will be created or lost depending on a specific ASQ is a misleading use of the economic data.

Employment levels could be modified by the mixture of mills winning contracts. Some technologically advanced mills in Lane County can produce more lumber with from 1/3 to 1/2 of the workers than at some of the older mills in the county. Structural changes in the industry are evident in Lane's lumber employment history. Average lumber employment between 1977 and 1985 was 12,400; in the last two years of record production, employment has averaged only 10,550. There is no guarantee that demand for the product will require a set level of harvest through the next decade and even less of a guarantee for the next five decades. Recent national housing start projections have starts ranging from 1.54 million in 1988 (a drop from the levels of the past four years) to a peak of 1.58 million in 1991 to a low of 1.40 million in 1997.

If stable to slight increases in lumber employment is the realistic goal of the region, then perhaps what is warranted is a flexible approach to timber sales that are more responsive to changes in markets and prices. The ASQ is not meant to be an absolute annual sale level. It is a decade long average that can be exceeded in years of strong market demand and missed in years of weak demand. Not enough attention has been given to or directed at the variations possible in harvest scheduling. Alternative J, for example, could be developed with Harvest Schedule Option 3, which provides a ten-year transition in sales representing a slight departure from non-declining yield. This option would provide higher levels of timber availability early in the decade with gradual reductions later on; the make-up would occur in the second and third decades, but would lessen the employment concerns of the near term.

TIMBER VOLUMES SOLD/CUT AND LUMBER EMPLOYMENT

FISCAL YEAR	SOLD (MMBF)	CUT (MMBF)	PERCENT CUT OF SOLD	LUMBER EMPLOYMENT PRIMARY ZONE	JOBS PER MMBF HARVEST	AVERAGE SELLING PRICE $/MBF
1977	756.7	641.7	84.8	21,924	34.17	184.67
1978	755.3	693.1	91.8	22,266	32.13	218.82
1979	811.2	638.7	78.7	22,465	35.17	310.85
1980	788.8	554.0	70.2	20,103	36.29	295.38
1981	799.8	470.7	58.9	19,022	40.41	300.99
1982	730.6	370.3	50.7	16,715	45.14	104.95
1983	731.1	555.0	75.9	17,487	31.51	116.87
1984	830.5	612.2	73.7	18,781	30.68	99.49
1985	787.0	775.3	98.5	17,380	22.42	83.6
1986	853.7	758.4	88.8	16,728	22.06	116.68
DECADE AVERAGE	784.5	606.9	77.4	19,287	31.78	183.23
1985/86 AVERAGE	820.4	766.9	93.5	17,054	22.24	100.14
1987*	867.0	899.0	103.7	18,105	20.14	
1985/87 AVERAGE	835.9	810.9	97.0	17,404	21.46	

* 1987 VOLUME SOLD AND CUT FROM USFS; EMPLOYMENT DATA ESTIMATED

Limited analysis was developed in the Plan concerning the potential problems facing communities with more dependence on WNF timber than found on average for the Primary Zone counties as a whole. Regardless of harvest scheduling, there needs to be some provision ensuring that mills and communities dependent on WNF timber will receive equitable opportunity to make purchases. The problem of local community stability is often compounded by the fact that smaller mills tend to be more reliant on Federal timber. According to Western Wood Products Association data for the Western U.S. inland region in 1986, mills producing under 30 MMBF of lumber per year received over 70% of their timber from Federal lands. Firms producing less than 20 MMBF could rely on company owned land for roughly 2% of their supply compared to 22% for firms producing at least 50 MMBF.

The population data used in the Plan, especially projected population levels, tended to be outdated. For example, the Primary Zone population for 1987 was estimated at 569,200. This figure is actually lower than the 1980 Census total of 569,413 and 48,000 below the projected 1990 level. Lane County will need to add nearly 25,000 people in the next three years to meet the nearest projection. Projections for later decades are also suspect. Use of these population projections either in IMPLAN or in estimating forest demands from recreation, for example, could result in questionable outputs.

Recreational use assumptions center on the belief that future participation will increase as long as opportunities are provided and as long as underlying demand is present and continues to grow with population and with the desirability of recreational activity. The growth projections of RVDs appear to be inflated in the first two decades of the Plan. For example, RVDs will increase by roughly 67% between 1980 and 2000 while population, even using the possibly inflated projections, is expected to rise by only 25%. RVD changes projected for the remainder of the planning period are more consistent with population growth.

The employment data used in Chapter III, Section 4, "Social and Economic Environment," of the DEIS is generally accurate and correctly interpreted. The primary error is one of omission due to the fact that the latest available data at the time of analysis was 1985; thus, the analysis tends to miss important economic changes that occurred in the Primary Zone during the 1986-1987 period.

The use of IMPLAN as the model for generating job and revenue outputs for the various plans presents potential problems. The IMPLAN model assumes that the area of influence of the WNF exchanges its goods and services in a manner similar to that found nationally, and that there have been no substantial changes in the local economy since 1977 to invalidate the model's projected impacts based on 1977 data. The first assumption is common for model construction, but can be suspect to a limited degree since the Primary Zone counties tend to be much more natural resource dependent than the nation as whole implying that exchange patterns could be somewhat different. The second IMPLAN assumption is obviously suspect since the area has undergone significant changes in employment, earnings, and income between 1977 and the mid-1980s. One of the more evident changes can be seen in personal income data; during this period Lane County has experienced a 12.5% drop in the share of personal earnings from durable goods manufacturing, a 50% drop in share of earnings from construction, and a 30% increase in earnings from services, changes representative of the on-going trade-off of high-wage goods producing jobs for low-wage service producing employment.

The first decade employment change of the Preferred Alternative is set at an increase of 1,237 from the base level. The bulk of the gain (1,145) derives from the change in timber volume output with a lesser amount from payments to counties (188). The job change associated with recreation use is

estimated at a loss of 98. Recreation use reflects negative job changes in all of the alternatives except A (No Action), C, and D, both of which would severely limit timber volume. The model appears to have a bias that benefits from recreation and harvest cannot co-exist, a situation that is currently (co)existing in Lane County.

There is limited reference in the Plan to the types of employment generated by the alternatives. This may be due to the Forest Service being equally skeptical about assigning employment levels to forest management plans. Even so, of the 1,237 first decade jobs the Preferred Alternative is expected to create, less than one third (368) have been classed as direct jobs by IMPLAN. An additional 306 jobs to be added are considered to be indirect jobs with the remaining 562 jobs falling in the induced category. The direct job creation, meaning jobs in the lumber sector, of Alternative J is one of the highest of all alternatives; only Alternative B-Departure and J-Departure exceed the Preferred Alternative in direct job creation. The Departure Alternatives have higher direct job components since they depart from non-declining yield requirements causing increased output and employment in the first decades, but severely restrained activity in the latter stages of the five decade plan.

While the WNF plays a major role in the economy of the Mid-Willamette Valley, it is by no means the only player. The Plan states that no single mill could be adversely affected by the sale levels of timber in the WNF since other sources of timber are available. Unless there is a coordinated management plan for all sources of timber, including other national forests, other federal lands, state lands, and private lands, in order to determine such things as inventory of timber, availability of timber for sale, and harvest scheduling, single mills and individual communities could conceivably be adversely affected by the determination of timber sale levels from the Willamette National Forest.

Department of Transportation
PARKS AND RECREATION DIVISION
525 TRADE STREET SE, SALEM, OREGON 97310

NEIL GOLDSCHMIDT
GOVERNOR

DATE: April 28, 1988

TO: Norm Johnson
Federal Planning Coordinator

FROM: Don Eixenberger
Research Analyst

SUBJECT: Review of the Willamette National Forest Plan

The U.S. Forest Service (U.S.F.S.) plays a major role in the provision of recreation in the State of Oregon. It is an indispensable element in maintaining a diverse quality of recreational opportunity which will gain even greater importance as the state's population grows and as out-of-state tourism plays an even more crucial role in the state's economy. For example, federally administered lands provide over 30 percent of the state's campsites and picnic tables, 50 percent of its hiking and bridle trails and 60 percent of its ORV areas. Thus, while the plans assume that the U.S.F.S. provides 7.5 percent of outdoor recreation nationally, in Oregon, it is likely to be 3 to 4 times that amount if not more.

The U.S.F.S. is also the near sole provider of certain types of outdoor recreation in the state. Much river recreation and most snow activities and primitive and semi-primitive recreational opportunity are dependent on public lands managed by the U.S.F.S. Yet while demand for outdoor recreation opportunity of all types continues to grow, in many cases, the resources to provide those opportunities are shrinking. The Willamette is especially important along with the Mt. Hood National Forest, it is literally the backyard of the growing urban populations of the Willamette Valley. Its nearness to these populations provide an irreplaceable richness of recreational opportunity accessable to all elements of the population regardless of economic circumstances (e.g. the City of Eugene provides public transport to forest lands). That very nearness also insures a source of recreational opportunity against future vacillations in fuel supply. The variety of its opportunities provides a reservoir of recreational resources for the future, as valley populations continue their growth.

General Comment

There are two general issues which emerge from the Willamette Forest Plan that give cause for concern. They are the:

1. Economic valuation of recreation. *
2. Projections of recreational demand. *

Economic Valuation of Recreation

The economic values of recreational activities have been discounted by 37 percent.** In addition, recreational values have been assigned by a 0 percent per year real price trend throughout the life of the plan while a one percent per year real price trend for timber was used for harvest scheduling analyses.

We believe these adjustments to be unsupported and result in a serious undervaluation of the contribution recreation makes to Present Net Value (PNV).

These discounted values could have especially significant effects when specific areas of the forest are considered. PNV for recreation is presented forest wide, yet recreation is often feasible and/or concentrated in a specific area (e.g. an accessible roadless area, a river corridor). If an appropriate presentation of the economic benefits of recreation vis-a-vis other resource values is to be made, site or area specific analyses should be made. Otherwise there is a risk of trading of high recreation values for potentially marginal timber values.

Economic benefit analyses should be recast with recreational values appropriate to the Willamette Forest. They should also be formulated for specific areas of recreational use, especially where recreation and timber allocations may be in conflict.

Recreational Demand

The plan estimates future recreational demand using 1979 River Basin Commission data developed for the State

* These two issues are discussed in greater detail in the attachments.

** as stipulated by the 1985 R.P.A.

Comprehensive Outdoor Recreation Program (SCORP). Growth rates were then reduced to account for aging population, reduced immigration to the state and increased urban-based recreation.

While we recognize the problems in projecting recreational use, we do have some concerns with the methods employed.

First, granting the growth of urban based recreation, it is questionable whether it is reducing recreational growth on the forest. What is more likely occurring is that forest recreation is growing in diversity as well as in overall use. While growth in traditional activities such as hunting and fishing may be slowing, other activities have emerged in the last decade which may be growing faster than population. Riverboating, mountain bike riding, ORV use such as ATVs, cross-country skiing, snow mobiling and wildlife viewing are good examples of this.

Second, it appears that use of Pacific Northwest River Basin data was based on statewide projections. But the Willamette N.F. draws large numbers of visitors from the urban population centers of the Willamette Valley, extending even to the Portland metropolitan area. The valley's population is growing faster than the overall state rate. The 1983 SCORP for example shows a net need for walking and hiking trails by the year 2000 for Lane, Linn and Marion Counties, which constitute a primary service zone for the Willamette N.F.

The Willamette N.F. also likely draws significant numbers of visitors from out-of-state, who may be coming from areas with greater population growth than Oregon.

We suggest that recreation use projections take into account the varied residence nature of forest visitors.

We also suggest that the projected annual use rate of 1.40 annually across all activities for the years 2001 to 2030 be reviewed. Many of these activities will likely vary from this.

Oregon State Parks in conjunction with Washington and Idaho has recently completed a recreational demand survey which will update and revise the 1977 River Basin data. Results from this survey should be available by late fall of 1988 and will be useful in formulating new recreation use projections.

Scenic Rivers

The McKenzie River from Tamolitch Falls to McKenzie Bridge (excluding Trail Bridge Reservoir and Dam) has been found to be eligible as a "Recreational" river under the federal Wild and Scenic Rivers System. However, it is not being recommended for designation under the preferred alternative J. Considering the recognized qualities of the McKenzie, and its inclusion in Senator Hatfield's Omnibus Scenic Rivers bill, as well as proposed for state designation under the Oregon Rivers Initiative, we suggest it be recommended for consideration for designation.

The Little North Fork of the Santiam and the North Fork of the Middle Fork of the Willamette are designated as State Scenic Waterways. We believe these rivers should be examined for eligibility as candidates for designation in the federal system.

In addition, the South Santiam from its source to Foster Reservoir, is on the state inventory of potential scenic rivers. It was studied by Oregon State Parks in 1973 and found to qualify for state designation. The South Fork of the McKenzie is included in the Oregon Rivers Initiative. Both rivers were rated as having "outstanding" recreational values in "The Recreational Values on Oregon Rivers."* In the same study, the Middle Fork of the Willamette was also found to have "outstanding" recreational values. We believe these rivers should be considered for eligibility. In the interim, they should be managed so as to maintain their eligibility characteristics.

Recreational Diversity

We are supportive of management calling for a diversity of recreational opportunities as delineated by the Recreational Opportunity Spectrum (ROS). Roaded opportunities have more than double the supply needed beyond the 50 year planning horizon. The major potential shortfall on the Willamette occurs in opportunities for semi-primitive motorized (SPM) and non-motorized (SPNM) recreation.

* "Recreational Values on Oregon Rivers" Oregon State Parks and Recreation Division, April, 1987.

Under the preferred alternative, roadless areas providing these opportunities are slated to be reduced from over 209 thousand acres to about 84 thousand acres (with no harvest). According to the plan, practical capacity for projected SPM use will be exceeded in the mid 1990s; practical capacity for SPNM will be exceeded before the year 2010.

The problem on the Willamette is heightened by the fact that many of these areas are at lower elevation. As such they provide accessibility to significant portions of the population who may lack the physical ability and/or time to take advantage of the higher elevation wilderness area.

This poses a significant recreational crisis. The Willamette along with the Mt. Hood N.F. are the main providers of these recreational opportunities for the growing urban population of the Willamette Valley. As this population and urban pressures grow, the recreational opportunities provided by these lands will become more crucial as "quality of life" issues.

Once developed, the semi-primitive character of these lands would be difficult to reestablish. The U.S. Forest Service is virtually the sole provider of these opportunities in a forested setting; and similar reductions are planned by all the forests in Oregon. Consequently, substitutes for such semi-primitive opportunities will be unavailable. Through the planning horizon of all the plans, significant portions of the undeveloped lands will undergo a gradual but persistent alteration which will depart from those recreational and visual characteristics Oregonians have historically expected of their national forests.

Given the scope and depth of this issue, we suggest the following:

1. Develop a region 6 wide plan describing potential cumulative impacts of forest planning on recreational diversity and prescribing how future demand, defined in terms of the ROS, will be met.

2. Schedule road building and harvesting in the Willamette in ways allowing future options to meet the goals of such a plan.

3. Reconsider existing roadless areas on the forest. Evaluate their recreational appropriateness for semi-primitive management.

In terms of the latter, we support semi-primitive management for the following areas as described in alternative J: Bull of the Woods, Echo Mt., Mt. Washington South, Huckleberry, Frog Camp, Charlton Butte, Maiden Peak, Hardesty, Bull Dog Rock, Diamond Peak South.

We are especially supportive of semi-primitive management in the Waldo Lake Area as described in alternative J. Chucksney, Fuji, Charlton Butte and Waldo Lake form a composite in an important recreation area. However, data presented for Waldo Lake area are confusing. Figure C-24-2 states that 6,074 acres would be in management area 14, General Forest in alternative J: Figure C-24-3 places nearly all of the area in semi-primitive management or visual quality of preservation with no timber harvest. We believe the latter is the desirable management of Waldo Lake. There are a number of other roadless areas, mainly lying at lower elevations, which we believe should be considered for semi-primitive management. These include Opal Creek, Elkhorn, Middle Santiam, Gordon Meadows, Gold Creek, Mt. Hagan and Moose Lake. While some of these areas receive relatively less recreational use at present, their management for future demand would provide the forest with greater managerial options. Their lower elevation combined with longer use seasons potentially provide greater access to growing Willamette Valley urban populations. We suggest that these areas be managed for semi-primitive opportunities as described in alternative D.

Developed Recreation Sites

Under alternative J, public and private sites will be increased by 15 over current inventory. However, as the plan points out, timber harvesting may alter the availability and/or desirability of some sites. The plan should display these anticipated impacts and whether planned site construction is sufficient to both replace them as well as meet future demand.

We support the standard service maintenance levels as contained in alternative J.

We also support provisions for expansion of the Hoodoo and Willamette Pass Ski areas.

The Little North Fork Santiam canyon is increasing in recreational popularity. We believe greater facility development is needed to accommodate existing uses and to meet future demand.

Trails and Dispersed Recreation

Under the preferred alternative, out of 597 miles of existing trails, 170 miles will have "high effects" due to harvest levels and attendant road construction; 186 miles will have "moderate effects." While new trails will be constructed, it is unclear in the plan how many trails will actually be lost to recreational use due to "high" effect. While some mitigation may be possible, in many cases, the recreational characteristics of the land area for which the trail provided access, may be lost. This is apparent especially in those semi-primitive areas of the forest slated for timber management. Examples of this are the Maude Creek area containing the Crescent Mtn. Trail and the trails through the Gate Creek area. Similar cases occur along trails to popular back country lakes, such as Fay and Fir Lakes. While some of these trails and most of these back country lakes have some scenic buffers, it is not clear whether the integrity of their recreational value will be maintained.

Moreover, as mitigation is needed for the effects of timber harvest and road construction there will be fewer suitable areas remaining in which to mitigate. We suggest the following:

- Along with developed recreation and semi-primitive sites, the plan should display more clearly the cumulative impacts of timber harvest on specific trails and the recreational areas they access.

- Standards for trails and accessed areas could be developed (beyond existing marginal scenic buffers) which would allow quality classification of the forests dispersed recreational areas. In effect, such standards would allow inventories of recreational quality and more precise measures of needed mitigation.

- Explore other timber harvest and road building techniques in high quality dispersed recreation areas, such as smaller clearcuts, extended rotations, and measures to not only close roads, but construct them in

ways allowing more rapid reconversion to natural conditions.

- Consider both foreground and middle ground scenic retention along major recreation trails and quality dispersed recreation areas, especially for streams and lakes.

Scenic Viewshed

We are supportive of viewshed management along highways, recreational roads, the Pacific Crest Trail and other forest recreation trails, and in other recreational areas of the forest.

We have some concern about interpretation of visual guidelines however. An example is Highway 22, an important recreational and tourist arterial. On the west side of the summit, over the past several years large clearcuts have occurred on the north side of the highway leaving only a thin buffer, lattice-like in appearance. We feel the scenic quality through this area has undergone substantial deterioration. The extent of the harvest units and the thinness of the buffer present an awkward contrast and blemish to natural conditions elsewhere. We suggest that standards and their application be reevaluated so as to prevent further deterioration of visual conditions along such major highways.

We also have concerns about the Little North Santiam Viewshed. Under all the viewsheds described in Figure IV-10-3, only the Little North Santiam is slated under the preferred alternative to deteriorate in visual quality (from "natural appearing" to "slightly altered"). Given the Little North Santiam is a State Scenic Waterway, we believe it should be maintained in its current visual condition.

DE:jn
WILLAMET.MMO

STATE OF OREGON
TRANSPORTATION

INTEROFFICE MEMO
PLA 16-7

TO: Dave Talbot, Administrator
State Parks and Recreation Division

DATE: April 27, 1988

FROM: Gary A. Potter
Director of Administration

SUBJECT: OSHD Response to Willamette Forest Plan

Attached are comments representing Highway Division concerns regarding the above-mentioned forest plan.

Please include them in your submittal to the Federal Plans Coordinator for inclusion in the State's coordinated response.

Attachment

cc: Don Eixenberger, w/attach.
Brian Gregor, w/attach.
Chuck Stevens, w/attach..

STATE OF OREGON

INTEROFFICE MEMO

TO Chuck Stevens
ODOT Planning Coordinator

DATE 02/19/88

SUBJECT Willamette National Forest Plan

I have completed my review of the Willamette National Forest Plan. All that I have to add to Jack Bryan's comments is a point of emphasis.

The memorandum of agreement between the Highway Division and the Forest Service states that the Regional Forester will "Keep [the] State Highway Engineer informed of potential impacts to Forest Highways due to Regional and Forest plans." The Draft Environmental Impact Statement (DEIS) should have carried out this provision of the agreement, but it did not. The DEIS only describes the impacts of the various management plan alternatives on Forest Service roads.

Brian Gregor

Brian Gregor
Planning Coordinator/Environmentalist

BG:dbo

cc: Jack Bryan
Ken Norton

0219d5

STATE OF OREGON INTEROFFICE MEMO

Chuck Stevens
Policy and Planning Section

DATE: January 21, 1988

Jack Bryan
Location Liaison Coordinator

Willamette National Forest
Proposed Land and Resource Management Plan

I have reviewed the proposed Land and Resource Management Plan (LRMP) and find that, as with earlier plans, the obvious concern of the Willamette Forest people is management of the Forest as its own entity. These are my passing comments as I return the plan.

Interaction with other agencies or groups is acknowledged but not to any degree of detail, although I am encouraged by the repeated mention of inter-agency cooperation. Chapter I notes that the Forest is accessed from 200-plus miles of County, State, and Federal highways. Chapter IV, Forest Management Direction, mentions inter-agency cooperation on a general basis under Section B, Forest Management Goals. In Section D, Forest Objectives, m(3) Transportation, the Memorandum of Understanding between the Highway Division and the Forest Service Region is specifically referred to as the guide for location, construction, and maintenance of highways through the Forest as well as direction for access control, landscape management, rest areas, and right-of-way grants for highways. This same section declares the Forest's intention to continue working with County governments in the construction, reconstruction, improvement, and maintenance of certain Forest and County roads, i.e. through the Forest Highway Program (funding source).

In the discussion of Forest Management Objectives (Chapter IV, Section D), timber production over the years is projected to decrease slightly while recreational use is projected to increase. However, the segment covering transportation deals only with internal forest roads, with no mention of the need to address the effect of increased recreation on adjacent County, State, and Federal Highways or in the Sno-Park program.

Mineral Sources and Energy Sources are discussed in two areas, under Forest Management Objective, Chapter IV, Section D, 2(p), and under Forest-wide Prescription, Chapter IV, Section E, (A). Although a lessening of land available for mineral development is planned, applications for use of common materials (rock) will be considered, including those for public agencies and cooperating agencies (state and counties) and, of course, the Forest Service also recognizes its own need for road-building materials.

Maintaining an adequate supply of road-building materials is vital for the continued construction, reconstruction, and maintenance of Forest Roads and State Highways. It is important that the Forest be managed so conflicting land uses do not occur in areas of material sources.

I spoke with Ken Norton, Region 3 Planning Coordinator, about the Willamette Forest Plan. He had received a copy of the plan and was in the process of reviewing it. When he has finished his review he intends to forward the plan copy to Brian Gregor, Region 2 Planning Coordinator, for his review. I suppose you won't need to circulate your copy to them now.

I would ask that you alert the Executive Department that we of the Highway Division feel that the Statewide Responses to these Forest Plans should point out the need for coordination between the various National Forests and the Agencies responsible for the road systems connecting the Forests to the rest of the State. The detailed responses from our Regional Planning Coordinators to the individual Forest about their Management Plans have been well done and should have alerted the Forests to our concerns. I just believe that a Statewide response would be incomplete if it contained no mention of Transportation concerns.

Please call me at 378-6265 if I can be of further assistance.

JB:tjs

cc: Duane Christensen
Don Adams
John Sheldrake, Maintenance Operations Engineer
Ken Norton, Region 3 Planning Coordinator

DIVISION OF STATE LANDS
COMMENTS ON THE WILLAMETTE NATIONAL FOREST LRMP AND DEIS

(NOTE: This review responds to comment area #6 in the Governor's Executive Order, "comparison of the proposed plan to agency goals and state and federal legal requirements." The Division of State Lands has no comments regarding #1-5 and #7.)

1. Impact of the plan on state-owned land and resource management

a) Surface Property Interests

The State Land Board owns some 730,000 upland acres in Oregon. This land is predominantly in range and forest use. Most of the rangeland is in Lake, Malheur and Harney counties, while most of the forest acreage (96,000 acres) is consolidated in the Elliott State Forest. In addition, the Land Board owns numerous isolated parcels scattered over the state.

Day-to-day management of these lands is handled by two range specialists in Eastern Oregon and, in the case of the Elliott State Forest, by the state Department of Forestry under contract with the Land Board. The isolated, unconsolidated character of the remaining parcels makes them difficult to actively manage.

Some of the state-owned land base in Oregon is located in, adjacent to or nearby land owned by the federal government. In the case of the Willamette National Forest, the state of Oregon has surface property interests in approximately 775 acres of such land. Analysis of the management designations assigned to the federal lands, both under the current or "no change" alternative and the Forest's "preferred alternative," shows the following state-owned parcels to be potentially affected by forest policies:

- Sec. 16, T16S R3E - Lane County (640 acres)
  This section of land lies just northeast of the Forest, with its southeastern corner abutting the Forest boundary. Under the "No Action" alterative, the parcel borders land identified as "non-national forest." An area to the south and east is designated "research natural area - proposed." Under the preferred alternative, the proposed research natural area is enlarged. The boundary of the RNA is approximately 1/2 mile from the state-owned parcel under both alternatives.

- Sec. 36, T16S R3E - Lane County (NW¼ NW¼; 40 acres)
  This small parcel borders the National Forest on the north and west. Contiguous areas are designated "general forest" on both the "no change" and "preferred alternative" maps.

- Sec. 1, T16S R4E - Lane County (SW¼ SE¼; 40 acres)
- Sec. 2, T16S R4E - Lane County (Lot 4, 55.38 acres)
  Both these parcels are bordered on all four sides by the Willamette National Forest. Management objectives for surrounding lands are similar under both the "no change" and "preferred alternative" maps.

To summarize, our review of preferred alterative management objectives for national forest lands located contiguous to state-owned lands indicates that implementation of the plan will have minimal impact on management of the state-owned lands.

b) Land Tenure Adjustments

The Common School lands identified above are geographically isolated from other state-owned forest lands, making them difficult to manage efficiently. The State Land Board has for many years pursued a policy of consolidating its scattered and isolated land holdings to allow better management of the land in keeping with its constitutional charge to "manage lands under its jurisdiction with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management." (Section 5, Article VIII, Oregon Constitution.)

To date, most of the Board's consolidation activities have taken place in Eastern Oregon, where some 600,000 acres of state-owned rangeland are located. Since 1969, Land Board consolidation efforts have involved the exchange of over one million acres of state and federal land. The exchange program has resulted in more efficient management and more productive rangelands, and has greatly enhanced the Board's ability to meet its constitutional charge.

Although consolidation efforts of the Land Board have thus far focused primarily on Eastern Oregon rangelands, opportunities exist to improve management of forest lands as well. There remain in state ownership some 125,000 acres of scattered and isolated parcels of Common School lands. Most of this land -- some 80,000 acres -- is rangeland. The remaining 45,000 acres is forest land. Of the forest land, an undetermined amount of acreage is located in, adjacent or in close proximity to U.S. Forest Service land.

The national forest planning process offers a unique opportunity for the Land Board, acting through the Division of State Lands, to continue and expand its efforts to consolidate its land holdings. Legislation enacted in the 1987-89 session of the Oregon Legislative Assembly authorizes the division to "dispose of isolated sections and fragments of sections of state lands which are not suitable for management according to longe-range policies of the State Land Board." Acting on behalf of the Land Board, the Division of State Lands is identifying scattered and isolated parcels in and near the forests for possible sale or exchange under this law.

The Willamette National Forest LRMP and DEIS deal with the subject of land adjustments in Chapter III of the DEIS, under Section "Z. Non-national Forest Land." This section describes the pattern of non-federal ownership within and adjacent to the forest, outlines some of the problems associated with broken ownership, and briefly states the objectives of land ownership adjustments on the forest.

The LRMP itself, however, makes no mention of land tenure adjustment. Other forests have generally included ownership-related goals in their forest-wide standards and guidelines, and we recommend that the final Willamette plan do the same. We would suggest inserting a "Land Ownership" section between the "Land Use" and "Timber Management" sections on pp IV-55-56 of the plan. Suggested language for such a section is attached. Inclusion of this section will clarify the forest's acquisition/exchange priorities and promote consistency with other forest plans.

2. Comparison of the proposed plan to state legal requirements

The division administers the state of Oregon's Removal-Fill Law, which regulates the removing and filling of materials from and in the waters of the state. Filling or removal within the beds and banks of non-navigable waterways in forest lands for forest management practices in accordance

with the Oregon Forest Practices Act is exempt from regulation under the Removal-Fill Law. However, removing and filling for activities not related to forest management practices in accordance with the Forest Practices Act, such as road or bridge construction, construction of in-stream structures to improve fish habitat, and mining, are subject to the requirements of the law.

Numerous sections of the plan and DEIS refer to fish habitat and other riparian (e.g. streambank) improvement projects. To ensure that management activities are consistent with Oregon law, we recommend inserting a new paragraph 13 on p. IV-62 (Under Soil, Water and Riparian Areas in Section B - Standards and Guidelines Applicable to Specific Activities to read as follows:

13. All soil, water and riparian area management activities not related to forest management must meet the aquatic resource protection standards of Oregon's Removal-Fill Law. (ORS 541.605- 541.695).

Subsequent paragraphs would be renumbered accordingly.

b) State's Proprietary Interest in Navigable Waters
The State of Oregon holds title to the beds and banks of all navigable waters in the state. The Land Board and the Division of State Lands enforce the state's interest in these lands, primarily through the waterway leasing program.

The state claims navigability of the Middle Fork of the Willamette River from its mouth to the North Fork (RM 37.5). Approximately 12 miles of the navigable portion of the river, most of which is now submerged by the Lookout Point Reservoir lie within the national forest. On the McKenzie River, the state claims ownership up to Rainbow at River Mile 64.0. Approximately 6.0 miles of the river meander through national forest parcels between Blue River and Rainbow. Finally, the state claims ownership of the bed and banks of Clear Lake in Linn County.

A number of management areas in the plan permit mineral extraction and various recreation-related development activities. Where these activities occur on navigable waters of the state, a lease from the Division of State Lands and rent or royalty payments may be required.

The plan need not be amended to reflect the state proprietary interest in navigable waters. However, to clarify this issue a section could be added to Section A - Overall Standards/Guidelines as follows:

Navigable Waters
The State of Oregon holds title to the beds and banks of all navigable waters in the state. The State Land Board and the Division of State Lands enforce the state's interest in these lands. In the Willamette National Forest, Clear Lake, the McKenzie River to River Mile 64.0 and the Middle Fork of the Willamette to River Mile 37.5 have been claimed navigable.

Parties contacting the Forest regarding development activities in these waters shall be referred to the Division of State Lands, Salem, Oregon, for information regarding possible lease requirements. In this context "development activities" includes but is not limited to marinas, mineral extraction, hydroelectric power generation, or log raft storage.

3. Research National Areas/Biological Diversity

(Comments forwarded separately.)

ATTACHMENT

"Land Ownership" Addendum to "Specific Standards/Guidelines"

Land Ownership/Adjustment

1. The primary objective of land ownership adjustments in the Willamette National Forest is to simplify management problems and help improve multiple use management of all lands within the Forest.

2. High priority is placed on improving efficiency in administering the Forest, protecting and enhancing environmental quality, and maintaining and improving land and resource productivity.

3. Consolidation of ownerships shall be accomplished through acquisition or exchange of small parcels of interior and adjacent non-federal lands, and disposal of small isolated parcels of National Forest System lands.

4. All non-federal lands inside the Willamette National Forest boundaries, a limited amount of non-federal lands lying immediately adjacent to the Willamette National Forest boundaries and a limited amount of National Forest land shall be placed in one of the following land ownership planning groups:

Group 1 - Congressional Direction

Definition - This group includes those lands where Congress has either directly or indirectly instructed the Forest Service to retain National Forest ownership and acquire non-Federal lands for a designated purpose. Land management allocations which could be associated with the group include Wilderness Areas and Wild and Scenic Rivers.

Group 2 - Special Management Areas

Definition - This group includes those lands where the Forest Service, through the land and resource management planning process, has recognized the need for a special kind of management or determined that National Forest ownership is necessary to meet objectives. The target is to retain National Forest ownership and acquire private land as the opportunity and/or need occurs. The special land management allocations which could be associated with this group include Retention Forest, Partial Retention Forest, Mature Old-Growth Habitat Areas, Supplemental Resource Areas, and Inventoried Wild and Scenic Rivers.

Group 3 - General Forest (private)

Definition - Land in this group would characteristically be in the General Forest allocation, where management direction emphasizes commodity production. These lands could be considered for land adjustment and usually would provide most of the land involved in exchange projects.

Group 4a - Private Land Not To Be Acquired

Definition - Land in this group is highly developed and not suited for National Forest purposes. These lands would not be acquired.

Group 4b - National Forest Land Available for Exchange

Definition - This group generally includes small, isolated tracts of National Forest Lands that are situated away from contiguous blocks of the National Forest, are costly to administer, and contain no special resource features. These areas could be parts of land management allocations associated with groups 2 and 3.

Group 5 - State-Owned Lands

Definition - This group includes Common School lands owned by the State of Oregon and potentially available for sale or exchange to public and private entities. It includes lands adjacent to special management areas within the forest which could be adversely affected by sales to private parties or state-permitted leasing activities. Adjustments will be made only after careful review and consultation with the Oregon Division of State Lands, the Oregon Department of Forestry, and the Oregon Department of Fish and Wildlife.

Group 6 - Lands Needing Further Study

Definition - This group includes situations where it is determined that more intensive study and planning are necessary before land-ownership decisions can be made.

May 4, 1988

OREGON
ECONOMIC DEVELOPMENT DEPARTMENT
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Dr. K. Norman Johnson
Federal Forest Plans Coordinator
Governor's Office
2600 State Street
Salem, Oregon 97310

Dear Norm:

After evaluating the Draft Environmental Impact Statement (DEIS), and proposed Land Resource Management Plan (LRMP), for the Willamette National Forest, the Oregon Economic Development Department (OEDD) would like to offer a few comments on the proposed plan.

OEDD's primary goal is to provide jobs for Oregonians. Through promotion of Oregon's business climate, OEDD provides leadership, assistance, and incentives to business in order to retain Oregon's industrial base, recruit new business to the state, and create a climate that welcomes expansion and start-up business in Oregon.

In this light, our comments on the Willamette National Forest DEIS and LRMP are intended as an analysis of the plan's impacts on Oregon's industrial base in Lane, Linn, and Marion counties. Also, our comments will include some specific suggestions, requests for information, or clarification that pertain to the DEIS and LRMP.

FOREST PRODUCTS INDUSTRY

The forest products industry is the primary manufacturing employer in the three county area. According to Oregon State Employment Division information for 1986, employment in the forest products industry represents 59.0% of total manufacturing employment in Lane county; 56.7% in Linn county; and 25.1% of total manufacturing employment in Marion county. Even though there have been drops in forest product employment in recent years due to productivity gains, and even though the economies of the three county areas are diversifying into other sectors in the last decade, the industry is critical to the economic well being of the Willamette Valley and the state.

Neil Goldschmidt
Governor

Although it is difficult to separate the impacts on employment from supply of logs and the impacts on employment from improved technology and productivity, both factors, as well as product demand, influence the employment levels in the forest products industry. A very graphic example of the productivity impacts on employment levels from 1977-86 for each of the three counties is attached. Although employment levels have increased in the last couple years, this increase does not offset the reductions brought on by the recession of the early eighties and the resulting cost-reducing productivity gains.

On IV-195-203 of the DEIS, the Forest describes the anticipated consequences of the alternatives on the three county area. There is some discussion of factors like productivity and market conditions. This discussion, however, falls short of giving the reader any understanding of how important these factors are relative to other factors that influence employment levels. More discussion of why harvest levels were used to calculate employment impacts, while assuming the above mentioned factors were constant, would be useful.

The Forest also describes the job impact in terms of the total potential change relative to a historic average from 1977-85. The employment and other economic impacts as outlined in the DEIS and the appendices need to be updated and or clarified. Harvest levels and other indicators of forest products employment have changed significantly since 1985 and should be reflected in the analysis in the Final EIS (FEIS).

The change relative to the base level identified on page IV-198 of the DEIS for the preferred alternative is 1,237 jobs. A closer look at this number in the appendices at B-98 indicates that the preferred alternative will potentially impact forest products employment with an increase of 1145 jobs and impact recreation employment by a decrease of 98 jobs. The difficulty with this presentation of information is that it leaves the public with the impression that if the plan is implemented, employment levels in the three-county area may increase by as much as 1,237.

The most recent harvest levels of green sawtimber on the Willamette are 648 mmbf (1985-87). Comparing the preferred alternative allowable sales quantity (ASQ) of 568 mmbf to the most recent levels of harvest indicates a decreased level of harvest for the next decade. This would more likely have a negative impact on forest product employment in the area rather than positive.

While the Forest correctly describes the basis for its analysis, more useful information for the public would include a better discussion of the actual situation and not just the results of their theoretical impacts. As mentioned above the most recent employment information should be incorporated into the FEIS.

Other forest plans have included a chart depicting log flows and processing points in the economic zone of influence for the forest. In recent years log purchasers have been buying timber from locations farther from the processing points as transportation costs have become less of a factor in purchasing decisions. OEDD asks that current information of this nature be portrayed so that the impacts on the timber dependent communities in the area may more easily be determined.

A more thorough analysis of the various mills in the area that are dependent on the Willamette National Forest for their timber would be helpful. There is little discussion, if any, of mill capacity and the diameter class distribution needs of the mills. OEDD would like more quantitative analysis of the mills' current diameter class needs or how milling capacity in the area has changed in recent years. How many mills in the area are dependent on old growth douglas fir? How many have already retooled to handle the smaller logs? How much capacity of the mills is currently in excess of supply by diameter class? It is this type of information that will allow OEDD to evaluate more effectively the timber supply impacts of the proposed plan upon the communities in the three-county area.

Management practices have a significant impact on the forest's potential to produce high value timber. Intensive management practices that were discussed in the plan include more effective planting of improved stock, fertilizers, and pre-commercial thinning. In looking at the plans of other Oregon forests west of the Cascades, it appears that the Willamette is the least optimistic about the use of these management practices and the impact on ASQ. OEDD will need more information on the use of these techniques by the Willamette and other forests before we can best estimate the long term economic impacts on the forest products industry that they may provide.

OEDD would like more of a regional approach to the Forest's analysis of projected demand for timber. Taking a regional approach to demand due to the closeness of other National Forests and other owners will provide a more accurate picture of the impacts on Linn, Lane, and Marion counties. If possible, the supply from adjacent forests should be calculated based on their respective Final EIS land allocations and outputs.

The total harvests from all ownerships as portrayed at IV-81 is useful, however, the final EIS should incorporate the findings of studies currently underway at Oregon State University, assessing the future timber harvests from all forest ownerships in Oregon.

The Forest has identified old-growth as a major issue. It also determined that it would measure its responsiveness to the old-growth issue in terms of how many acres of "old-growth/large mature" timber was retained at the end of the second decade. The Forest, at IV-53, identifies values associated with old-growth timber including: "wildlife habitat, scenic qualities, clean water, awe-inspiring recreational and spiritual qualities, maintaining diversity of the gene pool for future stands, supplying timber of exceptional quality and value, and providing a living connection with the past."

While using acreage of old growth/large mature timber may respond to wildlife and scenic values, more information is needed beyond acreage to know whether the proposed alternative will supply timber of exceptional quality and value. Segregating the old growth category by the ages that provide the exceptional timber value (approximately 400-600 years), and identifying the portion of the ASQ for each alternative that represents this age category of old growth, a better assessment of the impact on the timber industry could be attained.

On III-51 of the DEIS the Forest states that based on a 1981 inventory, 638,600 acres are covered with old-growth and another 229,750 acres of large mature trees, which will qualify as old-growth in about 20 years. This represents 52% of the total Forest. On III-46, old-growth stand conditions are defined to include trees commonly older than 200 years. It is unclear whether the model development accurately portrayed this information. In Appendix B, page 24, the Forest indicates that "upon further analysis of the inventory plots, we found that the areas typed as old-growth did not represent an accurate inventory of this habitat type."

If the inventory data does not fit the definitions used to respond to the old growth issue, it is difficult to judge the economic impacts of the various alternatives. OEDD understands that the Forest is currently updating its old growth and mature inventory to insure that it is accurately portraying old growth for wildlife habitat and ecological purposes. It would be useful if this updated information also broke out the economic values of the old growth stands and the ASQ implications.

TOURISM AND RECREATION INDUSTRY

The tourism and recreation industry and its related services are of increasing importance in western Oregon. The portion of the local tourism dollars that is directly related to the National Forest is unknown. Of critical importance to these industries is access to recreation sites and the maintenance and improvement of tourist facilities in a manner that will meet future demands. Also of importance to the industry and to Oregonians generally is the existence of quality visual corridors and views.

Understandably, impacts upon the tourism industry are difficult to quantify. Recreation visitor use and the number of resulting dollars dispersed into the economy are good estimates at best. One thing we do know is that developed recreation and tourist facilities have a greater impact on the economy than undeveloped tourism. Tourists staying in resorts visiting well developed attractions spend more money in a community than do hikers or primitive campers. However, the draw to the more developed sites is often based on access to the more primitive areas. OEDD would like to see more discussion of this issue in the impacts analysis.

The Forest's proposed plan anticipates an increased demand for all forms of recreation: developed and dispersed. Demand for recreation is expected to increase over the next fifty years, and the preferred alternative is expected to meet this demand in some areas; yet the Forest predicts a decrease in potential recreation employment. Again, as stated in the previous section the use of a base that represents potential employment impacts without also including actual levels of recreation employment for comparison is misleading and confusing to the public.

The recreation demand projections are based on population trends and do not reflect changes in public preference for certain types of recreation experiences. The analysis in the DEIS and LRMP includes information about the forest users' preferences, however they are based on data that is out dated. The FEIS should include updated information on user preferences, especially for developed recreation facilities and winter recreation.

Figure III-M-4 of the DEIS provides a summary of the current capacity of recreation use. It indicates that outside of Wilderness, there is recreation visitor day capacity (RVD) for semi-primitive nonmotorized of 149,505 RVDs and semi-primitive motorized of 94,315 RVDs. Roaded natural dispersed recreation setting currently has a capacity of 2,880,050 RVDs. Developed site capacity currently is at 2,480,758 RVDs, (III-103,DEIS). For both types of semi-primitive recreation and for developed recreation, demand is expected to be in excess of capacity before the end of the fifty year planning period. "Even if existing inventories of semi-primitive opportunities were maintained, future use may exceed capacity shortly after the year 2000," (III-101, DEIS).

On IV-118 of the DEIS, the effects on the dispersed recreation opportunity settings are portrayed. The chart indicates the percent of each inventoried ROS category that will be managed as the same or a different ROS category. Without going through a lengthy calculation, the reader is not able to determine the percent of the inventoried ROS that will remain in that category. This information is available in the appendices at B-187, and it shows that for the preferred alternative the Forest will maintain only 32 percent of the semi-primitive opportunities.

The preferred alternative will provide for a small increase in developed sites, and as stated above, a decrease in semi-primitive sites. OEDD could not find the rationale for such a proposal given the demand is stated as it is in the plan and given the importance of these sites to Oregon's tourism industry. Trade-off analysis in terms of ASQ for those areas removed from the semi-primitive ROS category due to proposed harvest would be useful.

One method to improve the information about recreation use and expectations is through monitoring. Monitoring of recreation use should be an integral part the monitoring plan. In Figure V-C-1 of the LRMP, the Forest outlines its monitoring plan. On page V-13, and V-16, the Forest asks whether they will provide semi-primitive recreation experiences and opportunities consistent with the levels in the plan and whether the Forest is experiencing expected visitor use. However, the Forest proposes to monitor the semi-primitive recreation by changes in the road system and patterns of use of the Forest and visitor use by RIM data. This does not give enough detail to determine what will be done to quantifiably assess the demand for recreation and tourist facilities on the forest. A marketing survey to determine recreationists' preferences for type of facilities and experience would help in ongoing and future planning efforts.

Without a high quality viewshed from the high-use recreation sites and along the most traveled routes, the potential for tourism development is uncertain. The scenic quality of the areas adjacent to the sites of highest potential may well be critical to the success of tourism development efforts in the area.

OEDD's tourism marketing campaign relies heavily upon the scenic splendor of Oregon's National Forests. The natural scenic beauty for which Oregon is famous is due in large part to the lakes, rivers, and snow cap mountains that are part of the Willamette National Forest.

Scenic quality is difficult to measure. The plan's documentation of visual quality resources and how they will be managed is very difficult to follow. The Forest Service "Scenic Management System" is implemented via the use of prescription standard and guidelines to meet a particular visual quality objective (VQO). These VQOs are applied to all land management strategies. For those important travel routes and visitor sites, a high VQO of retention or partial retention and the lower VQO of modification was assigned to a specific land allocations for visual management or a viewshed.

A good method to measure the impacts of forest activities upon visual quality is to compare the present situation or current condition to the proposed future condition of those areas to be managed for visual quality. Pages IV-131-138 of the DEIS discuss the future condition of the visual resource. In particular, Figure IV-10-2 is a very good explanation of the difference between the inventoried VQOs for the forest and how it will appear under the various alternatives of the plan. However, totals for the viewsheds to compare with the non-viewshed and a grand total would help. Also, it is difficult to tell from the narrative in chapter IV whether the inventoried VQOs and the Existing Visual Condition (EVC) are the same thing.

Figure IV-10-3 on the other hand is very confusing and misrepresents what is proposed. On page IV-133, the DEIS states "...if acreages assigned to these VQOs [retention and partial retention] remain the same or decrease from current levels, the scenic quality of a viewshed is expected to change to a slightly or moderately altered appearance in the short-term (10-20 years) and potentially to heavily altered in the long-term (20-50 years)."

What is meant by current levels? If we assume that current levels means EVC or if we assume current levels means the VQO inventory, there is still difficulty with Figure IV-10-3. For the preferred alternative J, this chart indicates that seven of the Forest's 10 major viewsheds will be maintained in a natural appearing condition, (also stated in figure B-H-1 in the appendices). If we use the above quoted method and we assume that current level means the Inventory, the North Santiam, South Santiam, McKenzie, North Fork/South Fork, and Willamette viewsheds will all be at least slightly altered under the proposed alternative; not natural appearing as the chart indicates. If we assume that current level means the EVC and we use the guidelines outlined at III-110, all the viewsheds will appear slightly altered or modified.

Because as the Forest indicates visual quality will become more of an issue to the public as more and more people use the Forest and because this resource is so critical to the tourism industry, OEDD urges the Forest to correct this error or document how these results were attained.

Further graphic information would be helpful. Some forest plans include photographic examples of the various VQOs.

OEDD would like more information about the costs and benefits of different visual categories and the standards and guidelines controlling their implementation. The Forest's detailed presentation of the landscape units on the Forest is helpful. In the discussion and table about reduced yield lands at IV-33 of the LRMP, the Forest depicts the various prescriptions and their reduced yield. The ASQ trade offs associated with the visual management prescription for each alternative should also be portrayed.

The Forest does present the current inventoried visual quality objectives, the resource outputs, and their impact on timber production:

VQO	CURRENT INVENTORY	RESOURCE OUTPUTS ALT. J	DIFFERENCE	% OF FULL TIMBER YIELD
PRES.	389,486	496,400	106,914	0
RET.	232,262	86,300	(145,962)	62-84%
P. RET.	488,649	139,000	(349,649)	74-95%
MOD.	484,170	237,100	(247,070)	98%
MAX MOD.	80,841	712,100	631,259	100%

These results raise a number of questions:

1) Does the 62 percent of full yield foreground retention completely reflect the standards and guidelines for this management area? The timber yields seem high. In all cases the Forest should check that the forest planning analysis correctly reflects the standards and quidelines of each area, especially relative to restrictions on the type and rate of timber harvest.

2) If the Forest can achieve the specified timber yields in partial retention middleground and modification middleground, why were so many acres shifted to maximum modification?

3) Information portrayed in the above manner would allow the public to more easily understand the proposal.

The Scenic Management System as devised and modeled in the proposed plan provides for improving the existing condition of a view to attain a VQO if it has been damaged by man's activities in the past. It does not provide for improving a view through natural means beyond the set VQO if the VQO assigned to a particular area has been met.

This system does not provide for the situation where the EVC which is "natural appearing" today may improve over time due to natural and inherent characteristic changes in the age and makeup of a forest. The result is that a foreground area along a road, that is managed to maintain the existing natural characteristics, may be logged in the future because the VQO based upon a past forest condition has been met.

At IV-137 of the DEIS, the Forest states "Scenic quality will be retained to meet visual quality objectives by adhering to the prescribed harvest rates for the scenic allocations." This system implies that trees of an age beyond what was characteristic along the road in the year of the inventory provide a surplus of natural appearing characteristic landscape that should contribute to the harvest volume. Is it the intent of the Forest to establish a set of Standards and Guidelines that assumes there is a surplus of scenic beauty in an area that is to be managed to retain its natural appearing landscape, where nature dominates? Are the Standards and Guidelines intended to recognize the impacts of time as part of the inherent character of the landscape that provides an attractive, visually pleasing forest setting?

Figure IV-D-19 in the LRMP outlines rate of clearcuts that will appear in the visual foreground and middleground along travel routes and recreation sites. This table indicates that in areas with a VQO of retention foreground, ten percent of the area will be clearcut at any one time; the rotation age will be 200 years.

At this time OEDD is unable to assess whether these Standards and Guidelines will enable the Forest to achieve its goals as outlined above to provide a natural appearing landscape where nature dominates. Will clear cutting the entire foreground area between every two hundred years in most foreground acres result in a natural appearing landscape where nature dominates? Will eliminating those stands of trees older than the assigned rotation ages in the foreground areas, (the surplus of scenic beauty), achieve these goals? The DEIS and LRMP are unclear on this issue.

The Forest Service staff of the Willamette National Forest is to be complimented on their planning efforts and on the production of a quality document. We hope that these comments will be useful in the development of the Forest Service's final proposal and a help to you in development of the Governor's alternative.

Sincerely,

David H. Lohman

David H. Lohman
Deputy Director

DHL:dhs

Attachments

STATE OF OREGON INTEROFFICE MEMO

K. Norman Johnson
Federal Forest Plan Coordinator

DATE: April 21, 1988

Ann Hanus, State Economist
Executive Department, Office of Economic Analysis

Summary of Findings and Recommendations for the Willamette National Forest Plan -- DRAFT

The Willamette National Forest is, by far, the largest national forest in Oregon. It covers over 1.7 million acres and stretches for 110 miles along the western slope of the Cascade Mountains. It lies within Lane, Linn, Marion, and Douglas counties. Of the total 1.7 million acres, over 380,000 are dedicated for wilderness. Other dedicated areas include the H. J. Andrews Experimental Forest, the Oregon Cascades Recreation Area, the Lamb Butte Scenic Special Interest Area, and four Research Natural Areas.

The Forest provides a variety of recreational opportunities and records nearly three million Recreation Visitor Days (RVD's) annually. Residents of Lane, Linn, and Marion counties are the primary users, although Benton, Polk, Yamhill, Clackamas, Multnomah, Washington, and Deschutes counties' residents are active on the Forest as well. The Forest's approximately 400 lakes and more than 2,700 miles of perennial streams and rivers offer outstanding fishing and boating opportunities. Hiking, camping, downhill and cross country skiing, mountain climbing, and motorized recreation are popular.

The Forest ranks as the number one timber producer of the 156 National Forests in the United States. According to the Forest Service, the Willamette National Forest produces about eight percent of all timber cut on National Forest lands and yields an average of 750 million board feet of timber annually.

The Forest Service defined the primary zone of influence of the Forest as Lane, Linn, and Marion counties. A secondary area of influence has been identified as the counties of Clatsop, Columbia, Multnomah, Yamhill, Benton, Douglas, Deschutes, and Jefferson counties.

The Regional Economist's analysis (attached) provides a good overview of the regional economy. The region has experienced an improving economy over the last four years, after suffering the worst downturn since the Great Depression. Annual average unemployment rates during 1987 fell to their lowest levels for the past decade (Lane County's 5.7 percent rate was the lowest annual average since 1969). Only Marion County has surpassed prerecessionary (1979) employment levels; Lane and Linn counties have achieved only 98.8 percent and 94.4 percent, respectively, of prerecessionary levels.

The three counties rely more on the lumber and wood products industry than the state as a whole. Together, the counties have 8.4 percent of their workers in the lumber and wood industry compared to 6.2 percent statewide. Linn and Lane counties are the most dependent among the three. Linn and Lane counties have 16 percent of their manufacturing jobs in the lumber and wood industry, respectively.

Over 98 percent of the total harvest from the Willamette National Forest is processed in Lane, Linn, and Marion counties. Of the amount processed in the three county area, about 66 percent is processed in Lane County, 27 percent in Linn County, and seven percent in Marion County. The percent harvested by county is similar to the percent processed.

From 1977 to 1986, the lumber and wood industry has declined in terms of employment and as a percentage of total payroll. In 1977, lumber and wood payroll amounted to 16.3 percent of total payroll. By 1986, its share declined to 11.0 percent. Furthermore, average pay per lumber and wood worker rose over the time period, but at a pace slower than the consumer price index.

The three counties have become more diversified since 1970 with lumber and wood employment shrinking and retail and wholesale trade and services rising as a share of total employment. This trend mirrors the national and state economic patterns.

The Forest Service selected Alternative J as its preferred alternative. The Forest Service described Alternative J as an alternative which will "balance the timber, roadless area, old-growth, fish and wildlife, and scenery issues in a way that provides some degree of resolution for each." The amount of land allocated to timber production is reduced from the 1977 plan levels to accommodate additional allocations to roadless prescriptions. About 32 percent of the currently unroaded areas will be maintained in that condition to provide semiprimitive recreation opportunities and to retain old-growth.

The Forest Service proposes an Allowable Sale Quantity (ASQ) of 568 Million Board Feet (MMBF). According to the Forest Service, the number of jobs would rise by 1,237 if compared to the 1977-1985 period, but would drop by 2,879 if compared to the No Change Alternative. Total Personal Income (in 1977 $) would rise by $3.8 million compared to the 1977-1985 period. Payments to counties would average $28 million per year in the first decade. The Forest Service would require a total budget of $45.6 million (in 1982 $) to implement the plan in the first decade.

According to the Forest Service job changes from the base level (1977-1985) by output are:

Recreation Use	-98
Federal Expenditures	1
Payments to Counties	189
Timber Volume	1,145
Total	1,237

The plan would directly affect 368 jobs, causing indirect job changes of 306 and induced job changes of 562.

Comments

1. The proposed ASQ of 568 MMBF is 69.0 MMBF or 10.8 percent lower than the 1978-1987 average annual sale quantity of 637 MMBF. Compared to

the harvest, the proposed ASQ is 62.0 MMBF higher than the 1978-87 average annual harvest. Recent years' harvests have been considerably higher, averaging 620 MMBF in 1985, 606 MMBF in 1986, and 718 MMBF in 1987 (Table 1). This recent higher harvest is due to a strong wood products market and harvesting of buyback volumes from the early 1980's. The proposed ASQ is also 80 MMBF lower than the 1985-87 average harvest of 648 MMBF.

Since the proposed ASQ is lower than both the 1978-87 average sale quantity and the 1985-87 average harvest, employment will probably drop below recent levels. Applying the Willamette National Forest IMPLAN coefficient of 9.55 jobs (includes direct, indirect, and induced jobs) per million board feet would mean employment losses of 659 using a 1978-87 base or down 764 for the 1985-87 period.

Table 1

Willamette National Forest Timber Sales and Harvest
Net of Cull
(Comparable to Allowable Sales Quantity)
1978-87
MMBF

	Sales	Harvest
1978	604	554
1979	649	511
1980	631	443
1981	640	377
1982	585	296
1983	585	444
1984	665	490
1985	630	620
1986	683	606
1987	694	718
1978-87 average	637	506
1985-87 average	669	648

The timber industry underwent immense change from 1981 through the present. The severe economic times of the early 1980's forced many mills out of business. Many of the remaining mills were refitted with updated equipment that provided for large productivity improvements; consequently, employment gains were held down despite record harvests of the last two years. The Forest Service IMPLAN coefficients were estimated based on 1977 data which does not capture the productivity improvements of the last decade. As a result, the IMPLAN coefficients may overstate the employment impact.

On the other hand, the timber job coefficients was 9.55 jobs per MMBF, of which 2.9 were direct jobs. According to an analysis of Oregon timber harvest reports and Oregon covered employment data, each million board feet of timber harvested was found to account for

more than six direct jobs. This estimate could be conservative because it does not include proprietors which are excluded from Employment Division statistics. Further, it does not account for the relatively large proportion of Willamette National Forest timber which is used for the labor-intensive production of plywood and veneer.

2. Since the ASQ is a significant reduction from the 1978-87 sales quantity and 1985-87 harvest levels, local governments will probably witness lower federal forest payments. County payments will probably be lower than estimates by the Forest Service unless prices rise considerably above Forest Service assumptions.

3. The population data used in the Plan, especially projected population levels, tends to be outdated. For example, the Primary Zone population for 1987 is estimated at 569,000. This figure is actually lower than the 1980 Census total of 569,413 and 48,000 below the projected 1990 level. Lane County will need to add nearly 25,000 people in the next three years to meet the nearest projection. Projections for later decades should be revised accordingly.

4. The employment data used in Chapter III, Section 4, "Social and Economic Environment" of the Draft Environmental Impact Statement (D.E.I.S.) is generally accurate and correctly interpreted. This information should be updated in the Final Environmental Impact Statement to include more recent data.

5. More information should be provided on the economic impact of recreation. While much was written on recreation use according to the Recreation Opportunity Spectrum, little analysis was attempted to provide valuation numbers and to determine the economic impact of recreation. The Umpqua National Forest, for example, attempted to quantify the value of recreation. Since recreation is an important use and is second to the timber industry in economic impact to communities, more analysis on this subject is warranted.

6. Recreation use reflects negative job changes in all of the alternatives except A (No Action), C, and D; the latter two alternatives severely limit harvesting. The model appears to have a bias that benefits from recreation and harvesting cannot co-exist. More justification should be given.

7. Recent data indicates that about six percent of the timber sold on the Willamette National Forest is processed at mills in Southwest Oregon, almost all of it in Douglas County. The Forest Service should add Douglas County to the primary zone of influence for analytical purposes. Shortages of timber may result in timbershed boundaries becoming more elastic and areas of economic influence broader as competition for timber becomes more intense.

8. The Forest Service should include IMPLAN job, personal income, value added, and local business tax response coefficients in the appendix. It appears that these values were omitted.

9. The Willamette constructed its IMPLAN model by removing part of the selling value of the stumpage to account for leakage from local economies to the Federal Government for stumpage. Inadequate documentation is given to determine if this is technically correct or if the IMPLAN coefficients are reasonable. The Willamette should correct its analysis to make it consistent with the majority of Oregon National Forest Plans. It appears that the Umpqua and the Willamette were the only two Oregon forests to use this procedure. This different procedure makes employment and income comparisons among Oregon Forests inaccurate because the coefficients are not comparable.

   The Forest Service should document whether an adjustment was made for stumpage that was returned because of contract relief, or was defaulted on, or processed unprofitably.

10. The Forest Service will be releasing its final guidelines for the Spotted Owl in the near future. If these guidelines significantly change the land allocations and proposed management under the new plan, the regional economy will be affected.

11. In addition to revealing the effect on county revenues, the Forest Service should also estimate the effects on timber harvest taxes, public road use fees and taxes, and property taxes. These revenues are important sources for local governments and schools.

12. Over the past decade, the primary impacts on industry employment have been technological changes affecting basic milling operations, economic cycles, and the expansion of remanufacturing operations. These factors will continue to be important, but timber supplies will play a more critical role. Increasing competition among mills has evolved because of diminishing supplies from nearby forests and private lands. The timber industry could face a supply gap due to projected lower harvests from private lands over the next 10 to 20 years together with proposed lower National Forest harvests. The degree to which declines in private and public lands overlap in the years ahead will have significant implications for the total timber supply available to mills. The mills could face higher stumpage prices as a result.

13. The Forest Service should boost its monitoring of local economic conditions to include employment by sector and county, unemployment, population, and personal income.

14. The economic outlook is clouded by proposed harvest level changes by national forests and Bureau of Land Management lands. A projected fall down in private land harvests, huge amounts of California and Oregon salvage from the 1987 fires, log exports, and increased inter-regional competition, further complicate the analysis. The complexity of this situation underscores the reason why a final decision about any of the Forest Plans should not be made until a cumulative analysis has been completed and reviewed.

15. The Forest Service should revise their comments about exports to the Pacific Rim counties. The Forest Service states that "projections of exports to the Pacific Rim countries show a continuing slow economic growth" (D.E.I.S., p. III-189). In light of large export increases over the last year and the falling dollar, export prospects look very bright. Further, Japanese housing starts may equal or exceed U.S. housing starts, thereby keeping the demand for Northwest wood products high.

16. Projections about the Southern timber supply should be corrected. The paragraphs at the bottom of p. III-181 and the bottom of p. III-189 are contradictory.

17. Figure III-W-12 should be updated to reflect more recent trends in the Forest Products Industry. The year 1982 was the trough in the recession; the D.E.I.S correctly notes that many mills have reopened since that time.

18. The proposed plan may result in additional restrictions on mining. According to the Forest Service, the more restrictive land allocations tend to place a higher emphasis on the protection of visual values, dispersed recreational opportunities, or special and unique wildlife habitats. As a result, use periods, surface protection measures, and rehabilitation requirements may be more restrictive. In these areas, there may be limited access because of the lack of timber harvest or other resource developments. Restrictions may vary for some management prescriptions depending on the level of management particularly those management prescriptions which include riparian areas and lakeside zones. Access may be limited depending on the existing roads and trails (see D.E.I.S., p. IV-186).

    Most of the mining activity on the Willamette National Forest has been for gold and silver with some interest expressed for oil and gas.

ANH:slf
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Attachment

cc: Fred Miller
Jon Yunker
Don Steward, Employment Division
Mike Staten, Employment Division
Ken Rocco, Employment Division
Earl Fairbanks, Employment Division
Governor's Council of Economic Advisors

DRA

General File #7-2-3-300

Forestry Department

OFFICE OF STATE FORESTER

2600 STATE STREET, SALEM, OREGON 97310 PHONE 378-2560

MEMORANDUM

SUBJECT: DEPARTMENT OF FORESTRY REVIEW OF THE WILLAMETTE NATIONAL FOREST PLAN

TO: K. Norman Johnson, Federal Planning Coordinator

FROM: James E. Brown, State Forester

DATE: April 20, 1988

Attached is the Department of Forestry's review of the Willamette National Forest Draft Environmental Impact Statement and Proposed Land and Resource Management Plan for use in the State of Oregon's coordinated response to the USDA Forest Service.

The primary emphasis of the Department's review is to insure that the Willamette National Forest plan provides an acceptable balance of environmental and economic conditions. A primary measure of the economic performance of the plan is the level of timber harvest which supports jobs and local government.

Our review has concluded that the potential exists to meet the needs of the Willamette's resource users as well as the goals and objectives of the Board of Forestry's Forestry Program for Oregon. The Department's review points out opportunities to achieve this potential. Areas where further analysis should be provided for public review in the Final EIS are also indicated. Special emphasis should be directed toward how the Willamette will manage its land to meet the future needs of Oregonians.

The Department of Forestry looks forward to working with the Governor's office, other state agencies, the Forest Service and the people of Oregon in developing a sound, balanced plan for the Willamette National Forest.

JEB/BB
Attachments

4/22/88

General File
7-2-3-300

OREGON STATE DEPARTMENT OF FORESTRY
REVIEW OF THE WILLAMETTE NATIONAL FOREST'S
DRAFT ENVIRONMENTAL IMPACT STATEMENT AND
PROPOSED LAND AND RESOURCE MANAGEMENT PLAN

The Oregon State Department of Forestry's Resource Planning Section, in cooperation with other Department staff, has reviewed the Willamette National Forest's Draft Environmental Impact Statement (DEIS) and Proposed Land and Resource Management Plan (LRMP). Our comments focus on five areas of importance:

1. Comparison of the DEIS alternatives with the basic objectives of the Board of Forestry's Forestry Program for Oregon found on page 1.
2. Coordination with Department of Forestry programs starting on page 2.
3. Effects of the Willamette's modeling assumptions and proposed activities on timber yields beginning on page 3.
4. Economic considerations beginning on page 13.
5. Needed clarification of planning direction starting on page 20.

A summary of this review is provided on page 26

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COMPARISON OF THE DEIS ALTERNATIVES WITH THE BASIC OBJECTIVES OF THE BOARD OF FORESTRY'S FORESTRY PROGRAM FOR OREGON

(DEIS, page II-98-100) The Oregon State Board of Forestry's 1982 Forestry Program for Oregon (FPFO) contains three basic objectives for the management of national forest lands. They are:

1. Maintain the maximum potential commercial forest land base consistent with other resource uses while assuring environmental quality.

2. Identify and implement economically feasible levels of intensive forest management required to achieve cost effective growth and harvest.

3. Maintain community stability by considering the projected timber harvests from other ownerships in setting the harvest from national forest lands.

The Department of Forestry appreciates the discussion in the DEIS devoted to comparing the forest's alternatives to the Forestry Program for Oregon. Overall, the comparison shown in figure II-E-II correctly depicts the relationship between the Willamette and the State of Oregon target levels. The objective of this analysis is to compare the State's anticipated social and economic output levels with those proposed by each national forest.

This comparison shows that few of the alternatives fully meet all three objectives. The primary reason for this result is the continued reallocation of commercial forest land since the current plan in each alternative to management strategies that either prohibit or constrain timber management opportunities below the full yield potential. Only alternatives B-Dep and J-Dep come the closest to meeting FPFO desired objectives.

COORDINATION WITH DEPARTMENT OF FORESTRY PROGRAMS

Fire and Smoke Management - (DEIS III-58) The Department of Forestry supports a policy of applying aggressive suppression action to wildfires that threaten life, property, public safety, improvements, or investments. The plan correctly identifies the importance of a coordinated effort between

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State and Federal agencies in fire management.

After reviewing the sections in the plan regarding smoke management (DEIS III 33-37 and IV 46-47), the Department believes that some of the information presented in the plan is outdated. In particular, the discussion describing the Oregon Smoke Management Plan should be revised in the Final EIS. Compliance with this plan is essential because the Environmental Protection Agency (EPA) has approved Oregon's plan as meeting the requirements of the Clean Air Act as amended.

Oregon Forest Practices Act - (DEIS, IV-36) The Oregon Forest Practices Act provides minimum standards for soil and water protection and for the maintenance of forest productivity. The EPA has designated the Forest Practices Act as the "best management practices" necessary to protect fish life and water for domestic uses and as meeting the requirements of the Clean Water Act as amended.

In order to demonstrate consistency with the Clean Water Act, the Willamette Final EIS should discuss how the alternatives will satisfy the requirements of the Forest Practices Act. Particular attention should be given to the newly adopted rules for riparian area management. The forest's standards and guidelines for riparian areas should reflect the full intent of the Forest Practices Act as well as demonstrating consistency with the approved rules.

EFFECTS OF MODELING ASSUMPTIONS AND PROPOSED ACTIVITIES ON TIMBER OUTPUT LEVELS

Minimum Management Requirements - (App. B-103, H)
The Board of Forestry has recognized in the Forestry Program for Oregon that forests are important for providing a full range of uses and benefits including wood production, water quantity and quality, recreation, wildlife, fisheries, and forage. As a result, the Board has adopted a policy to encourage and promote forest management practices which will maintain and enhance the full range of social and environmental benefits of the forest.

Based on this Board policy, the Department of Forestry supports the maintenance of viable populations of indigenous forest plants and animals. It is therefore appropriate that the U.S. Forest Service provide a minimum level of protection for forest resources in its national forest plans and present the public with a range of alternatives which meet or exceed this minimum level.

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However, the Department believes that two basic improvements in the application of minimum management requirements (MMRs) proposed for implementation by the Willamette or the proposed revisions suggested by the Regional Office are needed. First, there is a need for further documentation and analysis by the Forest Service. Second, increased public involvement in the MMR decision making process must be permitted.

Please consider the following specific concerns and recommendations:

Need for Further Documentation and Analysis

1. Data Uncertainty - The credibility of the plan could be increased significantly if the MMR's were submitted to peer review. That review would help assure that the most current data and a broad base of professional expertise are reflected in the plan.

2. Alternative MMR Strategies - Only one set of MMR strategies is proposed in the plan and the sensitivity analysis provided in Appendix H only varies the intensity of that one set. Where alternative methods for achieving the same objectives are available, displaying them would be beneficial and possibly avoid later conflicts with NFMA and NEPA public disclosure requirements.

3. Inconsistency Among National Forests - Based on the information provided in the forest plans published in Region Six to date, it appears that similar national forests may be modeling their MMRs differently, thereby providing inconsistent levels of protection and inconsistently applying constraints on other resources. No published documentation supports these differences or explains how each forest's MMR package provides for the minimum level of protection, as required or suggested by NFMA. If alternatives are displayed, as recommended in number 2 above, this concern would be overcome.

The need for and design of each MMR should be clearly explained in the forest plan. A display similar to the August 22, 1984 Wildlife MMR matrix produced by the Region should be included in the Final EIS. This now outdated matrix provided important data on the number of habitats being designated by each national forest for each indicator species, the acres of suitable land involved, and a measure of the effect of these allocations on timber management. Similar displays could be constructed for soil, water quality, and riparian MMRs.

Increased Public Involvement in MMR Decisions

1. Public Review - The decision making process consists of two elements:

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a. The identification of the level of protection or management that will be the "minimum level" target suggested by NFMA.

b. The methods chosen to effect this level of protection and management.

In the Willamette's planning process to date, these decisions and assumptions used in developing the MMRs were finalized and incorporated into all alternatives without the provision of any opportunity for full public review, as required by NEPA and NFMA. This action by the Forest Service makes the planning process vulnerable to legal challenges and prevents the agency from gaining the valuable input that the public and other resource professionals could have provided the Forest Service.

The process for implementing MMRs must be opened up fully to public review. By doing so, the Forest Service may be able to develop new alternatives that are more responsive to public concerns.

2. Legal Sufficiency - Minimum management requirements were developed by the Forest Service based on the Region's interpretation of the NFMA requirements. Other parties, including other Forest Service Regions, have interpreted these requirements differently. Unless the Forest Service improves the analysis of MMRs by adequately considering the concerns of environmentalists, forest industry representatives, and other parties, litigation of the MMR issue seems likely.

Snag Management - (DEIS, IV-94) It seems that the FORPLAN model was only given one option for snag management on lands suitable for harvest, 60 percent of the biological potential. No additional choices were permitted. The DEIS provides no explanation for this enforced inflexibility in the model nor the impact on timber harvest or other outputs of applying the 60 percent level.

The plan has not presented the cost in terms of present net value and allowable sale quantity of maintaining a lower or even higher level under each management strategy. If a higher snag habitat potential can be provided on all lands without a reduction in timber harvests, wildlife habitat or a significant increase in fire risk, the Department of Forestry would support such a modification. The Final EIS should contain a discussion of the effects of applying 20, 40, 60, and 80 percent snag levels.

The Willamette National Forest should continue to insure that its methods for providing snag habitat at or above the MMR level are as efficient as possible and that the chosen

DRAFT

methods are the least constraining on timber management.

Two Forest Service publications, Wildlife Habitats in Managed Forests and Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington, discuss ways of providing snag habitat while minimizing the effects on timber management. Please consider these points:

1. High stumps may provide adequate habitat for some species.

2. Emphasizing snag retention downslope from roads protects snags from firewood cutting.

3. Selecting individual trees or small clumps of trees for snag retention or snag creation may be preferable to imposing a long rotation over a larger area, especially in terms of the effects on timber harvest levels.

4. The selection criteria for replacement snags should include the economic value of the tree. Limby, deformed, and broken topped trees should be selected over sound, straight, clear boled trees if wildlife habitat is the purpose for retention.

5. Areas unsuitable for timber management should be managed to provide 100 percent of their snag habitat potential. Active management can include the creation of snags to achieve this potential, custodial management can not.

6. The time period over which the snag management goals are achieved should be considered. Requiring immediate compliance with a higher snag level can result in high first decade costs, especially where stands have been salvaged heavily in previous years.

Also note that the 1987 Oregon Legislature has passed HB 2152 which removes the requirement in Oregon law that snags be felled within 250 feet of the exterior boundaries of harvested units planned for burning. This change in the law should allow the Forest Service and other landowners more flexibility in retaining wildlife snags in clearcut harvest units.

Unroaded Area Allocations - (App. C) The Oregon Wilderness Act of 1984 stated that unroaded areas that were not designated as Wilderness should be managed for multiple-use and that management for future Wilderness consideration was not necessary. In keeping with the intent of this law, the Department of Forestry recommends that unroaded lands which support productive, manageable forest land be returned to the suitable land base and that the timber volume from these productive lands be included in the regulated timber harvest

DRAFT

schedule.

The Willamette DEIS states that 209,845 acres of unroaded area exist on the forest. From this total, 32 percent (67,700 acres) will remain unroaded while 41 percent (87,000 acres) will be assigned to allocations in which roads will be constructed in the area, but where no planned activity will occur for 15 years. When these sites are added to the almost 381,000 acres of designed wilderness, some 32 percent of the total forest would be in an unroaded status through the next 15 years. A closer examination of the proposed unroaded area allocation notes the following observations:

1. It appears that the Willamette is not complying with the intent of the Oregon Wilderness Act of 1984 when allocating certain portions of unroaded areas to a nondevelopment status. A review of the maps in Appendix C notes that some of the areas (French Pete, Mt. Washington west and south, Mt. Jefferson north and south plus other sites) are small remanents that remained after the Oregon Wilderness Act of 1984. Since these reminant sites were evaluated and released, they should be returned to multiple use status.

2. It is difficult to determine the actual effect on the ASQ of retaining the unroaded areas, particularly those sites that will be only partially retained in an unroaded condition.

3. By allocating 87,000 acres of currently unroaded areas to a roaded prescription, but not permitting development for 15 years, the Willamette is continuing to delay the long awaited decision that determines the status of these remaining unroaded areas. It is in the publics' best interest that a decision be made now.

4. How can the state be assured that the Willamette will in fact initiate multiple use management on sites released from unroaded status in the proposed plan? We are concerned that the forest will continue to ignore the question, perpetuating the condition of no management on these sites which have been released for multiple-use management.

After analyzing the forest's proposed plan for retaining unroaded sites, the Department supports unroaded status for those areas which have been determined to be unsuited for timber management due to low productivity levels.

DRAFT

Population Growth Levels - (DEIS, III-208) The forest's projected annual increase in the population growth rate may be somewhat high. Using the same publications that the forest utilized, the Center For Population Research and Census at Portland State University noted a 3 percent decline in population for Lane County and a 2 percent drop in Linn County occurred between 1982-1986. Marion County on the other hand had a population that fluctuated in this period, with an overall less than 1 percent gain. The Department believes that the population gain projected by the Willamette may be overly optimistic thus resulting in the continued decrease in the available, commercial forest land base due to land being allocated to other uses. The Department encourages the Willamette to use the most current population projections from PSU in the Final EIS.

Fertilization - (DEIS, II-97, IV-4) The Willamette plan has briefly discussed the fertilization program. Recognizing that only 30 percent of the lower slope soils of the Douglas-fir/hemlock zone have been trial tested, additional analysis will be necessary to identify other soil and vegetative types which will respond positively to fertilization. The forest should further consider fertilizer test responses done by both public and private forest managers on adjacent ownerships.

The Willamette has not considered the benefits of a second fertilizer application which could potentially increase growth in younger stands. Research has shown that recurrent applications of fertilizer are cost effective and that a fertilizer application is most cost-effective approximately 10 years prior to final harvest. The costs and benefits of multiple fertilizer applications should be considered in the Final EIS.

We would question the forest's decision to decrease its frequency of commercial thinning in light of recent research regarding fertilization. With enhanced growth expected from fertilization, thinning frequency could be increased with cutting cycles shortened.

Increase in timber growth would also benefit nontimber resources such as visual and mature conifer habitat management since the tree size criteria for these prescriptions could be met at a younger age. Without an analysis discussing this potential, it is impossible to judge the adequacy of the forest's assumptions.

Insect Epidemics - (DEIS, page III-81) The DEIS has presented a limited discussion on insect and disease related problems on the forest. With an older aged forest and the increasing number of acres which prohibit or reduce timber management, future epidemics are likely. Although these epidemics may originate on unmanaged lands, they can threaten

DRAFT

all forest lands, regardless of land allocation or ownership. How is the likelihood of future insect epidemics and the dramatic changes that accompany them, to be used in making the final plan decision?

The DEIS should provide information on the current western spruce budworm epidemic which is spreading westward from the Deschutes National Forest. While the major epidemic seems to be centered east of the Cascades, defoliation is beginning to show on the Willamette National Forest.

Further information should also be included in the Final EIS on the gypsy moth infestation which occurred within the Willamette National Forest boundary. In spite of the serious impact of this insect on the marketing of forest products, including Christmas trees on private land, the forest has only made a token effort to explain how they will handle this difficult problem in the future from insects and diseases.

The Department of Forestry recommends that the Willamette continue to utilize, and seek funding for, integrated pest management techniques and that intensive forest management practices be implemented at levels that will help prevent future losses.

Visual Management - (DEIS, page III-107, IV-131) The Willamette has chosen to impose constraints for visual management in every alternative. Some 69,474 acres of suitable forest land will have reduced harvest levels due to visual constraints. The resulting potential yield reduction from the visual constraint has not been identified in the planning documents. Correspondence with the planning team noted that the modification middleground management area could have a one or two percent decrease in the ASQ. If this is the case, what will be the impact on the ASQ of the more stringent visual constraints required in management areas 11d, 11e and 11f?

Like the MMRs previously discussed, the standards and guidelines for visuals have been implemented without public review and without exploration of alternative strategies or an adequate tradeoff analysis.

Because timber outputs are directly affected by these requirements, the Department requests that the following information be provided in the Final EIS.

1. Analysis of the impact that visual management will have on the ASQ by alternative.

2. A summary of the costs, in terms of present net value and ASQ, of the minimum level of visual management included in DEIS alternatives.

3. An analysis of the tradeoffs that would occur if the

DRAFT

visual management constraints were increased, reduced, or eliminated.

4. An analysis of how increased use of uneven-aged management (e.g., small group selection) in visual designated management areas would affect the need for these constraints.

5. An explanation of how the diameter and harvest dispersion requirements were selected and an analysis of the tradeoffs that would occur should different requirements be used.

6. A summary of the anticipated recreation use of the secondary roads that are designated for visual management.

Harvest Cutting Methods - (LRMP IV-37, App. F) The Department of Forestry supports the flexible, site specific approach to the selection of harvest cutting methods required by the Regional Guide and presented in the appendix of the plan. The Willamette is encouraged to maintain this flexibility in the forest plan. When determining the harvest cutting method, economic benefits to the forest and the timber purchaser should be considered as well as logging feasibility, stand characteristics, silvicultural response, insect and disease control and the effects on other resource values.

Uneven-aged management should be considered to maintain timber yields in those areas (i.e. viewsheds and riparian areas) where clearcutting is proposed to be limited or prohibited to accommodate or benefit other resource uses. While the plan generally supports this concept, the projected annual treatment by harvest method schedule found on page IV-37 of the LRMP reflects no acres being allocated to uneven-aged management.

The Department of Forestry recognizes that uneven-aged management is more difficult to implement than even-aged management. However, this added difficulty should not affect the choice of harvest cutting methods. We also recognize the hazards from application on species composition changes and the insect and disease effects that may result.

This decision should be based on what is best for the forest resources in light of the issues identified by the public. We recommend that the Willamette develop a comprehensive plan for utilizing uneven-aged management in riparian, scenic or other special use areas where use of that management method will permit harvesting and management for insect and disease resistance while maintaining the special values that are present.

DRAFT

Desired Future Condition of the Forest - (LRMP IV-5) The Department of Forestry questions the statement that the most noticeable change in the first decade of the plan will be the development of unroaded areas. Only 26 percent of the existing unroaded areas will be released for management under the preferred alternative. With only partial management of many of these areas, a limited impact to the forest would be anticipated.

It seems that the Willamette National Forest has taken an uncompromising position on the future management of the forest. While it is essential that resource values be retained, the Willamette seemingly has ignored the impact that the plan will have on the economic stability of the area.

In order to maintain the many multiple uses of the forest, we encourage the Willamette to develop innovative approaches to managing the forest which would maintain the harvest levels while protecting the other resource values. Where feasible, single use management must be replaced by a balanced, multiple-use plan to meet the demands of the citizens of Oregon. A clear statement of the desired future condition of the forest towards which the plan will work is vital to a clear public understanding of the Willamette's management intent.

Departure From A Nondeclining Even Flow Harvest Schedule - (DEIS, II-17) 36 CFR Part 219.16 provides direction to the Forest Service on utilizing timber harvest schedules in alternatives which depart from a nondeclining evenflow schedule. Such alternatives are to be "...evaluated if it is reasonable to expect that overall multiple use objectives would be better attained". Regional direction goes on to require consideration of departure alternatives in the following situations:

1. When losses from insect attacks can be reduced.

2. When fire risks can be reduced.

3. When timber harvests from other ownerships are expected to decline.

4. To better meet range and wildlife goals.

5. When the species mix of timber harvests on all ownerships is changing in a way that could adversely affect the economies of local communities.

6. To meet Forestry Program timber harvest targets.

Most of these conditions exist on the Willamette National Forest. Collectively, they point out the necessity for a departure harvest schedule to be given serious consideration

DRAFT

in the decision making process.

The Willamette has formulated departure alternatives B and J which increase first decade timber harvests. A 36 percent reduction in ASQ between the third and fifth decades proposed in both departure alternatives, however, could create social and economic instability in the local economy. We suggest that departure schedules should be regulated by a 10 percent decadal harvest change constraint to avoid this disruption.

The Department recommends that the Willamette consider a more aggressive salvage program for all the alternatives. In this manner, an increased volume could be retrieved from lands prior to the scheduled harvest. Considerable quantities of this material would otherwise have decayed before the final harvest was initiated. The plan should portray the salvage program's anticipated cost and benefits, including an approximate decadal volume estimate.

Culmination of Mean Annual Increment - (App., B-136) Region 6 has implemented a minimum management requirement, based on Forest Service regulations, that even-aged stands scheduled for harvest will generally have reached the culmination of mean annual increment of growth (CMAI). The constraint, when combined with the nondeclining even flow requirement and the existing Willamette National Forest timber inventory, significantly reduces the ASQ of the DEIS alternatives. Removal of this constraint would allow the model greater flexibility in selecting prescriptions which could result in greater harvested volumes, returns to counties and greater present net values.

The Department suggests that the Willamette consider the following possible solutions to this problem:

1. Shorten rotations only during the critical decades.

2. Increase intensive management practices in those stands planned for harvest during decades 6 and 7.

3. Coordinate the Willamette's harvest schedule with adjacent national forests and other public ownerships. These other forests may be able to depart from NDEF during the decades that the Willamette has an inventory shortage.

4. Use the FORPLAN model to maximize timber output by allowing timber harvests to vary within a plus or minus 10 percent range by decade. This would permit the model to more efficiently deal with the Willamette inventory as it changes over time.

All of these harvest schedule scenarios could be utilized under any of the DEIS alternatives. The Department of Forestry urges the Forest Service to seriously consider such

DRAFT

creative strategies for maintaining a higher level of ASQ, while maintaining other forest qualities.

Current Management Assumptions - (DEIS, II-96) The Willamette has not fully explained the 67 MMBF drop in timber volume due to "current management assumptions". An explanation for this decline that is given by the forest is fewer commercial thinnings and new model assumptions. Due to its serious impact on the availability of wood, we would request that the planning team specifically define how the 67 MMBF was determined

ECONOMIC CONSIDERATIONS

IMPLAN Assumptions - (App., B-98) IMPLAN response coefficients for jobs were not listed in the plan but could be derived. For example, response coefficients averaged approximately 9.5 jobs per million board feet, of which 2.9 are direct jobs. This appears low. An analysis was made using Oregon timber harvest reports and Oregon Covered Employment Data for jobs that would be equivalent to direct jobs in IMPLAN. Each million board feet of timber harvested was found to account for more than 6 direct jobs. This estimate is conservative because it does not include proprietors (which are not included in the Employment Division statistics), it includes eastern Oregon where fewer direct jobs per million board feet harvested would be expected than in Linn, Marion, and Lane counties and does not account for the relatively large proportion of Willamette timber going into the labor intensive plywood and veneer sector.

The DEIS has failed to list the IMPLAN response coefficients for jobs, personal income, value added and local business taxes. This information is essential for public review of the forest plan and must be included in the Final EIS.

IMPLAN Timber Outputs - (App.,B-93) The IMPLAN model was constructed by removing part of the selling value of the stumpage to account for leakage from local economies to the federal government for stumpage. The Department of Forestry disagrees with the Willamette's method of construction of the IMPLAN input/output model for several reasons:

1. The Umpqua and Willamette National Forests are the only two Oregon forests we have reviewed that use this procedure to adjust for federal revenues. This makes employment & income comparisons among national forests

DRAFT

inaccurate because they use different procedures. For example, the effects of shifting timber harvests from Mt. Hood to the Willamette or Umpqua to provide more recreation opportunities closer to Portland could not be analyzed because the IMPLAN response coefficients are not comparable.

In addition, statewide economic impacts have yet to be documented. Therefore, analysis of economic impacts can only be made among alternatives on individual forests. They cannot be made for national forests, for timbersheds, nor at the state level. These are major flaws in the planning process and should be corrected in the cumulative effects analysis and in the Final EIS.

2. Rather than separating the volume of timber from the Willamette into the sawmill and veneer and plywood sectors, the two sectors were aggregated. This may bias the analysis if the plywood/lumber output per unit input in the area is different than estimated in the model. Fifty-five percent of Willamette stumpage goes into plywood and veneer mills, much higher than the statewide average. Statewide, the plywood and veneer industry creates 6.5 direct jobs per MMBF processed (log scale) while the lumber industry creates only 4.1 direct jobs per million board feet (log scale).

Since the two sectors have large total gross outputs and since data on stumpage flows to mills is available, it would be more appropriate to not aggregate these sectors in the model and to separately analyze the effects of different harvest levels.

3. Final demand values for timber products were calculated. It was not documented if the final demand for residual products were accounted for (e.g., to account for paper industry raw materials derived from Willamette stumpage). Since final demand values for timber were based upon the selling values used for final timber products in the timber sale appraisal process, residuals should also have been taken into account during the appraisal process. Residues are usually figured into the final demand values at the lumber/plywood mill level during appraisal.

In addition, much cull material could have been and probably was processed into products having a final stumpage demand value. How was this accounted for? The Final EIS should provide a better explanation of this analysis.

4. The final demand values were based on appraisal reports; selling value of the stumpage was removed. Since the selling value had considerable overbid, and much of this stumpage was returned with contract relief,

DRAFT

will be defaulted on, or was processed unprofitably, the reduction could have been considerably overstated, unless an undocumented adjustment was made. This should be explained in the Final EIS.

5. Using the 1977 Douglas County IMPLAN model and "Lister Reports", our analysis indicates that according to report 3.220, Sector 136, logging has total imports of 92 million dollars, compared with total gross outlays of 181 million dollars. In addition, competitive imports by logging from sector 11, which corresponds to BLS Forestry Products, total 32 million dollars. It appears that considerable imports are accounted for in IMPLAN. Was an additional adjustment for stumpage appropriate? It is likely that revenues from most stumpage sales in Oregon, not just national forest sales, would have left local areas of economic influence in 1977. Does the model already account for this? If so, why is a special adjustment for national forest timber necessary?

Along with response coefficients, we believe additional information is needed regarding construction of the IMPLAN models, particularly documentation of the economic impact analysis of payments to counties in lieu of property taxes and of federal expenditures spent by agencies of the Federal Government to manage the Willamette.

The Final EIS must provide additional details regarding construction and use of the IMPLAN models. Insufficient information is presented and that which is noted in the planning documents is vague and poorly explained.

Socioeconomic Analysis - (App., B-93-101) Forest Service timber sales are critically important sources of revenue for local governments and schools as well as for state government. Recent data indicates that about six percent of the timber sold on the Willamette is processed at mills in Southwest Oregon, almost all of it in Douglas County. In light of this data, the primary area of influence for the Willamette should be expanded to include Douglas County.

The socioeconomic analysis presented in the DEIS is also incomplete in that it does not consider many of the benefits of forest management to local communities and the State of Oregon. In addition to tallying the effects of alternatives on county revenues, an analysis should be undertaken to estimate the effects on state income tax collections, timber harvest taxes, public road use fees and taxes and property taxes. It is not possible to thoroughly evaluate the effects of the various alternatives on the well-being of Oregon's citizens until these benefits have been analyzed.

In view of the projected falldown in timber from private

DRAFT

forest lands, it would appear that competition for Willamette timber will become more fierce. Therefore, timbershed boundaries will become more elastic and areas of economic influence will become more flexible This should have been taken into account by the Willamette and the economic area of influence should have been expanded.

Also missing from the discussion is an analysis of base and residentiary industries. Recent work by the Department of Forestry has determined that lumber and wood products accounts for more than 50% of private basic employment in Lane and Linn Counties and more than 30% in Marion County. This basic employment should be addressed in the Final EIS since it provides a large percentage of the exports which fuel the area's other industries and businesses.

Costs Used For Economic Efficiency Analysis - (App., B-79) The criteria for identifying fixed and variable costs and for including those costs in FORPLAN appear to be based on a desire to simplify the model formulation rather than to seek the most economically justifiable solution. Only selected timber costs are considered as variable costs in FORPLAN. All other costs are treated outside the model and, in effect, are "protected" from the model's optimization decisions. Two examples might assist in explaining this point:

1. Timber planning and genetics programs are fixed. It seems reasonable that as harvests rise and fall, timber planning and genetics program costs would vary.

2. Logging system costs for commercial thinning using ground and skyline systems were empirically derived from a set of 12 thinning sales. This is too small a sample from which to derive logging costs for both systems. Furthermore, 1982 was not a representative year for logging in Oregon due to the economic depression occurring at that time.

3. Nowhere in the documents could the Department find timber management costs used in Willamette's analysis.

The DEIS provides only limited information on the appropriateness of these costs or the resulting benefits as compared to other possible combinations. Given the magnitude of change proposed among the alternatives, a less arbitrary process is needed.

Local Timber Supply and Demand - (DEIS,III-181,) The Willamette planning staff has made a sincere effort to analyze the supply and demand situation existing on the forest. However, our review has identified several issues which we feel should be addressed in the Final EIS:

1. The analysis of projected demand for Willamette

DRAFT

timber does not address increased demand expected to come from adjacent timbersheds.

2. Future harvest levels are based on projections developed in Timber for Oregon's Tomorrow. Additional analysis should have been done on the assumptions used in this study. For example, recent research has shown that manageable stands are absent on a large portion of the nonindustrial private ownership in Oregon; stocking of mature stands is only about 40 percent of normal. In addition, rotations will likely be significantly longer than assumed in the Beuter Report.

3. The Forest utilizes 1978-1985 average harvest levels. Elsewhere in the planning documents the Willamette uses 1978-1986 data. Since recent harvest levels are available, they should be part of the data base from which changes are made. Demand for timber has increased drastically in 1985 and 1986. Future timber demand trends should utilize the most current data available. The Oregon Subregional Market Model, once it is available, should give the forest a more accurate reading on demand for Willamette timber and on the market effects of the forest's proposal.

4. It is unsettling to realize that additional watershed and wildlife constraints, above those which are currently being proposed under the preferred alternative, may even further reduce the ASQ after the plan is implemented.

Because of these supply and demand factors, it is essential that the Willamette National Forest maintain or increase its timber sale program during the next decade.

National and Regional Timber Demand and Supply Projections - (DEIS, III-181) All timber availability projections for west- central and southwest Oregon predict large drops in timber harvests on industrial ownerships during the next several decades. The most recent work by Forest Service Economist Kent Connaughton supports these conclusions (Note Attachment 1).

This decreased supply comes at the same time as demand for wood products is predicted to increase. For example, current building remodeling is expected to utilize 15 billion board feet (BBF) of the total 50 BBF of United States lumber consumption. At the same time, the 15 percent surcharge on Canadian lumber imports will reduce this imported supply source. Recent projections by Clear Vision Associates show that the bid price for westside Douglas-fir Forest Service stumpage is expected to jump from $187 per thousand board feet (MBF) in 1987 to $224 per MBF in 1988.

Japanese housing starts will total 1.71 billion in 1987, more than is expected this year in the United States. Because of

DRAFT

the lowering of the value of the dollar relative to the yen, American lumber and logs will be more attractive in the Japanese market. The import share of softwood timber arrivals at Japanese sawmills will increase from the 1985 level of 52 percent to 60 percent in 1988. Douglas-fir log exports to Japan from Oregon and Washington in 1988 are expected to be 19 percent higher than in 1987. Total overseas exports from the two states will be more than 3 BBF next year.

These trends indicate that competition for a scarce resource, Oregon's timber stumpage, could increase dramatically in the coming years, benefiting those owning standing timber. Those companies without adequate fee timber could be severely damaged, unless adequate supplies of timber are available from the public ownerships in west-central and southwest Oregon.

With this intense competition for west-central and southwest Oregon stumpage, it is unrealistic for the Willamette to conclude that a horizontal demand curve exists for the forest's timber. A demand function could be calculated for use in FORPLAN. If this is not possible at a forest level, it is possible at a timbershed level. The southwest Oregon Subregional Market Model will soon be available to make reasonable estimates of stumpage demands for various ownerships. Region 6 is already using this model in their projected analysis of the cumulative effects of the forest plans. A similar analysis should be incorporated in the Final EIS for the Willamette National Forest and provided to the public for review.

The alternative to recognizing the possibilities for increasing demand for public stumpage is a return to the destructive speculative bidding of the late 1970s. Such an action combined with restrictive monetary and fiscal policies on a national level could force Oregon's economy into another recession.

The Final Plan should also provide the analysis required by former Chief Peterson in his January 12, 1987 memorandum to the Regional Forester. The memorandum, entitled "Planning the Management Of the Timber Resource on National Forest Lands", provides specific guidelines for improving the discussion of timber supply/demand relationships by acknowledging recent events, changed conditions, and new information. Increased remodeling demand, lower interest rates, Canadian stumpage pricing, and the Staggers Act are all examples of such changes. As Chief Peterson stated, "...the rationale (behind the forest's conclusions) must be clearly articulated in the appropriate planning documents and our assumptions regarding potential future demand be reasonable and supportable".

DRAFT

Below Cost Timber Sales - (DEIS, III-192) The Willamette has provided a brief discussion on the status of below cost timber sales. The only conclusion, however, that can be reached from the presentation in the DEIS is that old growth timber sales on the Willamette cover their costs. Additional analysis by the forest is needed on the following:

1. The percentages of sales and volume that are below cost;

2. the amount of cross-subsidization that occurs;

3. a historical perspective; and

4. the treatment of this issue by the alternatives.

Forest's Budget - (DEIS II-134) The forest has not presented historical budget levels in the planning documents. Without this information, it is difficult to compare proposed budget levels by alternatives to past levels to see if they would be increased substantially. It is stated in the DEIS that all of the alternatives, except B-dep, J-dep and A, require budgets lower than the current forest budget. While the Department realizes that decreased timber harvests will lower forest management costs, increased costs will be inccurred in such programs as recreation, fish and wildlife management plus other resources values. Will the forest's total budget in reality, actually decrease from past levels?

If funding is not approved, the Willamette's activities and outputs would have to be modified. The Department encourages the Willamette to consider budget constraints in the FORPLAN model in order to provide more efficient solutions that can then be explored through analysis. Without these constraints in the analysis, forests have a tendency to cut programs rather than to manage the forest differently when faced with a reduced budget.

A series of FORPLAN analyses utilizing multiple levels of budget constraints could provide information on such management options. These analyses will allow the forest plan to be implementable under a wider range of future conditions. Disclosure of such detailed analyses will help the Willamette satisfy NEPA requirements.

O&C Lands - (DEIS, III-229) The Willamette manages 51,000 acres of Oregon and California Railroad (O&C) lands. These lands are particularly important to local governments since 50 percent of the revenue generated by these areas is transferred to the counties for use in funding needed services such as road projects and schools and in reducing property taxes. Other Forest Service lands contribute only 25 percent of their revenue. During the years 1979-1985, O&C

DRAFT

lands contributed five percent of the Willamette's payments to counties while comprising only three percent of the total landbase of the forest.

The Final EIS should provide information on the location of these O&C lands on the Willamette, how they are allocated among alternatives and their contribution to payments to counties. Opportunities should be explored to maximize the number of O&C acres retained in the suitable land base.

NEEDED CLARIFICATION OF PLANNING DIRECTION

Old Growth Habitat - (DEIS, II-111, III-51) According to the DEIS, some 868,000 acres of mature and old growth trees currently exist on the forest; 639,000 acres of which would be considered old growth by the definition stated in the plan (DEIS, III-53). Of the total mature and old growth stands, 410,000 acres, at a minimum, will be retained as Wilderness, unsuitable lands and MMR set-asides. An additional 44,500 acres (DEIS, IV-55) of mature and old growth stands, under the preferred alternative, will be unavailable for harvest due to their placement into other constraining management strategies, i.e. Special Interest Areas, Old Growth Timber Groves, riparian areas, semiprimitive nonmotorized sites, special wildlife areas, Research Natural Areas and visual management areas.

Alternative J provides the fourth highest amount of old growth, 508,759 acres, which is 24 percent above fifth decade minimum levels. Due the State's dependence on maintenance of the timber harvest levels on the national forests, it would seem that the Willamette is not considering the importance of a stable supply of raw materials to local mills. The plan retains a sizable amount of mature and old growth trees for the next fifty years.

The Willamette National Forest should expand its discussion on old growth timber in the Final EIS to include more detail on why the forest needs to retain additional old growth areas above the minimum levels.

Riparian Areas - (DEIS, III-48, App H-20) It is noted in the DEIS that riparian widths of 400 feet on class 1 and 200 feet on classes 2 and 3 streams have been identified for protection. Using these widths, causes some 46,842 acres of suitable forest land to have the harvest reduced by 6-38 percent in order to meet the constraint.

NFMA regulations require that special attention be given to

DRAFT

land and vegetation for 100 feet from riparian areas. While the Department strongly supports adequate protection of riparian areas we question the seemingly excessive width that is applied to these areas on the forest. The Final EIS should explain why the forest has chosen to exceed the Regional Guide direction on protection of riparian area vegetation and should clearly show the benefits, costs and tradeoffs of the width chosen including information on costs and benefits of other less constraining riparian widths.

Timber Inventory - (App., B-24, B-46) The discussion of resource tradeoffs among the Willamette's proposed alternatives should include information on the long-term effects of these alternatives on the timber resource. Data on the relationship between timber inventory, harvests and growth, as well as the changes over the planning horizon in the number of working group acres by age class for each alternative should be provided in the Final EIS. These reports are readily available from the FORPLAN model (Reports 10.6 and 10.8) and should be constructed to provide this information for suitable, tentatively suitable, and total forested lands.

Additional comments regarding the Willamette's timber inventory include:

1. Analysis area stratification was by five size classes rather than age class and site class. This may have lead to considerable underestimation of timber productivity potential on the forest.

2. The Willamette should consider using SPS to model yields for true fir and mountain hemlock types and for stands greater than 100 years of age. PROGNOSIS was used for these types, however, considerable manipulation is necessary to project the yields from true fir and mountain hemlock. PROGNOSIS is also not calibrated for the Oregon Cascades. SPS should be evaluated to see if it could better model yields of true fir and mountain hemlock.

3. Growth of managed stands was reduced beyond 100 years of age until, by age 140, they equalled the volume of existing 140 year old stands. Major problems with this procedure are that the empirical yield tables are not sensitive to stocking level changes and that yields will be severely underestimated. Modeling efforts with SW ORGANON and research by Franklin plus others leads us to believe that stocking levels in older stands can be manipulated to increase growth and that high growth rates in older stands is possible. With proper management, attainment of stand characteristics for which stands greater than 100 years are grown, can be assured while producing large volumes of timber.

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4. SPS will allow modeling of less than 300 stems per acre and stands with more than one tree species This would be useful in preparing prescriptions for riparian areas and other sites for which DFSIM is inappropriate.

5. It appears that reductions were taken for just about everything including unstocked holes in plantations. This is to account for localized, unstocked areas due to unsuited soils, soil compaction, disease, etc. However, reductions have already been made for unsuitable areas (which were not ground verified). There may be stockable as well as unstockable areas both inside and outside the base. It would therefore appear that a double reduction was taken. Further analysis, including field verification, should be conducted by the forest to better determine their unsuitable lands.

6. The plan states that 1973-1976 inventory is the most recent timber resource inventory. This is not accurate as the 1984-1986 PNW forest survey is currently available from the Experiment Station in Portland.

7. Timber was apparently classified by timber type but not by productivity classes. According to Timber Supply Assessment inventory files, approximately 18 percent of timberland on the Willamette is site class 2 or better with some 21 percent site class 5 or worse. Timber site productivity should have been an important factor in tradeoff analysis as well as for building yield tables.

We trust that the Willamette planning team will address these concerns in the Final EIS.

Data Base Development - (App., B-4) A grid mapping system, the Mt. Hood National Forest's version of R2Map, was used for geographic planning information. A one inch to the mile scale was used. While this is appropriate for general planning purposes, we would like to make sure that it was used appropriately for classification of land suitable for timber management. Was on-the-ground verification of unsuitable areas done, rather than using the stratification just pulled off the grid maps and entered into FORPLAN? As was noted earlier, additional analysis must be considered to determine the Willamette's unsuitable lands.

Recreation Use - (DEIS, III-96) If demand for dispersed recreation is expected to increase during the life of the plan, the Department of Forestry questions the forest's meager trail construction program consisting of only 2 miles of new trail annually. Some 154,000 acres are being proposed for unroaded status (67,000 acres remaining unroaded and 87,000 acres assigned to roaded but with no planned harvest for 15 years). The Department recommends that the forest

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reconsider its trail construction program by placing trails in areas which will have a minimal impact on both short and long term timber harvest levels. Some consideration should be given to replacing trails in high impact areas with trails in unsuitable unroaded areas.

We support the implementation of recreation plans that reduce the conflicts between recreation and timber production and that result in few negative impacts on the planned ASQ.

Geotechnical Methodology - (DEIS IV-3, App. B-61) A Department of Forestry geotechnical specialist has reviewed the Willamette National Forest plan to evaluate how mass soil erosion, surface erosion, and cumulative effects of soil movement were described and modeled. The "best management practices" to be used in road construction and timber harvesting were also reviewed (See Attachment 2).

From this review the following conclusions were reached:

1. The calculated erosion rates probably under-estimates actual background rates and erosion off less steep slopes while over-estimating the difference between the natural and the management induced rates.

2. Best management practices for silvicultural operations are discussed in detail while BMP's for the transportation network are discussed only in the most general terms.

Please consider the Department's detailed comments regarding geotechnical methodology found in attachment 2.

Road Management - (DEIS III-169, IV-165) The Willamette planning staff has failed to recognize the importance of a comprehensive road management program. Several discussions in the planning documents indirectly address this issue. The Department of Forestry supports a transportation policy which recognizes the importance of closing unneeded roads either seasonally or permanently. Cooperative road closure programs in other national forests in Oregon during hunting season have proven very successful. Benefits of such regulated road closures include:

1. An increase in the amount of effective wildlife habitat.

2. Improved animal hiding cover effectiveness.

3. More opportunities for high quality, semi-primitive hunting experiences.

4. Reduced conflict between timber and wildlife management.

DRAFT

5. Reduced road maintenance costs by reducing hunter traffic during wet fall months.

6. Reduced potential for adverse effects on water quality from forest road use.

The Department of Forestry encourages the Willamette to review other national forest programs on road closures, including discussions with Oregon Department of Fish and Wildlife, and thereby develop a more comprehensive road management program that is required to meet the needs of the public for both timber and wildlife.

The "No Change" Alternative - (DEIS, II-37) The addition of the "No Change" alternative by the Forest Service is an attempt to address the concerns raised by the Northwest Forest Resource Council in its appeal of the formulation of the "Current Direction" alternative. These concerns, many of which are also voiced by this Department, involved the legal adequacy of a "no-action" alternative that included new yield tables, a new land suitability analysis and the addition of MMR constraints.

The Department appreciates the efforts that the Willamette planning staff has made to provide a meaningful alternative which more adequately satisfies the requirements of NEPA and NFMA. The "No Change" alternative appears to be a compromise approach that presents a more accurate, unaltered historical reference for public review.

Research Needs - (LRMP, II-9) The Forestry Program for Oregon encourages research to improve forest productivity, the economics of intensive forest management, and to identify the habitat needs of old growth preferring wildlife. The Department of Forestry supports the research program outlined by the Willamette. In addition, we believe more research is needed to:

1. Develop new technology to return some of the 131,56 acres removed from the suitable land base because of regeneration difficulty back to timber management status.

2. Improve the knowledge of the wildlife species preferring old growth.

3. Improve the forest's capability to estimate supply and demand relationships for Willamette timber.

4. Further refine and improve the forest's timber yield tables.

5. Improve the knowledge of big game habitat needs.

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Monitoring and Evaluation - (LRMP, V) The Willamette's proposal for monitoring and evaluating the forest plan, once it is implemented, will be one of the most important sections of the planning documents. Chapter V in the LRMP, presents a fairly comprehensive monitoring and evaluation program for the forest. Several concerns, however, have surfaced from our review of this section.

1. When monitoring management indicator species (LRMP page V-II), what would happen if one or more of the species to be monitored increased, instead of decreased, in terms of the number of sites being occupied? The variability standards presented in the monitoring plan only measure declines in occupied sites. Would less stringent MMR levels be considered if an increase in occupied sites occurred?

2. While the monitoring plan measures changes in job numbers and returns to counties, a variability standard of 20 percent with a two year monitoring period are excessive. The economic and social disruptions resulting from a 20 percent reduction in job numbers and returns to counties would be unacceptable. This could be avoided if a narrower variability standard of 10 percent was used. This same standard should be used for all activities which affect community stability.

3. The Department recommends that personal income also be evaluated under section 10 of the monitoring plan.

4. Finally, it is unacceptable that the decision to amend or revise the plan be based solely on a subjective judgement by the forest supervisor. For each monitored activity, specific actions should be identified which will take place if the threshold of concern is exceeded. For example, if the appropriated budget for the forest prevents the Willamette from providing at least 90 percent of the allowable sale quantity (ASQ) proposed by the plan, the monitoring program should describe the plan amendment or revision process that will be implemented.

Overall, we commend the forest on developing a monitoring and evaluation program which will continually measure the output levels and make changes to the plan when necessary. Funding for this important program should be given a high priority by the forest.

ATTACHMENT 1

Source: Preliminary draft by
Kent Connaughton for
the Forestry Program for
Oregon technical assessment
1988

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SUMMARY

1. None of the DEIS alternatives fully meet the objectives of the Forestry Program for Oregon. However, we find that Alternative B-dep performs the best in this comparison. The potential exists for the Willamette to craft an alternative, not presented in the DEIS, that fully satisfies the FPFO objectives and provides a balance of resource uses, benefits and values.

2. The forest plan should demonstrate closer coordination with Department of Forestry programs, particularly in the areas of fire management and riparian area protection.

3. Planning assumptions and decisions on the subjects of unsuitable lands, unroaded areas, riparian areas protection, minimum management requirements, snag management, visual management, harvest cutting methods, and harvest scheduling all have a direct effect on timber output levels. These assumptions and decisions require additional discussion and potential revision in the Final EIS.

4. Shortcomings in the Willamette's economic analysis have likely distorted the costs and benefits associated with the DEIS alternatives. In particular, the assumptions on timber supply and demand may be underestimating the importance of the outputs from the Willamette National Forest to Oregon's economy.

5. Additional information should be provided in the Final EIS in the areas of old growth habitat, timber management tradeoffs, timber inventory, existing forest plan output levels, research needs, and the Willamette's monitoring and evaluation program.

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GEOTECHNICAL REVIEW OF THE
WILLAMETTE NATIONAL FOREST
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Keith Mills, Geotechnical Specialist, PE
Oregon State Department of Forestry
Forest Practices Program

February 12, 1988

The purpose of this review is to evaluate the geotechnical methodology found in, and used in development of the Willamette National Forest Proposed Land and Resource Plan, and Draft E.I.S. This methodology includes: the descriptions and models of mass and surface erosion, the Best Management Practices for the transportation network, and silvicultural harvesting operations, and the description of cumulative effects. This review covers the plan, appendices, and other relevant literature and data available to the forest which deal with geotechnical problems.

The erosion rates for the various alternatives were based mainly on empirical data from the H. J. Andrews experimental forest. Little data from the rest of the Willamette National Forest was available for calculation of relative erosion rates, either for suface erosion, or mass movement (landsliding). Cumulative effects were based on watershed "sensitivity" and hydrologic "recovery", and in general were treated by dipersion of disturbing practices.

Surface erosion rates are based on 9 studies, 8 of which were conducted in the Andrews Forest. The hazard is based on slope only, with three classes: 0 to 30 percent, 30 to 60 percent, and over 60 percent. Erosion rates were assumed to be at the high level for ten years after timber harvest. Most other models of surface erosion have concentrated on soil physical properties. Although slope is very important for calculating erosion rates from dry ravel, gullying and other water related surface erosion are more dependent on soil texture, and whether or not the soil is compacted. The surface erosion rates used by the forest apparently do not reflect gully type erosion, which can have the most severe impacts on soil and water resources. It is unlikely that erosion rates will remain at the same elevated level for ten years after harvest, as revegatation will substantially reduce erosion rates usually within 2 or 3 years after harvest.

An apparent error was noted in figure B-C-10, where the background erosion rate was shown to be 4.7 x 10 yd^3/acre/yr. This is very high, and the 10 should have some negative exponent, which was probably left off.

Lands are put into three cateogories for mass erosion hazard: stable, moderately stable, and potentially unstable. These classes are based on slope and hardness of bedrock. Background mass erosion rates in forested, harvested, and roaded land were based on a small air photo inventory with very limited on-the-ground surveying. Such an inventory has the following problems:

- o An air photo inventory is biased against landslides hidden under forest cover, and
- o road failure erosion rates are based on older practices, and probably over-estimated failure erosion rates with current Best Managment Practices.

There are many large earthflow type or complex landslides in the Western Oregon Cascades. Most of these large slides are natural, they are generally found on slopes under 40 percent, and the movement rates of such large slides are not greatly affected by management practices. Nowhere are such landslides considered in the EIS, neither in the calculation of background erosion rates, or discussion of BMP's for large slide areas. The mass erosion rates are calculated mainly for debris slide type mass movements.

Cumulative effects are nowhere defined, though there is still a section describing possible effects and mitigation stratigies. Basins are assigned ratings of unlikely, possible, or probable for cumulative effects. The section which describes cumulative effects, pages IV 29-36, is confusing, with little apparent direction. Dispersion of activities is recommended as the principal practice to reduce cumulative effects. Dispersion does make sense, at least in the planning stage. Cumulative effects should also be tied to the monitoring program, and should consider such activities as road or management site construction, and also have provisions for unexpected problems, such as large landslides, which could lead to cumulative effect problems.

Silvicultural best management practices are described in detail, especially those practices which tend to reduce accelerated rates of surface erosion. These include: burning intensity, limitations on ground disturbance and compaction, revegetation standards, and reforestation techniques. These practices as described meet or exceed all accepted BMP's for prevention of surface erosion. The transportation network (roads), however, is much more likely to affect erosion rates than are silvicultural practices, especially the rate of mass erosion (landslides). Road design, construction, and maintenance practices are only described in the most general terms. Actual road related BMP's as actually implemented on the forest are of very high standard, but these practices are not described in sufficient detail in the plan.

The interdisciplinary term which prepared the Willamette National Forest Plan did not include a geotechnical specialist (geotechnical engineer or engineering geologist). The forest has an excellent geotechnical staff, probably the best of any forest in the country. Why none of them were included on the team is not clear. The descriptions of BMP's related to the transportation network, now incomplete, could have easily been prepared by a geotechnical specialist. The description of mass erosion, and determination of mass erosion effects, would also have been enhanced by a geotechnical professional.

The specific practices for review of road P-lines, utilization of slope stabilization structures, and control methods for actively moving landslides should be included to some degree in the plan.

The lands unsuitable for timber production, especially the unstable lands considered unsuitable, are not described in the plan itself. The 42,000 "unstable" acres removed from the timber base are described in the "Timberlands Suitability Study", conducted by the forest soils scientist. I did not review this study.

Conclusions:

1. The calculated erosion rates probably under-estimate actual background rates, and erosion off less steep slopes, and over-estimate the difference between the natural and the management induced rates. This is because:

   - o The surface erosion data does not consider soil physical properties, only slope, which measures mainly dry ravel and not rilling or gullying;
   - o The mass erosion data is based mainly on debris slides, and not earthflows or complex slides common in Oregon Cascades.
   - o The aerial photo data to establish background rates of mass movement probably did not detect all landslides covered by a canopy of trees.
   - o The rate of landslides from roads may be high, as those failures were generally on roads constructed under old practices (sidecast, etc.) which have now been improved.

2. Best management practices for silvicultural operations are discussed in detail, while BMP's for the transportation network are only discussed in the most general terms.

3. No geotechnical specialists were included on the interdisciplinary team. Description of possible mass movement problems, and BMP's for mitigation and control of these problems, would have been more reliable had there been more geotechnical input during the planning process.

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STATE OF OREGON INTEROFFICE MEMO

TO: Norm Johnson, Federal Plans Coordinator

DATE: March 16, 1988

FROM: Bill Young, Director
Water Resources Department

SUBJECT: Comments on the Willamette National Forest Draft Environmental Impact Statement and Land and Resource Management Plan

In response to the Governor's Executive Order on federal forest plans, the Water Resources Department offers the attached comments.

In general, the Willamette National Forest has done an outstanding job of presenting water resources data and issues. The Forest provided readers with a thorough analysis of the effects of forest management practices on watersheds; arrayed specific information on current watershed and stream conditions; identified watershed sensitivities; analyzed cumulative effects; recognized the importance of forest watershed management to downstream water users; and afforded rigorous protection to riparian areas.

The attached comments suggest additions that should complement the Forest's commendable effort. Generally, the comments focus on the following points:

1) Use of Water Resources Commission basin programs for determining state priorities for protection of streams and watersheds.

2) The need to make achievement of hydrologic stability a Forest goal for all watersheds.

3) The level of water resources protection afforded by the Forest Service preferred alternative.

We appreciate having this opportunity to comment. If you have any questions regarding our comments, please contact Rick Bastasch at 378-3671.

Attachments:
1. Comments
2. Minimum Streamflow Drainage Map
3. Mid-Willamette Basin Program
4. Upper Willamette Basin Program

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COMMENTS ON WILLAMETTE N.F. DEIS & LRMP

The Water Resources Department has organized its comments into three sections:

I. Comparison of DEIS & LRMP with Agency Policies and Programs
II. Suggestions for Improving the DEIS
III. Assessment of Forest Service Preferred Alternative
IV. Attachments

I. Comparison of DEIS & LRMP with Agency Policies and Programs

The Water Resources Commission is charged by Oregon law with formulating integrated, coordinated programs for the use and control of water resources of the state. These programs are tied to river basins and designed to encourage the beneficial use and control of water resources, as well as the development of additional water supplies.

The Willamette National Forest is drained by two major river basins the state has defined for water management: the Mid and Upper Willamette Basins. The Mid Willamette basin includes the Santiam drainage. The Upper Willamette basin includes the McKenzie and Middle Fork Willamette drainages. The Commission has adopted programs for both basins. These programs are an assessment of the importance of various waters to the state. As such, they should be consulted in the formulation of any plan that might affect water resources — including the Willamette National Forest DEIS and LRMP.

A. The Mid Willamette Basin Program

In summary, the state, through the Mid Willamette program, places a high value on instream uses in the Santiam drainage. The program acknowledges the importance of irrigation, but emphasizes the outstanding values associated with the drainage's recreation potential, anadromous fishery, and low water temperatures. In recognition of these values, the state protected selected streams through restrictive classifications and minimum perennial streamflows.

The Commission restricted the following streams (and all their tributaries) and all natural lakes in the Mid Willamette basin above 2,000 feet for primarily recreational purposes (instream and low-consumption uses):

- Little North Santiam River and Henline Cr. above their confluence.
- Wiley and Little Wiley Cr. above their confluence.
- Breitenbush River.
- Calapooia R. above Bigs Cr.
- North Santiam R. above Tunnels Cr.
- Middle Santiam R. above Green Peter Reservoir.
- Quartzville Cr. above Panther Cr.
- South Santiam R. above Trout Cr.

In 1987, the state also designated the Little North Fork of the Santiam, from Battle Ax Creek to the Forest boundary, as a scenic waterway.

In addition, the Commission has established minimum perennial streamflows in proximity to the National Forest to protect instream uses in the following streams:

- Calapooia R. above gage 14172000 at Holley.
- South Santiam R. above gage 14185000 below Cascadia.
- Middle Santiam R. above gage 14186500 near Foster.
- Wiley Cr. above the mouth.
- North Santiam R. above gage 14178000 near Detroit.
- North Santiam R. above gage 14181500 at Niagara.
- Little North Santiam R. above gage 14182500 near Mehama.

B. The Upper Willamette Basin Program

The state, through the Upper Willamette Basin program, acknowledges the importance and need for irrigation. Major emphasis in the program, however, is given to recreational, municipal, and fisheries uses. In the Middle Fork Willamette drainage, for example, the Commission found that many streams have insufficient flow for nonconsumptive uses during summer months. Recreation was found to be an important, and growing, use. Maintaining minimum perennial streamflows was given a high priority.

In the McKenzie River drainage, the Commission also recognized water shortages for instream uses and the importance of water-based recreation. The McKenzie River was termed a superior natural recreation attraction. The benefits of municipal water use were found to be significant. The importance of the drainage's fishery resources, both resident and anadromous, was noted. Finally, the Commission found that the most important use of the Upper McKenzie was for recreation and fish and wildlife purposes.

In recognition of these findings, the state has protected selected streams through restrictive classifications, scenic waterway designations, and minimum perennial streamflows. Waters that are restricted to recreation, instream uses, and low-consumption uses include:

- The McKenzie River from Clear Lake to rivermile 84.5.
- The waters of Salt and Salmon Creeks and their tributaries.
- All natural lakes in the Middle Fork Willamette and McKenzie River drainages.

The state has also designated Waldo Lake and the North Fork of the Middle Fork Willamette above Westfir as a state scenic waterway.

In addition, the following minimum perennial streamflows have been established on streams in proximity to the National Forest to protect instream uses:

- South Fork McKenzie River at mouth.
- Blue River at mouth.
- McKenzie River at USGS gage 14162500.
- Gate Creek at mouth.
- Middle Fork Willamette R. above N. Fork.
- North Fork of the Middle Fork Willamette at mouth.
- Little Fall Cr. at mouth.
- Fall Creek at mouth.

C. Significance of State Water Use Programs

The programs cited above were originally formulated nearly 25 years ago. However, they are largely topical, having been amended from time to time in recent years. The Water Resources Department will begin a major new study of the entire Willamette basin this spring. The resulting programs, although substantially different in format, will probably still emphasize instream values for the drainages of most concern to the Forest. New programs, such as that for the John Day River Basin, place a greater emphasis on riparian protection, watershed enhancement, and water management than older programs.

The values recognized and protections afforded in the Mid and Upper Willamette programs, along with the direction established by the John Day program, form the basis for this agency's review of the Willamette National Forest DEIS and LRMP.

Because water use programs are the means by which the state assesses its water resources, they should be consulted during forest planning. These should be cited on DEIS p. IV-36 under "Relationships with Other Agency Plans or Policies for Water."

The DEIS should indicate that nearly all Forest Service lands contribute to minimum streamflow points in proximity to the Forest. (See map in attached materials.) In addition, those streams identified by the state for special protection should be referenced. In short, the streams and drainages protected under basin water use programs should serve as a red flag for forest planners and the public. Land allocations and proposed forest actions in these areas warrant increased scrutiny.

II. Suggestions for Improving DEIS

A. Hydrologic Recovery and Dispersion Constraints

The hydrologic recovery concept forms the basis for much of the Forest's watershed analysis. Unfortunately, the concept is elusive, for it represents a shifting areal proportion based on watershed sensitivity. In addition, the concept implies, but does not require, harvest dispersion constraints.

For example, the explanation of hydrologic recovery on DEIS p. IV-26 needs to be simplified. The relationship between the "transient snow zone", "harvest units", and "subdrainages" is unclear, especially since the discussions that follow apply the concept to watersheds.

Perhaps the replacement of "recovery" with "stability" would be less confusing. The following two paragraphs are offered only as examples of how the discussion might be simplified:

"Watersheds in natural condition have characteristic run-off patterns. Generally, they absorb more water, and release it more slowly than disturbed watersheds. Disturbances can be either natural, such as forest fires, or human-caused, such as roads and clear-cuts. Research on the Willamette National Forest has shown that, depending on watershed sensitivity, when 20 percent or more of a watershed is in a disturbed condition, the natural hydrologic balance is upset: peak streamflows increase both in volume and frequency. This damages stream channels, riparian areas, and forest facilities such as bridges and roads.

The Forest has developed a system to assess hydrologic stability based on watershed sensitivity and the percentage of watershed disturbance. On the Willamette, an area is considered disturbed if it has been logged in the last 25 years or if the trees are smaller than eight inches in diameter. A highly sensitive watershed is hydrologically stable if only 20 percent or less is disturbed; a medium sensitivity watershed is stable if 25 percent or less is disturbed; a low sensitivity watershed will remain stable if 30 percent or less of its area is disturbed."

If this interpretation is correct, then it appears that the dispersion constraints necessary to achieve or maintain hydrologic stability are 20, 25, and 30 percent for high, medium, and low sensitivity watersheds, respectively. However, these dispersion constraints are never enunciated. A listing of the watershed dispersion constraints the Forest will operate under should be provided.

Moreover, it is not clear whether the Forest intends to achieve or maintain hydrologic stability in its watersheds. Figure IV-2-8, DEIS p. IV-28, suggests it does not —anywhere from five to 13 watersheds drop below threshold stability levels, depending on the alternative. This figure seems at odds with: 1) the statement on DEIS p. IV-16, "None of the Alternatives exceed 20 percent harvest per decade in drainages larger than 40 square miles..."; and, 2) the statement on DEIS p. III-17 indicating the "Forest established a management consideration that watersheds should be maintained at approximately 75 percent hydrologic maturity..." Figure IV-2-12, DEIS p. IV-34, shows that some watersheds in the forest drop below this level in each alternative.

Maintaining the hydrologic stability levels of forest watersheds should be a goal of forest management under all alternatives. As such, it should be included under the goals section on DEIS p. II-34. Rephrasing the second water resources goal as found on LRMP p. IV-2 presents another opportunity for incorporating hydrologic stability into forest planning: Decrease peak

flows and increase low flows by achieving the hydrologic stability level of forest watersheds.

If the Forest objects to maintaining hydrologic stability levels, perhaps it could design an alternative around hydrologic stability. This would allow an analysis of the costs associated with managing watersheds for less than their hydrologic potential.

B. Watershed Analysis and Cumulative Effects

The Forest developed an impressive approach to assessing hydrologic cumulative effects of forest activities. Watershed sensitivity and hydrologic stability offer sound measures for evaluating the levels of protection that should be assigned. Unfortunately, the Forest does not seem to link this approach with its activity planning. In short, the Forest does not operate under the constraints it has taken so much time to develop. . .

This is illustrated by the existence of watersheds that will probably experience declines as a result of cumulative effects. Watersheds assigned "probable" cumulative effects ratings will experience management-induced declines in beneficial uses levels should they experience a 10 to 20 year rain-on-snow event (DEIS, p. IV-31). Because the forest planning cycle is 10 to 15 years, it is very likely declines will take place for each watershed rated "probable". According to Figure IV-2-10 (DEIS, p. IV-32), this means anywhere from four (Alternative C) to 14 (Alternative B-Dep) watersheds will experience some level of deterioration. The four affected watersheds under Alternative C account for 121 square miles; the 14 under B-Dep account for about 1200 square miles; the 11 under the preferred alternative (J) account for around 850 square miles. That one-third of the Forest's watershed area is vulnerable to management-induced declines under the preferred alternative seems inappropriate.

The Quartzville Creek, Wiley Creek, Quartz Creek, and Winberry Creek watersheds are targeted for decline under all alternatives. The North Fork Middle Fork Willamette River will probably decline under all except Alternative C. These watersheds all contribute significantly to minimum perennial streamflows. All but Winberry Creek are listed as municipal sources on DEIS p. III-24. [Winberry Creek is noted, however, as supporting an important population of wild winter steelhead (DEIS, p. III-28).] In addition, the North Fork is a state scenic waterway. Given the importance of these waters to the state, and the sensitivities of the watersheds, not providing for their protection under any alternative seems unwise. The Forest should plan to protect or improve important watersheds, not schedule their deterioration.

Another perspective on the need for forest watershed protection is offered by an analysis of the minimum perennial streamflow watersheds listed previously in the Mid and Upper Willamette Basin Program sections. The table below displays characteristics of these watersheds:

Minimum Flow Point	Est. % of Subb in Forest	Municipal Use (DEIS, p.III-24)	Associated with High Sensitivity Watershed (DEIS, p. III-31)	Probable Cumulative Effects in Preferred Alternative (DEIS, p. IV-32)	High Level of Habitat Investment (LRMP, p. IV-3)	State Scenic Waterway
Little N. Santiam at mouth	50	X				X
N. Santiam abv gage 14181500	90	X	X	X		
N. Santiam abv gage 14178000	100	X				
N. Santiam abv gage 14166500	40		X	X		
S. Santiam abv gage 14185000	75	X				
Wiley Cr. at mouth	10	X	X	X		
Gate Cr. at mouth	35		X	X		
Blue R. at mouth	95					
S. Fk. McKenzie at mouth	100					
McKenzie R. at gage 14162500	95	X			X	
Little Fall Cr. at mouth	20		X	X		
Fall Cr. at mouth	60		X	X	X	
N. Fk. M. Fk. Willamette	100	X	X	X		X
M. Fk. Willamette above N. Fk.	100	X	X	X		
Calapooya R. abv gage 14172000	10					

The table suggests a range of management caution. Those watersheds with the greatest area under Forest Service management and with the most elements checked warrant a high level of protection. It is apparent that at least the following qualify for such protection: N. Santiam above gage 14181500, Fall Creek at the mouth, N. Fk. of M. Fk. Willamette at mouth, and M. Fk. Willamette above N. Fk. This list is not exclusive — other watersheds may also require elevated protection levels. Some of these are discussed elsewhere in these comments.

In summary, cumulative effects are more than merely theoretical scenarios. They have real costs to forest resources and water users including siltation of Corps of Engineers flood control projects, loss of anadromous and resident
fish habitat and water flows, and increased
water treatment by municipal users. The hydrologic stability constraints developed by the Forest need to be recognized, perhaps as baseline protections onto which alternatives could be constructed.

C. Roads

The Forest has documented the effects of roads on water quite well. With over 6,360 miles of road (DEIS, p. II-101), the Willamette National Forest's road density is about 2.4 miles per square mile. About 39 percent of Class I
through III streams are in or adjacent to harvest units or roads (DEIS, p. IV-17). Roads contribute to peak flows by increasing the miles of effective channel in watersheds (DEIS, p. IV- 25). Nearly 80 percent of the landslides that occurred during the 1964 flood were associated with logged areas or roads (DEIS, p. III-15). Landslides from roads have serious consequences on water quality and fish habitat (DEIS, p. III-16). Over 70 percent of landslides enter streams (DEIS, p. III-16).

On p. IV-23, the DEIS states that mass wasting will not decline because of the acreage harvested and the miles of road built from 1966 to 1986. Although "99 percent" of the proposed arterial and collector road network has been completed (DEIS, p. II-101), the road system will continue to expand during the planning period (DEIS, p. IV-165). This expansion is largely attributable to the construction of local roads. It is apparent that roads will continue to affect water resources significantly.

In view of these impacts, the Forest should be more explicit about mitigation. For example, a discussion of a road closure program might be helpful. Road closure might include obliteration or partial seeding. Although road closure might not always be advisable (due to road materials, future forest management needs, and need for hydrologic maintenance [culverts, for instance]), there may be opportunities to reduce impacts from past mistakes.

Similarly, the mitigation by road design described on DEIS p. IV-37 should be included as standards and guidelines, LRMP p. IV-57.

D. Riparian Areas

Riparian areas appear to be afforded a high level of protection by the Forest. Timber harvest in Class I and II riparian areas is restricted from 0 to five percent per decade (200 year rotation), depending on alternative. Rates in Class III riparian areas are held to seven percent (143 year rotation). Unstable Class IV riparian areas are also protected (LRMP, p. IV-63). The amount of riparian area set aside for special treatment is constant (63,360 acres) from alternative to alternative.

It would be worthwhile in the DEIS to summarize the riparian area standards found in the LRMP. For example, the DEIS references a 90 percent figure for riparian area large-woody debris potential (DEIS, p. IV-19). It is not apparent that this derives from a more important protection — namely, constraints that mandate 90 percent of riparian areas associated with Class I through III streams be maintained in a recovered condition at all times (LRMP, p. IV-62). Similarly, the restricted harvest areas within riparian areas (LRMP, pp. IV-62,63) deserve a higher profile in the DEIS, p. IV-19.

Class IV streams account for nearly 85 percent of the total channel length in the Willamette National Forest. Protection is given only to those reaches that currently exhibit unstable conditions (LRMP, p. IV-63). Although intermittent streams do not support the beneficial uses of Classes I through III, cumulatively they may provide benefits through flood-flow storage and erosion protection. The Forest should consider some level of protection for these streams, as well.

Apparently riparian areas account for less than four percent of the Forest's land area. Figure IV-D-22, LRMP p. IV-36, suggests that timber in riparian areas, if logged, would provide on the order of 6 percent of the annual ASQ. These figures invite the question, what is foregone and what is gained by not harvesting at all in riparian areas? Developing an alternative to answer this question would be a valuable supplement to the DEIS.

Lastly, the Forest might consider elevating its riparian special treatment areas to management areas. Riparian Management Areas would serve to clarify proposed land allocations and help emphasize the protection the Forest Service is providing. A management area approach to riparian resources might also be more appropriate for forest modeling.

III. Assessment of Forest Service Preferred Alternative

The preferred alternative appears to threaten existing water uses both on- and off-Forest: "Fish hatcheries and potable water users downstream may be required to increase the amount of water treatment, or limit their use to fewer nonturbid periods under the preferred alternative." (DEIS, p. IV-25)

Watershed protection levels, levels of forest management activities, and monitoring effectiveness give cause for concern that water resources are not afforded sufficient protection under the preferred alternative. These concerns are documented below.

A. Comparison of Preferred to Other Alternatives

The Forest Service preferred Alternative (J) will be evaluated, in part, through a comparison with other selected alternatives. As a general comment in comparing alternatives, any alternative which proposes the least disruption to natural forest systems would probably have the greatest benefit for water quantity and downstream use.

The alternatives that help lend perspective to the land allocations and resource outputs in J are: Alternative C, with a non-market resource emphasis; Alternative F, the alternative which "would most closely continue the current blend of Forest management activities" (DEIS, p. IV-21); and Alternative I that emphasizes timber production.

Alternative C poses the least risk to the Forest's water resources. Under C: no harvest would be allowed in Class I and II riparian areas (DEIS, p. IV-18); erosion is held to the lowest level of any other alternative (DEIS, p. IV-22); the rate of landsliding is expected to decline (DEIS, p. IV-23); the harvest on unstable soils would be reduced by 32 percent over that projected under the current direction [Alternative F] (DEIS, p. IV-23); the least number of watersheds and the smallest area of any alternative would be in the "probable" cumulative effects category (DEIS, p. IV-32); and the forest would experience the highest level of hydrologic stability (DEIS, p. IV-34).

Nevertheless, under Alternative C: erosion is still elevated by 34 percent over natural background levels (DEIS, p. IV-21); timber harvest will take place on over 8,500 acres of potentially unstable soils (DEIS, p. IV-23); and six watersheds are put at risk of peak streamflow increase (DEIS, p. IV-27). Thus, although C poses the least risk to water resources of any other alternative, it still could significantly affect streams and watersheds.

Alternative I poses the most risk to water resources of any non-departure alternative. It entails harvesting on nearly 16,000 acres of unstable soils; produces 56 percent in excess of natural background erosion rates; drops 13 watersheds below threshold hydrologic stability levels; and places 11 watersheds in probable risk of cumulative effects.

The preferred Alternative will increase the following over levels projected under Alternative F, the current management direction:

Quantity	Amount of Increase
First Decade ASQ	51 MMBF per year
Percent of forest in "probable" watersheds	13 percent
Erosion	20,000 Cubic Yards (4%)
Harvest on unstable soils	2,200 acres
New Road Mileage through Decade 5	84 (13% over present)
First Decade Clearcuts	1200 acres

Thus, J clearly increases risks to water resources in comparison to how the Forest is currently managed.

Generally, the preferred alternative more closely resembles Alternative I (timber) than it does F (current). For example, its level of harvest (ASQ), budget, returns to federal government, erosion level, harvest on unstable soils, and percent of forest in "probable" watersheds (to list a few) are similar to levels proposed in I.

Water resources protection trade-offs increase from Alternatives C through I. These trade-offs involve increased harvest, and therefore reduced hydrologic stability. The increased harvest results from decreasing allocations for dispersed recreation (no harvest) areas, scenic retention areas, and wildlife protection areas. Much of the change between alternatives appears concentrated in the Santiam drainage. Protections afforded the southern half of the forest, while changing in size, are geographically similar. This suggests that as land allocations move from resource-protective alternatives to timber production alternatives, the Santiam drainage will be most at risk.

In summary, of the alternatives presented, C provides the greatest water resource protection. The preferred alternative, J, would increase the risk of water resource injury above current levels (as represented in Alternative F.)

Alternative J is quite similar to the timber harvest emphasis alternative, I. Alternative F offers more protection than J while also providing a relatively high level (87 % of J) of timber production. If the Forest is driven to compromise water resource protection, Alternative F would be preferable to J.

B. Watershed Comments

Under the preferred alternative, at least 39 percent of the National Forest would be in a hydrologically unrecovered (less than 75 percent of area in trees 8 inches or greater in diameter) condition (DEIS, p. IV-34). This is not in accordance with the management consideration described on DEIS p. III-17 which states that watersheds will be maintained at 75 percent hydrologic maturity.

In LRMP Appendix C, the Timber Sale Ten Year Action Plan, the Forest should indicate each timber sale's watershed. This information, which was provided by the Forest to the Water Resources Department, is very valuable. For example, it discloses the following regarding selected watersheds:

Watershed	Area (sq.mi.)	Clearcut (Acres)	New Roads (Miles)	Percent of Watershed in Rds. & Clearcuts
Quartzville Cr.	56	6052	44.7	17.2
Wiley Cr.	5	411	2.5	13.0
Quartz Cr.	25	1638	4.0	10.3
Winberry Cr.	35	2937	34.2	13.5
Hills Cr.	65	6628	40.3	16.2

All of the watersheds above are classified as sensitive (DEIS, p. III-31). Therefore, the recommended hydrologic stability level is about 80 percent — or roughly 20 percent in an immature, or cleared, condition. These watersheds are scheduled for a harvest level that approaches the threshold of concern. When the scheduled acreage is added to existing acreage in an unrecovered condition, in many cases the threshold would be exceeded.

This, in part, probably led the Forest Service to list these watersheds as having probable cumulative effects. But displaying the information explicitly provides reviewers a far better understanding of the forest activity the plan proposes. For example, harvesting 411 acres in Wiley Creek, an erosion-prone watershed with a minimum streamflow and municipal use, seems inappropriate. Why risk damage for 411 acres? The Forest should consider not programming any harvest in the Wiley Creek watershed.

The LRMP would place 11 watersheds (843 square miles) at risk of probable cumulative effects (DEIS, p. IV-32). As previously stressed, it seems inappropriate for the Forest Service to schedule the deterioration of its watersheds. Achieving hydrologic stability in forest watersheds should be a goal of the forest plan. An explicit array of forest activity information by watershed, along with the volume or value of timber in each, would provide a valuable yardstick by which to measure the costs of achieving hydrologic stability. The Forest Service should provide this information.

C. Riparian and Soil and Water Improvement Comments

On DEIS p. III-29, 13 watersheds are listed as having channel instability or sediment problems. Because no watershed or stream name information is

displayed, it is difficult to tell from inspecting Figure D-7 (Soil and Water Habitat Program Schedule, Appendix D-18, LRMP) how much work is scheduled for these watersheds. About 500 acres are scheduled for improvement according to Figure D-7. Without knowing the total number of acres identified in the Soil and Water Improvement inventory, it is hard to gage how well the proposed actions address watershed problems. The total number of acres identified through the Forest's Soil and Water Improvement Inventory should be displayed. In addition, watershed, stream name (where appropriate), and project description (erosion control, riparian rehab, etc.) should be provided in Figure D-7 (similar to that information provided in Figure D-9, Engineering Program Schedule).

Over 80 percent of the soil and water habitat improvement is scheduled for completion in the first three years of the plan. Over 50 percent takes place in the second year alone. Does this imply that some target is being achieved? Or is the schedule shown in Figure D-7 dependent on K-V funds and therefore reflect the level of timber harvest?

LRMP p. IV-12 states that "the amount of work accomplished will be dependent on funding availability as well as the occurrence of catastrophic flood events." Although this funding uncertainty will doubtless always be present, without further explanation it sounds like a loophole. In the goals section (LRMP, pp. IV-2,3), the Forest should state that rehabilitation of inventoried degraded sites is a high priority and will be pursued aggressively under any funding environment.

Riparian harvest seems out of balance with riparian management prescriptions. On LRMP p. IV-36, Figure IV-D-22 shows that over 300 MMBF will be harvested from riparian areas in the first decade. If only 10 percent of riparian areas can be in a harvested condition at any given time (LRMP, p. IV-62), then about 6300 acres are available for harvest from riparian areas. This quantity is reduced further by additional protections displayed on LRMP pp. IV-60 to 63. Is removing approximately 30 MMBF annually from less than 6300 acres likely?

C. Monitoring Comments

The Information Needs section (LRMP, p II-9) should include water quantity as an element in determining cumulative effects of timber harvest and road construction. The section should also list the research need mentioned on DEIS p. IV-16 —namely, what effect would larger stands of more vigorous trees have on net transpiration and water availability?

It is commendable that the Forest plans to monitor water quality on Class I and II streams and riparian area conditions. However, less than one-tenth of one percent of the projected first decade annual budget (DEIS, p. II-123) will be allocated to the monitoring effort. It would seem that, given the importance of water quality and riparian areas, greater attention in terms of staff resources is warranted. It is essential to determine as soon as possible if the Forest plan is providing the water resources protection intended. With a larger water monitoring budget, this determination could be made sooner. Also, with additional resources the reliability of

measurements might improve beyond the expected "low" levels as displayed in Figure V-C-1.

As mentioned elsewhere in these comments, the monitoring plan also offers an opportunity to address some of the information needs listed on LRMP p. II-9 or DEIS p. IV-16. In addition, an explicit delineation of Forest water quantity monitoring efforts would be appropriate in the monitoring plan section.

Municipal use should be added to the list of forest-dependent water uses on LRMP p. III-4. DEIS p. IV-25 states: "Though public supply watersheds are examined frequently for adverse impacts, they receive the same harvest intensities as do non-supply watersheds." If the sole caution applied by the Forest in protecting municipal supply is timing of examinations, the frequency of inspection should be explicitly stated in the monitoring plan (LRMP, p. V-8 to 22).

IV. Attachments

The following are attached:

A. Mid Willamette Program
B. Upper Willamette Program
C. Map of Minimum Streamflow Basins

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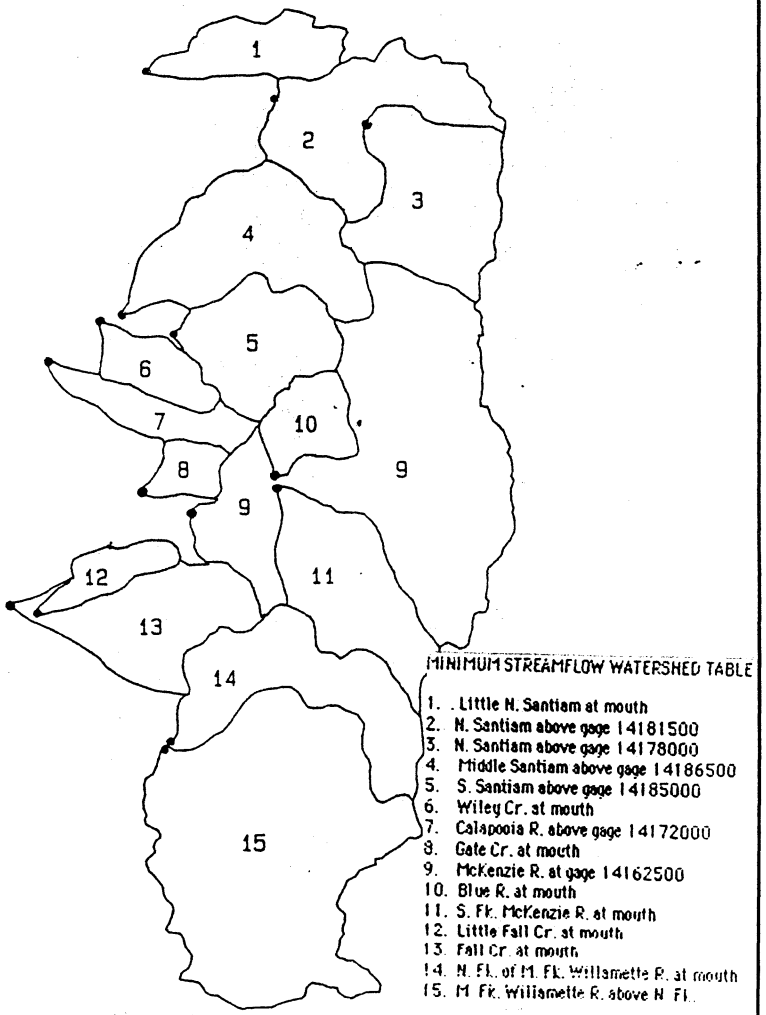
MINIMUM STREAMFLOWS & SUBBASINS

OF INTEREST TO THE WILLAMETTE NATIONAL FOREST

(scale same as that on DEIS p. III-19, basins approximate)



MINIMUM STREAMFLOW WATERSHED TABLE

1. Little N. Santiam at mouth
2. N. Santiam above gage 14181500
3. N. Santiam above gage 14178000
4. Middle Santiam above gage 14186500
5. S. Santiam above gage 14185000
6. Wiley Cr. at mouth
7. Calapooia R. above gage 14172000
8. Gate Cr. at mouth
9. McKenzie R. at gage 14162500
10. Blue R. at mouth
11. S. Fk. McKenzie R. at mouth
12. Little Fall Cr. at mouth
13. Fall Cr. at mouth
14. N. Fk. of M. Fk. Willamette R. at mouth
15. M. Fk. Willamette R. above N. Fk.

BEFORE THE WATER POLICY REVIEW BOARD

OF THE

STATE OF OREGON

In the matter of formulating an integrated, coordinated program for the use and control of the water resources of the Middle Willamette River Basin	)))))	Middle Willamette River Basin August 2, 1985*

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Middle Willamette River Basin as delineated on State Water Resources Board Map, File 2B. 70146;

WHEREAS results of this study have been published in the State Water Resources Board Report, Middle Willamette River Basin, dated June 1963;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 through 536.340 has undertaken further studies of the development of the water resources of the Middle Willamette River Basin; and

WHEREAS as a result of those studies the following findings and conclusions were reached by this Board:

1. Total quantities of surface water on an average annual basis are adequate to meet existing and contemplated future needs for water.
2. There is insufficient surface yield during low-flow periods to meet present demands in many areas, and to meet future demands in most areas.
3. The ground water resource is inadequate in both quantity and quality in many areas to meet existing needs.
4. Augmentation of water supply during low-flow periods can come through storage of surplus runoff or the implementation of other measures.

* Modifies Middle Willamette River Basin Program dated June 22, 1964.

5. There are large quantities of unappropriated water which come under the jurisdiction of the Water Policy Review Board, the exact amount of which is undetermined.

6. There is an urgent need to adjudicate claims for the waters of the Upper, Middle, and Lower Willamette Basins to permit identification of unappropriated water, to relate the supply to both legal and actual use, and to permit proper planning for development to meet future needs.

7. Power claims at Willamette Falls, which date back to 1852, total about 30,000 cubic feet per second. This is equivalent to about 21 million acre-feet on an annual basis which is slightly more than the total average annual yield of the Upper and Middle Willamette Basins. There will be a cloud on all water rights issued subsequent to 1852 until these power claims are adjudicated.

8. Domestic, livestock, and wildlife uses, while important, represent comparatively small quantities of water in existing and contemplated future needs.

9. Municipal use is and will continue to be one of the major consumptive uses of water. Supply sources generally are adequate and many municipalities have obtained water rights for future expansion.

10. Normal precipitation during summer months is not sufficient in the Middle Willamette Basin to attain maximum crop production. Irrigation is required for some crops to realize maximum benefit from the land.

11. Irrigation is the major consumptive use of water and there are large areas of potentially irrigable land. Storage supplies are necessary for about 75 percent of the potentially irrigable land.

12. Industrial use is and will probably continue to be one of the major consumptive uses of water. Present municipal and industrial rights are generally more than adequate to meet estimated needs for 1985, but storage will be needed in some areas to provide a dependable supply.

13. Present mining use is small and is associated primarily with sand and gravel operations in which the consumptive use is minor.

14. The remaining hydroelectric potential of the basin that is economically feasible for development is small.

15. Recreational use of the streams and lakes of the basin is of major importance and is associated primarily with camping, boating, swimming, and sports fishing.

16. Cost and benefit allocations for existing projects will be reviewed and are subject to modification upon completion of the current Willamette Basin Review Study.

17. The Little North Santiam River, Wiley Creek, Breitenbush River, and the upper reaches of Calapooia River, North Santiam River, Middle Santiam River, South Santiam River, Molalla River, and the high mountain lakes provide outstanding recreational values and should have their use restricted primarily for recreational purposes.

18. Use of the basin's stream system by anadromous fish is of major importance, both to the basin and to the state.

19. Maintenance of adequate minimum streamflows is important to fish life, wildlife, recreation, and water quality control.

20. Fifteen minimum perennial streamflows included in the Senate Bill 225 (1983) application are located in the Middle Willamette River Basin.

21. Identified streams support important populations of anadromous and resident fish species.

22. The revised minimum perennial streamflows of the Oregon Department of Fish and Wildlife dated June 18, 1985, for Deer, Mill and Agency Creeks and the South Yamhill River are more appropriate for the support of aquatic life than those requested in the application of November 3, 1983.

23. Minimum perennial streamflows to assimilate treated waste and non-point source pollution on Silver Creek, Little Luckiamute River, and South Yamhill River are important for maintaining water quality and will benefit all instream uses.

24. Pollution of surface water is a serious problem in some streams in the basin during periods of low flow. For the foreseeable future, streamflow will be required for the assimilation of treated waste.

25. Serious damages, caused by flooding and erosion, are annual occurrences. Flood control structures in the Middle and Upper Willamette Basins have resulted in substantial benefits.

26. Drainage problems exist on a large portion of the basin's arable lands.

27. Physical and economic factors justify limited-purpose use of certain waters.

28. The construction and operation of all projects must be related to the various beneficial uses of water and to an overall comprehensive and orderly development of the water resources of the entire basin.

29. Low water temperatures are an outstanding characteristic of streams originating in the High Cascades. Water quality requirements will be served by maintaining thermal benefits resulting from the influence of Cascade streams and by enhancing thermal conditions in all streams where high water temperatues are now a problem.

NOW THEREFORE BE IT RESOLVED that this board hereby adopts the following program in accordance with ORS 536.300(2) pertaining to the water resources of the Middle Willamette Basin:

A. The maximum economic development of this state, the attainment of the highest and best use of the waters of the Middle Willamette Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining recreation, wildlife, fish life and pollution abatement uses and the waters of the Middle Willamette Basin are hereby so classified with the following exceptions:

1. The maximum economic development of this state, the attainment of the highest and best use of the waters of the North Santiam River subbasin and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife and fish life uses and the waters of the North Santiam River are hereby so classified with the exceptions listed in Sections A-2 and A-3.

2. The maximum economic development of this state, the attainment of the highest and best use of the waters of all natural lakes of the Middle Willamette Basin situated above an elevation of 2,000 feet mean sea level, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, power development not to exceed 7-1/2 theoretical horsepower, recreation, wildlife, and fish life uses and the waters of all natural lakes of the Middle Willamette Basin situated above an elevation of 2,000 feet mean sea level are hereby so classified.

3. The maximum economic development of this state, the attainment of the highest and best use of the waters of the upper reaches of the streams listed below, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, power development not to exceed 7-1/2 theoretical horsepower, recreation, wildlife, and fish life uses, and the upper reaches of the following streams are hereby so classified:

a. The Little North Santiam River and Henline Creek, and their tributaries, above their confluence (Section 33, Township 8 South, Range 4 East).

b. Wiley and Little Wiley Creeks, and their tributaries, above their confluence (Section 7, Township 14 South, Range 2 East).

c. The Breitenbush River and its tributaries.

d. The Calapooia River, and its tributaries, above its confluence with Bigs Creek (Section 7, Township 15 South, Range 2 East).

e. The North Santiam River, and its tributaries, above its confluence with Tunnel Creek (Section 20, Township 10 South, Range 7 East).

f. The Middle Santiam River, and its tributaries, above the Green Peter Reservoir (Section 19, Township 12 South, Range 3 East).

g. Quartsville Creek, and its tributaries, above its confluence with Panther Creek (Section 10, Township 12 South, Range 3 East).

h. The South Santiam River, and its tributaries, above its confluence with Trout Creek (Section 32, Township 13 South, Range 4 East).

i. The Molalla River, and Table Rock Fork, and their tributaries, above their confluence (Section 14, Township 7 South, Range 3 East).

B. For the purpose of maintaining a minimum perennial streamflow sufficient to support aquatic life, and of attaining the highest and best use of waters released from storage, no appropriations of water except for domestic or livestock uses or waters to be legally stored or legally released from storage shall be made or granted by any state agency or public corporation of the state for the following waters and as shown in Table 1.

Santiam Subbasin

Calapooia River

1. The Calapooia River or its tributaries above USGS Gage 14-1720 (SE 1/4, Section 15, Township 14 South, Range 1 West) at Holley, Oregon, for natural flows of the Calapooia River below 30 cubic feet per second plus waters released from storage of up to 340 cubic feet per second measured at the aforementioned gage.

2. The Calapooia River or its tributaries above USGS Gage 14-1735 (NW 1/4, Section 13, Township 11 South, Range 4 West) at Albany, Oregon, for natural flows of the Calapooia River below 20 cubic feet per second plus waters released from storage of up to 340 cubic feet per second measured at the aforementioned gage.

Santiam River

3. The South Santiam River or its tributaries above USGS - Corps of Engineers - State Engineer Gage 14-1850 (SE 1/4 Section 36, Township 13 South, Range 2 East) below Cascadia, Oregon, for flows of the South Santiam River below 50 cubic feet per second measured at the aforementioned gage.

4. The Middle Santiam River or its tributaries above USGS Gage 14-1865 (NE 1/4 SE 1/4 Section 24, Township 13 South, Range 1 East) near Foster, Oregon, for natural flows of the Middle Santiam River or its tributaries below 110 cubic feet per second plus waters released from storage of up to 260 cubic feet per second measured at the aforementioned gage.

5. Wiley Creek or its tributaries above Wiley Creek - South Santiam River confluence for flows of Wiley Creek below 10 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

6. The South Santiam River or its tributaries above USGS - Corps of Engineers - State Engineer Gage 14-1875 (SW 1/4 NW 1/4 Section 28, Township 12 South, Range 1 West) at Waterloo, Oregon, for natural flows of the South Santiam River below 170 cubic feet per second plus waters released from storage of up to 930 cubic feet per second measured at the aforementioned gage.

7. The North Santiam River or its tributaries above USGS Gage 14-1780 (SE 1/4 NW 1/4 Section 17, Township 10 S, Range 6 East) near Detroit, Oregon, for flows of the North Santiam River below 345 cubic feet per second measured at the aforementioned gage.

8. The North Santiam River or its tributaries above USGS Gage 14-1815 (NE 1/4 NE 1/4 Section 34, Township 9 South, Range 4 East) at Niagara, Oregon, for natural flows of the North Santiam River below 500 cubic feet per second plus waters released from storage of up to 640 cubic feet per second measured at the aforementioned gage.

9. The Little North Santiam River or its tributaries above USGS - State Engineer Gage 14-1825 (NW 1/4 Section 16, Township 9 South, Range 2 East) near Mehama, Oregon, for flows of the Little North Santiam River below 40 cubic feet per second measured at the aforementioned gage.

10. The North Santiam River or its tributaries above USGS Gage 14-1830 (NW 1/4 Section 18, Township 9 South, Range 2 East) at Mehama, Oregon, for natural flows of the North Santiam River below 580 cubic feet per second plus waters released from storage of up to 640 cubic feet per second measured at the aforementioned gage.

11. The North Santiam River or its tributaries above USGS Gage 14-1841 (Section 7, Township 10 South, Range 2 West) near Jefferson, Oregon, for natural flows of the North Santiam River below 430 cubic feet per second plus waters released from storage of up to 640 cubic feet per second measured at the aforementioned gage.

12. The Santiam River or its tributaries above USGS Gage 14-1890 (SE 1/4 Section 11, Township 10 South, Range 3 West) at Jefferson, Oregon, for natural flows of the Santiam River below 330 cubic feet per second plus waters released from storage of up to 1,570 cubic feet per second measured at the aforementioned gage.

13. The Santiam River or its tributaries above the Santiam River - Willamette River confluence for natural flows of the Santiam River below 320 cubic feet per second plus waters released from storage of up to 1,570 cubic feet per second measured at a point between the said confluence and 1.0 miles above said confluence.

Coast Subbasin

Marys River

14. The Marys River or its tributaries above USGS Gage No. 14-1710 (NE 1/4 SE 1/4 Section 18, Township 12 South, Range 5 West) near Philomath, Oregon, for flows of the Marys River below 10 cubic feet per second measured at the aforementioned gage.

15. The Marys River or its tributaries above the Marys River - Willamette River confluence for flows of the Marys River below 5 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

Luckiamute River

16. The Luckiamute River or its tributaries above USGS - State Engineer Gage 14-1895 (NE 1/4 Section 11, Township 10 South, Range 7 West) near Hoskins, Oregon for flows of the Luckiamute River below 10 cubic feet per second measured at the aforementioned gage.

17. The Luckiamute River or its tributaries above USGS Gage 14-1900 (SE 1/4 Section 33, Township 9 South, Range 6 West) at Pedee, Oregon, for flows of the Luckiamute River below 20 cubic feet per second measured at the aforementioned gage.

18. The Luckiamute River or its tributaries above USGS Gage 14-1905 (SW 1/4 SW 1/4 Section 18, Township 9 South, Range 4 West) near Suver, Oregon, for flows of the Luckiamute River below 25 cubic feet per second measured at the aforementioned gage.

19. The Luckiamute River or its tributaries above the Luckiamute River - Willamette River confluence for flows of the Luckiamute River below 20 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

Rickreall Creek

20. Rickreall Creek or its tributaries above USGS Gage No. 14-1907 (SE 1/4 SW 1/4 Section 35, Township 7 South, Range 6 West) near Dallas, Oregon, for flows of Rickreall Creek below 5 cubic feet per second measured at the aforementioned gage.

21. The South Yamhill or its tributaries above USGS - State Engineer Gage 14-1925 (Section 14, Township 6 South, Range 7 West) near Willamina, Oregon, for flows of the South Yamhill River below 20 cubic feet per second measured at the aforementioned gage.

22. Willamina Creek or its tributaries above USGS - Corps of Engineers - State Engineer Gage 14-1930 (near 1/4 corner Sections 12 and 13, Township 5 South, Range 7 West) near Willamina, Oregon, for flows of Willamina Creek below 20 cubic feet per second measured at the aforementioned gage.

23. The South Yamhill River or its tributaries above USGS Gage 14-1940 (NW 1/4 Section 5, Township 5 South, Range 4 West) near Whiteson, Oregon, for flows of the South Yamhill River below 15 cubic feet per second measured at the aforementioned gage.

24. The North Yamhill River or its tributaries above USGS Gage 14-1970 (NW 1/4 Section 25, Township 2 South, Range 5 West) at Pike, Oregon, for flows of the North Yamhill River below 10 cubic feet per second measured at the aforementioned gage.

25. The Yamhill River or its tributaries above USGS Gage 14-1975 - discontinued - (Section 7, Township 4 South, Range 3 West) at Lafayette, Oregon, for flows of the Yamhill River below 15 cubic feet per second measured at the aforementioned gage.

Molalla-Pudding Subbasin

Molalla River

26. The Molalla River or its tributaries above USGS - Corps of Engineers - State Engineer gage 14-1985 (SE 1/4 SE 1/4 Section 30, Township 6 South, Range 3 East) near Wilhoit, Oregon, for flows of the Molalla River below 35 cubic feet per second measured at the aforementioned gage.

27. The Molalla River or its tributaries above USGS Gage 14-2000 (Section 9, Township 4 South, Range 1 East) near Canby, Oregon, for flows of the Molalla River below 60 cubic feet per second measured at the aforementioned gage.

28. The Pudding River or its tributaries above USGS Gage 14-2010 (SE 1/4 Section 8, Township 6 South, Range 1 West) near Mt. Angel, Oregon, for flows of the Pudding River below 10 cubic feet per second measured at the aforementioned gage.

29. The Pudding River or its tributaries above USGS - State Engineer Gage 14-2020 (SE 1/4 Section 12, Township 4 South, Range 1 West) at Aurora, Oregon, for flows of the Pudding River below 35 cubic feet per second measured at the aforementioned gage.

Willamette River Mainstem

30. The Willamette River or its tributaries above USGS Gage 14-1740 (SW 1/4 Section 6, Township 11 South, Range 3 West) at Albany, Oregon, for natural flows of the Willamette River below 1,750 cubic feet per second plus waters released from storage of up to 3,140 cubic feet per second measured at the aforementioned gage.

31. The Willamette River or its tributaries above USGS Gage 14-1910 (SW 1/4 Section 22, Township 7 South, Range 3 West) at Salem, Oregon, for natural flows of the Willamette River below 1,300 cubic feet per second plus waters released from storage of up to 4,700 cubic feet per second measured at the aforementioned gage.

32. The Willamette River or its tributaries above USGS Gage 14-1980 (SE 1/4 Section 23, Township 3 South, Range 1 West) at Wilsonville, Oregon, for natural flows of the Willamette River below 1,500 cubic feet per second plus waters released from storage of up to 4,700 cubic feet per second measured at the aforementioned gage.

C. To support aquatic life and minimize pollution, in accordance with Section 3, Chapter 796, Oregon Laws, no appropriation of water shall be made or granted by any state agency of public corporation of the state for waters of McDowell Creek, Hamilton Creek, Carbtree Creek, and Thomas Creek in the Santiam Subbasin; Greasy Creek, Pedee Creek, Little Luckiamute River, Agency Creek, Willamina Creek, Mill Creek, Deer Creek and South Yamhill River in the Coast Subbasin; and Milk Creek, Silver Creek and Abiqua Creek in the Pudding-Molalla Subbasin and tributaries when flows are below the levels specified in Table 1. This limitation shall not apply to:

1. Domestic and livestock use.
2. Water legally stored or released from storage

Attainment of the specified flow levels during some portion of the year may require development of additional water storage or implementation of other measures to augment flows.

D. Applications for the use of the waters of the Middle Willamette Basin shall not be accepted by any state agency for any other purpose and the granting of applications for such other purposes is declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated and coordinated program for the use and control of the water resources of the state.

E. Rights to use of water for industrial or mining purposes granted by any state agency shall be issued only on condition that any effluents or return flows from such uses shall not interfere with other beneficial uses.

MIDDLE WILLAMETTE RIVER BASIN
MINIMUM PERENNIAL STREAMFLOWS (Cubic Feet Per Second)

	OCT 1-15/16-31	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-31	AUG 1-15/16-31	SEP 1-15/16-30	Priority Date
CALAPOOIA RIVER													
Calapooia River above gage 14172000 at Holley (SE 1/4, Sec 15, T14S, R1W)													
(natural flow)	30	30	30	30	30	30	30	30	30	30	30	30	6-22-64
(storage releases: up to)	340	340	340	340	340	340	340	340	340	340	340	340	6-22-64
Calapooia River above gage 14173500 at Albany (NW 1/4, Sec 13, T11S, R4W)													
(natural flow)	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
(storage releases: up to)	340	340	340	340	340	340	340	340	340	340	340	340	6-22-64
SANTIAM RIVER													
South Santiam River above gage 14185000 below Cascadia (SE 1/4, Sec 36, T13S, R2E)	50	50	50	50	50	50	50	50	50	50	50	50	6-22-64
Middle Santiam River above gage 14186500 near Foster (NE 1/4 SE 1/4, Sec 24, T13S, R1E)													
(natural flow)	110	110	110	110	110	110	110	110	110	110	110	110	6-22-64
(storage releases: up to)	260	260	260	260	260	260	260	260	260	260	260	260	6-22-64
Wiley Creek above the mouth	10	10	10	10	10	10	10	10	10	10	10	10	6-22-64
McDowell Creek at the mouth	10/20	45	45	45	45	45	45	45	15/10	8/5	3	3	11-3-83
South Santiam River above gage 14187500 at Waterloo (SW 1/4 NW 1/4, Sec 28, T12S, R1W)													
(natural flow)	170	170	170	170	170	170	170	170	170	170	170	170	6-22-64
(storage releases: up to)	930	930	930	930	930	930	930	930	930	930	930	930	6-22-64
Hamilton Creek at the mouth	10/20	40	40	40	40	40	40	40	15/10	8/5	3	3	11-3-83

F. Rights to use of water for power purposes granted by any state agency shall be issued only on condition that the project operation shall be compatible with other beneficial uses.

G. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

Dated August 2, 1985

WATER POLICY REVIEW BOARD

William H. Young

William H. Young, Director
WATER RESOURCES DEPARTMENT

4587A

TABLE 1 CONTINUED
MIDDLE WILLAMETTE RIVER BASIN
MINIMUM PERENNIAL STREAMFLOWS (Cubic Feet Per Second)

	OCT 1-15/16-31	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-31	AUG 1-15/16-31	SEP 1-15/16-30	Priority Date
MARYS RIVER													
Greasy Creek at the mouth	5/10	20/30	30	30	30	30	30	30	20/15	10/7	5	5	11-3-83
Marys River above gage 14171000 near Philomath (NE 1/4 SE 1/4, Sec 18, T12S, R5W)	10	10	10	10	10	10	10	10	10	10	10	10	6-22-64
Marys River at the mouth to be measured between the mouth and river mile 1.0	5	5	5	5	5	5	5	5	5	5	5	5	6-22-64
LUCKIAMUTE RIVER													
Luckiamute River above gage 14189500 near Haskins (NE 1/4, Sec 11, T10S, R7W)	10	10	10	10	10	10	10	10	10	10	10	10	6-22-64
Pedee Creek at the mouth	5/10	15/25	25	25	25	25	25	25	12/8	6/5	5	5	11-3-83
Luckiamute River above gage 1419000 at Pedee (SE 1/4, Sec 33, T9S, R6W)	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
Little Luckiamute River at Falls City and maintained to the Highway 223 crossing (Sec 36, T8S, R6W)	15/20	40/80	80	80	80	80	80	80	50/35	25/20	15	15	11-3-83
Luckiamute River above gage 14190500 near Suver (SW 1/4, SW 1/4, Sec 18, T9S, R4W)	25	25	25	25	25	25	25	25	25	25	25	25	6-33-64
Luckiamute River above the mouth to be measured between the mouth and river mile 1.0	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
RICKREALL CREEK													
Rickreall Creek above gage 14190700 near Dallas (SE 1/4, SW 1/4, Sec 35, T7S, R6W)	5	5	5	5	5	5	5	5	5	5	5	5	6-22-64

-13-

MIDDLE WILLAMETTE RIVER BASIN
MINIMUM PERENNIAL STREAMFLOWS (Cubic Feet Per Second)

	OCT 1-15/16-31	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-31	AUG 1-15/16-31	SEP 1-15/16-30	Priority Date
Crabtree Creek at the mouth	100	100	100	100	100	100	100	100	50/40	35/30	25/20	20/100	11-3-83
Thomas Creek at the mouth	100	100	100	100	100	100	100	100	50/40	35/30	25/20	20/100	11-3-83
North Santiam River above gage 14178000 near Detroit (SE 1/4 NW 1/4, Sec 17, T10S, R6E)	345	345	345	345	345	345	345	345	345	345	345	345	6-22-64
North Santiam River above gage 14181500 at Niagara (NE 1/4 NE 1/4, Sec 34, T9S, R4E)													
(natural flow)	500	500	500	500	500	500	500	500	500	500	500	500	6-22-64
(storage releases: up to)	640	640	640	640	640	640	640	640	640	640	640	640	6-22-64
Little North Santiam River above gage 14182500 near Mehama (NW 1/4, Sec 16, T9S, R2E)	40	40	40	40	40	40	40	40	40	40	40	40	6-22-64
North Santiam River above gage 14183000 at Mehama (NW 1/4, Sec 18, T9S, R2E)													
(natural flow)	580	580	580	580	580	580	580	580	580	580	580	580	6-22-64
(storage releases: up to)	640	640	640	640	640	640	640	640	640	640	640	640	6-22-64
North Santiam River above gage 14184100 near Jefferson (Sec 7, T10S, R2W)													
(natural flow)	430	430	430	430	430	430	430	430	430	430	430	430	6-22-64
(storage releases: up to)	640	640	640	640	640	640	640	640	640	640	640	640	6-22-64
Santiam River above gage 14189000 near Jefferson (SE 1/4, Sec 11, T10S, R3W)													
(natural flow)	330	330	330	330	330	330	330	330	330	330	330	330	6-22-64
(storage releases: up to)	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	6-22-64
Santiam River to be measured between the mouth and river mile 1.0													
(natural flow)	320	320	320	320	320	320	320	320	320	320	320	320	6-22-64
(storage releases: up to)	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	1570	6-22-64

-12-

MIDDLE WILLAMETTE RIVER BASIN
MINIMUM PERENNIAL STREAMFLOWS (Cubic Feet Per Second)

	OCT 1-15/16-31	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-31	AUG 1-15/16-31	SEP 1-15/16-30	Priority Date
Milk Creek at the mouth													
	20/40	85	85	85	85	85	85	85	60/45	40/30	20	20	11-3-83
Molalla River above gage 14200000 near Canby (Sec 9, T4S, R1E)													
	60	60	60	60	60	60	60	60	60	60	60	60	6-22-64
Silver Creek from the City of Silverton maintained to the mouth													
	23/60	60	60	60	60	60	60	60	50/35	23	23	23	11-3-83
Abiqua Creek at the mouth													
	40/60	75	75	75	75	75	75	75	60/40	25/20	15	15	11-3-83
Pudding River above gage 14201000 near Mt. Angel (SE 1/4, Sec 8, T6S, R1W)													
	10	10	10	10	10	10	10	10	10	10	10	10	6-22-64
Pudding River above gage 14202000 at Aurora (SE 1/4, Sec 12, T4S, R1W)													
	35	35	35	35	35	35	35	35	35	35	35	35	6-22-64
WILLAMETTE RIVER													
Willamette River above gage 14174000 at Albany (SW 1/4, Sec 6, T11S, R3W)													
(natural flow)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	6-22-64
(storage releases: up to)	3140	3140	3140	3140	3140	3140	3140	3140	3140	3140	3140	3140	6-22-64
Willamette River above gage 14191000 at Salem (SW 1/4, Sec 22, T7S, R3W)													
(natural flow)	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	6-22-64
(storage releases: up to)	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	6-22-64
Willamette River above gage 14198000 at Wilsonville (SE 1/4, Sec 23, T3S, R1W)													
(natural flow)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	6-22-64
(storage releases: up to)	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	4700	6-22-64

MIDDLE WILLAMETTE RIVER BASIN
MINIMUM PERENNIAL STREAMFLOWS (Cubic Feet Per Second)

TABLE 1 CONTINUED

	OCT 1-15/16-31	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-31	AUG 1-15/16-31	SEP 1-15/16-30	Priority Date
YAMHILL RIVER													
Agency Creek at the mouth													
	20/40	80	80	80	80	80	80	80	25/20	15/10	8/6	6	11-3-83
South Yamhill River above gage 14192500 near Willamina (Sec 14, T6S, R6W)													
	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
Willamina Creek at gage 14193000 near Willamina (Sec 13, T5S, R7W)													
	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
Willamina Creek from gage 14193000 near Willamina (Sec 13, T5S, R7W) to the mouth													
	20/40*	70*	70*	70*	70*	70*	70*	70*	50/30*	20*	20*	20*	11-3-83
Mill Creek at the mouth													
	20/40	80	80	80	80	80	80	80	15/10	7/5	5	5	11-3-83
Deer Creek at the mouth													
	20/40	80	80	80	80	80	80	80	25/20	15/10	8/6	6	11-3-83
South Yamhill River above gage 14194000 near Whiteson (NW 1/4, Sec 5, T5S, R4W)													
	15	15	15	15	15	15	15	15	15	15	15	15	6-22-64
South Yamhill River from gage 14194000 near Whiteson (NW 1/4, Sec 5, T5S, R4W) to the mouth													
	150*	200*	200*	200*	200*	200*	200*	200*	150/100*	62*	62*	62*	11-3-83
North Yamhill River above gage 14197000 at Pike (NW 1/4, Sec 25, T2S, R5W)													
	10	10	10	10	10	10	10	10	10	10	10	10	6-22-64
Yamhill River above gage 14197500 at Lafayette (Sec 7, T4S, R3W)													
	15	15	15	15	15	15	15	15	15	15	15	15	6-22-64
MOLALLA RIVER													
Molalla River above gage 14198500 near Wilhart (SE 1/4, SE/14, Sec 30, T6S, R3E)													
	35	35	35	35	35	35	35	35	35	35	35	35	6-22-64

* Earlier priority date for all or part of the indicated flow.

BEFORE THE WATER POLICY REVIEW BOARD

OF THE

STATE OF OREGON

In the matter of formulating an integrated, coordinated program for the use and control of the water resources of the Upper Willamette River Basin	Upper Willamette River Basin May 30, 1985*

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Upper Willamette River Basin;

WHEREAS results of this study have been published in State Water Resources Board Report, Upper Willamette Basin;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 and 536.340 has undertaken further studies of the development of the water resources of the Upper Willamette River Basin; and

WHEREAS as a result of these studies the following findings have been reached by this board:

1. The total quantity of water is sufficient on an average year basis to satisfy all existing and contemplated needs and uses of water.

2. Total yields are adequate in average years but geographical and seasonal maldistribution will result in water shortages in some areas where reliance is placed on natural streamflow.

3. Seasonal maldistribution of supply has been reduced in part by storage on major streams. Under construction, authorized, and recommended storage projects will further improve low flow conditions.

4. On most of the main streams of the basin supplies are adequate to meet existing rights. On small streams, particularly those originating in the Coast Range and parts of the lower Cascades, summer flows are not adequate to meet all existing rights simultaneously.

* Modifies Upper Willamette Basin Programs dated June 22, 1964 and November 10, 1980

5. Ground water supplies are available in varying quantities throughout the basin.

6. There are large quantities of unappropriated water which come under the jurisdiction of the State Water Resources Board, but precise quantities are undetermined.

7. There is need to adjudicate the waters of the Upper Willamette River Basin to determine existing rights.

8. Rural domestic water supplies come mainly from ground water sources. Many of the supplies are taken from low-yield aquifers and seasonal shortages are not uncommon.

9. Surface and ground water sources supplying municipal needs are adequate for existing and presently foreseeable needs.

10. Inadequate precipitation during the growing season results in a need for irrigation for most crops producing a high value per acre.

11. About 40 percent of the land holding irrigation rights was irrigated in 1950.

12. Contracts have been completed for use of stored water for irrigation from Corps of Engineers reservoirs to serve less than one percent of the irrigable land in the basin.

13. The expansion of irrigation from minor tributaries may require storage development within those areas.

14. Approximately one-third of the irrigable acreage is considered economically feasible of irrigation in the foreseeable future.

15. Water stored in existing and contemplated Corps of Engineers reservoirs will be adequate to supply anticipated irrigation needs for the major acreage in the basin.

16. Power development is presently an important use of water in the basin.

17. Major potential for additional power use is on the McKenzie River but development on the main stem of this stream would conflict with fish life and recreation uses.

18. The economic merit of additional power development in the basin has not been fully established.

19. There is substantial potential for industrial development in the basin particularly in the wood products and food processing industries.

20. Water supplies for these relatively major water-using industries are considered adequate.

21. It is anticipated that water for most potential minor water-using industries will be supplied from municipal sources.

22. Mining is not at present a significant use of water.

23. Present knowledge of mineral resources does not indicate major mining use of water in the foreseeable future.

24. Water-based recreation is a major economic and social value to the basin and to the state.

25. Recreation requirements for water are large and will continue to grow, probably at an accelerated rate.

26. The Willamette River Greenway, covering the mainstem of the Willamette River, Middle Fork Willamette River to Dexter Dam and Coast Fork Willamette River to Cottage Grove Dam, was established in 1973, to protect and preserve the natural, scenic, historical and recreational quality of the lands along the river.

27. Recreation requirements are mainly nonconsumptive in nature.

28. Recreation will conflict with other uses of water as development occurs.

29. Irrigation and power are authorized uses of water stored in Corps of Engineers reservoirs but recreation is permitted subject to the ultimate requirements of authorized purposes.

30. Reservoir recreation values cannot be maximized when project waters are released from storage for authorized downstream purposes.

31. Supplemental supplies will be needed to maximize recreation values.

32. The McKenzie River is superior as a natural recreation attraction.

33. The highest value of the natural lakes of the high Cascades is for existing and future recreation use.

34. Water consumption by wildlife does not represent a significant quantity.

35. The basin has a valuable fishery resource composed of anadromous species, resident trout, and warm-water game fish.

36. The basin has potential for enhancement of its fishery resource. Realization of this potential will depend in part upon improvements in low flow conditions and water quality.

37. Important streams and stream sections in the basin do not have sufficient flow in periods of low as well as critical flow to sustain minimum levels for nonconsumptive uses of fish life and recreation.

38. Maximum enhancement of the anadromous fishery potential will require improvement in fish passage and water quality in the lower Willamette River downstream of this basin.

39. Streams in the basin with little or no regulation cannot provide the desirable base flows for fish life recommended by the fisheries agencies.

40. Pollution abatement is a major problem in some areas.

41. Contamination of ground water supplies is a problem in some areas.

42. Industrial, commercial, agricultural, and population growth will add to the existing pollution problems.

43. The growth of additional urban fringe areas with improperly developed water supply and sewerage facilities will result in continuing or expanding pollution problems.

44. Some of the smaller streams and sections of major streams are unfit for some recreation uses because of pollution.

45. Continuing control of pollution must be maintained in order to protect the quality of water.

46. Utilization of flows to minimize pollution should not be permitted if such use limits or conflicts with the multiple-purpose concept.

47. Drainage is a problem, particularly on lands subject to periodic flooding.

48. Erosion is a problem in the basin. Bank erosion, due to prolonged high water stages resulting from releases of impounded flood waters, is a significant type.

49. Additional flood control storage will aggravate the bank erosion problem by extending the period of high discharge.

50. Flood control is a matter of major concern in the basin.

51. Substantial accomplishments have been made in flood damage reduction by flood control storage reservoirs.

52. Additional projects have been authorized and others recommended to further reduce flood damage.

53. Developments of many types are encroaching on the flood plain increasing damage potential and hazard to life.

54. Flood damage reduction by storage will have to be supplemented in the foreseeable future by other types of physical works, flood plain zoning, and floodproofing to provide the most economic solution to the remaining flood problem.

55. Major augmentation of the water resources in periods of need must come through storage of surplus runoff.

56. It is imperative that single-purpose development of available storage sites does not preclude full utilization of the resource.

57. Criteria for determination of desirable base flows commensurate with all beneficial uses of water have not been developed.

58. The results of the Upper Willamette River Basin study do not show any need for change or modification in the program adopted by the State Water Resources Board for the Upper McKenzie River, April 3, 1964.

59. Physical features, degree of economic development, and water-use requirements vary from subbasin to subbasin.

NOW THEREFORE BE IT RESOLVED that for the reason of variance in physical features, degree of economic development, and water-use requirements from subbasin to subbasin, the board adopts the following findings and issues program statements for each of the subbasins of the Upper Willamette River Basin.

WILLAMETTE COAST FORK

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Willamette Coast Fork Basin as delineated on State Water Resources Board Map, File No. 2A.7014;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 and 536.340 has undertaken further studies of the development of the water resources of the Upper Willamette River Basin; and

WHEREAS as a result of these studies the following findings have been reached by this board:

1. The total quantity of water is sufficient on an average year basis to satisty all existing and contemplated needs and uses of water.

2. There is enough water on a critical year basis to meet existing and contemplated consumptive needs.

3. Maldistribution exists with regard to physical location and with respect to availability during time of need.

4. Ground water occurs in varying quantities throughout the basin.

5. The storage capacity or recharge rate of ground water aquifers has not been established.

6. Ground water is the major source for domestic needs.

7. Ground water supply is generally adequate for existing domestic and irrigation rights.

8. There is need to insure water for domestic, livestock, municipal, and wildlife uses which, while small, are of benefit to the state.

9. Potential exists for substantial expansion of irrigated lands.

10. Some potential exists for at-site power development.

11. Potential for expanded industrial use of water within this basin does not appear large.

12. Potential exists for expansion of mining uses but development is not expected to be great in the foreseeable future.

13. The basin has potential for expanded recreation use of water.

14. Improvement of water quality could enhance recreation potential, particularly on the main stem.

15. Full development of the fishery potential of the basin cannot be achieved without the improvement of low flow conditions.

16. The minimum perennial streamflows that can be established on the basis of existing rights and priorities are substantially lower on some streams than the flows recommended by the fisheries interests.

17. Desirable base flows for fish life cannot be realized unless additional water can be made available from storage.

18. Maintenance of minimum perennial streamflows would be in the public interest.

19. Utilization of flows to minimize pollution should only be permitted if it does not limit or conflict with the multiple-purpose objectives for water use in the basin.

20. Drainage problems exist but are not present or contemplated significant factors in water use.

21. Existing flood control reservoirs have materially reduced flood damages in the basin.

22. There are physically feasible storage sites in the basin. Certain storage sites are essential to the control of floods.

23. Development of additional storage, channel improvement, and land use regulations would reduce flood hazards.

24. Storage to the extent of complete elimination of flood damage is not economically feasible.

25. Certain river sections and numerous minor streams, creeks, and lakes are by nature of their physiography, location, land ownership, or economic potential available only for limited resource needs.

26. Establishment of restrictions on further appropriations on some streams would prevent an increase in depletion potential and aid in maintaining minimum flows.

NOW THEREFORE BE IT RESOLVED that this board hereby adopts the following program in accordance with ORS 536.300 (2) pertaining to the water resources of the Willamette Coast Fork Basin:

A. The maximum economic development of this state, the attainment of the highest and best use of the waters of the Willamette Coast Fork Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife, fish life and pollution abatement uses and the waters of the Willamette Coast Fork Basin are hereby so classified with the following exception:

> The maximum economic development of this state, the attainment of the highest and best use of the waters of the Layng Creek Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation of lawn or non-commercial garden not to exceed one-half

> acre in area, power development, recreation, wildlife, and fish life uses and the waters of Layng Creek Basin are hereby so classified. Diversions of the waters of Layng Creek and tributaries from the Layng Creek Basin shall be permitted for municipal use only.

B. For the purpose of maintaining a minimum perennial streamflow sufficient to support aquatic life, and of attaining the highest and best use of waters released from storage, no appropriations of water except for domestic or livestock uses or waters to be legally stored or legally released from storage, shall be made or granted by any state agency or public corporation of the state for the following waters and as shown on Table 1.

   1. The Willamette Coast Fork or its tributaries above the Willamette Coast Fork - Row River confluence for natural flows of the Willamette Coast Fork below 15 cubic feet per second, plus waters released from storage of up to 100 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

   2. Row River or its tributaries above the Row River - Willamette Coast Fork confluence for natural flows of the Row River below 40 cubic feet per second, plus waters released from storage of up to 150 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

   3. The Willamette Coast Fork or its tributaries above the Willamette Coast Fork - Willamette Middle Fork confluence for natural flows of the Willamette Coast Fork below 40 cubic feet per second, plus waters released from storage of up to 250 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

C. Applications for the use of the waters of the Willamette Coast Fork Basin shall not be accepted by any state agency for any other use and the granting of applications for such other uses is declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated and coordinated program for the use and control of the water resources of the state.

D. Rights to use of water for industrial or mining purposes granted by any state agency shall be issued only on condition that any effluents or return flows from such uses shall not interfere with other beneficial uses.

E. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

WILLAMETTE MIDDLE FORK

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Willamette Middle Fork Basin as delineated on State Water Resources Board Map, File No. 2A.7014;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 and 536.340 has undertaken further studies of the development of the water resources of the Upper Willamette River Basin; and

WHEREAS as a result of these studies the following findings have been reached by this board:

1. The total quantity of water is sufficient on an average year basis to satisfy all existing and contemplated needs and uses of water.
2. There is enough water on a critical year basis to meet existing and contemplated consumptive needs and minimum nonconsumptive public uses.
3. Many streams in the basin do not provide enough flow for nonconsumptive public uses at present in periods of relatively low as well as critical flow.
4. Flows, unless augmented by storage, would not be sufficient on many streams during the summer months of critically low flow years to supply future consumptive and nonconsumptive demands.
5. Maldistribution exists with regard to physical location and with respect to availability during time of need.
6. Ground water occurs in varying quantities throughout the basin. It is concentrated in economic quantities only in alluvial deposits in the valley lowlands.

TABLE 1 COAST FORK WILLAMETTE SUBBASIN
MINIMUM PERENNIAL STREAMFLOWS
(cubic feet per second)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Priority Date
Coast Fork Willamette River above the confluence with Row River													
	15	15	15	15	15	15	15	15	15	15	15	15	6-22-64
(additional from storage releases only)	100	100	100	100	100	100	100	100	100	100	100	100	6-22-64
Row River at mouth													
	40	40	40	40	40	40	40	40	40	40	40	40	6-22-64
(additional from storage releases only)	150	150	150	150	150	150	150	150	150	150	150	150	6-22-64
Coast Fork Willamette River at mouth													
	40	40	40	40	40	40	40	40	40	40	40	40	6-22-64
(additional from storage releases only)	250	250	250	250	250	250	250	250	250	250	250	250	6-22-64

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7. The storage capacity or recharge rate of ground water aquifers has not been established.

8. Ground water supplies are adequate for existing rights.

9. There is need to insure water for domestic, livestock, municipal, and wildlife uses which, while small, are of benefit to the state.

10. Extensive expansion of irrigation is not expected in this basin. The net irrigable area will undoubtedly be reduced by lands utilized for roads, urban areas, and industry.

11. Current economics appear to justify the development of the additional power generating potential within the basin. Power development could conflict with other beneficial uses of the waters especially recreation and fish life.

12. There is potential for expanded industrial use of water within this basin.

13. Mining will not be a significant factor in water utilization in the foreseeable future.

14. Recreation use of the waters of the basin has been increasing and greater water-based recreation use can be expected in the future.

15. The natural lakes of the Willamette Middle Fork Basin have a high recreation potential.

16. Waldo Lake and North Fork of the Middle Fork Willamette River above Westfir were designated as state scenic waterways in 1983.

17. Anadromous fishery potential is limited by Dexter Dam to the lower Willamette Middle Fork and the Fall Creek system.

18. Hills Creek near Jasper, Little Fall Creek and Lost Creek are important anadromous fish streams downstream of Dexter and Fall Creek Dams.

19. Utilization of flows to minimize pollution should only be permitted if it does not limit or conflict with the multiple-purpose objectives for water use in the basin.

20. Drainage and reclamation of drained lands are not present and contemplated significant factors in water use.

21. Bank erosion resulting from near bankfull reservoir releases is a major problem.

22. Reservoirs completed, under construction, and authorized will control effectively all historical floods in the Willamette Middle Fork Basin.

23. Maintenance of minimum perennial streamflows would be in the public interest.

24. Establishment of restrictions on further appropriations on some streams would prevent an increase in depletion potential and aid in maintaining minimum flows.

25. Certain river sections and numerous minor streams, creeks, and lakes are by nature of their physiography, location, land ownership, or economic potential available only for limited resource needs.

NOW THEREFORE BE IT RESOLVED that this board hereby adopts the following program in accordance with ORS 536.300 (2) pertaining to the water resources of the Willamette Middle Fork Basin:

A. The maximum economic development of this state, the attainment of the highest and best use of the waters of the Willamette Middle Fork Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife, fish life and pollution abatement uses and the waters of the Willamette Middle Fork Basin are hereby so classified with the following exceptions:

1. The maximum economic development of this state, the attainment of the highest and best use of the waters of all natural lakes of the Willamette Middle Fork Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, irrigation of lawns or noncommercial garden not to exceed one-half acre in area, recreation, wildlife, and fish life uses and the waters of all natural lakes of the Willamette Middle Fork Basin are hereby so classified.

2. The maximum economic development of this state, the attainment of the highest and best uses of the waters of Salt Creek, Salmon Creek, and their tributaries; and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, power development not to exceed 7 1/2 theoretical horsepower, recreation, wildlife and fish life uses and the waters of Salt Creek, Salmon Creek, and their tributaries are hereby so classified.

TABLE 2
MIDDLE FORK WILLAMETTE SUBBASIN
MINIMUM PERENNIAL STREAMFLOWS
(cubic feet per second)

	OCT	NOV 1-15/16-30	DEC	JAN	FEB	MAR	APR	MAY	JUN 1-15/16-30	JUL 1-15/16-30	AUG	SEP	Priority Date
Middle Fork Willamette River above confluence with North Fork													
	285	285	285	285	285	285	285	285	285	285	285	285	6-22-64
(additional from storage releases only)	690	690	690	690	690	690	690	690	690	690	690	690	6-22-64
North Fork of the Middle Fork at mouth													
	115	115	115	115	115	115	115	115	115	115	115	115	6-22-64
Lost Creek at mouth													
	3	30/50	50	50	50	50	50	50	25/15	8/6	3	3	11-3-83
Little Fall Creek at mouth													
	10	60/80	80	80	80	80	80	80	60/40	25/15	10	10	11-3-83
Fall Creek at mouth													
	40	40	40	40	40	40	40	40	40	40	40	40	6-22-64
(additional from storage releases only)	470	470	470	470	470	470	470	470	470	470	470	470	6-22-64
Hills Creek at mouth (near Jasper)													
	1	6/12	12	12	12	12	12	12	8/4	2	1	1	11-3-83
Middle Fork Willamette River at mouth													
	640	640	640	640	640	640	640	640	640	640	640	640	6-22-64
(additional from storage releases only)	1475	1475	1475	1475	1475	1475	1475	1475	1475	1475	1475	1475	6-22-64

3. The maximum economic development of this state, the attainment of the highest and best use of waters of the mainstem of the Willamette Middle Fork from its confluence with the Coast Fork of the Willamette River to Hills Creek Dam and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development not to exceed 7 1/2 theoretical horsepower, industrial, mining, recreation, wildlife, fish life and pollution abatement uses and the waters of the mainstem of the Willamette Middle Fork from its mouth to Hills Creek Dam.

4. The maximum economic development of this state, the attainment of the highest and best use of the waters of the mainstem of the North Fork of the Willamette Middle Fork in its entirety and the attainment of an integrated coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development not to exceed 7-1/2 theoretical horsepower, industrial, mining, recreation, wildlife and fish life uses and are so classified.

For the purpose of maintaining a minimum perennial streamflow sufficient to support aquatic life, and of attaining the highest and best use of waters released from storage, no appropriations of water except for domestic or livestock uses or waters to be legally stored or legally released from storage shall be made or granted by any state agency or public corporation of the state for the following waters and as shown on Table 2.

1. The Willamette Middle Fork or its tributaries above the Willamette Middle Fork - North Fork of the Willamette Middle Fork confluence for natural flows of the Willamette Middle Fork below 285 cubic feet per second, plus waters released from storage of up to 690 cubic feet per second measured at a point between said confluence and 1.0 miles a above said confluence.

2. The North Fork of the Willamette Middle Fork or its tributaries above the North Fork of the Willamette Middle Fork - Willamette Middle Fork confluence for flows of the North Fork below 115 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

3. Fall Creek or its tributaries above the Fall Creek - Willamette Middle Fork confluence for natural flows of Fall Creek below 40 cubic feet per second, plus waters released from storage of up to 470 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

4. The Willamette Middle Fork or it tributaries above the Willamette Middle Fork - Willamette Coast Fork confluence for natural flows of the Willamette Middle Fork below 640 cubic feet per second, plus waters released from storage of up to 1,475 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

C. To support aquatic life and minimize pollution, in accordance with Section 3, Chapter 796, Oregon Laws, 1983, no appropriation of water shall be made or granted by any state agency or public corporation of the state for waters of Lost Creek, Little Fall Creek, Hills Creek and tributaries when flows are below the levels specified in Table 2. This limitation shall not apply to:

1. Domestic and livestock consumption
2. Water legally released from storage.

D. Applications for the use of the waters of the Willamette Middle Fork Basin shall not be accepted by any state agency for any other use and the granting of applications for such other uses is declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated and coordinated program for the use and control of the water resources of the state.

E. Rights to use of water for industrial or mining purposes granted by any state agency shall be issued only on condition that any effluents or return flows from such uses shall not interfere with other beneficial uses.

F. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

WILLAMETTE-McKENZIE RIVER

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Willamette-McKenzie River Basin as delineated on State Water Resources Board Map, File No. 2A.7014;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 and 536.340 has undertaken further studies of the development of the water resources of the Upper Willamette River Basin; and

WHEREAS as a result of these studies the following findings have been reached by this board:

1. The total quantity of water is sufficient on an average year basis to satisfy all existing and contemplated needs and uses of water.

2. Several streams in the basin do not provide enough water for consumptive requirements during low flow periods or seasonal shortage.

3. Maldistribution exists with regard to physical location and with respect to availability during time of need.

4. Ground water occurs in varying quantities throughout the basin but the quantitative amounts available for developement have not been determined.

5. Ground water supply is generally adequate for existing domestic, municipal, and irrigation rights.

6. There is need to insure water for domestic, livestock, and wildlife uses which, while small, are of benefit to the state.

7. Municipal requirements represent a significant factor in water utilization of the basin.

8. Water supplies are adequate to meet municipal needs in the foreseeable future.

9. Unused surface water rights for out-of-basin irrigation represent a material depletion potential of the waters of the basin.

10. Irrigable land along the lower McKenzie River is being withdrawn from agriculture at a rapid rate.

11. Irrigation water demands will not exceed existing supplies.

12. Natural streamflow of the Mohawk River and Camp Creek is inadequate to support an increase in irrigation.

13. There are physically feasible storage sites existing on the Mohawk River and Camp Creek which could be utilized to irrigate additional lands.

14. There is substantial power potential within the basin.

15. Potential power development would cause conflicts with recreation and fish life uses.

16. The State Water Resources Board Program, April 3, 1964, precludes utilization of the waters of the McKenzie River above Middle Falls for power purposes.

17. There is substantial potential for industrial development in the basin particularly in the wood products and food processing industries.

18. Water supplies for these relatively major water-using industries are considered adequate.

19. There are no existing water rights for mining operations in the basin. Potential for such use of water appears to be minor.

20. Water-based recreation is a major use of water and an important factor in the economy of the basin.

21. The basin has potential for expanded recreation use of water.

22. The McKenzie River is superior as a natural recreation attraction.

23. There are potential water uses on the McKenzie main stem that could have substantial adverse impact on recreation values.

24. Recreation use in the basin is increasing. Greater use can be expected in the future.

25. The McKenzie River system supports an extensive trout population and is a major spawning area for spring chinook in the Willamette River system.

26. Game fish are important to recreation use in the basin and problems affecting fish life have a direct bearing on recreation use, existing and potential.

27. Development of the fishery potential of the Mohawk River requires improvement of water supply and quality.

28. Attainment of flows recommended by the fisheries interests will be achieved only through storage.

29. Maintenance of minimum perennial streamflows would be in the public interest.

30. Utilization of flows to minimize pollution should not be permitted if such use limits or conflicts with the multiple-purpose concept.

31. Drainage problems occur in almost all agricultural areas.

32. The basin experiences major flood damage.

33. Flood damage reduction by storage will have to be supplemented in the foreseeable future by other types of physical works, flood plain zoning, and floodproofing to provide the most economic solutions to the remaining flood problem.

34. There are physically feasible storage sites within the basin.

35. Construction of flood control and power reservoirs could provide opportunities for reservoir-type recreation.

36. Certain river sections and numerous minor streams, creeks, and lakes are by nature of their physiography, location, land ownership, or economic potential available only for limited resource needs.

37. Establishment of restrictions on further appropriations on some streams would prevent an increase in depletion potential and aid in maintaining minimum flows.

38. The results of the Upper Willamette Basin study do not show any need for change or modification of the program adopted by the State Water Resources Board for the Upper McKenzie River, April 3, 1964.

NOW THEREFORE BE IT RESOLVED that this board hereby adopts the following program in accordance with ORS 536.300 (2) pertaining to the water resources of the Willamette-McKenzie River Basin:

A. The maximum economic development of this state, the attainment of the highest and best use of the waters of the Willamette-McKenzie River Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses and the waters of the Willamette-McKenzie River Basin are hereby so classified with the following exceptions:

   1. The McKenzie drainage above the Linn-Lane County line is covered by the Upper McKenzie River Basin program, April 3, 1964, and is hereby adopted as a part of the Upper Willamette Basin program.

TABLE 3
MCKENZIE RIVER SUBBASIN
MINIMUM PERENNIAL STREAMFLOW
(cubic feet per second)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Priority Date
South Fork McKenzie River at mouth													
	200	200	200	200	200	200	200	200	200	200	200	200	6-22-64
(additional from storage releases only)	230	230	230	230	230	230	230	230	230	230	230	230	6-22-64
Blue River at mouth													
	30	30	30	30	30	30	30	30	30	30	30	30	6-22-64
(additional from storage releases only)	350	350	350	350	350	350	350	350	350	350	350	350	6-22-64
McKenzie River at USGS Gage 14162900 in Sec. 5, T.17S., R.3E.													
	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	6-22-64
(additional from storage releases only)	580	580	580	580	580	580	580	580	580	580	580	580	6-22-64
Gate Creek at mouth													
	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
Mohawk River at mouth													
	20	20	20	20	20	20	20	20	20	20	20	20	6-22-64
McKenzie River at Interstate Highway 5 Bridge Sec. 10, T.17S., R.3W.													
	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	1025	6-22-64
(additional from storage releases only)	700	700	700	700	700	700	700	700	700	700	700	700	6-22-64

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2. The maximum economic development of this state, the attainment of the highest and best use of the waters of all natural lakes of the Willamette-McKenzie River Basin, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, irrigation of lawn or noncommercial garden not to exceed one-half acre in area, recreation, wildlife, and fish life uses and the waters of all natural lakes of the Willamette-McKenzie River are hereby so classified.

3. The power potential of the South Fork McKenzie River, from near its confluence with the McKenzie River upstream to Cougar Dam, should be utilized.

4. The maximum economic development of this state, the attainment of the highest and best use of the waters of the McKenzie River mainstem from its mouth to the Linn-Lane County Line, with the aforementioned exceptions, and the attainment of an integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development not to exceed 7 1/2 theoretical horsepower, recreation, wildlife, and fish life uses and the waters of the McKenzie River mainstem from its mouth to Linn-Lane County line are hereby so classified.

B. For the purpose of maintaining a minimum perennial streamflow sufficient to support aquatic life, and of attaining the highest and best use of waters released from storage no appropriations of water except for domestic or livestock uses or waters to be legally stored or legally released from storage shall be made or granted by any state agency or public corporation of the state for the following waters and as shown on Table 3.

1. The South Fork McKenzie River or its tributaries above the South Fork McKenzie River - McKenzie River confluence for natural flows of the South Fork McKenzie River below 200 cubic feet per second, plus waters released from storage of up to 230 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

2. Blue River or its tributaries above the Blue River - McKenzie River confluence for natural flows of Blue River below 30 cubic feet per second, plus waters released from storage of up to 350 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

3. The McKenzie River or its tributaries above U.S.G.S. - State Engineer Gage No. 14-1625 (NE 1/4 Section 5, Township 17 S., Range 3 E.) near Vida, Oregon for natural flows of the McKenzie River below 1,400 cubic feet per second plus waters released from storage of up to 580 cubic feet per second measured at the aforementioned gage.

4. Gate Creek or its tributaries above the Gate Creek - McKenzie River confluence for flows of Gate Creek below 20 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

5. Mohawk River or its tributaries above the Mohawk River - McKenzie River confluence for flows of the Mohawk River below 20 cubic feet per second measured at a point between said confluence and 1.0 miles above said confluence.

6. The McKenzie River or its tributaries above the intersection of the McKenzie River and Interstate Highway 5 for natural flows of the McKenzie River below 1,025 cubic feet per second, plus waters released from storage of up to 700 cubic feet per second, measured at the intersection of the McKenzie River and Interstate Highway 5.

C. Applications for the use of the waters of the Willamette-McKenzie River Basin shall not be accepted by any state agency for any other use and the granting of applications for such other uses is declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated and coordinated program for the use and control of the water resources of the state.

D. Rights to use of water for industrial or mining purposes granted by any state agency shall be issued only on condition that any effluents or return flows from such uses shall not interfere with other beneficial uses.

E. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

WILLAMETTE RIVER MAINSTEM
AND
LONG TOM RIVER

WHEREAS the State Water Resources Board under the authority of ORS 536.300 has undertaken a study of the Willamette River Main Stem and Long Tom River as delineated on State Water Resources Board Map, File No. 2A.7014;

WHEREAS in this study consideration was given to means and methods of augmenting, conserving, and classifying such water resources, existing and contemplated needs and uses of water for domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife, and fish life uses, and for pollution abatement as well as other related subjects including drainage, reclamation, and flood control; and

WHEREAS the Water Policy Review Board under ORS 536.300 and 536.340 has undertaken further studies of the development of the water resources of the Upper Willamette River Basin; and

WHEREAS as a result of these studies the following findings have been reached by this board:

1. The total quantity of water is sufficient on an average year basis to satisfy all existing and contemplated needs and uses of water.

2. Any significant expansion of consumptive use will intensify shortages during low flow periods of the summer months.

3. Flows, unless augmented by storage, will not be sufficient on most streams during the summer months of low flow years to supply future consumptive and nonconsumptive demands.

4. Maldistribution exists with regard to physical location and with respect to availability during time of need.

5. Ground water occurs in varying quantities throughout the basin. It is concentrated in economic quantities only in alluvial deposits in the valley lowlands.

6. Ground water supplies are inadequate in some areas to satisfy existing rights.

7. Ground water supplies a major portion of domestic water utilized in the basin.

8. Major municipal water supplies are obtained from sources outside this basin.

9. Existing sources of municipal water for cities obtaining water supplies in the basin appear to be adequate.

10. There is need to insure water for domestic, livestock, and municipal uses which, while small, are of benefit to the state.

11. Irrigation is an authorized use of water stored in Fern Ridge Reservoir.

12. Adequately irrigated agricultural lands represent only a small percentage of the total potentially irrigable area.

13. Storage of winter runoff from additional reservoirs, releases from constructed, under construction, authorized, and recommended reservoirs; and ground water could provide sufficient quantities to satisfy future irrigation needs.

14. There is some power potential in the basin.

15. Industrial use will be a major factor in the economy of the basin.

16. There are no water rights for mining purposes. No significant use is anticipated in the foreseeable future.

17. Recreation is a significant use of water.

18. Major recreation use of water occurs at Fern Ridge Reservoir and on the mainstem Willamette River.

19. Recreation, which is not an authorized use of Fern Ridge Reservoir, is subject to the ultimate requirements of the authorized purposes.

20. Releases from upstream storage to replace waters withdrawn from Fern Ridge Reservoir for authorized purposes could materially assist in maintaining recreation values.

21. Water consumption by wildlife does not represent a significant quantity.

22. The Willamette River mainstem is important for anadromous fish migration and spawning and support of several resident fish species.

23. Attainment of minimum streamflows in the Willamette River mainstem will require negotiation and agreements with the Corps of Engineers for release of stored water.

24. Maintenance of minimum perennial streamflows would be in the public interest.

25. Material improvement in minimum low flows cannot be achieved without the development of storage.

26. Attainment of flows recommended by the fisheries interests will be achieved only through storage during some months.

27. Pollution abatement will continue to be of major importance in maintaining instream beneficial uses.

28. Increases of population and the need to serve presently unsewered areas, will require municipal sewerage works to be expanded.

29. Utilization of flows to minimize pollution should only be permitted if it does not limit or conflict with the multiple-purpose objectives for water use in the basin.

30. Drainage of agricultural and suburban lands is a major problem in the basin.

31. There are flood problems in the basin.

32. Existing flood control reservoirs have materially reduced flood damages.

33. There are physically feasible storage sites in the basin.

34. Certain river sections and numerous minor streams and creeks are by nature of their physiography, location, land ownership, or economic potential available only for limited resource needs.

35. Establishment of restrictions on further appropriations on some streams would prevent an increase in depletion potential and aid in maintaining minimums where streams are not now appropriated beyond their natural capacity at critical points.

NOW THEREFORE BE IT RESOLVED that this board hereby adopts the following program in accordance with ORS 536.300 (2) pertaining to the water resources of the Willamette River Main Stem - Long Tom River Basin:

A. The maximum economic development of this state, the attainment of the highest and best use of the waters of the Willamette River Main Stem - Long Tom River Basin, and the attainment of an

integrated and coordinated program for the benefit of the state as a whole will be furthered through utilization of the aforementioned waters only for domestic, livestock, municipal, irrigation, power development, industrial, mining, recreation, wildlife, fish life and pollution abatement uses and the waters of the Willamette River Main Stem - Long Tom River Basin are hereby so classified with the following exception:

No application for appropriation of water shall be accepted or issued by any state agency except appropriations for domestic or livestock use or appropriations for beneficial use involving water legally stored in excess of or that necessary for existing rights, of the waters of Coyote and Spencer Creeks.

B. For the purpose of obtaining the highest and best use of waters released from storage, no appropriations of water except for domestic or livestock uses shall be made or granted by any state agency or public corporation of the state from the Long Tom River above U.S.G.S. Gage No. 14-1700 (NE 1/4 Section 33, Township 14 S., Range 5 W.) at Monroe, Oregon for waters released from storage of up to 370 cubic feet per second measured at the aforementioned gage (Table 4).

C. To support aquatic life and minimize pollution, in accordance with Section 3, Chapter 796, Oregon Laws, 1983, no appropriation of water shall be made or granted by any state agency or public corporation of the state for waters of the mainstem Willamette River and tributaries when flows are below the levels specified in Table 4. This limitation shall not apply to:

1. Domestic and livestock consumption.
2. Water legally released from storage for other purposes.

Attainment of the specified flow levels during some portion of the year will require use of stored water to augment flows.

D. Applications for the use of the waters of the Willamette River Main Stem - Long Tom River Basin shall not be accepted by any state agency for any other use and the granting of applications for such other uses is declared to be prejudicial to the public interest and the granting of applications for such other uses would be contrary to the integrated and coordinated program for the use and control of the water resources of the state.

E. Rights to use of water for industrial or mining purposes granted by any state agency shall be issued only on condition that any effluents or return flows from such uses shall not interfere with other beneficial uses.

TABLE 4
MAINSTEM WILLAMETTE-LONG TOM SUBBASIN
MINIMUM PERENNIAL STREAMFLOW
(cubic feet per second)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Priority Dat
Willamette River from the confluence of Coast Fork and Middle Fork to the confluence with the McKenzie River													
	2000	2500	2500	2500	2500	2500	2500	2500	2000	2000	2000	2000	11-3-83
Long Tom River at USGS Gage 14170000 (Sec. 33, T.14S., R.5W.)													
(from storage releases only)	370	370	370	370	370	370	370	370	370	370	370	370	6-22-64

8456C

F. Structures or works for the utilization of the waters in accordance with the aforementioned classifications are also declared to be prejudicial to the public interest unless planned, constructed, and operated in conformity with the applicable provisions of ORS 536.310 and any such structures or works are further declared to be prejudicial to the public interest which do not give proper cognizance to the multiple-purpose concept.

Dated May 30, 1985

WATER POLICY REVIEW BOARD

William H. Young

William H. Young, Director
WATER RESOURCES DEPARTMENT

2907A

L-COG
Lane Council of Governments
NORTH PLAZA LEVEL PSB/ 125 EAST EIGHTH AVENUE / EUGENE, OREGON 97401 / TELEPHONE (503) 687-4283

May 10, 1988

014875

Land Management Planning
Willamette National Forest
P.O. Box 10607
Eugene OR 97440

The L-COG Board of Directors met on April 28, 1988 and approved the following comment on the Willamette National Forest Management Plan to be forwarded by the May 16, 1988 comment deadline:

"In order to maintain the viability and consistency of the Lane County economy, the Willamette National Forest Management Plan should (1) maintain maximum allowable timber sales consistent with sustained yield timber harvest practices and good forest management practice and should set a goal at or above the last ten year average Allowable Sale Quantity level of 627 million board feet to provide for adequate timber supply during all phases of fluctuating lumber and wood products markets, and (2) provide for adequate land use allocations to meet the Allowable Sale Quantity, but with sensitivity to environmental impacts on wildlife and air and watershed conditions, recreational opportunities and scenic qualities, (3) to maintain scenic travel corridors of Highways #20, 22 126 and 58 and scenic vistas for destination recreation areas and (4) encourage the continued higher utilization of forest resources such as large mature trees and hardwoods."

L-COG would like to thank the Willamette National Forest Planning staff for their assistance during our review process. Mr. Rolf Anderson made a total of four presentations to L-COG staff, advisory committees and Board of Directors. He provided clear information on a very complicated subject and served as a valuable resource during our decision making process.

In making these comments, the L-COG Board of Directors is serving as the Areawide Clearinghouse for the Lane County area and as an association of Lane County local governmnents.

Bob Bryson, Chair
L-COG Board of Directors

GH:jm/mlmp

BOARD OF COMMISSIONERS
180 NW 5th Street
Corvallis, OR 97330-4777

(503) 757-6800

005675

May 12, 1988

Mr. Michael Kerrick
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick;

The Benton County Board of Commissioners wishes to offer the following comments on the **Proposed Land and Resource Management Plan** for the Willamette National Forest. While the Willamette National Forest is not within the County's jurisdictional boundaries, the Board of Commissioners recognizes the interdependencies in the regional economy and particularly in the timber industry in the southern and central Willamette Valley. Benton County will focus it's comments on these interdependencies and the perceived direct and indirect effects of the preferred alternative on Benton County.

The Forest Service's preferred alternative provides for a phased reduction of the forest's annual Allowable Sale Quantity (ASQ) from 627 Million Board Feet (mmbf) in the early years of plan implementation to 568 mmbf over the 10 to 15 year planning period. The proposed targeted ASQ in the preferred alternative would represent a 21% reduction over the 1987 sale volume of 717 mmbf. Benton County is concerned over the effect of such a dramatic reduction in timber supply from the Willamette when considering a corresponding reduction in the ASQ proposed for the Siuslaw National Forest and the limitations for the harvest of timber on private land.

The proposed Siuslaw Forest Management Plan identifies Benton County mills as being heavily dependent upon timber from the Siuslaw National Forest. The plan references a survey which shows that 43% of 79.3 mmbf consumed by Benton County mills in 1982 came off of the Siuslaw. Although there is no data generally available, it is believed that Benton County mills obtain only a very limited amount of timber off of the Willamette. The County's concern is not with respect to the availability of timber from the Willamette for mills within the County, but with the availability and competitiveness of timber off the Siuslaw and other public and private holdings in the Coast Range.

Historically, Benton County mills have retained competitive control over timber within an economical hauling range. A decline in the supply off the Willamette will likely cause a shift towards the Siuslaw, particularly by Linn County mills. A representative of Willamette Industries indicated that the Forest Service's preferred alternative could cause his company to target the Siuslaw for the purchase of 30-40 mmbf annually to supply their Linn County mills.

Benton County does not believe that this level of competition would be healthy for the Wood Products sector of the County economy. Several of the County's mills are small single owner operations, which have remained competitive or reopened following the recession of the early 1980s. In addition regional trade and service demand generated as an indirect effect of the timber economy in other counties within the regional would also undoubtedly effect the expansion of the Benton County economy. The County believes that some of the 2700 to 2900 jobs predicted to be lost under the proposed alternative could conceivably occur in Benton County.

Benton County contends that the Forest Service has not fully considered the economic effect of the preferred alternative on Counties within the "secondary zone of influence". There has been a noticeable lack of coordination and analysis of the regional effects of multiple proposed forest plans developed by various National Forests. Benton County urges the Willamette and Siuslaw National Forests to undertake a cooperative analysis of the economic effects of plan alternatives on the Central and Southern Willamette Valley prior to further consideration of the respective plans.

Benton County has concerns over the proposed 23% reduction in acreage for general timber production. The County supports Linn County's suggestion that the allocations for scenic quality, roadless areas and dispersed recreation be adjusted to provide an increased harvest level.

The Environmental Impact Statement (EIS) recognizes Benton County in an analysis of socio-economic factors. The EIS uncharacteristically classifies Benton County as "lightly populated", when in fact Benton County ranks as the second most densely populated county in the state outside of the Portland Metro area. If the City of Salem was located in Benton County, as suggested in the EIS, the County would undoubtedly rank number one. The EIS also notes that County residents are recognized as having been "strongly represented among the Forest's recreation users"(EIS p III-231). County residents do enjoy the reasonable proximity to abundant recreational opportunities on the Willamette. The preferred alternative, however, falls short on demonstrating how the reservation of additional roadless area and other non-wilderness area will satisfy projected increases in recreation demand or alleviate overuse of popular areas.

In conclusion, Benton County urges the Willamette Forest Planners to reconsider the alternatives and other plans submitted by agencies and organizations which seek to truly provide for multiple use of this magnificent resource. If you have any questions regarding these comments, please do not hesitate to contact Gary Munsterman at the Benton County Development Department (757-6819).

Sincerely,

Dale D. Schrock
Chairman

cc: U.S. Senator Mark Hatfield
U.S. Senator Bob Packwood
U.S. Representative Peter DeFazio
U.S. Representative Denny Smith
Governor Neil Goldschmidt
Oregon Senator Cliff Trow
Oregon Senator Mae Yih
Oregon Representative Wayne Fisk
Oregon Representative John Schoon
Oregon Representative Tony Van Vliet
Tommy Thompson, Superintendent, Siuslaw National Forest
H. Dale Robinson, Chief U.S. Forest Service
James Torrence, Regional Forester
Linn County Board of Commissioners

DOUGLAS COUNTY

BOARD OF COMMISSIONERS

DOUG ROBERTSON — BILL VIAN — DORIS WADSWORTH

Courthouse – Roseburg, Oregon 97470 – (503) 440-4201

017381

May 18, 1988

Mike Kerrick, Forest Supervisor
Willamette National Forest
Box 10607
Eugene, OR 97440

Re: Management Plan

Dear Mr. Kerrick:

The Douglas County Board of Commissioners strongly supports the position of the Lane County Commissioners on the Draft Management Plan for the Willamette National Forest.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
OF DOUGLAS COUNTY, OREGON

Doris L. Wadsworth, Chairman

Doug Robertson, Commissioner

Bill Vian, Commissioner

cc: Commissioner Steve Cornacchia

attachment

/dld4
willamet.for

BOARD OF COMMISSIONERS
John Ball
Steve Cornacchia
Ellie Dumdi
Bill Rogers
Gerald Rust, Jr

May 3, 1988
WP bc01541/C

Lane County

Mike Kerrick
Forest Supervisor
Willamette National Forest
Box 10607
Eugene, OR 97440

Re: Response to Management Plan

Dear ~~Mr. Kerrick~~ Mike:

The Lane County Board of Commissioners offers the following response regarding your office's Draft Management Plan for the Willamette National Forest. The Board appreciates the opportunity to review said plan and to comment on its final form. The Board assigned review of the Draft Plan to its Natural Resources Committee and the members of that committee, Commissioner Steve Cornacchia and Commissioner John Ball, have conducted several meetings with user groups associated with different aspects of the forest. The committee has prepared the following response which has been adopted by a majority of the Board for transmittal to your Offices.

Lane County is dramatically affected by the management of the Willamette National Forest. It is home to a majority of the 14,500 direct and indirect employees who make a living from the Forest. It will receive $25 million in national forest receipts in 1988, of which nearly $6 million will be used to fund Lane County's schools. The economic importance of the Forest to Lane County cannot be overstated. The Lane County Board of Commissioners acknowledges that importance and expresses its concern about the future of employment, schools and roads in Lane County in the form of the following response.

Introduction

The Board finds:

1. The Allowable Sale Quantity of the Forest's Preferred Alternative of 568 mmbf cannot be supported.

2. The increase in acreage for Dispersed Recreation at the expense of timber supply cannot be supported.

3. The set aside of 91 Spotted Owl Habitat Areas at the expense of timber supply cannot be supported.

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4. The 67,700 acres of roadless lands retained in an undeveloped condition cannot be supported.

5. The Visual Quality Objectives are unreasonably extensive and cannot be supported.

6. The Forest's use of the decennial averages of timber sale/harvest levels are not indicative of periods of productive timber activity.

7. The Forest has overstated the acreage unsuitable for timber production.

8. All of the offered alternatives continue the polarized argument of plantation type, short-rotation forest versus old-growth forest, and old-growth preservation concepts found generally throughout the preferred alternatives cannot be supported.

The Board recommends:

1. Allowable Sale Quantity. The Board recommends that the Allowable Sale Quantity be set in the range between 650 to 700 mmbf. The 568 mmbf figure of the Preferred Alternative requires an unreasonable shift away from timber production to set asides of questionable economic value. The economic reality of a 568 mmbf ASQ is institutional recession-- a reality that the Board cannot support or endorse. An adequate supply of raw material is absolutely essential to a major small manufacturing component of the County's economy.

   A negative economic impact on Lane County, in the form of reduced employment and reduced timber receipts resulting from the implementation of Alternative J is unacceptable. The economic consulting firm of CH_2M Hill has predicted said economic impact in two scenarios:

   (a) The difference between the 568 mmbf ASQ and potential yield; and
   (b) The difference between probable harvest under the ASQ and the 1985 actual harvest.

   By taking an average of the two scenarios, an unpleasant result becomes apparent:

   - a 25 percent decrease, totalling $4.7 million, in road funds to Lane County.

   - a 25 percent decrease, totalling $1.5 million, in basic school support for Lane County schools.

   - a reduction in the average per student support, $134 per student to $97 per student.

   - a reduction in direct and indirect employment of approximately 3,000 jobs in current employment levels.

The resulting economic figures are unpleasant in that they mirror the economic figures we confronted during the recessionary period of recent years. The Board does not desire to see those figures again, especially as a result of administrative action. Such figures that result from a recession can be accepted; such figures resulting from governmental action cannot. The 568 mmbf ASQ (assuming completely harvested) would set a cap on sales (and harvest) below even 1985 harvest levels. To set an ASQ that does not allow non-recessionary industry production, but that does provide more recreational acreage, is not economically defensible.

2. Dispersed Recreation

The Board recommends against the Preferred Alternative's increased acreage allotment for dispersed recreation. The Forest's increased acreage allotment in many of the alternatives, including the 34,000 acres in Alternative J, appears to be excessive. Any economic trade offs or mitigation of these allotments is marginal and speculative at best. The Board believes that dispersed recreation is compatible with and does occur in areas of harvest activity and the Board does not endorse the removal of productive timberlands to meet the need for additional dispersal recreation. The Board would rather see an emphasis on developed recreational sites--sites that the majority of average vacationing families wish to visit. Primitive recreation has a tremendous playground --the wilderness areas created by Congress--and the need for additional acreage for such activity, outside areas of harvest, has not been adequately demonstrated.

3. SOHA's

The Board recommends that acreage allotments of the plan for Spotted Owl Habitat Areas not be considered as acreage permanently removed from timber harvest acreage until a complete scientific analysis demonstrates the need of such removal for the continued existence of the Spotted Owl. It is suggested that the Forest continue scientific study necessary to establish the connection of the species to old-growth forest eco-systems. If and when the connection is proven, the Forest can then process habitat protection methods through a system of review and analysis. Actual owl habitat within the 800,000 acres of remaining old growth and large mature timber can be monitored and afforded protection in the interim, without permanently removing any acreage from land suitable for timber production.

4. Roadless Land

The Board supports the contention that Congress has mandated specific wilderness areas and has placed all other roadless areas in a multiple-use posture. One-third of the roadless acreage inventory is removed from the timber base to support Dispersed Recreation and to retain old growth under Alternative J. The Board questions the complete removal of these lands from the timber base.

All of the Plan's Alternatives envision some level of roadless area retention. If such retention is to continue under the Forest's management, then the Board suggests that one area receive further review--roadless areas bordering the Waldo Area Wilderness. The recreational value of Waldo Lake and Wilderness to Highway 58 communities is deserving of support. Old-growth hemlock appears in substantial amounts in these roadless areas which lends credence to the contention that timber production values would not be seriously impaired by retention of roadless acreage in these areas. The Board strongly suggests that the Waldo area receive high priority for roadless recreation management.

5. Visual Quality Objectives

The Board recommends that Highways 20, 22, 58 and 126 receive intense management attention for visual quality. Such attention and protection can be shown to have economic value in the tourism and recreation enhancement efforts of Lane County and the State of Oregon. The Board further recommends that other, less frequently-used, roads receive a lower degree of attention and that management efforts be directed at selective timber harvest along said roads. For these roads the Board recommends a multiple-use strategy that does not include allotments of acreage completely removed from the timber base.

6. Decennial Averages of Sale/Harvest

The Board recommends that the Forest discontinue its reliance upon sale and harvest averages of the past decade. Using an average of figures that emanate from a period of extended recession creates an unrealistic economic statement on the productive use of the allowable timber supply. To connect that period's production to an anticipated production level for future decades requires the user of the Forest to accept recessionary levels of production. The creation of a harvest cap mirroring recessionary averages prevents an opportunity for full employment and economic benefit resulting from non-recessionary full production. The Board does not support the prevention of full production under sustained yield practices--a prevention that Alternative J would create.

7. Unsuitable Lands

The Board recommends that the Forest re-evaluate its increased acreage assignment to this category. The evaluation should include current published research in regeneration, the actual timber production occurring, the actual regeneration occurring and the actual harvesting occurring on lands now considered for placement in this category. The entire multiple-use concept cannot be efficiently effected if certain lands are classified in error. The Board is concerned that an "unsuitable" classification today will prevent regeneration innovation tomorrow on lands forever forgotten as productive timberland.

8. Old Growth Forest

The Board recommends that the Forest immediately, upon adoption of its Management Plan and Environmental Impact Statement, begin a review of its management direction regarding the entire Forest in order to address the continuing polarization in the issue of old-growth forest versus short rotation forest. The old-growth issue has become "preserve it all for eternity" versus "cut and use it all today." It appears to the Board that neither position is beneficial to the future of forest, especially 200 to 300 years down the road.

The Board questions the effect upon nutrient return to the soil resulting from rotations of 60 to 90 years. How productive will a forest be 200 years from now during the third and fourth rotations? What is the long-term effect of preventing biomass accumulation that normally occurs in older (150 to 250 years) forests?

The Board questions the effect on genetic diversification resulting from a conversion of the Forest to "short" rotations of 60 to 90 years. Is genetic diversity imperative and, if so, can such a rotation on the Forest lands remaining suitable for timber production ensure its occurrence?

The Board questions whether a complete conversion of the timber base to smaller trees for harvest is in the best long-term interest of the County's economy.

The conventional response to the Board's questions has been to preserve old-growth ecosystems. The wisdom of such a response remains debatable. Short-term benefit of preservation resulting to the particular ecosystem is apparent: biomass accumulation continues the nutrient return and the particular ecosystem's trees grow longer than its transformed neighbors. However, what benefit accrues to the remaining, shorter rotation forest by preserving a particular old-growth ecosystem? How does nutrient return in one preserved area benefit other areas of the forest? How do the genes of one particular area of preserved old-growth, aside from research opportunities, benefit other areas of the forest? If preserved old-growth ecosystems eventually die or transform to other types of ecosystems, what is the long-term benefit of preservation? Is there value in returning nutrient to soil that will never be allowed to produce harvestable timber? Does genetic diversity become merely an axiom supporting a desire to view larger trees? The preservation argument appears to be somewhat nebulous once taken beyond its short-term purpose of saving large trees.

All of the previous questions emanate from the Board's concerns for the short term and long term health of this country's national forests. Concern and vision must never be allowed to become mutually exclusive. Both require an elevation of the issue beyond simplistic arguments that a particular tree should be allowed to grow until it dies or that it should be sent through a sawmill. This belief, and the aforementioned concerns, prompt the Board to suggest that the Forest review its overall management of the Willamette National Forest.

The Board recommends that the Forest immediately upon adoption of its management plan and environmental impact statement, embark upon a course of review that encompasses the viability of extending the rotation of the harvested forest to periods of 95 to 200 years. It is anticipated that such an extension would include the entire forest except for imperative set asides for reasonable visual quality along major tourist routes, existing wilderness, watershed protection and anadromous fishery protection. In other words, except for such set asides the entire forest would be managed as harvestable. All nonexcepted old-growth areas would be returned to the timber base, harvested and regenerated into 95 to 200-year-old ecosystems.

The Board recommends that the review include research regarding the ability of the extended rotation to produce 600 to 800 mmbf annually on a sustained yield basis. The review should also include research on the adaptation of wildlife species to one area of the forest once their habitat has been transformed by harvest in another area of the forest. The Board further recommends that the review include research on the concept of "rest rotation," wherein a specific area is harvested at different ages during continuing rotations (e.g., a cycle of 80 years, then 120 years, then 80 years, then 160 years; or more conservatively, 95-120-95-175).

The Board, admittedly, has little experience or expertise in managing a forest. However, the Board does have extensive experience in controversy; and controversy definitely exists over the Forest's current management of the resource. The Board feels that the Forest, with modification to its Preferred Alternative, can effectively manage the resource while it conducts the recommended review. By virtue of the existence of the polarized controversy it appears that a search for a better way to manage the Forest for present and future generations is necessary. Commitment and effort in the search can lead to results in the forest equal to the other improvements that this nation has brought to itself and the global community in the past 200 years. Our faith in our heritage leads us to believe that an answer and an end to the controversy is attainable.

Sincerely,

Ellie Dumdi

Ellie Dumdi, Chair
Lane County Board of Commissioners

BOARD OF COMMISSIONERS
John Ball
Steve Cornacchia
Ellie Dumdi
Bill Rogers
Gerald Rust, Jr.

014007

Lane County

May 16, 1988
WP bc01561/K

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

I am writing in response to the draft forest plan of the Willamette National Forest. My position is substantially different from that of my colleagues and much of the forest products industry. I find a reluctance to confront reality in much of the thinking of many local governments and the forest products industry. I find that a 600 and to low 700 million board feet per year harvest level is quite unrealistic. We cannot sustain that level of harvest. I also believe that Alternative J, while far more realistic, is also much too responsive to the short-term economics of harvesting old stands of trees. It is important for our region to understand the trade off and be realistic. I find that the City of Salem in choosing Alternative C makes a strong case for preserving watersheds, fisheries and tourism in the North Santiam - the Opal Creek area. These watersheds contain the largest tracts of large, super-old trees in the United States and in the world. This area should remain roadless. I urge an alternative which is substantially below the 500 million board feet. I would prefer to see an alternative in the 350 million board feet range.

It is my considered opinion that we can have a viable timber industry and an old growth forest which protects watersheds, fisheries, wildlife and recreation opportunities. I feel we should invest more in some of the nontraditional areas such as wildlife and fisheries habitat and that the Forest Service should assist our region in making a transition from an old growth-dominated industry to a second-growth and tourism-based industry. The course that we are on now is one of short-term economic thinking.

I urge that the Forest Service adopt a stance toward roadless areas. There should be no more harvesting in roadless areas until the new plans have been approved. This would protect areas such as Waldo in Lane County.

In addition to the Waldo roadless area, I want to see Mt. Fuji, Salmon Creek, Many Prairies, the North Fork of the Middle Fork of the Willamette, the

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Jefferson Roadless Areas and Hardesty Mountain - all protected in an unaltered state.

Sincerely,

Jerry Rust

Jerry Rust
Lane County Commissioner

JR:kko

LINN COUNTY BOARD OF COMMISSIONERS

VERNON SCHROCK, Commissioner
RICHARD STACH, Commissioner
LARRY J. JOHNSON, Commissioner

Linn County Courthouse
P.O. Box 100, Albany, Oregon 97321
(503) 967-3825

WILLIAM L. OFFUTT
Administrative Officer

April 13, 1988

002134

Michael A. Kerrick
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

The Linn County Board of Commissioners has taken the time to review and comment on the proposed plan because of the importance of the National Forest to the Willamette Valley. We find the plan to be thorough and thought provoking, and compliment those who participated in its drafting on an excellent job. The plan must be responsive to various public values and at the same time recognize the diverse ecology of the forest. Throughout the plan, an attempt to strike a balance between market and nonmarket resources is present. The preferred alternative is the result of that effort and the focus of our comments.

It is our recommendation that the Allowable Sale Quantity (ASQ) be increased to at least the level of the average harvest for the last ten years. In order to reach that level, we suggest that scenic quality, roadless lands and dispersed recreation issues be reevaluated and reduced or modified in terms of size and scope. We believe that an increased ASQ can be accomplished without compromising the various resource management programs identified in the plan. By increasing the ASQ, adequate raw materials needed to maintain our primary and historic timber industry will be ensured. An increased ASQ will have a positive impact on the Linn County economy, which in turn will help stabilize families and public institutions.

Timber Supply

In comparing potential yield and actual volumes sold and cut (Figure III-W-2), there was an average cut of about 607 mmbf from 1977 to 1986. In six of the ten years, the proposed ASQ was exceeded with the average cut almost 687 mmbf. The average was almost 488 mmbf during the four years in which the proposed ASQ was not met. If the two highest and lowest cut years are excluded, then the remaining average would be almost 616 mmbf.

We recognize that predicting the future based upon the past is not necessarily reliable. However, in reviewing the previous decade's harvest levels, it is clear that at least 607 mmbf is needed and that in non-recessionary years at least 687 mmbf is needed. In order to sustain current levels of forest industry employment and maintain an opportunity for timber industry growth, the preferred alternative should allow an increased amount of timber production.

The National Forest has an adequate land base to provide for an increased ASQ. Figure III-W-5 identifies 1,005,394 acres as tentatively suitable for timber production. This acreage has a biological potential to yield 743.4 mmbf annually. We are not questioning the need to balance other nonmarket resources, particularly those directed to the management and enhancement of fish and wildlife habitats. However, we believe that allocations for scenic quality, roadless areas and dispersed recreation can be adjusted to provide for an increased harvest level.

Scenic Quality

The preferred alternative claims to emphasize a moderate level of scenic quality within major viewshed corridors. Ten forest viewsheds have been identified which consist of 527,270 acres. Approximately 69,500 acres in scenic management areas have been identified as reduced yield lands (Figure IV-D-19). The Visual Quality Objective (VQO) adopted through the Visual Management System (VMS) is designed to describe the forest landscape and predict the effects of various management actions. We agree that major travel corridors should look like a forest to travelers and other visitors to the Forest. This is particularly applicable to Highways 20, 22, 58 and 126. These highways are traveled by those whose destination is not the forest as well as those who enter the forest for recreation. It is important to leave a favorable impression of the National Forest on all visitors in as much as tourism is Oregon's third largest industry.

However, we question whether this same approach is needed for those whose destination is within the forest, but travel the dead end and little used roads. Does the entire experience need to be natural in appearance in order for the Forest visit to be positive? The lesser traveled and dead end viewsheds should not be managed in the same manner as the viewsheds which occur along the principal highways of the forest. The visual quality objectives of retention and partial retention for the lesser traveled viewsheds should be reevaluated and categorized for modification and maximum modification visual quality objectives. Revising the VQO will provide for an increase of up to 12 mmbf in harvest levels as shown on the attached exhibit which was prepared by the Sweet Home Ranger District.

Roadless Areas

A total of 209,845 acres in 31 inventoried areas have been identified as roadless lands. This area was released for multiple use management under the Oregon Wilderness Act of 1984. It is our opinion that limited or full development is appropriate in most roadless areas. The No Change alternative retains 25 per cent of the acreage in an undeveloped condition. This means that the potential for approximately 52,500 acres of additional wilderness exists if no change occurs. Some of the 31 roadless areas may very well be worthy of future designation as Wilderness. We are not familiar with all of the roadless areas. However, it is our belief that there is a high level of existing Wilderness and that there is not a shortage of National Forest land that can be enjoyed as a wilderness experience.

We do not support the addition of most of the roadless areas because increased set aside land will diminish the timber supply. In instances

where the proposed roadless area is not suited for timber harvest, or is needed to complete a boundary of an existing Wilderness area or where a specialized need is present for wildlife management, roadless status may be appropriate. It is our opinion that multiple management of proposed roadless areas is appropriate in order to permit timber harvest, increase opportunities for recreation and generally increase access to the National Forest. Additionally, roads are valuable as fire breaks and can help reduce the type of damage which occurred in Southern Oregon last year.

Dispersed Recreation

An increased amount of land is being designated for dispersed recreation. Figure III-P-1 shows a total of 131,000 thousand acres of dispersed recreation in the proposed plan compared to 97,000 acres in the 1977 plan. According to Figure III-M-2, dispersed recreation use has recently declined in comparison to an increase in developed recreation use. It seems that if additional recreation opportunities are going to be provided, then they should be in the form of developed sites.

We believe there is an adequate amount of land that is available for primitive and semi-primitive non-motorized activities. The Wilderness, various roadless areas, and other non-wilderness areas provide for 5,059,247 Recreation Visitor Days (RVD). This figure represents the sum of Figures III-M-4 and III-P-7. It is true that the popular areas are overused and that the wilderness experience may not meet the expectations of some users. However, most of the people that use the National Forest are not seeking primitive or semi-primitive experiences. Therefore, efforts should be made to accommodate the largest group of recreationists and not insure that everyone who enters the forest will have easy access to a primitive or semi-primitive experience.

Conclusion

It appears that the preferred alternative provides for increases in Research Natural Areas, Special Interest Areas, Old Growth Groves, Threatened and Endangered Species, Special Habitats, Dispersed Recreation, Scenic Areas, and Developed Recreation over the 1977 Plan. Management areas 1, 2, 3, and 13 remain unchanged. The only decline is in land set aside for General Forest (main area of timber supply), which declines from 1,019,830 acres in the 1977 Plan to 696,745 acres in the 1988 Forest Service preferred alternative.

We recognize that Minimum Management Requirements directs the Forest Service to revise planning for timber harvest. We also understand that it is not always appropriate to emphasize timber harvest at the expense of other forest considerations. However, in the preferred alternative, we believe that all other management areas have been emphasized at the expense of timber supply. This is not necessary or wise in our opinion.

We support multiple use management of the Willamette National Forest and an adequate supply of timber. The preferred alternative emphasizes scenic and roadless values that already exist throughout the Forest and which are specifically established in the Wilderness areas. It also emphasizes primitive and semi-primitive recreation values which will be enjoyed by a minority of the Forest users. In our opinion, most

dispersed recreation is compatible with timber harvest. The most popular recreation activities such as camping, hiking, fishing and hunting are now enjoyed by families and individuals on a variety of land throughout the Forest. More emphasis should be placed on improving access to the Forest and providing adequate developed recreation sites for the benefit of the majority of the Forest users.

A commitment to multiple use whenever possible will maximize the resources of the Willamette National Forest. We support wildlife research and enhancement projects and are not promoting timber harvest as the single purpose of the Forest. What we are promoting, is a land use plan that establishes higher levels of timber supply and addresses the needs of all users of the Forest and its resources.

Sincerely,

LINN COUNTY BOARD OF COMMISSIONERS

Vernon Schrock, Chairman

Richard Stach, Commissioner

Larry Johnson, Commissioner

LINN COUNTY SHERIFF'S OFFICE

ART J. MARTINAK, Sheriff

P.O. Box 100
County Courthouse, Albany, Oregon 97321

Civil Department: 967-3907
Criminal Department: 967-3911

016938

05-13-88
Mike KERRICK
Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, Oregon
97440

RE: Willamette National Forest

Dear Mr. KERRICK:

As the current Sheriff of Linn County, I am extremely interested in the decision that the United States Forest Service makes concerning the Willamette National Forest. A big portion of the Willamette National Forest is in Linn County, of which I have, the duty and responsibility to the citizens of Linn County who are in and about this area for purposes of recreation, employment, and travel.

As the primary law enforcement official of the county, I'm also extremely concerned about funding levels for county government.

After having reviewed the U.S. Forest Service Alternate J, and consulting with friends and Linn County citizens, who are knowledgeable of the Willamette National Forest of Linn County, it is my belief that the citizens of this area would best be served with the current plan or, at the very least, the Willamette Multiple Use alternative outlined by the attached publication.

If I, or my department can be of any further use to you in this matter, please feel free to contact me at any time.

Sincerely,

ART J. MARTINAK
Linn County Sheriff

MEMBER

CC: Copy to file

Marion County
OREGON
BOARD OF COMMISSIONERS

002173

(503) 588-5212

BOARD OF COMMISSIONERS
Randall Franke
Gary Heer
Garry Kanz

ADMINISTRATIVE OFFICER
Ken Roudybush

April 12, 1988

Rolf Anderson
Land Management Planning
Federal Building; 211 E. 7th Street
P.O. Box 10607
Eugene, Oregon 97440

RE: Comments on Willamette National Forest Draft Environmental Impact Statement and Proposed Land and Resource Management Plan

Dear Mr. Anderson:

We have reviewed the above two documents and have the following comments. Approximately 144,000 acres of Willamette National Forest, amounting to 18% of the total Marion County National Forest land area is located within Marion County. All of the National Forest is located within the "Forest" designation on the Marion County Comprehensive Plan and zoned TC (TIMBER CONSERVATION). The primary intent of this Comprehensive Plan and zoning designation is to limit the use of identified forest lands to timber production, farming, watersheds, wildlife habitat, recreation, and other compatible uses.

As we understand it, Alternative J is the Willamette National Forest's preferred alternative for management of the Forest, and this alternative would increase the average level of timber production that the Willamette National Forest has generated over the last ten years. Over the last ten years, the average timber production has been approximately 486 million board feet cut per year. Under Alternative J, the anticipated timber cut would be 568 million board feet per year.

As noted in the Draft Environmental Impact Statement, the aim of Alternative J is to balance the timber, roadless area, old-growth, fish and wildlife, and scenery issues. Timber production under the Alternative will be higher than historic harvest levels, but lower than historic sale levels.

With regard to timber industry employment, we recognize that throughout Oregon, lumber industry productivity increases have significantly reduced the number of timber industry workers during the last ten years. In 1979 it took 4.5 workers to produce a million board feet; by 1986 it took only 2.8 workers to produce the same amount (Source: State of Oregon Employment Division Labor Market Information, 1987). Thus, even if the same amount of timber were to be harvested in the future as in the past, timber industry employment levels would drop back as part of a general restructuring of Oregon's economy. Our specific comments on the Willamette Forest's planning documents focus on impacts to the Little North Fork Santiam River. The Little North Fork is a tributary stream to the City of Salem's domestic water intake facility at Stayton on the North Santiam, has an anadromous fishery, and is an important recreational and scenic resource for many people in Marion County. In an effort to maintain the very high water quality of the river by preventing any increase in the existing very low amount of phosphorous and nitrogen, the State Environmental Quality Commission has a ban on any discharges to the river. In 1985, the State Legislature designated that portion of the Little North Fork from the confluence of Battle Ax Creek and Opal Creek downstream to the Willamette National Forest boundary as a State Scenic Waterway. As pertains to your two planning documents, our specific concerns have to do with sedimentation and effects on chemical composition of the river resulting from road construction, soil compaction, and soil and fertilizer run-off near tributary streams on the steep slopes on the south side of the river. Another concern is road and timber-cutting impacts near the newly constructed Little North Santiam Trail (#3338) along the river from Elkhorn upstream to Shady Cove.

This is one of the few low elevation trails in the northern part of the Willamette National Forest, and is thus accessible most months of the year.

Both the north and south sides of the Little North Fork canyon have steep slopes with rock outcrops. The DEIS identifies three roadless areas in the canyon, one on the north side and two on the south side. Alternative J allocated Bull of the Woods road-less area (not to be confused with the Bull of the Woods Wilderness further to the east) to a "Dispersed Recreation-Semiprimitive Non-motorized-No Harvest" management allocation. This area is on the north side of the Little North Fork. The DEIS identified 92% of the roadless area as having potential for severe surface erosion, and found the majority of the area cannot be reforested within 5 years. The management allocation for the 6,378 acre road-less area appears appropriate considering existing recreation trails in the area, erosion hazards, and how low amount of potential timber production. The majority of the two roadless areas on the south side of the canyon, however, have been placed in a "General Forest" management allocation by Alternative J. This allocation places major emphasis on timber production. This allocation may be appropriate for some portions of the two roadless areas, however it would not appear appropriate for the majority of the two areas, considering the extensive road construction that will be required for timber harvest, together with potentially severe sedimentation and other water quality impacts. The DEIS identified 73% of the 11,284 acre Opal Creek roadless area as having potential for severe surface erosion, and found 40% of the area as unsuitable or unavailable for timber production. The DEIS identified 80% of the 9,321 acre Elkhorn roadless area as having potential for severe surface erosion, and found 60% of the area would be difficult to regenerate.

In conclusion, we recognize that you have to make difficult choices, and that Alternative J most closely approaches the objective of maximizing overall net public benefits. We request you consider our concerns regarding the Little North Fork drainage, in making your final decision. Water quality on the Marion County portion of the Willamette National Forest currently remains high, and the City of Salem has not had to install a water filtration system to date. For this the Forest Service deserves high praise. Thank you for the opportunity to comment.

BOARD OF COMMISSIONERS

Gary Kahn

Gary Hoer

Randall Franke

cc: Craig O. Luedeman
Bill Worchester

003843

City of Albany

ALBANY OREGON ALL-AMERICA CITY 1985

April 28, 1988

Michael Kerrick
Forest Supervisor
Willamette National Forest
Box 10607
Eugene, OR 97440

Dear Mr. Kerrick,

The Albany City Council has reviewed the draft Willamette National Forest Management Plan and has some concern about conclusions which have been reached. We feel that further study must be given by the Forest Service before any change in the management of the forest is made.

As city people, it is difficult to envision a forest covering more than one and a half million acres of land. We are more familiar with 5- and 10- or even 20-acre plots of ground that are developed for a variety of uses. We do know about urban uses such as subdivisions, shopping centers, and factories. Perhaps there is an analogy to an industrial factory which relates to the forest. Factories are created for the purpose of producing a product. That is the sole economic reason for the investment and management of a factory.

At the same time, there is a public interest in the proper management of the factory. That interest ranges from the assurance that waters are not polluted by the wastes, to concern about air pollution, and a desire to be sure that the industrial property is well maintained and not unsightly to neighbors or those just passing by.

We want to suggest that the planning for the future of the Willamette National Forest needs to consider that the forest is just a very large and very complex factory. Its principal economic purpose, too, is for the production of a product. In this case, the "factory" produces timber and timber by-products. All other considerations used in planning for the forest must focus upon this principal economic purpose of the Willamette National Forest.

P. O. BOX 490 • ALBANY, OREGON 97321 • (503) 967-4300
AN EQUAL OPPORTUNITY EMPLOYER

With the concept of a timber factory in mind, we think the plan approved for managing our forest ought to be based upon the following principles:

The first priority must be the production of a sustained yield of timber at current levels of production which is about 700 mmbf.

The existing designated wilderness areas must be preserved.

The water quality of rivers, lakes, and streams must be maintained or improved if already derogated.

The minimum requirements of current law must be observed for wildlife and other purposes.

Recreational areas providing for a wide range of forest based activity must be provided.

We believe that the plan should clearly plan not only for multiple use management but specifically for rotational management. By that we mean it is not necessary except for wilderness areas, riparian boundaries, and a few especially sensitive areas to designate lands as forever unavailable for the production of timber.

We want to suggest that consistent with the first priority for a timber "factory," all other areas of the forest should be available for harvest in the future. We don't want that harvest to be indiscriminate. For example, areas of old growth do need to be set aside now for the enjoyment of people engaging in recreation and to protect certain types of wildlife. At the same time some maturing timber needs to be designated as "future old growth." When it reaches that stage of maturity, it should be substituted for the original stand of old growth which should then be harvested.

Likewise, areas designated today for recreation today should be released for harvest when timber in other areas designated for "future recreational use" have matured to a stage where the necessary environment for successful recreation use is created. Through the long-term rotation of land uses and the avoidance of fixed use designations, we believe that the production of our "factory" can be maximized.

We encourage you to re-evaluate the Willamette National Forest Management Plan with the objective of maintaining its current level of productivity with only such minor adjustments as may be necessary to protect the total environment from degradation.

Sincerely,

Tom Holman
Mayor

kg

CITY OF COTTAGE GROVE

002131

400 Main Street, Cottage Grove, Oregon 97424

April 12, 1988

OFFICE OF THE MAYOR

Mike Kerrick, Forest Supervisor
Willamette National Forest
P. O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

By unanimous vote the City Council of Cottage Grove has asked me to respond to the Willamette National Forest Draft Plan.

While we do not support or oppose any specific alternative we are concerned with the impact of any plan on employment opportunities in the Cottage Grove area. The City Council of Cottage Grove would encourage the Willamette National Forest to adopt a management plan allowing for the largest timber harvest possible consistent with sound forest practices.

Sincerely,

Jim Gilroy
Mayor

JG:jh

cc: Doug Stout

May 11, 1988

014653

P.O. Box 276
Creswell, Oregon 97426
503-895-2531

Willamette National Forest
P. O. Box 10607
Eugene, Oregon 97440

RE: Draft EIS Willamette National Forest Plan

Dear Sirs:

On May 9, 1988, the Creswell City Council expressed a concern about the potential negative impact that Preferred Alternative J would have on the local economy of Creswell as well as other parts of our region. They are concerned about the potential loss of jobs, mill closures, loss of Timber Tax Revenue and loss of payroll which in turn reduces the number of property tax payers. This results in higher property taxes for those who were fortunate not to lose their income producing jobs.

The Creswell City Council requests that none of the alternatives listed be accepted. Instead, they support the philosophy of the present management direction for the Willamette National Forest which would generate timber sales at or above the levels of 1987. Our local mill (Bald Knob-Mazama) currently relies 100 percent on public timber sales and would be negatively impacted if lower timber harvests were mandated.

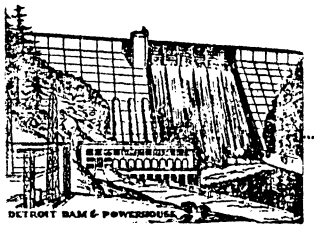
The City Council is also deeply concerned about our environment and believes that a substained yield of 700 million board feet of timber is possible without adversely affecting the fish and wildlife habitat, wilderness areas, and outdoor recreational opportunities. There are many competing uses, all of which can be adequately and safely protected.

Thank you for taking the time to hear the Council's views. You have a tremendously important decision to reach and one we are certain you will make in the best interest of everyone.

Sincerely yours,

Eddie McCluskey
Mayor
City of Creswell

EM:cd
cc - Mark Fleming



005412

City of Detroit

In the Heart of the Scenic North Santiam Canyon

P. O. Box 589
Detroit, Oregon 97342

May 9, 1988

Land Management Planning
Willamette National Forest
Federal Building; 211 E. 7th Street
P.O. Box 10607
Eugene, Oregon 97440

Dear U.S. Forest Service,

Let this letter serve as the City of Detroit's response to your Proposed Forest Plan for the Willamette National Forest.

The Detroit City Council at there regular meeting on April 12, 1988, adopted Resoulution #153 to adopt Willamette National Forest Plan alternative NC (no change).

Thank you for the opportunity to review and comment on the Draft Enviromental Impact Statement and Proposed Forest Plan documents.

Sincerely,
Detroit City Council
Detroit City Council

Dan Park
mayor

DCC/mnk

MAYOR'S OFFICE • 777 PEARL, ROOM 105 • EUGENE, OREGON 97401 • (503) 687-5010
BRIAN OBIE

May 13, 1988

014659

Mike Kerrick, Supervisor
Willamette National Forest Service
211 East 7th Avenue
Eugene OR 97401

Dear Mike:

At their May 9 meeting, members of the Eugene City Council passed a motion to send the following statement to you in response to your request for comment on the proposed "Land and Resource Management Plan."

The City Council of Eugene is supportive of the adoption of a land and resource management plan for the Willamette National Forest.

The Council is very concerned about what may be a lack of balance in the plan. Economic considerations, in general, have not been given proper weighting. The priority order of timber management goals is, in our opinion, out of proper order. From the Council's perspective, it is clear that economic implications should receive a higher priority.

The Council is similarly concerned by the assumptions on which the plan and recommended alternatives are based. An example is the use of a ten year harvest average which likely distorts the economic result of Preferred Alternative J. We recommend you also revisit your data and assumptions on roadless area, unsuitable lands, and set-asides for forest management practices.

The Council finds the reduction in jobs in the Preferred Alternative J to be very disturbing. This plan, as written, will mean significant job losses; the only argument is over exactly how many. The allowable sale of timber should not be less than 670 million board feet per year. This figure is reasonable, justifiable, and responds to sustained yield issues.

The Council understands the complexity of the task of considering a variety of conflicting uses and preparing a plan that provides a balance which serves the public interest. The Council urges the Forest Service to revisit its assumptions and develop modifications that will make the plan more supportive of the role of timber management in assuring the economic vitality of the cities and counties that are dependent on the Willamette Forest.

Mike Kerrick, Supervisor
May 13, 1988
Page 2

Thank you, Mike, for offering the Eugene City Council an opportunity to express these concerns about the proposed plan. If you have any questions, I would be happy to respond.

Sincerely,

Brian B. Obie,
Mayor

BBO:djd/4314S

RESOLUTION NO. 16, SERIES 1988 005670

A RESOLUTION IN SUPPORT OF MODIFICATION OF THE PREFERRED ALTERNATIVE J FOR THE WILLAMETTE NATIONAL FOREST PLAN

WHEREAS, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

WHEREAS, the culture, social structure and economy of the City of Florence is significantly influenced by the outputs of the Willamette National Forest, and

WHEREAS, the people of the City of Florence are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams and a dependable timber harvest, and

WHEREAS, the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades,

NOW, THEREFORE, BE IT RESOLVED that the Council of the City of Florence requests that in order to maintain the viability and consistency of the economy of Lane County, the Willamette National Forest Management Plan should (1) maintain maximum allowable timber sales consistent with sustained yield timber harvest practices and set a target sales goal which is not less than the current average ten year planned sales level (+/- 630 million board feet per year), to provide for an adequate timber supply during all phases of fluctuating lumber and wood products markets, and (2) provide for adequate land usee allocations to meet the planned sales quantity, but with sensitivity to environmental impacts on wildlife and air and watershed conditions, recreational opportunities and scenic qualities, (3) to maintain scenic travel corridors of Highways #20, #22, #126 and #58 and scenic vistas for destination recreation areas, and (4) encourage the continued research and development for a higher utilization of forest resources.

PASSED BY THE CITY COUNCIL, this 10th day of May, 1988.

APPROVED BY THE MAYOR, this 10th day of May, 1988.

Wilbur Ternyik, MAYOR

P.T. Smith, COUNCILOR

OPPOSED - REFUSED TO SIGN
Jayne Fraese, COUNCILOR

J. Pete Jensen, COUNCILOR

Rob Ward, COUNCILOR

ATTEST: Jon E. Taylor, CITY RECORDER

014101

City of Gates

MARION COUNTY

GATES, OREGON 97346

MAY 13, 1988

MR. M. KERRICK
FEDERAL BUILDING
211 EAST 7TH AVE.
P.O. BOX 10607
EUGENE, OR 97440

Mr. Kerrick in regards to the Willamette National Forest's Draft Land Management Plan. The City of Gates would like to state.

Be it further resolved that the City of Gates desires that the Preferred Alternative place emphasis on support of, community stability and economic development, while also providing for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded acess to these public lands for their stewardship, public use and enjoyment for future generations.

Sincerly,

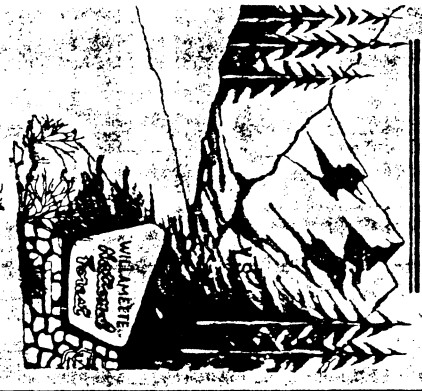
Betty Ann Orr

Mayor Betty Ann Orr.

BAO/tq

CHOOSING OUR FUTURE

THE Willamette National Forest Draft Plan



WILLAMETTE FORESTRY COUNCIL

The Willamette Forestry Council asks that you tell the Forest Service to stay with the Present Management Direction which would **keep or increase the current level of all resource outputs**... recreation, wildlife habitat, timber, etc. Write a letter to the Willamette Forest Supervisor with your views. Also, complete this form in response to the four key issues identified by the Forest Service.

Dear Forest Supervisor:

I am interested in the management of the Willamette National Forest because of: ☒ Jobs ☒ Community Stability ☒ Oregon Economy ☒ Other (*Describe*) AND RENEWAL OF A CONTINUING NATURAL RESOURSE

TIMBER HARVEST - The present plan has an annual sustained yield capacity of 797 million board fee I want the annual timber sale program (1987 Sale = 717 Million Board Feet) to: (*Check One*) ☒ Remain the same as 1987 ☐ Increase to: ☐ Decrease to:

WHY? BECAUSE I BELIEVE IT TO BE THE BEST OVERALL PLAN.

OLD GROWTH PRESERVES - The present plan preserves 320,000 acres of old growth timber on the forest. Do you feel this is: (*Check One*) ☐ Enough ☒ Too Much ☐ Not Enough

COMMENT: I BELIEVE VERY FEW PEOPLE WILL BE ABLE TO GET TO USE EVEN THIS MUCH OLD GROWTH TIMBER.

WILDLIFE HABITAT - What wildlife concerns do you have (or should the plan address)?

COMMENT: I BELIEVE THE WAY IT IS BEING MANAGED ALREADY IS MORE THAN ADEQUATE FOR WILDLIFE.

(over

ROADLESS AREAS - Should access be provided to roadless areas, outside of existing Wilderness, to enable management for multiple use?
(Check One) ☒ YES ☐ NO

COMMENT: To Allow The Average American the use of The Federal Forests, Not Just a wealthy Few

I support the following management plan alternative: (Check One)
☒ Willamette Multiple Use Alternative - Present Management Direction (Willamette Forestry Council Recommendation)
☐ Alternative J (Forest Service Preferred Alternative) ☐ Another Alternative (Describe Below)

COMMENT: THIS IS A GOOD PLAN FOR EVERYONE AND EVERYTHING INVOLVED

COMMENTS MUST BE MADE BY MARCH 31, 1988

RECREATIONAL OPPORTUNITIES
(In the future I see my use of the forest for)

Hunting/Fishing	X		
Camping		X	
Firewood Cutting		X	
Skiing	X		
Off-Road Vehicles	X		
Roadless Area Use	X		

ALBERT B. ADAMS
NAME
595 DOUGLAS ST / P.O. Box 374
ADDRESS
IDANHA
CITY
OREGON 97350-0374
STATE ZIP
[signature]
SIGNATURE (Required)
MAYOR

YOR-IDANHA

IDANHA OR FEB 5 PM 1988 97350

January 9, 1988
Connecticut

Forest Supervisor Mike Kerrick
Willamette National Forest
P.O. Box 10607
Eugene, Oregon 97440

LEBANON CITY HALL
925 MAIN STREET, P.O. BOX 247
LEBANON, OREGON 97355

CITY OF LEBANON

February 15, 1988

Forest Supervisor Mike Kerrick
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

The Lebanon City Council urges the State of Oregon to recommend to the United State Forest Service to stay with the present management direction.

The proposed Alternative "J" would have an extremely negative impact on the City of Lebanon and Linn County. Among these impacts are:

1) 5-6 medium size sawmills would be forced to close for lack of timber.

2) Approximately 3,000 logging, mill and support and service industry jobs would be permanently lost.

3) Tax payments to county schools and road budgets would be cut by millions of dollars each year. Individual property taxes would be increased to make up the loss.

The present management system is working and is in balance. We must keep or increase the current level of all resource outputs. Increased forest lock-up will not benefit this generation or the next.

Respectfully submitted,

Ronald T. Passmore

Ronald T. Passmore
Mayor of Lebanon

RTP:km

RESPONSE FORM

This form is provided as an aid to assist you in developing your response; its use is optional. Please use whatever format you wish to submit your comments about the Draft EIS and Proposed Forest Plan for the Willamette National Forest.

NAME Rick Shoot Mayor

ADDRESS PO Box 347

(PHONE) 937-2157

CITY Lowell COUNTY Lane STATE Ore ZIP 97452

REPRESENTING: MYSELF_____

ORGANIZATION: City of Lowell

1. YOUR COMMENTS ON THE ISSUES

The issues are the heart of the Alternative development and decisionmaking process for managing the Willamette National Forest. What issues are important to you? How well do you think the Alternatives in the Draft EIS address the issues? Please describe any additional issues you feel need to be addressed.

First, Thanks for the opportunity to respond. thanks also to Rick Scott and gang for their presentation, The City of Lowell is widely divided on this issue. Councilman Tom Hunt is concerned about the economic balance over the years, while Councilperson Gail Thompson is concerned about the quality of stream water and fish habitat. My concern is touching the capacity of Recreation in 50 years or less, while councilman Warren Weathers believes the only good tree is a stump.

i.095099
(ISSUES Continuation Page)

I don't feel qualified to tell you what alternatives are the best. I will leave that in your capable hands

City of Mill City

5674

Located In The Scenic North Santiam Canyon

one 897-2302 *Mill City, Oregon*

A RESOLUTION IN SUPPORT OF THE OREGON MULTIPLE USE ALTERNATIVE FOR THE WILLAMETTE NATIONAL FOREST PLAN

RESOLUTION #263

Whereas, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

Whereas, the culture, social structure and economy of The City of Mill City is significantly influenced by the outputs of the Willamette National Forest, and

Whereas, the people of Mill City are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams and a dependable timber harvest, and

Whereas, the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades,

Be It Therefore Resolved that, after consideration of the alternatives, the City of Mill City is on record requesting that none of the listed alternatives is acceptable. The City of Mill City requests the U.S. Forest Service choose the Willamette Multiple Use Alternative, submitted by the Willamette Forestry Council. This alternative would retain the philosophy of the present management direction for Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be It Further Resolved that the City of Mill City understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

DATE January 27, 1988

Larry D. Raley

Larry D. Raley, Mayor

Paula Gundersen

Attest: Paula Gundersen, Recorder

Larry D. Raley, mayor,	abstain
Ron Foster, councilman,	aye
Lloyd Lewin, councilman,	aye
Adolph Brunner, councilman,	aye
Mary Smith, councilwoman,	aye
Stanley Ogden, councilman,	abstain

CITY OF OAKRIDGE

OAKRIDGE, OREGON 97463

782-2258

May 6, 1988

Forest Planner
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Sir:

The City Council of the City of Oakridge approved by a 5 to 0 vote with one abstention at its meeting of May 5, 1988, the following recommendations regarding the USFS preferred management plan for the Willamette National Forest:

1. Our City is a timber based community. Our economy is largely dependent on the timber industry consisting of one major mill complex, several logging companies, numerous employees of various logging, trucking, and reforestation companies, and two Forest Service Ranger Districts. I have a concern that the proposed Allowable Sale Quantity of 568 MMBF is too low and will not be sufficient to sustain our timber industry in Oakridge and Lane County. The Pope & Talbot and Bald Knob operations are now 100% dependent on Forest Service timber. Markets will continue to fluctuate and, I believe, the timber industry will need a larger amount of timber volume to allow for fluctuations in the market over time. I would support an Allowable Sale Quantity of 680 MMBF or greater. I realize that, to attain this sell level, a tradeoff will need to be made for some other resources such as wildlife habitat, roadless areas, middleground and background scenic, and a re-evaluation of unsuited land.

2. A second concern is closely related to timber volume. I have a concern for the number of jobs that potentially could be lost in the Oakridge/Westfir area if Alternative J were implemented. In Oakridge we are trying to create opportunities for more jobs. I don't believe Alternative J would work to our benefit. Jobs would be in jeopardy and possibly lost rather than gained. I recommend that volume levels be increased to 680 MMBF to insure that our timber and service industry jobs are retained.

3. A third concern is for the protection of the scenic corridor along Highway 58. This corridor provides a scenic backdrop for Oakridge. This scenic backdrop is an important characteristic of the landscape surrounding the community. It is important to the attractiveness of the area and creates an appealing setting for tourists and residents

alike. The new theme "Gateway to a Recreation Paradise", is being used to promote tourism for Oakridge. The no-harvest allocation on Larison Ridge facing Oakridge proposed in Alternative J complements our goals. We agree with this allocation but recommend that limited harvests be permitted to control the hazard presented by insect damaged and windblown timber.

4. A fourth concern relates to our community as a retirement area. Our retirement community is growing and the need for close-in recreational opportunities is increasing. We believe the recreational corridors proposed along Salt Creek, Salmon Creek, the Middle Fork, and the North Fork will provide the close-in recreational opportunities needed for our residents as well as for the many tourists and visitors to our area. We hope that these corridors will be retained and managed for their recreational values.

5. A fifth concern relates to the tourism potential of our area. Tourism is a secondary industry for Oakridge and is becoming increasingly more important. One of our goals for strengthening our tourism economy is to establish more developed recreation facilities such as destination resorts. Our hope is that the management plan will allow for the siting and establishment of destination resorts at Hills Creek Reservoir, McCredie Hot Springs, Willamette Pass and any other suitable locations.

These recommendations are the result of my investigations as the mayor of Oakridge and have been amended by the City Council after consideration of public testimony. Thank you for the opportunity to comment on this very important issue and please feel free to contact me if you require clarification of our position.

Sincerely,

Richard W. Culbertson

Richard W. Culbertson
Mayor

RWC:gr

003838

CITY OF SALEM, OREGON
City Hall / 555 Liberty St. S.E.
Zip Code 97301
MAYOR'S OFFICE
Telephone (503) 588-6255

April 21, 1988

Land Management Planning
Willamette National Forest
Federal Building 211 E. 7th Street
P.O. Box 10607
Eugene, OR 97440

Gentlemen:

Enclosed is the City of Salem's response to the "Proposed Land and Resource Management Plan of the Willamette National Forest".

We are recommending Alternative C because we are very concerned with any action that will damage our watershed, the North Santiam River.

The City appreciates very much the information and assistance Dave Alexander gave us in understanding the Forest Service's planning process.

Thank you for allowing us to comment on the Resource Management Plan.

Sincerely,

Susan Miller

Susan H. Miller
Mayor

000014/rd
Enclosure

Salem, Oregon
ALL-AMERICA CITY

NAME: City of Salem, Oregon

ADDRESS: 1410-20th Street S.E. Building #2

PHONE: 588-6063

CITY: Salem

COUNTY: Marion and Polk STATE: OR ZIP: 97302

REPRESENTING City of Salem
ORGANIZATION City of Salem

1. COMMENTS ON THE ISSUE

The City of Salem draws its water from the North Santiam River at Geren Island approximately three miles upstream from the City of Stayton. The watershed draining to this point includes all the drainages of the Little North Fork of the Santiam, as well as all drainages to the North Santiam River upstream in the basin.

The U.S. Forest Service owns approximately 526 square miles or about 78% of the City of Salem's watershed. The City of Salem has a slow sand filtration plant, at the Geren Island facility, to treat the raw river water before sending it by pipeline to Salem and Turner for consumption by its customers. The City of Salem serves approximately 116,000 people in the metropolitan area.

Slow sand filtration, although an old technology, is a recognized and approved method of filtration by the Oregon State Health Division and the Environmental Protection Agency. Bacteria removal occurs by the development of a biological mass that forms on the surface of the sand. This biomass is an extremely sensitive balance of bacteria and other aquatic matter that acts to feed on coliform and other harmful bacteria without allowing them to pass through the filter. Any variations in raw water quality can adversely affect this process and render the filters ineffective.

Since the filters are considered an adequate and approved method of treatment, the City expects the raw water in the North Santiam river to stay at a quality treatable by the slow sand filtration method.

Another aspect that is of great concern is the turbidity levels that occur in the river. The slow sand filters are able to reliably treat water with turbidities no greater than approximately 6 nephelometric turbidity units (NTU's).

The issues which are most important to the City of Salem include:

a. Water quality and quantity - suspended sediments or turbidity are a problem for the City's treatment facilities. As mentioned above, raw water turbidity should be 6 NTU's or less.

b. Riparian management to sustain or improve vegetative buffer zones along streams. Buffer strips in riparian zones should be maintained at minimum depth of 100 feet. Soil erosion is irreversible. It has an immediate effect on raw water quality but it also damages the vegetation cover and so has a long term negative effect.

c. Roadless lands - the protection of remaining roadless lands would allow preservation of natural ecosystems, protection of soil mantles, wildlife habitats and the City of Salem's water supply. Any reduction in roadless areas must be accompanied by mitigation to sustain vegetation and limit erosion impacts.

d. Silvacultural practices - the control of under story vegetation and the effects of aerial and ground spray herbicide and pesticide applications are a major concern as they relate to the City's ability to adequately remove the chemicals used in spraying.

e. Enforcement - quality control to insure that buffer zones, logging activities, and silvacultural practices are maintained in accordance with permit mitigations.

2. COMMENTS ON THE ALTERNATIVES

An adequate range of alternatives are presented in the Draft Environmental Impact Statement (Draft EIS). As indicated in the Draft EIS, there is a negative correlation between higher timber harvest levels, and greater roadless areas, natural habitat, and water quality. Figure S-G-2 shows watershed impact and erosion levels for each alternative. Alternatives J- Departure, I and A show the highest watershed impact and the most erosion. These alternatives also show higher timber harvests and small roadless areas. Alternatives J, F, D, and C show progressive lessening of watershed impact and soil erosion. These alternatives also show lessening of the timber harvest.

The priority for the City of Salem in considering any alternative must be protection and preservation of water quality. The alternative which the City of Salem sees as the best to be accepted is Alternative C. We recommend this alternative as the selected plan. We are willing, however, to consider other alternatives that benefit Salem and that also do not degrade present water quality.

3. DESCRIPTION OF YOUR PROPOSED ALTERNATIVE

No new alternatives are proposed.

4. COMMENTS ON THE PROPOSED FOREST PLAN

On pages IV-13 and IV-14 the issues of mitigation are discussed. These issues are also a major concern to the City of Salem. Some of the items we feel require continual consideration are:

a. Minimum harvest on unstable soils.
b. One end or full suspension logging methods.
c. Use minimum ground skidding. Consider dry season or snow covered logging seasons where ground skidding is planned.
d. Reforest immediately.
e. Re-seed road cuts, fills, and cat trails immediately following harvest.
f. Limit cutting area and young stand area to not more than 30% of the total drainage area.
g. Adequately maintain roads and drainage ways. Close low standard roads during the wet season.
h. Build roads of a higher standard using gravel and only build the roads on stable sites.
i. Provide ample stream side vegetation buffers and protect them from damage by logging and slash fires.

The proposed forest plan thoroughly addresses these issues. We feel that while some protection is given to watersheds, they should be given a much higher consideration.

The impact of logging activities in Salem's watershed, will, in our opinion, remain significant.

The issue of water quality is crucial not only to the City of Salem, but also to fisheries, wildlife habitat, and recreation. Water quality must be made a more important consideration of the management plan.

rd/SR/USFS.ph

014159

SPRINGFIELD

CITY OF SPRINGFIELD
Office of the Mayor/City Manager

May 11, 1988

Mike Kerrick, Forest Supervisor
Willamette National Forest
P. O. Box 10607
Eugene, OR. 97440

RE: Willamette National Forest Management Plan

Dear Mr. Kerrick:

In the past, the Willamette National Forest, under your supervision, has successfully managed the forest by weighing the pros and cons of competing interests.

The future management of the forest will have a substantial economic impact on the City of Springfield. Springfield is the second largest industrial community in the State of Oregon with a majority of its industrial base relying on the wood products industry.

I am very concerned about the Forest's Preferred Alternative of 568 mmbf, and the future impact on our local economy.

The reality of the Preferred Alternative is a recessionary economy created by a governmental action. Reduction in current employment levels and reduced timber receipts to local government will be just two of the impacts felt by such a decision.

Reality and common sense dictates a compromise with regard to all competing interests and issues. Recreation, fish and wildlife, roadless areas, old growth, and visual corridors are all important issues to be considered.

However, the timber harvest in my mind is the overriding issue in management of the Willamette National Forest.

It is my personal opinion that the Preferred Alternative is unreasonable and economic suicide. I would recommend the annual timber sale quantity be a minimum of 700 mmbf.

225 Fifth Street • Springfield, OR 97477 • 503/726-3700

The economic vitality of our metropolitan area will be affected by your future management decisions.

Thank you for the opportunity to provide input on the Willamette National Forest Plan.

Good luck in your endeavor.

Respectfully,

Richard E. Gorman D.C.

Richard E. Gorman, D.C.
Mayor

RG:cl

RESOLUTION NO. 380

A RESOLUTION REGARDING THE UNITED STATES FOREST SERVICE

WILLAMETTE NATIONAL FOREST PLAN

016559

Whereas, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

Whereas, the culture, social structure and economy of the City of Stayton is significantly influenced by the outputs of the Willamette National Forest, and

Whereas, the people of the City of Stayton are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams and a dependable timber harvest, and

Whereas, the U. S. D. A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades,

Now, Therefore, the City of Stayton Does Hereby Resolve:

1. To request that the United States Forest Service modify its multiple-use management plan for the Willamette National Forest to attain the following goals:

   * Maintain Annual Timber Sale Program At or Above 1987 Level (717 Million Board Feet)

   * Preserve an Adequate Land Base to Support Resource Outputs At or Above Present Levels

   * Maintain Current Land Allocation Balance Between Protected Areas and Multiple Use Forest

   * Enhance Recreation Opportunities . . . Access Roads - Developed Recreation Sites - Trails

   * Recognize and Provide Wildlife/Fisheries Habitat Management and Protection

   * Provide Access for Fire Protection and Pest-Disease Control

   * Continue Current Levels of Forest Revenue to Local Government for Schools/Roads

2. To request that the United States Forest Service consider the impacts the management plan will have on community stability and economic development throughout the Detroit District of the Willamette National Forest.

PASSED BY THE COMMON COUNCIL THIS 7th DAY OF MARCH, 1988.

Signed by the Mayor this 7th day of March, 1988.

Wayne Lierman, Mayor

David Kinney,
City Administrator

City of Sublimity 005672

245 Johnson Street
P. O. Box 146
Sublimity, Oregon 97385
(503) 769-5475

RESOLUTION NO. 401

A RESOLUTION IN SUPPORT OF
THE OREGON MULTIPLE USE ALTERNATIVE
FOR THE WILLAMETTE NATIONAL FOREST PLAN

WHEREAS, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

WHEREAS, the culture, social structure and economy of the City of Sublimity is significantly influenced by the outputs of the Willamette National Forest, and

WHEREAS, the people of the City of Sublimity are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams, and a dependable timber harvest, and

WHEREAS, the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades,

BE IT THEREFORE RESOLVED that, after consideration of the alternatives, the City of Sublimity is on record requesting that none of the listed alternatives is acceptable. The City of Sublimity requests the U. S. Forest Service choose the Willamette Multiple Use Alternative, submitted by the Willamette Forestry Council. This alternative would retain the philosophy of the present management direction for Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be it further resolved that the City of Sublimity understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

DATED by the City Council the 14TH day of MARCH, 1988.

Mayor

City Recorder

City of Sweet Home

1140 12TH AVEN
SWEET HOME, OREGO
503-367-5128

February 10, 1988

Forest Supervisor
Willamette National Forest
Post Office Box 10607
Eugene, OR 97440

Dear Sir:

First of all, I would like to thank you for the opportunity to comment on the proposed Land and Resource Management Plan. I would certainly hope that the comments made by the people who both use and depend on the forest for their livelihood will be at least part of the basis for your decision.

As elected officials of the City of Sweet Home, the Council is certainly interested in decisions that may affect our community. We think that community stability should be a major consideration. Those of us who live and work in small cities that depend heavily on the forest have much reason to be concerned. We are of the opinion that Alternative J as proposed by the Forest Service would have a serious effect on our community as it would further restrict the amount of timber available to the timber industry. The anticipated loss of jobs and money would have a devastating effect in our area.

May we respectfully point out that the existing plan has 23 percent of the forest set aside for wilderness and an additinal 13 percent set aside for special use that would allow no harvest. This means that over one-third of the forest is already set aside for such uses.

We believe the Forest Service has done a good job in managing the Willamette National Forest with a plan that focuses on multiple use that includes among other things: wilderness areas, old growth preserves, wildlife habitat and an adequate timber supply. Please do not change this to a more restrictive single-use type forest.

We firmly believe that the Management Plan ultimately adopted by the Forest Service should be one that addresses the needs of the people who would be most affected and we strongly urge that community stability be a key issue in determining how the Willamette National Forest should be managed.

Thank you once again for the opportunity to comment on this very important issue.

Very truly yours,

Dave Holley

Dave Holley
Mayor

cc: Sweet Home Ranger Station
City Council

01656

A RESOLUTION IN SUPPORT OF
THE WILLAMETTE MULTIPLE USE ALTERNATIVE
FOR THE WILLAMETTE NATIONAL FOREST PLAN

Whereas, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

Whereas, 25% of revenue generated from the sale of timber on the Willamette National Forest is returned to countries for the use in road maintenance and schools, and

Whereas, Aumsville Elementary School District 11C is a Marion County School District and will be severly affected by a reduction in Allowable Sale Quantity, and

Whereas, the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades,

Be it Therefore Resolved that, after consideration of the alternatives, the Aumsville Elementary School District 11C is on record stating that none of the listed alternatives is acceptable. The Aumsville Elementary School District 11C requests the U.S. Forest Service choose the Willamette Multiple Use Alternative would retain the philosophy of the present management direction for the Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be It Further Resolved that the Aumsville Elementary School District 11C understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

M Irene Klein
Board Chairman

5/6/88
Date

Aumsville Elementary School
572 N 11th St
Aumsville OR
97325

STANLEY VANDEHEY
~~LEONARD FEBERICO~~
Superintendent
RUTH LONDBERG
Business Manager-Deputy Clerk

BOARD OF DIRECTORS
Dennis Koenig, Chairman
Tom Cook, Vice Chairman
Karen Gauthier
Sandy Dudley
Virginia Honeywell

CASCADE SCHOOL DISTRICT UH NO. 5
10226 MARION ROAD S.E., TURNER, OREGON 97392
Phone 503-743-2137

014883

May 10, 1988

Mike Kerrick, Forest Supervisor
Willamette National Forest
P.O. Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

The Board of Directors of Cascade School District UH#5, Marion County, adopted the enclosed resolution at their regular meeting on May 9, 1988. Please review the resolution and share with appropriate personnel and organizations.

Sincerely,

Stanley Vandehey
Superintendent

cc: Kevin Long, Mill City Enterprise
Ruth Londberg, Deputy Clerk

rd

A RESOLUTION IN SUPPORT OF
THE WILLAMETTE MULTIPLE USE ALTERNATIVE
FOR THE WILLAMETTE NATIONAL FOREST PLAN

Whereas, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

Whereas, 25% of revenue generated from the sale of timber on the Willamette National Forest is returned to counties for the use in road maintenance and schools, and

Whereas, Cascade Union High School District UH#5 is a Marion County School District and will be severely affected by a reduction in Allowable Sale Quantity, and

Whereas, the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in it's draft management plan, and described their comparative impact on the forest and it's output for future decades,

Be It Therefore Resolved that, after consideration of the alternatives, the Cascade Union High School District UH#5 is on record stating that none of the listed alternatives is acceptable. The Cascade Union High School District UH#5 requests the U.S. Forest Service choose the Willamette Multiple Use Alternative, submitted by the Willamette Forestry Council. This alternative would retain the philosophy of the present management direction for the Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be It Further Resolved that the Cascade Union High School District UH#5 understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

AGENDA ITEM NO. V-E

ACTION

LINN-BENTON COMMUNITY COLLEGE

COMMITTEE: DAVE SCHMIDT - CHAIR
KARL WISE - MEMBER
BOB HYLAND - MEMBER
GEORGE KURTZ - STAFF

014715

TOPIC: RESOLUTION 12-88: WILLAMETTE FOREST PLAN

GENERAL SUMMARY

It is recommended by the Committee that the Board of Education take action according to the following RESOLUTION:

WHEREAS, the Board of Education of Linn-Benton Community College is responsible for the overall control, operation, and finance of the College, and

WHEREAS, the Board appropriately may comment and/or take official positions on matters that have potential significant consequences on its ability to provide financial support for the College programs, and

WHEREAS, the College District consisting of the majority of Linn and Benton Counties is directly impacted by the activities of the Willamette National Forest, and

WHEREAS, the harvesting of timber on federal forest lands has both direct impact on the College in the form of dollars returned to the counties as offsets against property taxes levied by the College, and indirect impact in the form of employment of district residents and their ability and willingness to support the College, and

RECOMMENDATION TO THE BOARD: THAT THE BOARD OF EDUCATION OF LINN-BENTON COMMUNITY COLLEGE ACCEPT RESOLUTION 12-88.

ACTION TAKEN: Unanimously approved--Yes: Adams, Hyland, Schmidt, Wendland and Wise

DATE: 4/20/88

88-359(G:TIMBERTX.R12)

WHEREAS, reduced timber harvest may result in reductions in district valuation and a shift in tax burden from industry to homeowners, be it therefore

RESOLVED, that the Board of Education of Linn-Benton Community College does support the continued reasonable harvesting of timber on federal forest lands consistent with sustained yield, and be it further

RESOLVED, that no change be allowed from the current, multiple use designations until and unless information yet to be developed should provide reliable data that can be substantiated beyond a reasonable doubt that current land designations and allowable harvest levels will not provide sustained yields, adequate recreation opportunities, appropriate wildlife habitat, and long-term economic and community stability that will allow the Board of Education to continue to provide quality community college services to the residents of Linn and Benton Counties.

DATED, this 20th day of April, 1988.

CLERK OF THE BOARD

CHAIRMAN OF THE BOARD

Mari-Linn School
District No. 29-J
Rt. 2 Box 278
741 Fifth Street
LYONS, OREGON 97358
Telephone 859-2154

01656

A RESOLUTION IN SUPPORT OF THE OREGON MULTIPLE USE ALTERNATIVE FOR THE WILLAMETTE NATIONAL FOREST PLAN

Whereas, the United States Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

Whereas, the culture, social structure and economy of Mari-Linn School District 29j is significantly influenced by the outputs of the Willamette National Forest, and

Whereas, the people of Lyons School District, Mari-Linn District 29J, Linn County, State of Oregon are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams and a dependable timber harvest, and

Whereas, The U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative ... impact on the forest and its output for future decades,

Be It Therefore Resolved that, after consideration of the alternatives of the alternatives, the Mari-Linn School District 29J is on record requesting that none of the listed alternatives is acceptable. The Mari-Linn School District 29J of Lyons, Oregon Linn County, requests the U.S. Forest Service choose the Willamette Multiple Use Alternative, submitted by the Willamette Forestry Council. This alternative would retain the philosophy of the present management direction for Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be It Further Resolved that the Mari-Linn School District 29J of Lyons, Oregon understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunity and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

3-10-88
Date

Brenda K. Rott
Chairman of Board of Directors

MARION EDUCATION SERVICE DISTRICT
3400 Portland Road NE
Salem, Oregon 97303

RONALD K. WILKERSON, Supt.
Phone: (503) 588-5330

May 2, 1988

Forest Supervisor Mike Kerrick
Willamette National Forest
PO Box 10607
Eugene, OR 97440

Dear Mr. Kerrick:

At its regular meeting on April 20, 1988, the Board of Marion Education Service District gave consideration to the proposed plans for future uses of the Willamette National Forest. While the Board was not able to come to a consensus regarding any one of the several plans, they did take action regarding the impact of any change that would reduce funding for schools.

I am directed by the Board of Marion Education Service District to communicate to you their concern that whatever proposal is adopted, continue to consider the importance of education and maintaining related funding levels.

Your consideration of the action of the Board is appreciated. Thank you.

Sincerely,

Ronald K. Wilkerson, Executive Secretary
Marion Education Service District Board of Directors

mrt

Stayton Union High School

Marion-Linn County District UH4J
757 West Locust Street Stayton, Oregon, 97383 Phone, 769-2171

016560 APR 2 7 1988

Rec'd. 4/21 5/13

RESOLUTION IN SUPPORT OF THE OREGON MULTIPLE USE ALTERNATIVE FOR THE WILLAMETTE NATIONAL FOREST PLAN

WHEREAS: the United State Congress passed the National Forest Management Planning Act to provide communities in and around every national forest with a congressionally mandated voice in determining how their public forest lands should be managed, and

WHEREAS: the culture, social structure and economy of Stayton Union High School District UH4J, is significantly influenced by the outputs of the Willamette National Forest, and

WHEREAS: the patrons of Stayton Union High School District UH4J, Stayton, Oregon, are best served by balanced, multiple-use management providing recreational opportunities, clear flowing streams and a dependable timber harvest, and

WHEREAS: the U.S.D.A. Forest Service has analyzed nine (9) alternative management scenarios in its draft management plan, and described their comparative impact on the forest and its output for future decades.

Be It Therefore Resolved that, after consideration of the alternative, the Board of Directors of Stayton Union High School District UH4J, is on record requesting that none of the listed alternatives is acceptable. The Board of Directors of Stayton Union High School District UH4J requests that U.S. Forest Service choose the Willamette Multiple Use Alternative, submitted by the Willamette Forestry Council. This alternative would retain the philosophy of the present management direction for Willamette National Forest. It would generate timber sales at or above the levels of 1987, and not less than the outputs of the last three years (1985-87).

Be It Further Resolved that the Board of Directors of Stayton Union High School District UH4J understands that the Willamette Multiple Use Alternative will also provide for healthy fish and game populations, wilderness, outdoor recreational opportunities and necessary roaded access to these public lands for their stewardship, public use and enjoyment for future generations.

Resolution passed unanimously by the Board of Directors, Stayton Union High School District UH4J, Stayton, Oregon, at their regular monthly board meeting held on April 18, 1988.

Susan Bell
Susan Bell, Chairperson
Board of Directors

Your public schools. There's no better place to learn.

EMERALD PEOPLE'S UTILITY DISTRICT

005576

33733 Seavey Loop Road
Eugene, OR 97405
(503) 746-1583

BOARD MEMBERS
Ron Davis
Douglas M. Still
Jim Capps
Dick Eymann
Katherine Schacht

GENERAL MANAGER
Lon Topaz

May 9, 1988

Supervisor
Willamette National Forest
211 E. 7th
Eugene, OR 97401

Dear Sir:

The Board of Directors of Emerald People's Utility District submits the following comments regarding the Willamette National Forest Plan.

Emerald is concerned about both the economical and environmental effects of the various alternatives. The Board has listened carefully to industry and environmental points of view and finds itself "between the experts."

Given the fact that Emerald is not in a position to give expert input it is the desire of the Board of Directors to urge the Forest Service to arrive at an allowable cut consistent with two basic goals:

1. Provide for sufficient remaining timber to allow a sustained yield for the future; and

2. Maintain areas of natural forests for future generations to enjoy while providing for wildlife habitat, erosion control and protection of water shed.

This is a difficult decision to make and we hope that the Forest Service will be able to find that middle ground that will reach the above-stated goals.

Thank you for the opportunity to provide input into what will undoubtedly be a very difficult and controversial decision-making process.

Sincerely,

Lon Topaz
General Manager

ssm