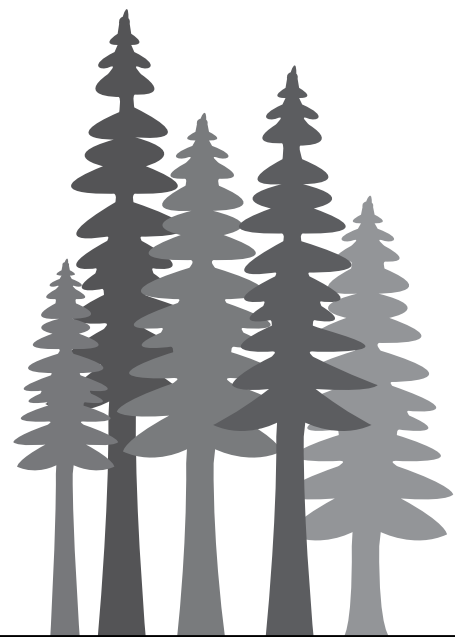


Appendix T

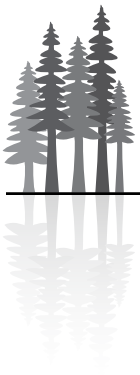
Responses to Public Comments and Comment Letters from Congressional Representatives; Indian Tribes; and Federal, State, and Local Government Agencies



This appendix provides responses to public comments received during the comment period for the Draft EIS and copies of comment letters received from Congressional representatives; Indian Tribes; and Federal, state, and local government agencies.

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Introduction and Background

The five-month public comment period on the Draft Environmental Impact Statement/Resource Management Plan (DEIS/RMP) for the Western Oregon Plan Revision began on August 10, 2007 and closed on January 11, 2008. Comments were received from private citizens; interest groups; organizations; businesses; elected officials; state, local, and other federal agencies; and Indian Tribes.

More than 30,000 submissions were received in the form of letters, postcards, facsimiles, emails, and electronic postings to the plan revision website. Many of the submissions were highly repetitive e-mails, form letters, and postcards. Some submissions contained only a few lines, others contained hundreds of pages. The submissions varied widely in their desires, their scope, and their specificity. Most expressed opinions and suggestions but did not offer specifics.

Common themes were heard in the submitted comments. They included: don't abandon the Northwest Forest Plan; stop cutting old-growth; don't clear-cut; increase harvest to provide funding for county services and jobs for residents; these highly productive lands should be intensively managed for timber; increase opportunities for off-highway vehicle use, and do what you can to decrease off-highway vehicle use.

The processing of the submissions should not be thought of as a tally of votes. All submissions were treated equally and were not given weight by number, organizational affiliation, or other status of the respondents. All of the submissions received during the public comment period were reviewed. Comments in the submissions that identified, with a reasonable basis, errors in the analysis that would substantively alter analytical conclusions, provide new or missing information that would substantively alter the analytical conclusions, or proposed a new alternative that would meet the purpose and need were labeled as substantive comments. These substantive comments were summarized into "comment statements." Comment statements are summary statements that identify and describe specific issues or concerns. Similar concerns voiced in multiple letters were summarized into one comment statement.

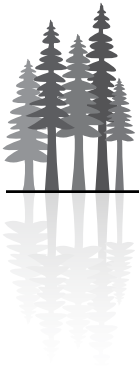
The remainder of this appendix presents summarized comment statements and responses by issue topic. The comments and responses are intended to be explanatory in nature; if there are any inadvertent contradictions between this appendix and the main chapters of the final environmental impact statement, the main chapters of the final environmental impact state. Copies of letters received during the comment period from federal, state, and local governments and from Indian Tribes are included at the end of this appendix.

Response to Comments

Purpose and Need

1. Comment: The EIS should be revised to analyze impacts over the life of the plan (15 to 20 years). The assumption that the plan will be in effect for 100 years is unreasonable, because no plan adopted by the BLM will be implemented longer than 15 to 20 years before it is amended or revised.

Response: Limiting the analytical scope to 15 to 20 years would not address the long-term effects of the agency action, which is required by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 CFR 1502.16). The BLM NEPA Handbook instructs that the timeframes for analysis should be based on the duration of the direct and indirect effects of the proposed action and alternatives, rather than the duration of the action itself (BLM NEPA Handbook, H-1790-1, p. 58).



2. Comment: The EIS purpose and need should be revised, because it unreasonably restricts the range of alternatives. By focusing the purpose and need on a narrow, unreasonable interpretation of the Oregon and California (O&C) Act, the BLM restricts the range of alternatives to actions that increase the extent and the impacts of timber harvest, road building, and other associated activities to old-growth forests, the northern spotted owl, the marbled murrelet, ESA listed salmon and steelhead, other special status species, and important recreational species including big game, fish, and birds.

Response: The purpose and need articulated in the Draft EIS cannot be considered unreasonably restrictive, because it reflects the legal mandates under which the BLM must manage, including the O&C Act, the Endangered Species Act, and the Clean Water Act. The interpretation of the O&C Act presented in the Draft EIS is consistent with the plain language of the O&C Act, the legislative history of the O&C Act, and the Ninth Circuit ruling in *Headwaters v. BLM*, 914 F.2d 1174 (9th Cir. 1990), and therefore cannot be considered unreasonable. As explained in *Chapter 1*, the Northwest Forest Plan elected to use criteria for the management of habitat from the National Forest Management Act on both United States Forest Service and BLM-administered lands, even though the National Forest Management Act does not apply to BLM-administered lands. The action alternatives increase the extent of timber harvest from the levels in the No Action Alternative, in part because the purpose and need for this action does not include applying these National Forest Management Act criteria to BLM-administered lands. The range of alternatives covers the full spectrum of alternatives that would address the purpose and need for the action. There are also numerous and varied alternatives that were considered, but not analyzed in detail, as explained in *Chapter 2* of the EIS.

3. Comment: The EIS should be revised to acknowledge that the O&C Act does not relieve the BLM of its responsibility to comply with applicable environmental laws. In *Portland Audubon Society v. Lujan*, 998 F.2d 705 (9th Cir. 1993), the BLM argued that a court injunction barring logging from spotted owl habitat would violate the O&C Act. The court rejected this argument, declaring: “We find that the plain language of the Act supports the district court’s conclusion that the Act has not deprived the BLM of all discretion with regard to either the volume requirements of the Act or the management of the lands entrusted to its care. Because there does not appear to be a clear and un-avoidable conflict between statutory directives, we cannot allow the Secretary to “utilize an excessively narrow construction of its existing statutory authorizations to avoid compliance [with NEPA].”

Response: The purpose and need in the Draft EIS clearly stated that part of the purpose of the agency action includes compliance with not only the O&C Act, but with all applicable laws, including the Endangered Species Act and Clean Water Act. The Draft EIS specifically detailed the major laws affecting the management of O&C lands and acknowledged the applicability of environmental laws to O&C lands. The construction of the O&C Act that the Court in *Portland Audubon Society v. Lujan* found too narrow was an interpretation that the O&C Act required that a minimum of 500 MMBF of timber be offered on an annual basis. The government argued that the injunction issued by the District Court was in conflict with that statutory duty. The Court in *Portland Audubon Society v. Lujan* merely pointed out that the procedural requirements of NEPA did not inherently conflict with the BLM’s substantive duties in the O&C Act. That ruling is not in conflict with the Ninth Circuit’s interpretation of those substantive duties under the O&C Act which were at issue in *Headwaters v. BLM*.

4. Comment: The EIS purpose and need should be revised to disclose that the revision is mandated by a lawsuit filed by timber industry groups, (*AFRC v. Clarke*, Civil No. 94-1031-TPJ [D.D.C.]). This lawsuit was settled out of court on August 28, 2003. Under this agreement with the timber industry, the BLM agreed to revise its resource management plans (RMPs) in Western Oregon and in this revision, the BLM would consider an alternative that would not create any reserves on the O&C lands, except those mandated by the ESA.



Response: The Draft EIS acknowledged in Chapter 1 that the RMP revision will satisfy a settlement agreement in *AFRC v. Clarke*, Civil No. 94-1031-TPJ (D.D.C.). The Draft EIS also provided detailed discussion of the settlement agreement in *Appendix A – Legal Authorities*.

5. Comment: The EIS purpose and need should be revised because not meeting the Allowable Sale Quantity (ASQ) of 211 million board feet (mmbf) is not a valid reason to revise the plans. The ASQ of 211 mmbf is a limit, not a minimum standard. The courts ruled in *Portland Audubon Society v. Babbitt*, 998 F.2d 705 (9th Cir. 1993) that the O&C Act did not establish a minimum volume that must be offered every year notwithstanding any other law.

Response: The ruling in *Portland Audubon Society v. Lujan* was that the O&C Act did not establish 500 MMBF as a minimum standard. The Court said that this initial minimum was no longer applicable once the Secretary determined the annual sustained yield capacity of the land, and from that time forward the minimum to be offered was derived from the Secretary's determination. Since there was no inherent conflict between the duty to offer the determined amount annually and compliance with NEPA procedures in making that determination, the injunction against timber sale offerings until the agency complied with those procedures was within the jurisdictional authority of the Court. The ruling in *Portland Audubon Society v. Lujan* should not be read as eliminating the requirement of the O&C Act that the Secretary annually offer the declared sustained yield capacity for the O&C lands. The O&C Act requires the BLM to declare the annual productive capacity of the O&C lands, and the 1995 RMPs declared an allowable sale quantity that represents the annual productive capacity.

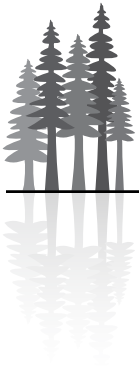
The O&C Act also requires that “the timber thereon shall be sold, cut and removed in conformity to the principle (*sic*) of sustained yield.” The 1995 RMPs explained that the allowable sale quantity is an estimate of annual average timber sale volume likely to be achieved from lands allocated to planned, sustainable harvest. The allowable sale quantity represents neither a minimum level that must be met nor a maximum level that cannot be exceeded, but it represents BLM's best assessment of the average amount of timber likely to be awarded annually in the planning area over the life of the plan. As explained in the Draft EIS, plan evaluations found that the actual level of timber harvest was 40 to 70 percent of the anticipated annual sale quantity, which represents a failure to meet the RMP objective of providing a sustainable supply of timber. Failure to meet some plan objectives and new information that increases opportunities to improve the performance of other plan objectives necessitates revisions to resource management plans.

Laws and Court Rulings Affecting Management of O&C Lands

6. Comment: The EIS should be revised on page 12 where it states, “Based on the language of the O&C Act, the O&C Act's legislative history, and the decision by the Ninth Circuit Court in *Headwaters v. BLM*, (914 F.2d 1174 (9TH Cir. 1990), it is clear that the management of timber (including harvesting) is the dominant use of the O&C lands ...” to indicate that timber is dominant over wildlife, not all other uses.

Response: The Ninth Circuit ruling in *Headwaters v. BLM*, 914 F.2d 1174 (9th Cir. 1990) established that timber production is the primary use and the dominant use of the O&C lands. To interpret this ruling as concluding that timber production is dominant over some uses but not other uses on the O&C lands is inconsistent with the plain language of the O&C Act and the Ninth Circuit ruling.

7. Comment: The EIS should be revised to discuss the 1939 law governing the Coos Bay Wagon Road lands and its tax-equivalence basis for calculating payments to the counties.



Response: Additional discussion has been added to the final EIS describing the distribution of receipts from Coos Bay Wagon Road lands.

8. Comment: The EIS should be revised to include more background on the O&C Act, as the discussion on page 10 provides limited information. While the Act provides 50% to the counties, it provides an additional 25% “after back taxes and reimbursements to the U.S. Treasury are settled.” Thus, for some time after the late 1950’s, the counties received 75% of timber sale receipts. Eventually, these receipts became so high that they approached “windfall” status, and there was talk outside of Oregon about changing the O&C Act. The counties opted to voluntarily return 25% back to the BLM. These “plowback” funds were to be used for recreation developments, reforestation, and other forest development activities. The plowback funding represented a unique Federal/County partnership, and facilitated intensive timber management on the O&C lands.

Response: Additional information on the history of the payments to counties under the O&C Act would not clarify the purpose and need for the action or how the O&C Act affects the RMP revision.

9. Comment: The EIS should be revised to be consistent with the Home builder’s case. The Supreme Court’s ruling in *National Association of Home Builders* limits the ESA’s application to discretionary agency actions, and takes the performance of non-discretionary actions outside ESA reach. This ruling has applicability to the O&C Act. The non-discretionary language of the O&C Act means the BLM “does not have the discretion” to manage O&C lands classified as timberlands for any purpose except permanent forest production; it “does not have the discretion” to fail to determine and declare the annual productive capacity of those timberlands; it “does not have the discretion” to fail to sell, cut and remove the timber from those timberlands in conformity with the principle of sustained yield; and it “does not have the discretion” to sell annually from those timberlands less than one-half billion feet board of timber or their determined annual sustained yield capacity.

Response: The BLM management of O&C lands is different from the federal action at issue in *National Association of Homebuilders v. Defenders of Wildlife*, 551 U.S. ____ (2007), and that ruling is therefore not applicable to this plan revision. At issue in *National Association of Homebuilders v. Defenders of Wildlife* was legislative direction to the Environmental Protection Agency to transfer permitting authority to a State upon application and a showing that a State has met nine specified criteria. The O&C Act provides a mandate for BLM to manage the O&C lands for permanent forest production, but this mandate does not make BLM management of these lands a non-discretionary action similar to the transfer of permitting authority by the Environmental Protection Agency. The BLM has reasonable alternatives to accomplish the purpose of “permanent forest production.” Because BLM has discretion in the management of these lands -- regardless of the limits on that discretion -- this plan revision is a discretionary action and is therefore subject to section 7(a)(2) of the Endangered Species Act.

10. Comment: Management of all O&C lands, including the National Landscape Conservation System, must be included in sustained yield timber production unless specific areas have received a Congressional designation that precludes such timber management.

Response: Under each of the alternatives, O&C lands are withdrawn from timber harvest for a variety of reasons other than a Congressional designation that precludes timber management. The Cascade-Siskiyou National Monument, which would be withdrawn from timber harvest under all alternatives, was established by proclamation of the President. Section 2 of the American Antiquities Act of 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks,



historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land.

All alternatives include riparian management areas to ensure compliance with the Clean Water Act and the Endangered Species Act. All alternatives withdraw O&C lands that are classified under the Timber Productivity Capability Classification as not capable of supporting a sustained yield of forest products. None of these O&C lands have received a Congressional designation that precludes timber harvest, yet they are properly withdrawn from timber harvest under all of the alternatives. To include these lands in the determination of the annual productive capacity would overstate the sustained yield harvest level.

11. Comment: The EIS should be revised to consider Executive Order 13443 of August 16, 2007, “Facilitation of Hunting Heritage and Wildlife Conservation,” because it pertains to recreation and wildlife on public lands and it is not discussed in the EIS.

Response: The appendix listing legal authorities has been updated to include Executive Order 13443 “Facilitation of Hunting Heritage and Wildlife Conservation.” Although the Draft EIS did not explicitly identify Executive Order 13443 (which was issued after the publication of the Draft EIS), it was consistent with the direction in the order, which included evaluating the effects of the alternatives on game species and their habitats, working collaboratively with State governments, and seeking the advice of State fish and wildlife agencies.

12. Comment: The EIS should be revised to include an explanation of how applicable provisions located in the Healthy Forests Initiative and the Healthy Forests Restoration Act would be addressed by WOPR.

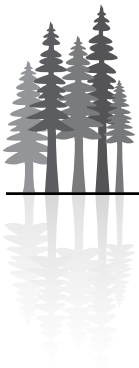
Response: Text has been added to the Final EIS describing the provisions of the Healthy Forests Restoration Act.

13. Comment: The EIS should be revised to consider that relevant case law indicates that, to the extent BLM chooses management actions which do not maximize species conservation, that it should be prepared to describe its rationale for doing so.

Response: The Draft EIS described a range of alternatives that provide different contributions to species conservation. The record of decision will provide the rationale for selection among the alternatives. If the selected alternative does not maximize species conservation, the rationale for selection will provide an explanation for the decision.

14. Comment: The EIS (Preferred Alternative) should be revised because withdrawing 52 percent of suitable timberland to aid in achieving the “survival and recovery” of the northern spotted owl and other federally listed species is in direct conflict with the Ninth Circuit’s *Headwaters* decision and the 1986 Legal Opinion.

Response: The Ninth Circuit ruling in *Headwaters v. BLM*, 914 F.2d 1174 (9th Cir. 1990) concluded that withdrawing O&C lands from timber harvest to serve as habitat for the northern spotted owl violated the O&C Act. However, the Court did not explore in that opinion or in its response to the request for reconsideration in *Headwaters v. BLM*, 940 F.2d 435 (9th Cir. 1991), the extent to which the BLM could utilize its authorities under the O&C Act to further the purposes of the Endangered Species Act or what actions the BLM would be allowed to take under the O&C Act to avoid jeopardizing a species listed under the ESA or to avoid adversely modifying designated critical habitat. The EIS analyzed a range of alternatives



to accomplish the purpose and need of managing these lands under the direction provided in the O&C Act, while also complying with all other applicable laws, which includes compliance with the Endangered Species Act and coordination with recovery planning for species listed under the Endangered Species Act. The PRMP withdraws lands from timber harvest to provide habitat for species listed under the Endangered Species Act and to ensure compliance with other environmental laws.

The commenter does not attach the “1986 Legal Opinion” or provide a complete citation. The “1986 Legal Opinion” is presumably a memorandum signed jointly by Gale Norton, who was the Associate Solicitor for the Division of Conservation and Wildlife, and Constance Harriman, the Associate Solicitor for the Division of Energy and Resources, dated October 20, 1986, which addressed the interaction between the O&C Act and other statutes, including the Endangered Species Act. This memorandum recognized that the O&C Act made timber production the dominant use, but not the sole use, for the O&C lands, and that the BLM has the discretion under the O&C Act necessary for compliance with other statutes. The purpose and need described in the EIS is consistent with the 1986 memorandum.

Management of Public Domain Lands in Relation to O&C Lands

15. Comment: The EIS should be revised to clearly state that the O&C Act does not govern public domain lands, and develop separate management for public domain lands as it is not appropriate to propose the same management actions on public domain lands and lands governed by the O&C Act. Along with this clarification, the EIS should disclose the distribution of the roughly 400,000 acres of Public Domain lands and consider the requirements of FLPMA for these lands. These lands should be identified in the EIS and the BLM’s interpretation of the O&C Act should not be applied to these non-O&C Act lands. The BLM should consider an alternative that provides a high level of conservation emphasis on Public Domain lands.

Response: The EIS acknowledges that Public Domain lands are to be managed for a multitude of values under the Federal Land Policy Management Act. The alternatives include a range of uses and management objectives for Public Domain lands in the planning area, which permits the BLM to consider multiple uses for the Public Domain lands. Additional discussion has been added to the final EIS to explain the management of public domain lands in this RMP revision. The Draft EIS described the acreage and location of Public Domain lands. A map showing the location of Public Domain lands has been added to the final EIS.

The Alternatives

16. Comment: The EIS should be revised to consider a full range of alternatives that meet the agency’s legal obligations including at least one alternative that will not create any reserves on O&C lands except as required to avoid jeopardy under the ESA. In addition, all alternatives must be consistent with the O&C Act as interpreted by the 9th Circuit Court of Appeals. By only considering action alternatives that cannot meet BLM’s legal duties, BLM is violating the requirement that National Environmental Policy Act (NEPA) documents discuss alternatives to the proposed action, to “provid[e] a clear basis for choice among options by the decision maker and the public.” 40 C.F.R. 1502.14; see also 42 U.S.C. § 4332(2)(E); 40 C.F.R. 1507.2(d), 1508.9(b). The Council on Environmental Quality, which wrote the NEPA regulations, describes the alternatives requirement as the “heart” of any EIS. 40 C.F.R. 1502.14. “The existence of a viable, but unexamined alternative renders an EIS inadequate.” *Alaska Wilderness Recreation & Tourism v. Morrison*, 67 F.3d 723, 729 (9th Cir. 1995).

Response: The EIS considered a range of alternatives that are designed to meet BLM’s legal duties. The purpose and need in the Draft EIS clearly stated that the purpose of the agency action includes compliance



with not only the O&C Act, but with all applicable laws. The commenter does not articulate which legal duties the alternatives cannot meet nor which viable alternatives were not examined.

17. Comment: The EIS should be revised to include a restoration alternative because there is a growing consensus among decision makers, scientists, foresters, and others that aggressive thinning and other management activities are needed to restore forests historically characterized by frequent low and mixed severity fire regimes, such as those of the Medford District.

Response: The Proposed Resource Management Plan (PRMP) Alternative in the Final EIS includes uneven-aged management in forests that were historically characterized by frequent low and mixed severity fire regimes in the Medford District and Klamath Falls Resource Area. Alternative 3 includes a partial harvest forest management regime in these forests. More generally, all alternatives analyzed in detail include some level of thinning. The acreage of thinning would vary among the alternatives, both in the harvest land base and the nonharvest land base. This variation provides a comparison of the effects of different levels of thinning and a basis for a reasoned choice among the alternatives.

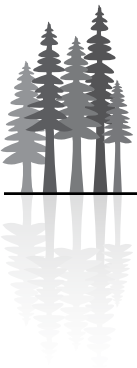
18. Comment: The EIS should be revised to include a maximum timber alternative and maximum environmental alternative to set the spectrum or outer limits of alternatives within which a rigorous and documented search for a preferred alternative could take place.

Response: The EIS analyzed in detail a range of alternatives that respond to the purpose and need for action. The alternatives vary the strategy for managing land and resources for threatened and endangered species, wildlife, water quality, fish, and timber production within the context of meeting the purpose and need for action. In addition, the EIS included analysis of two reference analyses: allow no harvesting, and manage most commercial forest lands for timber production. These reference analyses provided additional information that is useful to more fully understand the effects of the alternatives. However, these reference analyses are not reasonable alternatives, because they do not meet the purpose and need for action.

19. Comment: The EIS graphs for comparing the alternatives should be revised to provide comparable data across the alternatives. For example, old growth and late successional forests are not included in the Alternative 3 graph resulting in non-comparable data across the alternatives. It is understood that Alternative 3 doesn't provide that data directly, but when asked for a comparison, an estimate based on the plan would be more appropriate. The BLM should update the graphs to make sure they each measure the same set of data, in order to allow viewers to make accurate comparisons.

Response: The Draft EIS provided comparable data across the alternatives for the abundance of structural stages. Table 150 of the Draft EIS disclosed the abundance of each structural stage over time for each alternative, including Alternative 3. Table 151 disclosed the outcome of existing old forest by 2106 under each alternative, including Alternative 3. More generally, Table 40 in the Draft EIS provided a comparison of the key impacts of the alternatives. These tables are included in the final EIS with the addition of data on the PRMP (see Tables 4-4, 4-5, and 2-63, respectively). Tables 188 and 189 in the Draft EIS did not include Alternative 3, because these tables described the amount of northern spotted owl suitable habitat within late-successional reserves or late-successional management areas, and Alternative 3 did not allocate any late-successional management areas.

20. Comment: The EIS should be revised on pages 43-44 (National Landscape Conservation System section) to include only those management actions that are consistent with the O&C Act or specific Congressional designation. For example, on Congressionally designated Wild and Scenic rivers with a scenic or recreation classification, timber harvest is allowed, and lands with such classifications should be



a part of the timber base for sustained yield calculations. Only sections of rivers with Congressional wild classifications are properly withdrawn from timber harvest. The BLM lacks authority to withdraw O&C and CBWR lands from timber production on an interim basis while Congress is considering eligibility of candidate areas for inclusion in the Wild and Scenic system.

Response: The EIS explains the application of the O&C Act to Wilderness Study Areas and visual resources, including Wild and Scenic Rivers, and describes generally that protection on O&C lands would be provided if required by Congressional designation or where protection would not conflict with sustained yield forest management.

21. Comment: The EIS should be revised to include a description of the No Action Alternative. The EIS must describe the No Action Alternative in sufficient detail to provide a baseline for the reader to make comparisons to the action alternatives and assess the validity of the environmental effects section.

Response: The No Action Alternative has an important and vital role in effects analysis, because it provides context for comparing the environmental effects of the alternatives and demonstrates the consequences of not meeting the need for the action. The EIS summarizes the features of the No Action Alternative, provides a map of the land use allocations, and incorporates by reference the detailed descriptions in the 1995 RMPs. In preparing NEPA documents, agencies are directed by the Council on Environmental Quality regulations to incorporate by reference to reduce excessive paperwork. The 1995 RMPs contain the detailed descriptions of the No Action Alternative and are readily available.

22. Comment: The EIS should be revised to include a true No Action Alternative that continues current management as is outlined in the existing plans. The addition of new management under the No Action Alternative violates a primary tenant [*sic*] of NEPA to examine a No Action Alternative along with action alternatives. Therefore, the reduction of riparian reserves from 522,000 acres to 364,000 acres and subsequent increase of the ASQ by 32 percent (page 566 of the Draft EIS) should be considered under a separate alternative.

Response: The No Action Alternative would continue current management direction as outlined in the existing 1995 RMPs. There is no new management added to the No Action Alternative. The management objectives and management direction for riparian reserves (including the riparian reserve widths) are unchanged. The acreage of riparian reserves was estimated in the 1995 RMP/EISs based on the information available at that time. New information based on improved mapping of hydrologic features has demonstrated that the acreage of riparian reserves is actually smaller than estimated in the 1995 RMPs/EISs. To analyze the No Action Alternative using the estimation of riparian reserve extent from the 1995 RMPs/EISs would ignore this new information on the actual acreage that was allocated to Riparian Reserves by the 1995 RMPs and, therefore, would be inconsistent with the Council on Environmental Quality regulations.

23. Comment: The EIS should be revised to correct deficiencies in the alternatives. This can be achieved by modifying Alternative 2 to incorporate the U.S. Supreme Court's limitations on the reach of the ESA, and correcting certain other existing inconsistencies with the O&C Act. All information and data necessary for FEIS analysis is currently available in the Draft EIS. The following are suggested changes for Alternative 2:

1. Maintain existing LSMA allocation boundaries identified in Alternative 2, but do not withdraw or reserve these lands from sustained timber production. Instead, develop long-term rotation age strategies within the LSMA boundaries that would contribute to the conservation and recovery of federally listed species, while also providing for regeneration harvesting on a sustained yield basis. We



- suggest using the long rotation ages contained in Alternative 3 within the areas currently identified as LSMAs, and using landscape targets for regeneration harvest within LSMA boundaries similar to requirements in Alternative 3.
2. Develop timber management objectives within LSMA boundaries that maintain and promote the development of suitable habitat for federally listed ESA species. Examples include thinnings and partial harvests that would hasten development of structurally complex forests within the LSMA boundaries. All timber harvested within the LSMAs is in the timber harvest base and the volume should be included in ASQ calculations.
 3. The Secretary, apart from the WOPR process, should eliminate critical habitat designations on O&C and CBWR lands. The BLM cannot participate in a system of reserves on O&C and CBWR lands. The USFW, at the direction of the Secretary, should revise its proposed critical habitat designation to account for the BLM's non-discretionary mandates under the O&C Act.
 5. Establish continuous field survey and monitoring systems within LSMAs for all federally listed species. Determine whether a location is "actually occupied" based on confirmation of the physical presence of species using the site for nesting, roosting, or foraging (owls) or nesting (murrelets), but excluding locations where there are sightings of transient, dispersing birds.
 6. Protect all sites (inside and outside of LSMAs) that are actually occupied by listed species by delaying regeneration harvest of sites for so long as sites are actually occupied. See definition of "actually occupied" in comment 5.
 8. In areas south of Grants Pass and in the Klamath Falls Resource Area of the Lakeview District, apply uneven-aged timber management principles where feasible to all BLM lands. This practice would reduce fire hazard and the acres of high severity fire when wildfires occur in these areas. It could also benefit suitable habitat conditions for ESA-listed species.
 9. Include in the sustained yield timber management base all Congressionally designated Wild and Scenic Rivers that have a scenic or recreation classification. Exclude only those rivers with a Congressional wild classification from the timber base. Include in the timber management base all rivers that have not been Congressionally designated. Any protections for riparian areas along Wild and Scenic rivers included within the timber base would be those riparian protections generally applicable for the land use allocation of the surrounding lands.
 10. Withdraw O&C and CBWR lands located in the National Landscape System from sustained yield timber management only if they have a Congressional designation requiring protection.
 11. Include all lands adjacent to the Coquille Tribal Forest in the sustained yield timber management base.
 13. Develop a sub-alternative for Alternative 2 that eliminates LSMA boundaries and establishes the maximum harvest that can be maintained in these areas without exceeding the amount of new growth.

Response: Taken together, these proposed modifications are so substantial as to constitute a different alternative. Such an alternative would not accomplish the purpose and need for action, because it would not comply with the Endangered Species Act and would not coordinate with recovery planning by the U.S. Fish and Wildlife Service. Furthermore, such an alternative would be beyond the scope of the action, because it would require the Secretary of Interior to eliminate critical habitat designations.

Several component elements of the commenter's proposed alternative have been considered in the Draft EIS or are included in the PRMP in the FEIS. Management within Late-Successional Management Areas using the forest management strategies of Alternative 3 would have the same effects in these areas as Alternative 3. The Draft EIS analysis demonstrated that Alternative 3 would not create large blocks of habitat for the northern spotted owl and would decrease the abundance of nesting habitat for the marbled murrelet in the first 50 years. Protection of known sites of northern spotted owls and marbled murrelets was included in the No Action Alternative and Alternatives 1 and 3; also, the PRMP includes protection of known marbled murrelet sites.

The PRMP includes uneven-aged management in forests that were historically characterized by frequent low and mixed severity fire regimes in the Medford District and Klamath Falls Resource Area. The PRMP would not establish a unique land use allocation for land adjacent to the Coquille Tribal Forest and would



include those lands in the harvest land base similar to surrounding lands. The Draft EIS included a reference analysis of “manage most commercial forest lands for timber production,” which established a maximum harvest level that could be maintained without exceeding the amount of new growth.

Two of the component elements of the commenter’s proposed alternative are contradictory. Regeneration harvest on a sustained-yield basis within Late-Successional Management Areas would not be consistent with an objective to maintain and promote development of suitable habitat for federally listed ESA species.

Under each of the alternatives, O&C lands are properly withdrawn from timber harvest for a variety of reasons other than a Congressional designation that precludes timber management. To include these lands in the determination of the annual productive capacity would overstate the sustained yield harvest level. The Draft EIS explained the application of the O&C Act to Wilderness Study Areas and visual resources, including Wild and Scenic Rivers, and described generally that protection would be provided to these areas on O&C lands if required by Congressional designation, or where protection would not conflict with sustained yield forest management.

24. Comment: The analysis of Alternative 1, Subalternative 3 should be reevaluated because it is unreasonably constrained and it fails to consider the potential for ecologically appropriate thinning to provide for a predicable [*sic*] supply of timber. Rather than calculating and disclosing potential volume directly, the analysis is limited to estimating the number of years that harvest near the level of Alternative 1 could be sustained with thinning volume. By failing to fully analyze this subalternative for its effects on recreation, water quantity and quality, soils, invasive plants, fish, wildlife, and other resources the BLM fails to disclose the significant benefits of this approach and the significant impacts of the preferred alternative. In particular, this subalternative could provide for stable communities and a predictable level of production.

Response: The analysis of the subalternative for Alternative 1 that would allow no regeneration harvesting until thinning opportunities are exhausted did calculate the potential volume directly, but was constrained by the requirement for a sustained yield of timber production, as were all alternatives and subalternatives. The estimate of the number of years that harvest near the level of Alternative 1 could be sustained with thinning volume is an outcome of the analysis, not a constraint on the subalternative. The Draft EIS explained that the analysis of the subalternative was focused and limited to specific analytical questions. The commenter does not specify the unreasonable constraints that were placed on this subalternative.

25. Comment: The EIS should be revised on page 107 to clarify why the Naturally Selected Dead and Dying Trees Alternative was removed from consideration. It is interpreted that BLM rejected the alternative because DCA did not determine and declare the annual productive capacity of BLM lands. However, NSA has declared that it takes the dead and dying, conditional upon meeting the needs of other species. The NSA would produce not less than the annual sustained yield capacity as it would retain the net worth of the forest ecosystem which is necessary to retain maximum productivity over the long term. At the BLM WOPR technology presentation in Oct 2007 a specialist working with the models indicated that BLM has the ability to model natural tree mortality. If this is not the case, it should be clarified as this is part of the NEPA requirement placed on BLM. It appears that that the NSA was eliminated because it did not receive rigorous exploration and objective evaluation that is part of the BLM EIS process.

Response: The Draft EIS disclosed that the alternative of Harvest Only Naturally Selected Dead and Dying Trees was eliminated from detailed study, because it would not be consistent with the O&C Act and would not meet the purpose and need for action. The O&C Act requires the BLM to determine the annual productive capacity of the O&C lands and to sell that amount of timber annually. Harvest of only dead and dying trees would not reflect the annual productive capacity of the O&C lands and, therefore, would not meet the purpose and need for the action.



26. Comment: The EIS should be revised to provide meaningful response to the NSA issues raised during scoping regarding fire hazard, where 57 different supporting studies were cited, and objectively evaluate and disclose the extent and scientific basis for the controversy.

Response: The commenter does not identify the scientific controversy that the Draft EIS did not disclose. The scoping comments were considered in the development of the Draft EIS, and the Draft EIS summarized the science regarding fire hazard and fire resiliency. The alternatives in the Draft EIS considered different forest management strategies to address fire hazard and fire resiliency. Specifically, the Draft EIS identified the increasing fire resiliency as a topic to be explored in the preparation of the Final EIS. The PRMP in the FEIS includes uneven-aged management in forests that were historically characterized by frequent low and mixed severity fire regimes in the Medford District and Klamath Falls Resource Area specifically to mitigate the fire hazard that would result from the preferred alternative identified in the Draft EIS.

Natural Disturbance and Salvage

27. Comment: The EIS should be revised to acknowledge that even with enlightened management on federal lands for the next 100 years, we will reach only 75% of the historic large snag abundance measured across the interior Columbia Basin, and most of the increase in large snags will occur in roadless and wilderness areas.

Response: Projected changes in snag abundance under different management strategies in the interior Columbia Basin are not directly relevant to changes in snag abundance in the planning area because of fundamental differences in vegetation characteristics, disturbance regimes, and tree growth and mortality. The Draft EIS described future changes in habitat for snag-dependent species, but did not identify any threshold or target related to historic large snag abundance. Restoring the historic abundance of snags is not identified as a management objective under any of the alternatives.

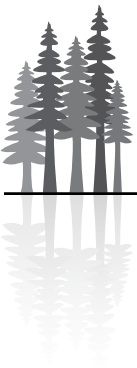
28. Comment: The EIS should be revised to include a delay in salvage logging after a fire, because beetle dung helps forests recover from fire and immediate salvage logging disrupts the beetles and does not allow them to complete their life cycle.

Response: The alternatives in the Draft EIS varied in whether they would allow salvage logging after disturbances in the Late-Successional Management Areas. This allowed consideration in the development of the PRMP in the FEIS of whether salvage logging in the Late-Successional Management Areas should be allowed. None of the alternatives considered a delay in salvage logging after disturbance, because a delay to allow bark beetles to complete their life cycle would result in a loss of the economic value of the logs. Therefore, to delay salvage logging would have the same effect as not allowing salvage logging, which was considered in the Draft EIS.

Climate Change

29. Comment: The EIS should be revised to consider Oregon House Bill 3543, and whether the proposed alternatives' impacts to climate change adhere to this State law.

Response: Oregon House Bill 3543 provides no authority for management of BLM-administered lands. Nevertheless, none of the alternatives are inconsistent with this State law. The bill directs the State to stop the growth of greenhouse gas emissions by 2010 and to reduce greenhouse gas emissions to 10 percent below 1990 levels by 2020 and to 75 percent below 1990 levels by 2050. The bill creates the Oregon Global Warming Commission, which will evaluate among other things, the carbon sequestration potential of Oregon's forests, alternative methods of forest management that can increase carbon sequestration and



reduce the loss of carbon sequestration to wildfire, changes in the mortality and distribution of tree and other plant species, and the extent to which carbon is stored in tree-based building materials. The final EIS includes an analysis of carbon storage and concludes that each alternative would result in an increase in net storage of carbon in forests on BLM-administered lands and wood harvested from BLM-administered lands.

30. Comment: The EIS should be revised to include a thorough discussion of the proposed alternatives' impacts on climate change.

Response: The greatest influence of forest management on climate change is through changes in carbon storage. An analysis of the effects of the alternatives on carbon storage has been added to the final EIS.

Carbon Sequestration

31. Comment: The EIS should be revised to include estimates of decreased tons of carbon sequestration and increased tons of atmospheric carbon from various amounts of logging.

Response: An analysis of the effects of the alternatives on carbon storage has been added to the final EIS.

Vegetation Modeling

32. Comment: The methodology in Appendix Q of the EIS should be revised. On page Q-1512, the DEIS describes a decision to use stand age for multi-storied stands assigned to the predominant layer that is being managed. This leads to the misidentification of the stand, and underestimates the acres that could be readily restored to old-growth. On BLM's Medford District and on dry, fire-prone settings found in other districts, a large percentage of multistory stands are assigned an age of the young cohorts that have filled in between older legacy trees that are more widely spaced due to past fire, or past partial thinning. Many such stands could meet the age requirements for old-growth if a percentage of the young cohort was thinned out and contribute to improved fire regime condition class in many sub-watersheds. As a result of this methodology, the description of the current condition of stands has been misrepresented, and thus skewed the degree of impact in the Environmental Consequences. We recommend that age class definitions that recognize restoration opportunities for old-growth stands.

Response: The cited passage of the Draft EIS described the existing inventory data available on BLM-administered lands. It was not describing a decision or choice in the analytical methodology. There is no available inventory data based on different age class definitions.

Forest Structural Stages and Spatial Pattern

(Note: This section was titled "Ecology" in the Draft Environmental Impact Statement.)

33. Comment: The EIS should be revised to cite references for the data on historic conditions, because statements regarding the percent of mature and old forest (75%) in the Cascade and Klamath provinces is contrary to other references (the Lieberg report from 1900 and the Osborne photos from the 1930's) that indicate that between 1860 and 1900 much of the land was dominated by brush and that most townships had experienced high severity fires.

Response: The Draft EIS cited references for the data on historic conditions: the estimate of 70% mature & structurally complex forest in the Klamath Province was derived from Rapid Assessment Reference Condition Models, which derive average historic conditions by modeling disturbance probabilities. These estimates are generally consistent with other descriptions of average historic conditions, as detailed in the



Draft EIS. The Draft EIS also acknowledged the variability within the Klamath province and the difficulty in deriving a province-wide characterization. The commenter did not attach the cited references or include complete citations, which do not appear to be readily available. However, these references presumably describe or portray the conditions in the late 1800s and early 1900s, after Euro-American settlement. The average historic conditions described in the Draft EIS characterize conditions prior to Euro-American settlement. Additional discussion has been added to the final EIS to clarify the estimates of average historic conditions.

34. Comment: The EIS should be revised to acknowledge that while disturbance is essential to how forest ecosystems function, long periods of growth and recovery between disturbances are equally important.

Response: The Draft EIS described the continued structural development of forests during long periods without disturbance and described some functions that differ in older forests. More detailed explorations of the changing ecosystem function over time in the absence of disturbance would not improve the description of the affected environment, which includes citations to relevant scientific research that address this topic (see, for example, Franklin et al. 2006, Spies 2006, Franklin and Van Pelt 2004, Spies 2004, Franklin et al. 2002, Spies and Franklin 1991). The description of the affected environment is not intended to be a primer on forest ecology; it should be no longer than necessary to understand the effects of the alternatives.

35. Comment: The EIS should be revised on page 510 to cite Daniel Sarr, NPS Klamath Network Inventory and Monitoring Coordinator, and others on the increase in salmonberry dominated areas in highly productive riparian areas in our region.

Response: The Draft EIS at the cited page described uncertainty about the future development of riparian red alder stands and described a likely future successional pathway. The commenter did not provide any specific citations or attach any references to Dr. Sarr's work, but recent research from Dr. Sarr described current conditions of riparian forests (Sarr and Hibbs 2007a and 2007b). This research would not provide a basis for describing future development of riparian forests. Therefore, including these citations would not improve the analysis or clarify the uncertainty described in the Draft EIS.

Socioeconomics

36. Comment: The EIS should be revised to include an analysis of tourism within the socioeconomic analysis section.

Response: The DEIS (page 535) describes the economic contribution of tourism in the planning area. There are no measurable differences between alternatives with respect to visitor use patterns within the planning area. A more detailed analysis of tourism for each alternative, therefore, would not change the analytical conclusions or ranking of the alternatives.

37. Comment: Table 154 of the DEIS should be revised to correct apparent calculation errors. Revenues under Alternative 2 should be \$214.67 not \$215.80 and revenues under the No Action Alternative should be \$83.07 not \$83.90.

Response: Refinement of the harvest projections during successive iterations of analyses reduced the average harvest levels by about 0.5%. The projected revenues, therefore, are overstated by about 0.5%. This difference is inconsequential and within the precision of the projection methods; therefore, no adjustments have been made.



38. Comment: The DEIS summary, page LII, Figure 2 should be revised to correct for inflation and show constant 2005 dollars. Correcting this oversight would alter the graph in such a way that it would show that payments under SRSA were at an average level of timber receipts between 1985 and 2000 instead of equaling or exceeding the peak levels.

Response: The EIS shows the payments as they were actually made and as they are recorded in financial records at the time of the payment. Performing an inflation adjustment would show that the payments in the early 1990s were higher than during the 2001-2005 period, in terms of constant dollars. This adjustment, however, would not change the analytical conclusions, the ranking of the alternatives, nor the relationship between the alternatives and the recent county payments.

39. Comment: The EIS should be revised on page 549 to clarify the statement that a 17% budget increase would be necessary to implement the No Action Alternative. The No Action Alternative is current management and is currently being implemented. The budget increase is needed to continue current management.

Response: The No Action Alternative is not currently being implemented at the levels anticipated in the 1995 western Oregon resource management plans. The No Action Alternative would harvest 266 mmbf annually, whereas recent harvests have averaged 117 mmbf (DEIS, page 540, Table 156). Increasing harvest from levels currently being implemented would require a budget increase.

40. Comment: The EIS should be revised to provide documentation on how BLM determined the increased budget numbers for the various alternatives. Without this information, it is impossible to validate the 60 percent increase identified for Alternative 2.

Response: The DEIS in *Appendix C* documents the assumptions used to calculate the BLM timber budget for the alternatives. A fixed + variable approach was used with the marginal cost of an additional MMBF at \$159, based on historical budget information, and 78% of the 2006 budget assumed to be fixed costs held constant for all alternatives.

41. Comment: The EIS should be revised to assign economic values to recreational activities such as hunting, fishing, wildlife viewing and tourism. The EIS should also assign economic values to the ecological importance of old growth in addition to timber value of old growth.

Response: The DEIS (page 535) describes the economic contribution of tourism in the planning area. There are no measurable differences between alternatives with respect to visitor use patterns or recreation levels within the planning area. Therefore, a detailed analysis of contribution to the local economies of hunting, fishing, wildlife viewing, and tourism would not change analytical conclusions, or the relative ranking of the alternatives. Assigning an economic or market place value to the ecological importance of old growth would be speculative since it does not trade in a marketplace and the price cannot be observed. (See page 783 of the DEIS)

42. Comment: The EIS should be revised to: (1) include a definition of economic stability that is consistent with economic theory, (2) describe the current status and basis of economic stability of local communities and industries, (3) describe how additional logging contributes to economic stability of communities in relationship to other socioeconomic factors, and (4) address the evidence indicating that increased logging is not associated with greater economic stability.



Response: The EIS does not claim that any of the alternatives would provide “economic stability” in any absolute sense. Increased timber harvest, however, would generate additional economic activity: in the wood products sector where primary processing jobs would be created; in the local government sector that relies on O&C revenues; and in other sectors economically linked to these sectors. The DEIS describes the potential economic contribution of each alternative in *Chapter 4*.

43. Comment: The EIS should be revised to show how timber receipts will be calculated and shared within the six districts for each alternative.

Response: Stumpage price computation is documented in *Appendix D* of the DEIS. For each combination of district, structural stage, and harvest type, stumpages are constant across alternatives. The total stumpage value and the average stumpage price/mbf change by alternative due to the different quantities and types of harvest that occur under each alternative.

The BLM is funded by appropriation and each BLM district’s allocation is determined through a budgeting process that recognizes the amount of activity on each district. Each district’s projected budget is shown in Table 163 (see DEIS, page 550). In addition, the DEIS describes how BLM receipts and O&C revenues are allocated between counties based on an acre-weighted proration formula (DEIS, pages 230-231).

44. Comment: More complete comment: The BLM has failed to explain how these international markets have been accounted for in its economic models. BLM has not reported its implied assumptions about international conditions, export and import restrictions, and the value of the U.S. dollar. BLM needs to report specifically the assumptions it has employed in its economic models to account for salient international events.

Response: The prices bid for BLM timber sales reflect market values that are driven by a number of factors, including international and domestic demand for timber. These factors, however, would affect all alternatives equally and, therefore, would not change the ranking of alternatives nor the fundamental conclusions.

45. Comment: The DEIS models for economic analysis is inadequate and flawed because it ignores the effect of harvest of late-successional forest on recreation and because of its use of IMPLAN output. Studies suggest that IMPLAN is inadequate for evaluating overall economic impacts of changes in regional natural resources. See T. Hoekstra, G. Alward, A. Dyer, J. Hof, D. Jones, L. Joyce, B. Kent, R. Lee, R. Sheffield, R. Williams. Analytical Tools and Information. Critiques of Land Management Planning. U.S. Department of Agriculture. Forest Service. FS-455. (1990) 47 pp., and Office of Technology Assessment. Forest Service Planning: Accommodating Uses, Producing Outputs, and Sustaining Ecosystems. OTA-F-505. U.S. Congress. Washington, DC (1992).

Response: The EIS economic effects analysis does not use IMPLAN. The 18 county-level input-output (I/O) models are constructed specifically for the Western Oregon Plan Revision EIS analysis. They are based on the most recent secondary data from the same data sources typically used in IMPLAN, but this is augmented and calibrated with primary (survey) data for key economic sectors in each county.

Secondary data is modified to increase local scale modeling accuracy. For example, industrial output is adjusted to survey data provided by the Oregon Department of Forestry, the Ehinger Mill Survey (Ehinger 2006a), and the Western Oregon Model (Adams and Latta 2007). Employment and earnings data for major manufacturers and other key components of the economic base is also updated to correspond with the Oregon Department of Employment ES-202 data (national data), plus proprietor’s employment data.



An Economic Analysis Systems (EAS) team of staff economist and resource sociologist spent months on site collecting supplementary primary data. This local conditions data set includes county-by-county surveys of local government, forest products sectors and indicators of the roles of amenity migration, recreation and tourism in local service sectors. The logic and structure of the WOPR I/O models, as well as the survey process, are documented. The supplemental report is not printed in the Draft EIS, but is included in the official record.

The I/O analysis is based on a static view (snapshot) of the economy that allows for detailed representation of contemporary inter-sectoral transactions. Multipliers are very stable over time (Miller and Blair 1985, 1998; Trevz 1993). Although I/O models can be sensitive to changes in direct inputs or first round impacts, it usually takes a very significant amount of structural change in an economy to change multipliers. The multipliers used in WOPR I/O models tested as stable. Even the most changed county economy (Coos County) met stable multiplier criteria between 1994 and the new 2004 baseline.

The WOPR I/O models project 2009 job and income responses to three significant perturbations of the 2004-2005 baseline economies. In addition to the forest management alternatives considered by BLM, local government incomes from federal secure rural school funds terminate and long-run declines in the plywood sector continue. The direct effects of the WOPR alternatives and the plywood sector decline are projected by the Western Oregon Model (WOR), an econometric model of the wood products sectors' responses to harvest changes. Including three simultaneous perturbations ensured that the I/O models realistically describe likely 2009 county economies and sectors of immediate interest.

Unlike IMPLAN, the 18 WOPR I/O models do include unearned income (non-labor income) such as transfer payments, investment income, business profits, and retirement income (pensions). These are important income sources in O&C counties, typically accounting for half of the residents' income. In coastal counties, retirement and investment income is prevalent, so unearned income is a major driver of local economies. These models also account for income flows from commuting, a major factor near metropolitan areas. Survey data shows that coastal counties have already experienced permanent shifts away from natural resources extraction (wood, fishing, and agriculture) to economies more dependent on retirement and tourism. So the WOPR baseline already includes the most recent non-commodity and recreation job interactions with current BLM forest management patterns.

Although harvest levels vary among the alternatives, levels of recreation do not vary among the alternatives. Typically, dispersed recreation demand on BLM-administered lands changes primarily in response to external factors: demographics (population and age structure changes) or changes in recreation technology, such as the popularity of off-highway vehicles. On the supply side, the most important factor tends to be in recreation spending responses to new facilities such as campgrounds, trails and interpretive centers. The Western Oregon Plan Revision does not include any proposed changes in developed recreation facilities. The harvest of late-successional forests was reduced by 80% on Forest Service and BLM-administered lands in 1994 under the Northwest Forest Plan. In the 14 years since that 80% reduction in harvest level, recreation activities have not materially increased. Since there are no projected changes in recreation activities on BLM administered lands, the WOPR I/O models does not include any new 2009 multiplier effects of these types.

46. Comment: More complete comment: The EIS discusses multiplier effects without disclosing that there are credible opposing viewpoints about the economic base model that multipliers are derived from. Krone, Haynes, Reyna. 1999. Different Perspectives on Economic Base. Research Note PNW-RN-538. April 1999. http://www.fs.fed.us/pnw/pubs/rn_538.pdf

Response: The article by Crones et al. (1999) cites various shortcoming of an economic base approach. The six major criticisms listed by these authors are followed by a synopsis of how the WOPR I/O models deal with each point.



1. *Author's Criticism:* The concept of basis employment places a premium on jobs in sectors such as logging and agriculture that are dangerous jobs. It does not include qualitative aspects of employment.

Response: The value an economy places on any particular job is best expressed by the wages paid to it. Both job safety and specialized skills affect wage rates. The analyses in the Western Oregon Plan Revision includes wage and salary impacts, which incorporate some qualitative aspects of employment. Other issues related to job safety and specialized training are general societal issues beyond the scope of BLM planning.

2. *Author's Criticism:* Export base analysis only captures exports from primary goods-producing industries and does not capture exports from service and information sectors.

Response: The Western Oregon Plan Revision I/O models are individually adjusted to include exports from all sectors. Examples include tourist services from motels, eating, and drinking that are important export sales for most coastal counties. Most of the construction industry, a major employer in coastal counties, is attributed to export sales because the construction is financed by investment and retirement income earned outside local areas.

3. *Author's criticism:* The role of non-basic sectors in leakage of trade from the local economy is not given adequate consideration in base analysis.

Response: The multiplier or re-spending effect is included in WOPR models. The magnitude of the multiplier effect is directly proportion to the "openness" of a local economy. Coastal economies are fairly open economies. Dollars spent on the coast leak out to metropolitan areas such as Eugene-Springfield and Portland. Trade leakage is estimated by separately modeling the Southwest Oregon economy (counties with trade linkage to Eugene-Springfield) and the Portland area economy (counties with trade linkage to the Portland area). These models demonstrated that the metropolitan areas could see significant secondary impacts associated with their role as central cities. Impacts up and down the trade hierarchy can be significant, but are typically ignored by other impact analysis approaches.

4. *Author's Criticism:* The importance of non-labor income is not considered in base analysis.

Response: This criticism is valid for other input-output modeling programs, such as IMPLAN. The WOPR models specifically include non-labor or unearned income in each model. In most coastal counties, non-labor income accounts for over half of all disposable income. For example, Curry County is heavily dependent on retirement income, investment income, and other types of non-labor income. These types of income are more important than basic industries in understanding their export base. Commuting income is also included, as it accounts for significant portions of the economic base in several counties. For example, Columbia County residents earn more income from commuting than they earn from working within the county.

5. *Author's Criticism:* The economic base model assumes that people follow employment and that changes in basic employment correspond to changes in population. This ignores the quality of life factor in migration.

Response: Commuting and non-labor income accounts for two primary factors driving migration in western Oregon. Quality of life migration is, in most circumstances, made possible by either outside income (non-labor income) or income from commuting. Additional survey data supported the argument that quality of life is increasingly important in residence choices. Western Oregon residents are commuting long distances to find desired quality of life and living circumstances. Coastal communities report that many seasonal residents are taking up permanent residence. Non-labor income is also playing an important role in the migration to areas such as Florence, Seaside, and Gold Beach.



6. *Author's Criticism:* The externalities associated with primary goods-producing industries are not accounted for in the economic base model.

Response: Externalities of increased timber harvest are described in detail in other sections of the EIS. Watershed, wildlife, aesthetics, fishery impacts, and related externalities of timber harvest play an integral part in BLM planning. These are valuation questions, not I/O questions. The I/O models are not capable of placing values on these non-market effects (externalities).

47. Comment: The DEIS fails to evaluate the contribution its proposals would make to the economic stability of the local communities and industries in the context of the evolving regionalization of the log market and the price effect on the regional log market.

Response: The DEIS states that the BLM anticipates a price effect and that under all alternatives, log prices and harvests from price-sensitive private lands would fall as the BLM sells more timber into the log market. As manufacturing capacity adjusts to absorb the increased BLM timber, prices and harvests from other owners would adjust to previous levels (see DEIS, page 535).

Projections of harvest revenues under all alternatives assume a price impact of negative 3.5% in the first decade, after which prices rise to historic levels. This price impact was based on analysis using the TAMM model and WOR model. This information has been included in the FEIS.

48. Comment: The EIS should be revised to analyze the impacts of the alternatives on property value.

Response: There is no information that indicates property values would be affected under any alternative.

49. Comment: The economic analysis of the plan is flawed, inaccurate, and ignorant of the importance of an intact ecosystem in both local economies and as a taxable base. A 1997 study by Haynes and Horne found that in an intact roadless area, 89% of the revenue is connected to tourism and human industry. Only 11% of the revenue is connected to timber harvest. Not only does the BLM WOPR fail to recognize this reality and how it plays out in Oregon economy, the BLM analysis relies on statistics from peak economic times, over-inflated timber prices, and a lack of consideration for the economic climate such as the impact of flooding the market with timber, and the effect of logging from WOPR on local businesses and private timber owners. The fact that the BLM offers different prices for board feet in two different alternatives shows a distortion of economic facts.

Response: None of the alternatives propose changes to roadless areas. The economic analysis described in detail in *Chapters 3 and 4* of the EIS is based on historic stumpage prices. Stumpage prices differ among alternatives, because the alternatives differ with respect to factors that affect the type of harvest and the cost of harvest. These differences translate into differences in projected stumpage.

50. Comment: A recent report by the Sonoran Institute (2004) found that: "Protected lands have the greatest influence on the economic growth of rural isolated counties that lack easy access to larger markets. From 1970 to 2000, real per capita income in isolated rural counties with protected land grew more than 60 percent faster than isolated counties without any protected lands." Recent survey results also indicate that many firms decide to locate or stay in an area because of scenic amenities and wildlife-based recreation, both of which are strongly supported by wilderness areas (Morton 2000). In a study to determine the economic value of federal lands in the Interior Columbia Basin, Haynes and Home (1997) concluded that the services derived from roadless areas constitute 89 percent of the economic value of federal land. Timber constitutes only 11 percent of the total value.



Response None of the alternatives change the status of any wilderness or permanently protected lands. Neither scenic amenities nor wildlife-based recreation would differ among alternatives.

51. Comment: There is empirical evidence that counties containing a higher proportion of land restricted from timber harvests in order to promote biodiversity (late-successional old-growth or riparian reserves) actually experienced faster employment growth than counties with a greater proportion of matrix land available for harvest (Kerkvliet et al. 2007a). This evidence suggests that implementing the Northwest Forest Plan and restricting timber harvesting on public land in order to promote biodiversity conservation actually led to increased numbers of jobs, not the decrease in employment claimed by BLM.

Response: The Northwest Forest Plan monitoring of the socioeconomic effects of the plan have indicated that the adverse economic impacts anticipated in the Northwest Forest Plan FSEIS, such as job losses, actually occurred. The monitoring found that although some communities in close proximity to federal forests were doing quite well, on the whole, however, these communities were not doing as well as communities less associated with federal forests (Northwest Forest Plan, *The First Ten Years Rural Communities and Economics* 2004). There is no evidence that counties in western Oregon with a higher portion of land restricted from harvest (e.g., Douglas and Coos Counties) experience faster employment growth than counties with a greater portion of matrix lands. More than 80 percent of BLM lands in all counties in western Oregon have been reserved, and less than 20 percent have consisted of matrix lands for the past 14 years (1994). The economic growth of these counties has not appreciably changed from that experienced prior to 1994.

52. Comment: Recent research indicates that the economies of many areas of the West, including Oregon, are no longer much dependent on resource extraction, including logging (Rasker et al. 2004). Research indicates that economic growth in rural Oregon counties is associated with protected areas on federal land.

Response: *Chapter 3* in the EIS describes the relative importance of BLM activities and revenues for each of the 18 O&C counties. The Socioeconomics Appendix includes an analysis from the counties showing that growth from recreation and tourism cannot be reasonably expected to offset economic losses from the loss of Secure Rural School Funding. The EIS acknowledges that certain rural counties have diversified; however, the EIS analysis indicates that many rural county governments rely on timber revenues for a variety of services, and that change in harvest levels will result in changes to local economies.

53. Comment: The EIS should clarify why data presented in Figure 161 illustrates that BLM payments to counties totaled \$65-69 Million, while 1981 data stated the figure was \$18.6 Million.

Response: The EIS does not show payment to county data for 1981.

54. Comment: The EIS should explain why the stumpage prices differ between alternatives, particularly the highest price assumed under Alternative 2. The EIS analysis should address the fact that finding markets for large logs at reasonable stumpage prices is difficult.

Response: Stumpage price computation is documented in the *Timber Appendix* of the EIS. For each combination of district, structural stage, and harvest type, stumpages are constant across alternatives. The total stumpage value and the average stumpage price/mbf change by alternative due to the different quantities and types of harvest that occur under each alternative. The commenter presents no evidence that the more limited number of mills which process large logs is negatively affecting their marketability.



To presume the future demise of these mills such that current demands for such a timber supply would disappear is speculative. The fact that there is a reasonable market for such large logs is evidenced by the fact that such logs sell at a reasonable rates when offered.

55. Comment: The EIS should conduct a sensitivity analysis based on several scenarios reflecting the historical range of variability in the market for wood products, including prices, volumes, and legal impediments to harvests, and report the results of the analysis for timber volume, stumpage price, revenue, O&C payments, and employment.

Response: A sensitivity analysis would add little to the analysis, where there is no conceptual hypothesis that would suggest the relative effects among the alternatives would vary depending on the assumed scenario. To suggest varying the assumed economic returns among alternatives on the presumption that some would be more likely “legally impeded” would be inappropriate since it suggests that courts would be biased by the types of harvest made under the alternatives. Any of the alternatives would be based on the same NEPA document, and presumably all would be equally vulnerable.

To make assumptions about relative likely outcomes of litigation among the alternatives would be highly speculative. Even if there were differential risks in legal vulnerability among the alternatives, to base an analysis on such differences would necessarily involve legal analysis of such varying risk that it would force the agency to forego the right to confidential attorney client communications. This, in turn, could adversely affect the ability of the agency to get frank and unfettered advice from its legal counsel. As the commenter notes, log prices have shown considerable variability over time. To anticipate future price changes that are sensitive to the general economic level of activity is speculative and would only serve to raise or lower all alternatives in a similar manner. To present a variety of futures, all depending on the price assumptions used, would confuse rather than clarify.

56. Comment: The EIS should consider ecosystem services in its analysis, as BLM has numerous well-established methodologies that it could use to provide a more complete estimate of ecosystem values.

Response: The EIS focuses on the economic impacts of the outputs that vary between alternatives and that directly impact jobs and income. Ecosystem services do not affect economic outputs that vary between alternatives.

57. Comment: The EIS should consider “existence value” of timber, the value of simply having, but not using wilderness and other unroaded areas.

Response: None of the alternatives propose any differences in creating or maintaining wilderness areas or unroaded areas from those already in existence. It is not feasible to assign an economic or market value to the existence of timber. Qualitative and highly subjective descriptions of non-economic or non-market value of the existence of timber would be so speculative as to not inform a choice among the alternatives, particularly when none of the alternatives propose any differential treatment to those areas.

58. Comment: The EIS should evaluate the costs of sedimentation caused by clearcutting forested areas.

Response: Under all alternatives, BLM lands would be managed under Best Management Practices designed to minimize sediment delivery from harvest units (DEIS, page 761). The EIS analysis concludes that the amount of sediment delivered to streams as a result of timber harvest is inconsequential and does



not materially vary among the alternatives. Therefore, any hypothetical economic impacts associated with sedimentation from timber harvest would be minimal and would not affect analytical conclusions or the ranking of alternatives.

59. Comment: The EIS should be revised to reflect that national macroeconomic variables that influence wood products demand are the cause of forest sector employment in Oregon, and studies show that forest timber cut or sold would not stabilize wood product employment.

Response: The O&C Act and the purpose and need are to manage BLM-administered lands for permanent forest production in conformity with the principles of sustained yield. The O&C Act states the purposes of permanent forest production in conformity with sustained yield include “a permanent timber supply” and “contributing to economic stability of local communities and industries.” All BLM management needs to do is contribute to economic stability, not be solely responsible for that outcome, which is obviously dependent on factors other than a permanent timber supply.

The O&C lands managed by BLM have more impact than USFS lands, because of differences in how revenues are shared with and used by county governments. Conclusions based on research in areas dominated by USFS ownership would not be directly applicable to the O&C counties.

Demand for wood products creates demand for raw material (logs) and the factors (e.g., employees and capital investments) that convert raw material into finished products. Management of BLM land is not intended to create demand for wood products, but rather respond to demand through supplying raw material. The BLM timber sales will generate revenues that are shared with the counties; the sales also will create employment and income across many sectors of the economy.

60. Comment: The EIS should be revised to show the total number of jobs in each county, the net/loss gain for jobs for each alternative, and the percentage of total jobs that the net loss/gain represents in each county, in order to better illustrate the perspective of the potential impacts.

Response: Table 69 (DEIS, page 219) shows total jobs in each county. Tables 158 and 159 (DEIS, pages 543-544) shows net changes in jobs by county for each alternative. The FEIS shows the changes graphically (see FEIS, *Socioeconomics Appendix*, Figures 4-25 through 4-29). Information about employment by sector by county have been added to the Socioeconomics Appendix.

61. Comment: The EIS should be revised to take into account the demographic characteristics of the region, as in-migration is probably the single biggest driver of social and economic change in rural western Oregon at this time. The EIS should include consideration of: the variation across counties and within counties, how in-migration patterns are likely to affect demand for various types of stand structures, types of recreational infrastructure, and how the different alternatives are likely to affect communities differently depending on their demographic characteristics, amenity values migration, and the expanding role of Latino immigration in the forest sector labor force.

Response: The 18 county-level models used to project employment and income impacts were individually calibrated to take into account some demographic parameters such as retirement income. In the EIS analysis, the economic conditions of the individual counties in the planning area were carefully assessed and compared. The economic condition of the various counties is a result of many complex factors including: proximity to major population centers, proximity to I-5, education level, and population growth (in-migration). The role of population growth as a factor in the economy of western Oregon was included in the economic analysis in the EIS. The economic assessment of the counties included an acknowledgement of the importance of population growth in the metropolitan counties and the in-migration of retirees to



certain rural counties (e.g., Curry County) and how that in-migration places demands on government services. The population in many rural counties has not changed appreciably in the past 15 years (e.g., Coos County, Douglas County). The alternatives are not expected to differ substantially with respect to recreation opportunities or recreation use.

62. Comment: The EIS should be revised to provide complete descriptions of the input/output model assumptions and limitations, including each county's model assumptions and inputs.

Response: Complete specification of the 18 county-level models that project employment and income impacts is too voluminous for the EIS and is available in the administrative record. Much additional information and detail, however, has been added to the Socioeconomics Appendix of the FEIS regarding county information used in the economic modeling.

63. Comment: The EIS should be revised to include adequate documentation to justify the stumpage price differences between alternatives, especially the highest price assumed under Alternative 2. For example, there is not a reference cited for BLM's claim that additional investment is being made in large log capacity (page 237). The BLM should address the possibility that it will have a difficult time finding markets for large logs at reasonable stumpage prices.

Response: The Timber Appendix describes the method for calculating the stumpage price. The price under Alternative 2 is a result of the higher level of regeneration harvest and higher level of harvest of structurally complex forest. Within each combination of harvest type, district, and structural stage harvested, the stumpage price for that combination is constant across alternatives. It is the different quantities harvested, the different types of structural stages harvested, and the different harvest methods (thinning or regeneration) that cause the stumpage prices to vary both in total and on a per MBF basis. The EIS provides a citation (Ehinger 2006a) to support the assumption regarding large log capacity. The commenter asserts, but does not provide evidence, that there is a shortage of manufacturing capacity for large logs. As shown in the DEIS (page 576), even under Alternative 2, peeler logs > 24 inches in diameter comprise only about 8% of harvested volume.

64. Comment: The EIS economic analysis should be revised to use a range of stumpage prices to forecast O&C county payments, with the range determined by the historic range of variability of stumpage and lumber prices. Given the projected continual recessed state of the real estate market over at least the next five years, it is not likely that the high stumpage prices projected by BLM will be realized. If these high prices are not maintained, BLM projections for O&C county payments are overly optimistic.

Response: An analysis using a variety of prices would add little clarity. Although the overall forecasted receipt levels would vary if prices were changed, the results for the alternatives would move nearly in unison. Even when pond values change, log grade premiums between grades (DF) change little. Log prices as of the current time (2008) are below the 10-year average. The commenter asserts that prices will remain low, but that is speculative and dependent on a variety of economic factors. Comparisons between alternatives would change little in response to variations in price assumptions for pond values of logs.

Timber

65. Comment: The EIS should be revised to reconsider the conflation of sustained yield with ecological sustainability. The calculus of extracting a maximum volume of timber in a rotation that theoretically will never dip below a maximum volume ignores the qualitative difference between a thriving ecosystem and an intensely managed rotation of cash crops.



Response: The Draft EIS did not conflate sustained yield with ecological sustainability. The Draft EIS defined sustained yield as the volume of timber that a forest can produce continuously at a given intensity of management. The identification of the sustained yield level under each alternative described only the timber harvest level. The Draft EIS presented the analysis of the effects of different forest management strategies on the ecosystem in the various chapter sections, including wildlife, botany, fish, water, and soils.

66. Comment: The EIS should be revised to provide documentation on how BLM determined the increased budget numbers for the various alternatives. Without this information, it is impossible to validate the 60 percent increase identified for Alternative 2.

Response: The FEIS *Socioeconomics Appendix* documents the assumptions used to calculate the BLM timber budget for the alternatives.

67. Comment: The EIS should be revised to incorporate a more realistic implementation schedule. For example, under Alternative 2, it is assumed the BLM will receive enough funding to sell 767 mmbf by either the first or third year of the plan. This equates to an increase of 551 mmbf over the 2007 level and an increase in the Forest Management Budget of \$132.2 million assuming a cost of \$240/mbf. This scenario is unlikely to occur.

Response: Consistent analysis of the alternatives requires the assumption of similar implementation schedules for all alternatives. To presume specific appropriations for any year is speculative, and in addition would mask the environmental differences between alternatives, since it then would be the budget level that would dictate environmental consequences, not the differences in management approach and intensity between the alternatives. Knowing the actual funding levels the BLM will receive in the future is not necessary in choosing among the alternatives, since in making that choice it is not the absolute numbers, but the relative differences among the alternatives that is important. The periodic plan evaluations provide opportunities to make adjustments based on the actual experience in implementing the plan.

68. Comment: The EIS should be revised to clearly explain how Alternative 2, with the greatest amount of timber cutting, can have the lowest projected miles of new roads.

Response: Alternative 2 has a higher level of new road construction than the No Action Alternative, and Alternatives 1 and 3. The projected miles of new road construction under the alternatives results from an interaction of the harvest land base, the harvest type, topography, and the existing road level adjacent to harvest units, among other factors. The amount of road construction would not necessarily relate simply to the volume harvested. For example, thinnings have nearly three times the road construction required compared to regeneration harvest on an equal volume basis.

69. Comment: The EIS should be revised to reflect the correct number of mmbf/year that would come from non-ASQ (riparian reserves and late-successional reserves) thinning in the Medford District under the No Action Alternative. Three mmbf/year is clearly too low based on sales like California Gulch, Rum Creek, Rich and Rocky, and Deer Willy.

Response: Three mmbf per year is the level modeled on the Medford District under the No Action Alternative. This level of non-harvest land base volume is the highest of all the alternatives. The sales shown in the comment were sold under the current RMP. Over the past 7 years, FY2000 through FY2007, auctioned sales within Late-Successional Reserves and Riparian Reserves on the Medford District have been



1.6 mmbf per year under the current RMP, excluding fire salvage. For example, California Gulch and Rum Creek together total 451 mbf of thinning within the Late-Successional Reserve, or about 15% of the yearly modeled total, but were sold in two separate years.

70. Comment: The EIS should explain why the stumpage prices differ between alternatives, particularly the highest price assumed under Alternative #2. The EIS analysis should address the fact that finding markets for large logs at reasonable stumpage prices is difficult.

Response: Stumpage price computation is documented in the *Timber Appendix* of the EIS. For each combination of district, structural stage, and harvest type, stumpages are constant across alternatives. The total stumpage value and the average stumpage price/mbf change by alternative due to the different quantities and types of harvest that occur under each alternative. The prices of logs at a manufacturing facility used in our analysis came from Log Lines Log Price Reporting Service as shown in the Timber Appendix, which publishes prices actually paid in the market monthly. The average price for 2005 was used. The commenter presents no evidence that the more limited number of mills which process large logs is negatively affecting their marketability.

71. Comment: The EIS should conduct a sensitivity analysis based on several scenarios reflecting the historical range of variability in the market for wood products, including prices, volumes, and legal impediments to harvests, and report the results of the analysis for timber volume, stumpage price, revenue, O&C payments, and employment.

Response: A sensitivity analysis would add little to the analysis. As the commenter notes, log prices have shown considerable variability over time. To anticipate future price changes that are sensitive to the general economic level of activity is speculative and would only serve to raise or lower all alternatives in a similar manner. To present a variety of futures, all depending on the price assumptions used, would confuse rather than clarify the effects and differences of the various management strategies of the alternatives. The purpose of NEPA analysis is to assist the agency in making a choice among alternatives for a decision. Therefore, it is the relative differences among the alternatives that is important in making this choice, rather than making the most accurate prediction on the actual prices that will be received by the government during implementation.

72. Comment: The EIS should be revised to ensure that the estimated cost of preparing timber sales under the proposed action and alternatives is consistent when compared to the actual costs incurred for similar BLM activities in 2006.

Response: The estimated cost of timber sales was prepared from historical costs including FY2006. The marginal cost/mbf is disclosed in the EIS.

73. Comment: The EIS should be revised to ensure alternatives conform to the O&C Act. It appears that Alternative 2 has a declining, even if slightly, not sustained production. The same appears to be the case for Alternative 1 and the No Action Alternative. These results need to be reexamined to ensure O&C Act conformity.

Response: As disclosed in the EIS, the total harvest volume is comprised of both the sustained allowable sale quantity from the harvest land base, and thinnings that are undertaken to improve habitat development within the Late-Successional Management Areas and Riparian Management Areas. This non-harvest land base volume from within the Late-Successional Management Areas declines over time and is identified as not part of the sustained allowable sale quantity. The EIS discloses the sum of both volume types. The



total volume level declines to the Allowable Sale Quantity at the end of the period when these habitat development thinnings are completed.

74. Comment: The EIS should be revised to include adequate documentation to justify the stumpage price differences between alternatives, especially the highest price assumed under Alternative 2. For example, there is not a reference cited for BLM's claim that additional investment is being made in large log capacity (page 237). The BLM should address the possibility that it will have a difficult time finding markets for large logs at reasonable stumpage prices.

Response: The *Timber Appendix* of the EIS describes the method for calculating the stumpage price. The price under Alternative 2 is a result of the higher level of regeneration harvest and higher level of harvest of structurally complex forest. Within each combination of harvest type, district, and structural stage harvested, the stumpage price for that combination is constant across alternatives. It is the different quantities harvested, the different types of structural stages harvested, and the different harvest methods (thinning or regeneration) that cause the stumpage prices to vary both in total and on a per MBF basis. The EIS provides a citation (Ehinger 2006) to support the assumption regarding large log capacity. The commenter asserts, but does not provide evidence, that there is a shortage of manufacturing capacity for large logs. As disclosed in the EIS, even under Alternative 2, peeler logs > 24 inches in diameter comprise only about 8% of harvested volume.

75. Comment: The EIS economic analysis should be revised to use a range of stumpage prices to forecast O&C county payments, with the range determined by the historic range of variability of stumpage and lumber prices. Given the projected continual recessed state of the real estate market over at least the next five years, it is not likely that the high stumpage prices projected by BLM will be realized. If these high prices are not maintained, BLM projections for O&C county payments are overly optimistic.

Response: An analysis using a variety of prices would add little clarity. Although the overall forecasted receipt levels would vary if prices were changed, the results for the alternatives would move nearly in unison, and therefore maintain their relative differences in effects on the O&C county payments. Even when pond values change, log grade premiums between grades (DF) change little. Log prices as of the current time (2008) are below the 10-year average. The commenter asserts that prices will remain low, but that is speculative and dependent on a variety of economic factors. Comparisons between alternatives would change little in response to variations in price assumptions for pond values of logs.

76. Comment: The EIS should be revised to include a reference citation for the "improved genetics" assumption, because several published articles suggest that "improved genetics" for faster growth may also make trees more vulnerable to insect and fungal infestations.

Response: The basis and methods for analyzing the effects of genetic tree improvement are described in the *Vegetation Modeling Appendix* of the FEIS.

The principal tree species genetically selected for faster growth within the planning area are Douglas-fir and western hemlock. There is no documented evidence that genetically improved Douglas-fir and western hemlock are more vulnerable to insect and fungal infestations. If anything, the opposite is true. "In Douglas-fir, favorable genetic associations have been shown for growth and resistance to Swiss needle cast, and for growth and terpene content, a deterrent to bear damage" (Johnson 2000; pages 29-34). To minimize the chance of inadvertently favoring these or any other unintended consequence of genetic selection, a broad genetic base is maintained, resistance/tolerance to known insect and disease problems is kept neutral or improved, and only locally adapted planting stock is used for reforestation.



77. Comment: The EIS should be revised to identify and reference surveys and modeling used to justify anticipated growth of plantations, as they currently are not provided. Previous research in the Medford District (on file at Medford BLM) indicates that the ORGANON modeling program used by BLM to estimate future growth of plantations grossly overestimated tree growth while underestimating negative impacts such as clumpiness, non-stocked openings, and animal damage.

Response: The methods used for estimating the growth of plantations, as well as natural forest stands and the application of those growth projections, are described in the *Vegetation Modeling Appendix* of the FEIS. The basic data used were the BLM Current Vegetation Survey (CVS) inventory plots stratified by geographic region (southwest and northwest Oregon), age, site productivity class, species group, and existing stand condition (current density, past treatment history). This modeling approach partially compensates for the negative effects on growth and yield due to clumpiness, non-stocked openings, and animal damage. Further growth reductions are applied to the simulated yield projections to account for the effects of defect and breakage, soil compaction, snag and coarse woody debris retention, Swiss needle cast disease (Salem District only), other diseases, and insects.

The modeling approach used for the Western Oregon Plan Revision differs from that used for the Medford BLM analyses, and also that used by the BLM for the current (1995) resource management plans. The data used for the Western Oregon Plan Revision is stratified to a much higher degree than previous BLM analyses providing for more reliable estimates. In addition, each CVS subplot in a stratum is simulated separately. This stratification ensures representation of the full range of actual conditions for a forest stratum (modeling group), not just an optimum condition. Instead, the simulation results of each subplot in a modeling group are averaged together. This method is based on the fact that the CVS data presents a random sample of the forest stratum modeled. Therefore, the average of all projected curves for a modeling group represents the average projection for the forested land base represented by the modeling group.

78. Comment: The EIS should be revised to use valid “net ingrowth” conclusions, because the conclusions from the 10-year LSOG monitoring report are flawed. The modeled growth of trees from 18 or 19 inches dbh in 1994 to cross an arbitrary 20 inch dbh threshold in 2004 is merely an incremental change that cannot be compared on an acre-to-acre basis with regeneration harvest of old forests that is visible from space.

Response: The EIS acknowledges that the change occurs primarily in the lower end of the diameter range for older forest. The 20-inch diameter threshold is not arbitrary. The rationale for this and other diameter thresholds is described in the Late-Successional Old-Growth monitoring report (Moeur et al. 2005, pages 9-13).

79. Comment: The EIS should be revised to include discussion of increased exposure to herbicides that forest dwellers will experience if clear-cutting is increased on BLM lands, especially in light of the recent changes in BLM Herbicide policies as announced in the September, 2007, Record of Decision (ROD) on Vegetation Treatments Using Herbicides.

Response: The current western Oregon BLM vegetation management techniques employed in clearcuts for forest management goals do not employ herbicides. Analysis of effects in the EIS is based on the assumption of no herbicide use for reforestation and timber stand improvement purposes. The new vegetation management EIS and ROD (USDI 2007a, 2007b) does not alter the *status quo* in that regard. The vegetation management EIS specifically states: “Thus, this PEIS does not evaluate vegetation management that is primarily focused on commercial timber or other forest product enhancement or use activities that are not related to improving forest or rangeland health or work authorized under the *Healthy Forests Restoration Act of 2003*.” (USDI 2007a, pages 1-5).

Any future use of herbicides for commercial forestry purposes would be done only after additional environmental analysis was completed.



80. Comment: The EIS should be revised to include an analysis of the impacts to endangered species from the use of herbicides, in particular impacts to salmon and the northern spotted owl.

Response: The BLM consulted with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, as required under Section 7 of the ESA, as part of the vegetation management Programmatic EIS (USDI 2007a) involving the use herbicides for other than commercial timber or other forest product enhancement or use of activities that are not related to improving forest or rangeland health. The effects of herbicide use on the northern spotted owl and various salmonid species were included in that assessment (USDI 2007c). Further analysis and consultation at the state and local levels tiered to the vegetation management PEIS would be undertaken before implementation occurred.

81. Comment: The EIS should be revised to address the apparent inconsistency with reporting that only one southwestern Oregon site is currently infected with Sudden Oak Death. Other studies report that at least 53 other localities are infected with Sudden Oak Death.

Response: The text in the final EIS has been revised and additional citations provided.

82. Comment: The EIS should be revised to include a definition for common silvicultural treatments and these definitions should include examples of these management styles.

Response: Descriptions of common silvicultural treatments have been added to the *Vegetation Modeling Appendix* of the FEIS.

Special Forest Products

83. Comment: The EIS should be revised to account for the diversity in special forest products, because the current analysis is too generic and does not acknowledge that variation exists across products and across species for the same types of products. Therefore the analysis is flawed.

Response: The EIS analysis describes 10 categories comprising 84 special forest products and the anticipated effects of management activities to special forest products over 10 years. There is variability of special forest products that occurs at local spatial scales and by management activities. However, the availability, abundance, quality, and distribution of most special forest products would not vary under all of the alternatives. Other special forest products would be affected by increased forest management activities at the local scale, but to what extent is speculative. Little difference is expected at the regional scale. Special forest products are collected and harvested from common species with broad distribution. Changes in the level of forest management activities under the alternatives would not result in substantial changes to current harvesting and collecting levels of special forest products.

84. Comment: The EIS should be revised to incorporate a range of existing scientific literature in the Special Forest Products analysis, because the analysis lacks sufficient documentation. Existing literature includes: Institute for Culture and Ecology. <http://www.ifcae.org/ntfp/pubs/index.html>. We have posted numerous reports and links to articles on SFP issues at this site. One that might be particularly useful for the FEIS is: Lynch, Kathryn A.; McLain, Rebecca J. 2003. Access, Labor, and Wild Floral Greens Management in Western Washington's Forests. PNWGTR-585. Portland: Pacific Northwest Research Station USDA Forest Service. Another key publication is: Jones, Eric T. Rebecca J. McLain, and James Weigand. eds. 2002. Non Timber Forest Products in the United States. Lawrence: University of Kansas Press. Center for Nontimber Resources at Royal Roads University in Victoria, British Columbia. <http://www.royalroads.ca/programs/faculties-schools-centres/non-timber-resources/>.



Response: The special forest product literature cited provides reference information to assist in drawing conclusions for management of specific forest products and species on BLM-administered lands in response to forest management activities and habitat changes anticipated over the next 10 years at the site scale and regional scales. There is a growing body of scientific literature that provides regional perspectives of the special forest product trade. However, much of the scientific literature acknowledges, as does the BLM, the lack of information and knowledge of the distribution and abundance of these generally common, wide ranging species (Jones et al. 2007, Muir 2004, Pilz et al. 2001) and the BLM contribution within the context of the broader forested landscape. Much of the current information remains anecdotal. No studies have been conducted that attempt to segregate the portion of the harvest that occurs on BLM-administered lands from that of other landowners. Inventories of special forest products or spatially explicit habitat types associated with individual special forest products are unavailable on BLM-administered lands, as well as the amount and location of actual harvests.

Botany

85. Comment: The EIS should be revised to provide management direction for deciduous oaks. Currently, these species are combined with “hardwoods” in the vegetation section. Deciduous oaks are much different than broadleaf evergreen trees (e.g. tanoak) because deciduous oaks are shade intolerant and relatively low growing (as compared to conifers). Deciduous oaks are easily shaded out by the faster growing and taller Douglas-fir.

Response: The Draft EIS included a management objective common to all action alternatives to support natural species composition and vegetation on noncommercial areas, including: noncommercial forests, oak woodlands, shrublands, grasslands, cliffs, rock outcrops, talus slopes, meadows, wetlands, springs, fens, ponds, and vernal pools. The Draft EIS described the following management actions common to all action alternatives: natural processes, native species composition, and vegetation structure that would be maintained or restored. Management would include the use of prescribed burns; retention of legacy components (e.g., large trees, snags, and down logs); and removal of encroaching vegetation in meadows, grasslands, or oak woodlands in a manner consistent with natural or historic processes and conditions. Providing more detailed and site-specific management actions would be beyond the scope of this RMP revision and may be developed through implementation actions.

86. Comment: The EIS should be revised to address the apparent inconsistency with reporting that only one southwestern Oregon site is currently infected with Sudden Oak Death. Other studies report that at least 53 other localities are infected with Sudden Oak Death.

Response: The text in the final EIS has been revised and additional citations provided.

87. Comment: The EIS should be revised by removing the statement “However, because future spread of the disease and subsequent tree mortality in the planning area is speculative, there is no basis on which this analysis can assume future changes to forest composition, structure, and process as a result of Sudden Oak Death.” This statement is contrary to the General Technical Report cited in the EIS which notes that a model for Sudden Oak Death created by the USDA Forest Service’s Pacific Southwest Research Station, found that all five models examined “were consistent in their prediction of some SOD risk in coastal CA, OR and WA.” Three of the five models predict high risk for almost all of the WOPR area and a 57 composite model placed most of the WOPR area in the highest two risk categories.

Response: The cited models identified various levels of potential risk, rather than predicting spread of Sudden Oak Death in the planning area. Whether Sudden Oak Disease actually spreads in the planning area will be influenced by many variables other than the potential risk identified in these models, including the



effectiveness of quarantine and eradication measures currently being implemented (Kanaskie 2007, Palmieri and Frankel 2006). Regardless of the level of potential risk in the planning area, the future spread of the disease and subsequent tree mortality remains speculative.

88. Comment: The EIS should be revised on page 46, Table 19 to remove Kincaid's lupine from the list of completed recovery plans. The completed plan is not expected until summer of 2008.

Response: The Final EIS has been revised to reflect this information.

89. Comment: The EIS should be revised to acknowledge that the health of individual special status species populations, the threats to those populations, as well as the total number of populations need to be examined when considering whether to provide conservation measures, as species persistence may be a concern even when more than 20 populations exist.

Response: In the Final EIS, the term "occurrence" is used rather than "population," which was used in the Draft EIS. Each occurrence represents a record in the database as defined by the database entry standards. The BLM GeoBob and Oregon Heritage data base standards differ, but in general represent distinct field occurrences as part of a meta-population.

The BLM would apply conservation measures to Bureau special status species on all BLM-administered lands under the PRMP Alternative in the FEIS consistent with BLM National and Oregon/Washington State special status species policy. The 20 occurrence (population) threshold would not apply under the PRMP Alternative. Consequently, there is no need to undertake a detailed species by species analysis of health, threats, and total populations of the 296 special status plant and fungi species to determine species persistence.

90. Comment: The EIS should be revised to provide more information on which recovery plan actions in Appendix E would be implemented in relation to management commitments, especially for listed plants that do not have completed recovery plans. As currently presented, it is unclear how these recovery plan actions relate to management commitments.

Response: Management actions under the alternatives would direct implementation of recovery plans and conservation measures of federally listed plant species on all BLM-administered lands. The BLM would assess existing data (e.g., suitable habit, previous surveys, and known locations) for each plant species prior to planned activities and determine if additional field data is necessary, consistent with existing recovery plans, biological opinions, and BLM policy (Oregon/Washington policy and BLM national policy). Consultation between the BLM and the U.S. Fish and Wildlife Service would occur for all federally listed species without recovery plans to determine adequate species conservation measures.

91. Comment: Appendix E in the EIS should be revised to include the findings of last year's monitoring report that indicated *g. Fritularia* populations are declining all over the district.

Response: Information regarding Bureau special status species has been revised in the final EIS as a result of a new species list and updated field data entries into both the BLM GeoBob data base and the Oregon Natural Heritage Information Center data base (see FEIS, Botany Appendix). Recent monitoring results of Gentner's fritillary have shown a decrease in the number of flowering plants, but the cause of this trend is unclear and there is no direct correlation with recent management activities. The summary description in the 2007 Gentner's fritillary monitoring report is apt; "In general, the usual pattern of 'no real pattern' prevailed" (Siskiyou BioSurvey 2007).



Invasive Plants

92. Comment: The EIS should be revised to include mitigation measures that could be used in the event of an introduction as apposed to focusing only on reducing the risk of introduction. The EIS should provide information on the cost and effectiveness of the measures identified.

Response: Management of invasive plant infestations are addressed in the EIS. The EIS also incorporates the analyses and decisions of the final environmental impact statement and records of decision for the Northwest Area Noxious Weed Control Program (1987) and the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States (2007). In addition to the discussions presented in the FEIS, these other EISs and records of decision address measures that could be used in event of an introduction and also provide information regarding cost effectiveness.

93. Comment: The EIS should be revised to include a thorough analysis of all 11 representative invasive species, as apposed to the current analysis that briefly discusses 6 of the 11 species and lacks analysis of economic and ecosystem consequences. In addition, the analysis should correspond to the temporal horizon of the plan.

Response: All 11 species are addressed in *Chapter 3* (Affected Environment) of the FEIS. The analysis of environmental consequences in *Chapter 4* is based on a pooled data set of the distribution of all 11 species. The analysis in the FEIS addresses both the short-term and long-term risks of introduction and spread of invasive plants.

Wildlife

94. Comment: The last sentence on page 685, Volume II of the EIS includes the assumption that private forest lands will provide early seral forage if the BLM did not do so on its lands, and that the private lands would provide more of it. The BLM is required under FLPMA to provide adequate wildlife forage and cover on its lands. The assumption that private lands can provide the early seral stage habitat that happens to be under represented on the federal lands is refuted by information located on pages 196 and 206 of Volume I.

Response: The analysis in the Draft EIS demonstrated that the abundance of stand establishment forests, which provide early-seral forage for deer, is well above the average historic abundance on non-federal lands and will continue to be abundant in the future. The cited statements in the Draft EIS qualified that these stand establishment forests on non-federal lands generally have a homogeneous structure, uniform tree composition, and high tree density. As noted in the Draft EIS, this stand condition would limit the habitat value of these stands to some species, such as snag-dependent birds. However, these stands would provide deer forage. The Draft EIS disclosed that the BLM-administered lands would continue to provide forage for deer at levels that would vary over time and among alternatives.

The Federal Land Policy and Management Act requires that BLM-administered lands be managed in a manner that will provide food and habitat for wildlife, but does not stipulate that this provision be “adequate” or otherwise set any specific level or amount of food or habitat that must be provided. Nevertheless, the O&C Act prevails over the Federal Land Policy and Management Act insofar as they relate to management of timber resources on O&C lands, and there is no requirement specified in the O&C Act to provide for wildlife. See *Headwaters v. BLM*, 914 F.2d 1174 (9th Cir. 1990).

95. Comment: The EIS should be revised to address the apparent inconsistency concerning the analysis and conclusions of foraging habitat and the projected 50% increase in deer population at the end of 50 years.



Response: The FEIS has been revised to clarify the analysis and conclusions of foraging habitat and also the increases in populations. The analysis predicting a population response as a result of increased foraging habitat has been dropped in the final EIS.

96. Comment: Table 5 of the EIS should be revised to explain why connectivity habitat for the No Action Alternative, Alternative 1, and Alternative 2 is being compared to suitable habitat for Alternative 3 within the table.

Response: This table does not discuss connectivity, but simply describes the amount of spotted owl suitable habitat on those lands not contained within Late-Successional Management Areas. Connectivity is the ability of the northern spotted owl to move across the landscape. Neither Table 5 in the DEIS, nor the preceding text that references the table, make a presumption to describe the connectivity of the landscape for the northern spotted owl.

97. Comment: The EIS figures and tables for Riparian Management Area should be clarified to resolve the apparent contradictions.

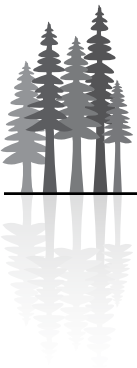
Response: Table 207 in the DEIS (which is Table 4-83 in the FEIS)(Riparian Management Areas Across All Land Use Allocations Under the Alternatives) and the figure showing land use allocations under the alternatives (Figure 1 in the DEIS) express Riparian Management Areas as a percentage of two different base numbers and, therefore, are not comparable. The table expresses Riparian Management Areas as a percentage of total BLM-administered lands, whereas the figure expresses Riparian Management Areas as a percentage of the gross Timber Management Area. The analysis in the final EIS has been clarified to eliminate the perceived conflict.

98. Comment: The figures in the EIS should be revised to include the percentage of both landscape and land base current and future conditions of Mature and Existing Structurally Complex conditions. Including this information would help determine whether or not the alternatives meet land bird conservation objectives.

Response: In the Draft EIS analysis, the mature multi-canopy and structurally complex forests were combined for analytical purposes. This grouping of structural stages failed to provide adequate analysis for evaluating the Partners'-in-Flight objective of "[M]aintain existing old-growth forests..." and "[M]aintain existing mature forests..." (Altman 1999). The land bird analysis has been restructured in the final EIS to analyze impacts to structurally complex forests that approximate Partners'-in-Flight "old growth" and to separately analyze impacts to mature multi-canopied forest for BLM-administered west-side conifer forests.

The analysis for all landowners has required the coupling of BLM data with data from the Interagency Vegetation Mapping Project, and also the simplification of the overall data to three structural stages: stand establishment, young, and mature & structurally complex. A discussion of the limitations on the ability to address the Partners'-in-Flight habitat objectives has been added to the final EIS.

99. Comment: The EIS should be revised to address Oregon Department of Fish and Wildlife's (ODFW) assessment that blacktail and mule deer populations are in decline throughout the planning area, in part due to the loss of early seral habitat. A discussion of habitat needs found in both the ODFW Mule and Blacktail Deer Management Plans should be added. This section should also address how BLM's management actions will assist ODFW to stop the decline in forage habitat quantity and quality.



Response: The final EIS has been revised to reflect the declines in mule deer, black-tailed deer, and elk across western Oregon. The Oregon Department of Fish and Wildlife's elk and mule deer management plans were reviewed and referenced in development of *Chapter 3*. (The black-tailed deer management plan is still undergoing internal review by the department and is not available for referencing.) Neither the elk nor the mule deer management plan provide habitat targets to guide BLM in accurately assessing the value of its habitat contribution to the overall needs of these species. The BLM has ongoing efforts to coordinate with the Oregon Department of Fish and Wildlife in meeting wildlife management objectives where they are consistent with BLM land use plans. These administrative processes and intergovernmental relationships are generally not detailed in land use plans.

100. Comment: The EIS should be revised to include new significant information on pileated woodpeckers including pileated woodpeckers need for more and larger trees than nesting trees. They may use only one nesting tree a year, but use seven or more roosting trees. These management requirements should be included in the EIS.

Response: The BLM has incorporated or considered all available current information that is pertinent to the analysis in the EIS.

101. Comment: The EIS should analyze the State of Oregon's Comprehensive Wildlife Conservation Strategy that identifies 'strategy species' for the Coast Range, Klamath Mountains, and West Cascades ecoregions. This conservation strategy instructs that special attention may need to be given to certain species within late successional forests. In order to avoid trends toward listing, BLM should adopt measures to conserve these species.

Response: The Final EIS includes a review of the PRMP Alternative for consistency with the State of Oregon's Comprehensive Wildlife Conservation Strategy.

102. Comment: The EIS should strongly consider the fact that the U.S. Fish and Wildlife Service (USFWS) issued a decision on April 8, 2004 that the listing of the Pacific fisher is warranted under the ESA, but action is being deferred due to workload constraints. Actions that would be detrimental to the Pacific fisher may need to be reevaluated within the EIS due to its imminent listing.

Response: The EIS analyzed the effects of the alternatives on the Pacific fisher. The PRMP Alternative in the FEIS was crafted to best meet the purpose and need of the plan revision while complying with the requirements of the Endangered Species Act and Special Status Policy. There is no present requirement to consult on a species that for whatever reason is not listed for protection under the Endangered Species Act. If the U.S. Fish and Wildlife Service lists the Pacific fisher, the BLM will consider whether it has actions with remaining discretion that have potentially adverse effects on the Pacific fisher, and also determine whether consultation is required at that time. Not all of the alternatives being considered have adverse consequences on this species. Furthermore, BLM will consult with the U.S. Fish and Wildlife Service on any implementing projects of the revised plan that have likely adverse effects to threatened and endangered species.

103. Comment: The EIS should be revised to answer Analytical Question Number 7 on page 83 of the Planning Criteria, "What levels of elk habitat will be available under each alternative?" because it is not answered in the DEIS.

Response: The Proposed Planning Criteria and State Director Guidance was written early in the planning process with the purpose of helping to guide development of alternatives and to ensure focused data collection and analysis. It was meant to be a dynamic document, responding to changes in data availability and analytical techniques. Re-evaluation of the issues led the BLM to evaluate the habitat management



areas only, versus the entire landscape, as the key areas of BLM-administered lands on the landscape. Coincidentally, it was pointed out to the BLM that the western Oregon version of the Wisdom model was dated and its validity for western Oregon may be questionable; therefore, it was dropped from the final EIS. A brief discussion of the overall forage habitat and cover availability in the planning area was added to the final EIS to frame the habitat management area analysis into a larger context.

104. Comment: The EIS should be revised to explain how elk populations will be protected from expected detrimental effects of new roads being built and increased vehicle use on existing and new roads with the implementation of WOPR. Roads fragment elk habitat and increase elk take due to increased traffic.

Response: The EIS discusses impacts of vehicle traffic to both deer and elk. The EIS discussion indicated that unregulated road use causes an increased vulnerability to both legal and illegal harvest and disturbs the use of adjacent foraging, fawning/calving, breeding, and resting habitat. The EIS discusses the benefits of controlling road use: (1) decrease energy expenditure responding to vehicle disturbance and (2) increase in the availability of cover and forage that would occur with road closure. Additional discussions were added to the final EIS to categorize the relative value of habitat within 150 meters of roads open to vehicle use, versus those habitats more than 150 meters away.

105. Comment: The EIS should include further analysis on the expected effects of habitat fragmentation that would be caused by the implementation of the action alternatives, especially with regard to the reduced riparian reserves and lack of green tree retention in some alternatives.

Response: The effects of the alternatives on landscape connectivity are quantitatively evaluated for BLM-administered lands in the EIS using the northern spotted owl as the target species, in the Ecology section. Additionally, the landscape connectivity of riparian-associated species is qualitatively addressed in the special status species section of the EIS. The effect of green tree retention, or the lack of green tree retention, is clearly analyzed and discussed in the Forest Structural Stages and Spatial Pattern section of *Chapter 4* in the EIS.

106. Comment: The EIS should consider including an analysis on the effects of the proposed changes to land management on Survey and Manage instead of simply relying on an assertion that the effects are similar to those experienced by the northern spotted owl. The 9th Circuit court has found that this type of assertion does not meet the requirement of NEPA to analyze and disclose the effects of proposed actions.

Response: The EIS analyzes species effects for those wildlife species listed under the Endangered Species Act, deer, elk, bald eagle, fisher, land birds in general, western snowy plover, sage grouse, and special status species. For wildlife species that are listed as Special Status Species, many of which were formerly listed as “Survey and Manage,” analysis was done by grouping species by habitat association. For plants and fungi, those species that were formerly listed as “Survey and Manage” were included in the analysis of special status species and other plants and fungi under various habitat groups. Survey and Manage is not a component of the No Action Alternative or the action alternatives and, therefore, those species are not analyzed individually.

107. Comment: The EIS should be revised to include a more in-depth analysis of the effects of the proposed actions on the Siskiyou Mountains salamander, the Larch Mountain salamander, and the Inland tailed frog. A discussion of salamander and frog biology, habitat requirements, distribution, conservation status, and existing conservation plans need to be included in the EIS.



Response: Individual special status species were not addressed for several key reasons:

- The vegetative data available to the EIS does not contain adequate information to conduct an detailed analysis of available habitat for each individual species and would result in analysis based on more generalized habitat conditions.
- Generalized habitat descriptions for each species would result in similar analysis and results being repeated for multiple individual species.
- Individual species will be addressed at the project scale where onsite mitigation would be applied, as necessary, to meet the goals and objectives of the Special Status Species policy.

108. Comment: The EIS should explain that if the habitat needs of species associated with intermittent streams would not be met under Alternatives 2 and 3, then this would violate the Clean Water Act requirements to maintain water quality for aquatic organisms.

Response: There was inconsistency between the summary text and main text of the DEIS regarding this issue. The summary has been clarified in the final EIS. The analysis in the EIS describes the adjacent vegetative communities, not in-stream water temperatures. Increasing temperatures and decreased relative humidity would be expected to occur during the summer months when intermittent stream channels are typically dry and would, therefore, not contribute to water quality issues.

109. Comment: The EIS does not adequately analyze the effects of decreased habitat and increased fragmentation of habitat under Alternative 3 to fisher and does not address the ESA requirement that federal agencies not conduct activities that lead towards listing?

Response: The analysis in the EIS discusses the effects of all alternatives to the Pacific fisher, including the increases and decreases to the available fisher natal and foraging habitat and the long-term changes in patch size and connectance measure of mature & structurally complex forests (a surrogate for fisher natal habitat).

110. Comment: The EIS should be revised to include the Migratory Bird Treaty Act as a Major Legal Authority in Appendix A, as well as a discussion of how WOPR will address Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds and the Migratory Bird Treaty Act.

Response: The Migratory Bird Treaty Act and Executive Order have been added to Appendix A in the FEIS, under Major Legal Authorities. It is the purpose of an EIS to evaluate the environmental effects of a proposed management action and to provide that information to a decision maker. A discussion of the plan's consistency with existing policy and laws will be included in the Record of Decision.

111. Comment: The EIS should be revised to strongly consider direction to conduct marbled murrelet surveys prior to timber harvests that may destroy suitable habitat. Furthermore, the USFWS recommends that BLM protect areas where occupied behaviors are observed.

Response: The requirement to conduct pre-disturbance surveys for all projects that degrade or remove suitable marbled murrelet habitat has been added to the PRMP Alternative in the FEIS. Areas that exhibit occupying behaviors would be protected under the PRMP Alternative.

112. Comment: The EIS is inconsistent with the recovery plan for the marbled murrelet

Response: The BLM management will be consistent with approved recovery plans. Although the BLM will be consistent with the overall intent of recovery plans, the plan may not implement all aspects of the plan verbatim.



113. Comment: The DEIS analysis of effects on the marbled murrelet is flawed because it only considers habitat. By not relating marbled murrelet habitat availability to effects on marbled murrelet populations, the DEIS is unable to quantitatively or qualitatively integrate habitat changes with other observed effects on the species, such as changes in marine conditions.

Response: No relationships between amount of habitat and the number of murrelets were revealed during a review of the scientific literature. Without any relationship it was not possible to determine population change due to habitat modification other than in the most basic way. The complexities of integrating changes in at-sea foraging habitat and changes in at-sea mortality due to by-catch and oil spills make forecasting population effects problematic. Without models to forecast these factors, the BLM chose to analyze only those factors influencing murrelet biology that the BLM controlled, which is available forest habitat. The BLM has received no new information that would allow the prediction of marine conditions, or to relate population levels to habitat amounts in western Oregon forests.

114. Comment: The DEIS uses a flawed analytical assumption in modeling marbled murrelet nesting habitat as all patches classified as mature and Structurally Complex forest. This modeling assumption encompasses too broad of a range of structural conditions, including some that are inconsistent with empirically derived descriptions of nesting habitat. Therefore, the DEIS habitat estimations are inaccurate and probably overestimate nesting habitat.

Response: Marbled murrelet nesting habitat definitions were based on nesting habitat definition for nesting habitat suitability 4 found in the “expert opinion” model presented in Raphael et al. (2006). These stands had a minimum quadratic mean diameter of 20 inches. Quadratic mean diameter was calculated for the trees in the “uppermost canopy” (Moeur et al. 2005). This diameter was not comparable to the quadratic mean diameter derived from the ORGANON projects, which averaged all trees in the stand, over 8 inches in diameter. Such averaging of trees would tend to underestimate the quadratic mean diameter of older, multi-layered stands compared to the techniques employed by Moeur et al. (2005). The mature, multi-layered structural stage (which is defined as 23 or more trees per acre greater than 20 inches in diameter at breast height in the western hemlock zone; and 11 or more in the Douglas-fir zone) was used to be an adequate approximation of the Raphael et al. (2006) definition. The BLM has not found, or received, any information that this approach is invalid. Habitat analysis in the final EIS was revised to address effects to the structurally complex old forest and very old forest separate from overall gross murrelet nesting habitat.

115. Comment: The DEIS analysis of marbled murrelet habitat based on the Forest Operation Inventory is flawed because it does not consider minimum patch size, and habitat within individual polygons may not be suitable if the patch is small and isolated. In addition, the metric used to quantify edge-depth may not be biologically relevant to marbled murrelets (Ripple et al. 2003, Meyer and Miller 2002).

Response: The EIS acknowledges that patch size is positively correlated to the potential for murrelet occupancy. None of the studies referenced in the comment cite a minimum patch size below which a stand is no longer suitable. In fact, Nelson and Wilson (2002) note that murrelets will use habitat patches < 5 acres surrounded by large areas of unsuitable habitat. Raphael et al. (2006) summarized all habitat down to a patch size of 2.5 acres in Washington and Oregon and 2.0 acres in California.

The edge-depth used for fragmentation analysis is 164 feet (50 meters), which is consistent with analysis used in Meyer and Miller (2002) and data summarized in McShane et al. (2004).

116. Comment: The results from the DEIS analysis suggesting 373,000 acres of marbled murrelet habitat is inconsistent with the Northwest Forest Plan 10-year analysis which reported 289,000 acres which has been validated with empirical data (Huff et al. 2006).



Response: The actual amount of high quality marbled murrelet nesting habitat on federal lands within Zone 1 of the marbled murrelet range is 289,000 acres. The EIS identifies 244,000 acres of marbled murrelet nesting habitat within Zone 1, and 129,000 acres of marbled murrelet habitat in Zone 2, for a total of 373,000 acres. McShane et al. (2004), citing U.S. Fish and Wildlife data, showed the BLM reporting a total of 350,000 acres of marbled murrelet habitat, which is comparable to the 373,000 acres reported in the EIS. Marbled murrelet occupancy was not analyzed because it is not possible to accurately predict its response to habitat changes.

117. Comment: It is not possible to assess the accuracy of the DEIS marbled murrelet analysis because it lacks validation. The assumption between coarse habitat availability (mature and structurally complex forest) should be tested using available occupancy data for marbled murrelet.

Response: This analysis was meant to provide decision makers with a picture of the relative amounts and changes that would be expected to occur to available marbled murrelet nesting habitat under each alternative. Using different data and evaluation techniques would make comparison of alternatives difficult. Validation with known occupied sites is difficult because murrelet surveys were not randomly located. Murrelets tend to be biased either towards the best habitat because that is where regeneration harvests were planned, or towards the worst nesting habitat because of planning management actions designed to avoid murrelets. There is no evidence that the analysis in the EIS fails to provide decision makers with the ability to make an informed decision on the relative merits of each alternative as it relates to the marbled murrelet. Although the comment points out an information need that could help establish some relationship between habitat availability and the species' response, it is not information currently existing nor needed to establish a relative ranking among alternatives for their potential effects to this species.

118. Comment: The DEIS analysis of marbled murrelet habitat focuses solely on patch-scale habitat measures which is far less accurate than multi-scale models (Meyer 2007).

Response: Meyer (2007) describes a model that can assist in predicting the distribution of marbled murrelet habitat across a geographical area, and also the relative likelihood of occupancy of individual stands by marbled murrelets, by utilizing parameters calculated at four different scales. In terms of Meyer (2007), the analysis in the EIS uses a single scale (i.e., the patch, which is the smallest scale in Meyer's [2007] hierarchy).

The analysis in the EIS does not redefine the distribution of this species, nor does it treat stands of suitable murrelet nesting habitat differently based on the likelihood that they may be occupied. The analysis in the EIS simply looks at the change in the relative abundance of potential nesting habitat within a given geographical area (marbled murrelet Zones 1 and 2). This habitat model is then combined with a quantitative analysis of the landscape patterns to describe to the decision maker whether conditions on BLM-administered lands are getting relatively better or worse for the marbled murrelet under each alternative. Compared to Meyer (2007) and Meyer and Miller (2002), this is a simplified review of habitat conditions and their potential to change but it still provides an adequate basis for an informed choice among the alternatives regarding marbled murrelets. Utilizing the full modeling technique in Meyer (2007) would not change the overall conclusions or ranking of the alternatives.

119. Comment: Marbled murrelet, a rafting species, are tied to very specific marine habitats, often strongly associated with large bays and river mouths (Meyer and Miller 2002). The alternatives would have very different effects across the Plan area, and it appears (based on changes in habitat availability in DEIS, Fig. 234) that marbled murrelet populations in southern Oregon would be differentially impacted. In addition, the DEIS fails to analyze the differential, geographically bounded effect (Meyer and Miller 2002) at both the population and meta-population scale.



Response: The analysis within the EIS does evaluate potential marbled murrelet nesting habitat at two scales: (1) the entire planning area, and (2) district and marbled murrelet zones. This provides for an evaluation of the entire population of marbled murrelet habitat as a whole, as well as pinpointing specific districts and zones that may exhibit localized problems.

120. Comment: The DEIS assumption that “developed structurally complex” stands in one part of the plan area can replace harvested old-growth stands in another area as marbled murrelet nesting habitat is not supported by available data and is not supported by analysis in the DEIS.

Response: The EIS makes no such assumption. The EIS simply summarizes the marbled murrelet nesting habitat available at each time interval. The analysis has been revised to analyze the changes to structurally complex old and very old forest separately from the overall habitat analysis. The EIS makes no statement relating to the relative value of each structural stage to another.

Wildlife – Northern Spotted Owl

121. Comment: Because down wood is a critical component of spotted owl habitat and there are no down wood requirements for Alternative 1 and 2 in timber management areas other than leaving noncommercial wood, the BLM should set a minimum standard for post-treatment down wood.

Response: Under all alternatives, BLM management would be consistent with the *Final Recovery Plan for the Northern Spotted Owl* and the Final Rule on northern spotted owl critical habitat (DEIS, page 60). Under Alternatives 1 and 2, the BLM chose not to establish a specific minimum standard for downed wood.

122. Comment: The EIS should be revised to consider the importance of Red tree voles in the northern spotted owl recovery efforts. Red tree voles are important prey to the northern spotted owl and therefore, surveys should be done to determine the presence or absence of Red tree voles within the study area.

Response: The red tree vole is mentioned only once in the *Final Recovery Plan for the Northern Spotted Owl* (USFWS 2008a:49), and then only as one of several species that, collectively, “comprise a small portion of the spotted owl diet.” However, even if the red tree vole were one of the principal spotted owl prey items, the Recovery Plan does not recommend pre-project survey for any prey species. The presence or absence of prey species in specific areas that would be revealed through surveys is not necessary to inform implementation of management actions that are related to the recovery of the northern spotted owl under the alternatives. The PRMP Alternative in the FEIS addresses recovery of the northern spotted owl through land use allocations (e.g., Late-Successional Management Areas) and various management actions that are independent of the localized presence or absence of red tree voles.

123. Comment: The EIS should be revised to consider not only the effects of habitat conditions on northern spotted owls, but also non-habitat factors such as impacts from barred owls which are currently being studied by the USFWS. The EIS should acknowledge that uncertainty exists concerning the effects of barred owls on northern spotted owl populations and describe the manner in which BLM intends to respond to future changes in spotted owl numbers.

Response: The PRMP Alternative in the FEIS is consistent with the *Final Recovery Plan for the Northern Spotted Owl* (USFWS 2008a). Even though the Endangered Species Act does not require the BLM to comply with a recovery plan, BLM management will comply with recovery actions in the Recovery Plan and the



Final Rule on northern spotted owl critical habitat. If additional measures are needed to respond to future situations, BLM management will evaluate information at appropriate times and continue to comply with the Endangered Species Act.

124. Comment: Page 282 of the EIS should be revised to include citation information for population information as well as include the basis for the apparent data extrapolation and indicate which demographic study areas are being used in this portion of the document.

Response: The BLM has corrected this shortcoming in the final EIS. The citation is Anthony et al. (2004) who found that, within the six demographic study areas in western Oregon, populations declined in three areas between 1983 and 2003 and were stationary in three, with an average population decline in all six of 2.8% per year. However, within Oregon, population declines in the northern demographic study areas (Warm Springs, H.J. Andrews, and Oregon Coast Range), which averaged 4.9% per year, were more pronounced than in the southern demographic study areas (Tyee, South Oregon Cascades, and Klamath), where declines averaged less than 1% per year and populations statistically were stable.

125. Comment: The EIS should be revised to acknowledge the Final Draft Recovery Plan for the Northern Spotted Owl and the 20-inch cap for snag removal. The 20-inch diameter cap is described as a “starting point” for developing province-specific Standards & Guidelines. The final draft recovery plan also provides a clear methodology to help managers develop provincial Standards & Guidelines based on the general guidance in the recovery plan. The methodology is based a scientifically derived estimates of which logs (size and species) will persist for 70 years or more.

Response: The alternatives considered a variety of options for the management of snags in spotted owl habitats. The PRMP Alternative in the FEIS does not include a 20-inch diameter cap for snag removal, because it is not part of the conservation strategy in the *Final Recovery Plan for the Northern Spotted Owl* (USFWS 2008a). Also, nothing in the BLM analysis indicated that such a cap was needed to promote owl conservation. Although the PRMP Alternative in the FEIS does not contain any such cap, the PRMP is consistent with the provisions of the Recovery Plan and the Final Rule on northern spotted owl critical habitat that the U.S. Fish and Wildlife Service has determined are necessary for species conservation.

126. Comment: The EIS analytical assumption that replacing existing older forest with younger habitat provides equal benefits is flawed and therefore the EIS has underestimated the adverse impacts of the alternatives to NSO.

Response: The DEIS did not make this assumption. The BLM acknowledges that not all habitat conditions contribute equally to owl conservation and that, in general, older forest supports owl conservation better than does younger forest. However, the DEIS was confined to those analyses needed for land use planning. Not only did the scientific literature lack consensus on the definitions and relative benefits of “old forest” and “younger habitat,” but recent studies in the California Klamath and Oregon Coast Range provinces (e.g., Dugger et al. 2005) found that habitat comprised of a mixture of older and younger forests supported owl reproduction better than habitat comprised almost exclusively of older forest.

To evaluate the alternatives, the EIS classified owl habitats according to Thomas et al. (1990:164) as refined by Courtney et al. (2004:Chapter 5); i.e., (1) habitats that support nesting, roosting and foraging, (2) habitats that support roosting and foraging but generally do not support nesting, and (3) habitats that generally do not support nesting, roosting or foraging. The EIS analysis also relied on several studies to define the metrics of a potential nest territory and to design the analysis to evaluate the development of such potential



territories over time by alternative. The BLM, in collaboration with owl scientists, determined that this approach would generate the most detailed and credible evaluation of how each alternative would affect owl habitats at the scale needed for land use planning.

127. Comment: The EIS is flawed because it fails to address how the NSO population in the Klamath Province will remain stable with the elimination of late-successional reserves under Alternative 3 or how Alternative 3 will contribute to recovery.

Response: The DEIS (pages 640 and 641) states that Alternative 3 would not support the formation of large blocks of northern spotted owl suitable habitat and would increasingly fragment that habitat over time. Since large blocks of suitable habitat are needed to maintain population stability (Thomas et al. 1990), Alternative 3, as was stated, would not contribute adequately to spotted owl conservation (which includes recovery).

128. Comment: The index of the EIS should be revised to include a listing for the connectivity corridor that links the Coast Range with the Cascades at the very southern end of the Willamette Valley.

Response: The EIS was revised to more fully address the South Willamette-North Umpqua Area of Concern. The augmentation of a Late-Successional Management Area in this area, under the PRMP Alternative in the FEIS, conforms to the conservation strategy contained in the *Final Recovery Plan for the Northern Spotted Owl* to help address the issue of owl connectivity in this area.

129. Comment: The EIS should be revised to consider the legal decision in *Gifford Pinchot Task Force v. United States Fish & Wildlife Service*, 378 F.3d 1059 (9th Cir. 2004). Specifically, the EIS should more closely analyze actions that may modify critical habitat in terms of whether the modification actually promotes the conservation of the owl and not simply whether the modification puts the species in jeopardy.

Response: The Endangered Species Act applies different thresholds to species and critical habitat. The jeopardy threshold applies only to species, whereas the threshold of destruction and adverse modification applies to critical habitat. The PRMP Alternative in the FEIS allocates areas expected to be designated as critical habitat in the Final Rule to the Late-Successional Management Area land allocation. Directions for management of the lands in this allocation are designed so as not to destroy or adversely modify critical habitat. In the PRMP Alternative in the FEIS, the BLM is using its authorities to further the purposes of the Act, and to manage the designated critical habitat of the northern spotted owl for the conservation and recovery of the species.

130. Comment: The EIS should be revised to consider its heavy reliance on the USFWS's 2007 Draft Recovery Plan for the Northern Spotted Owl because this plan has recently been the subject of intense criticism and negative scientific peer reviews due, in part, because the plan would lower habitat protection.

Response: Since the issuance of the DEIS, the U.S. Fish and Wildlife Service made significant changes to its spotted owl recovery strategy. These changes were incorporated into the Service's *Final Recovery Plan for the Northern Spotted Owl*. The BLM's PRMP Alternative in the FEIS incorporates the applicable changes.

131. Comment: The EIS should be revised to include northern spotted owl population estimates and rates of change that have been reported or assessed. The BLM should use its extensive spotted owl data bases more extensively within the EIS.



Response: The final EIS was revised to more fully discuss the results of the range-wide northern spotted owl demography studies, which are ongoing and in which the BLM participates as a cooperator. Relevant data from the BLM's spotted owl data base were included in those analyses.

132. Comment: The classification system used in the DEIS for the northern spotted owl is flawed because the separation of analytical results into quantity and quality of suitable habitat, dispersal habitat, large blocks and suitable habitat outside of large blocks (DEIS 6733) fails to provide a single integrated measure of habitat availability for the northern spotted owl, making it difficult to interpret overall impacts to owl populations.

Response: The habitat classification used by the BLM is well supported by science (e.g., Thomas et al. 1990:164 as refined by Courtney et al. 2004:Chapter 5) and is essentially the same habitat classification that has been used to evaluate the potential impacts of management actions to spotted owl habitat since 1994. The EIS analysis also relied on several studies to define the metrics of a potential nest territory and to evaluate the development of such potential territories over time by alternative. Given the myriad of non-habitat-related variables that are suspected to influence spotted owl populations (such as barred owls and west Nile virus, and our current inability to separate or quantify the effects of those influences on owl populations), there is no single variable that would show how habitat management alone would affect regional populations. To better portray how the alternatives might affect spotted owl habitat at the landscape scale, the analyses in the final EIS were augmented to evaluate how each of the alternatives would contribute to the conservation needs of the northern spotted owl.

133. Comment: The gross classification of patches (BLM Forest Operations Inventory (FOI) polygons) used in the DEIS ignores the fact that use of habitat by northern spotted owl varies across the planning area. Several studies have shown fundamentally different niches for northern spotted owl from the southern to the northern parts of the planning area (Zabel et al. 1995).

Response: The BLM acknowledges that northern spotted owls form variable niches in the planning area. The BLM also considered a variety of studies that documented these variations but determined that many of the findings were localized, inconsistent, or in other ways insufficiently determinant to allow the BLM to further refine habitat classifications in most portions of the planning area. Accordingly, it is incorrect to characterize the habitat parameters used by the BLM as a "gross classification." Considering the landscape scale of the analyses, the BLM used the best habitat data available, even though these data did not include metrics for all spotted owl niche variables.

134. Comment: The DEIS overestimates suitable habitat because it does not adequately address minimum patch size (or size of contiguous habitat patches). If minimum patch size was included as a mapping rule for owl habitat, the outcomes for the alternatives would be differentially affected.

Response: This assessment is correct, and the BLM revised the EIS to more accurately evaluate the potential affects of the alternatives to northern spotted owl suitable habitat. Revisions included the application of minimum standards for the quantity and spatial arrangement of nesting, roosting, and foraging habitat needed to support both individual breeding pairs and clusters of breeding pairs. Using these standards, the BLM evaluated each alternative in terms of its contribution to potential spotted owl nest territories and blocks of suitable habitat that would be capable of supporting stable spotted owl subpopulations. The BLM, based on the recommendation of its owl working group, determined that these standards would yield more accurate assessments of future habitat conditions and owl responses than would a reliance on minimum patch size.



135. Comment: The DEIS analysis of dispersal habitat is flawed because it does not appropriately address disjunct isolated patches that are unlikely to function as dispersal habitat. In addition, the DEIS sums dispersal habitat at the sixth field scale which is an unsupported metric for assessing effects on northern spotted owl and obscures some landscape-level driving factors.

Response: The science on the northern spotted owl does not support defining a minimum quantity or spatial arrangement of habitat needed for owl dispersal. Therefore, there is no valid means to define, map, or exclude “disjunct, isolated patches.” Nevertheless, in response to this and other comments, the BLM revised the scale of its analysis based on the recommendation of its spotted owl working group, which included owl scientists. Instead of using the sixth-field watershed, the final EIS evaluates dispersal habitat at the scale of the fifth-field watershed. Jim Thrailkill (2007) believed, and the other members of the working group concurred, that this larger scale would better indicate potential problems with owl movement and survival than the scale of the sixth-field watershed. This belief is based on a sixth-field watershed being typically closer to the size of a single northern spotted owl home range, whereas the issue to be addressed pertained to owl movement between home ranges.

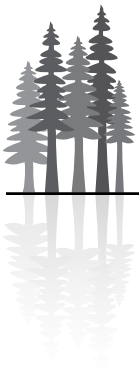
136. Comment: Model parameterization used for assessing northern spotted owl habitat in the DEIS would be more tenable if it were validated with existing species data from the region. Several examples of validation of northern spotted owl models exist (McComb et al. 2002, Lint 2005).

Response: The DEIS did not represent research and the BLM was not defining new habitat parameters for the spotted owl, so there were no new habitat definitions that required validation. Instead, the BLM based its evaluations on habitat parameters that have been developed and validated by researchers during the past two decades. The final EIS was revised to more fully utilize regional habitat data and to evaluate owl habitat on all land ownerships. The revised model also incorporated the isopleths mask developed by Lint (2005:Figure 3-7).

137. Comment: The DEIS overestimates the projections of northern spotted owl habitat under the alternatives because it does not assume any losses during 100 years to wildfire or other disturbances.

Response: In response to this and other comments, the BLM revised the final EIS to discuss how the alternatives would affect northern spotted owl habitat, in terms of changes in fire severity and fire resiliency, through 2106. However, the BLM can make no claim as to whether its analysis over- or under-estimates the potential impact of wildfire on those habitats because no one fully understands how northern spotted owls respond to wildfire. This is due in part to limited data, different methods of data collection, and differences between expected and observed owl uses of burned habitat (for example, see Courtney et al. 2004:Chapter 6; 4.7). This is especially true of fires that are less severe (i.e., are not stand-replacement fires), or occur in northern spotted owl habitats that are not yet suitable, or both.

In addition, our ability to predict the occurrence of fire is limited. According to the fire regime classification for western Oregon, the Coast Range and West Cascades Provinces, which fall primarily within fire regimes III and V, should experience infrequent (every 35 to 200+ years) but severe (stand-replacement) fires; the Klamath Province, which falls primarily within fire regime I, should experience more frequent (every 0 to 35 years) but less-severe (surface) fires. However, in somewhat of a contrast to this expectation, between 1994 and 2003, Lint (2005:56-63) found that, on all federally administered lands in western Oregon, the Klamath Province lost an unexpectedly high 6.6% of its northern spotted owl nesting habitat to stand-replacement wildfire, compared to a 0.8% loss in the West Cascades Province and no measurable loss in the Coast Range Province.



138. Comment: The DEIS analysis of effects to northern spotted owl is flawed because it only considers habitat and thus is unable to integrate the effects of disturbance or other species (e.g. barred owl) on spotted owl population trends. Without consideration of population change, it is impossible to consider latitudinal gradients in northern spotted owl population trends across the planning area.

Response: It is incorrect to characterize the analysis as flawed because it does not address owl population trends or suspected influences on population trends that are not directly related to habitat. Although the habitat-based analyses in the final EIS do not predict population changes, they do predict changes in the number of potential spotted owl territories over time. This is the most credible and useful method to predict the relative effect of the alternatives on the reasonable assumption that the spotted owl would respond to the management alternatives relative to the quality of habitat conditions. No one, in any venue, has predicted how implementation of a regional habitat management plan would affect the northern spotted owl population. Even at the time the Northwest Forest Plan was implemented, the single attempt to predict an owl population response to plan implementation was limited to predicting an overall trend (without population numbers) during an unspecified time period—and it turned out to be inaccurate.

Currently, with the myriad of variables that are known or suspected to affect spotted owl fecundity and survival (for example, see Courtney et al. 2003:8-13), the science on the spotted owl does not allow the BLM to estimate how disturbances such as wildfire, or other species such as the barred owl, would affect the spotted owl population to the degree of accuracy needed to distinguish the effects of the management alternatives on that population. Although the BLM recognizes that improving owl habitat conditions would not necessarily change the population trends due to factors beyond our control or to factors not fully revealed by current research, it is reasonable for the BLM to believe that the owl population would respond better to alternatives with a higher quantity and quality of those habitat conditions. The BLM analyses were designed to help the decision maker choose among the alternatives based on the relative benefits to spotted owl habitat.

Fish

139. Comment: The EIS should explain how endangered anadromous fish species recovery plans that are completed after WOPR implementation begins would be incorporated into land management actions.

Response: Completion of a recovery plan for a listed species would constitute new information that BLM would evaluate. Because of the speculative nature and unknown requirements of possible future recovery plans, it is not possible to make a reasonable conclusion regarding the process by which it would be integrated into the RMP, or whether an RMP amendment or revision and a new National Environmental Policy Act analysis would be required.

140. Comment: The EIS should be revised to more clearly differentiate work that was conducted by the CLAMS project (pages H-1082-1083) and what work was done by the Bureau of Land Management (BLM) EIS team. Citations should be altered to reflect previously published work.

Response: Kelly Burnett (of the Pacific Northwest Research Station) expanded the intrinsic potential model from the initial modeling completed for the Coastal Landscape Analysis and Modeling Study (CLAMS) project, to the extent of the Western Oregon Plan Revision planning area for coho, chinook, and steelhead. Because the modeling for the Western Oregon Plan Revision was completed by Kelly Burnett using the methods described in Burnett et al. (2007), this reference is appropriate. The text in the DEIS and FEIS are not long multi-page quotes, but rather explanations of the modeling methods completed for the Western Oregon Plan Revision. However, the FEIS has been revised to clarify which modeling was completed for the FEIS.



141. Comment: The EIS should be revised to clarify if fish distribution or critical habitat were analyzed, and to describe how range and/or critical habitat play a role in the Wood/Intrinsic Potential/Fish Productivity model analysis.

Response: Critical habitat designations were identified in the DEIS analysis. The DEIS and FEIS analyze the effects of the alternatives on aquatic habitat for all fish species in the plan area, including critical habitat. For this reason, the effects to critical habitat were not analyzed separately or as a subset. The FEIS has been clarified to reflect this. Additionally, because of concerns by scientists regarding the reliability of the productivity model, the fish productivity index has been removed from the FEIS analysis.

142. Comment: The EIS should clarify if all fish populations are cyclic by nature, and provide a reference for the statement.

Response: All fish populations are cyclic by nature. This is the fundamental basis of fish population dynamics and does not necessitate a reference.

143. Comment: The EIS should be revised to provide a better description of the survival traits of fish and why they are relevant, as the current context is unclear.

Response: The description of survival traits is taken directly from Reeves (1995); it describes populations, not individuals, and is the most recent and well accepted list from published literature. Providing additional descriptions of survival traits is unnecessary. Additionally, the FEIS does provide a logical connection to these survival traits as it describes the context of BLM's role in contributing to the survival of fish populations; including an example of how the BLM can contribute to survival traits (i.e., mobility) by improving fish passage.

144. Comment: The EIS should clarify whether or not high intrinsic potential streams have been determined for Oregon chub and special status fish species

Response: The DEIS and FEIS clearly state for which species the intrinsic potential model was modeled and for which fish it was not.

145. Comment: The DEIS analysis of fish is flawed because it relied on the analysis of intrinsic potential and failed to analyze or disclose the effects of the alternatives on bull trout, Lost River suckers, shortnose suckers, Oregon chub and special status fish species.

Response: The analysis in the DEIS and FEIS fully analyze and disclose the effects of the alternatives on all fish habitat for all fish species within the WOPR planning area. The analysis in the DEIS and FEIS does not rely on the analysis of intrinsic potential to determine the effects on fish species. Rather, the DEIS and FEIS analyze the effects under each alternative on those ecosystem processes (wood delivery, fine sediment delivery, stream shade/temperature, nutrient input, and peak flows) that have the greatest influence on fish habitat for all fish species, including bull trout and suckers. Intrinsic potential was used in the DEIS only as a tool to show the inherent value of the habitat where those effects would occur. In the FEIS, intrinsic potential is used as one tool to compare the effectiveness of aquatic restoration on fish habitat between alternatives. Additionally, none of the alternatives vary the level of protection based on intrinsic potential. The level of protection under the PRMP Alternative in the FEIS is applied to all stream segments regardless of the level of their intrinsic potential.



146. Comment: The EIS should better describe how BLM used the CLAMS project (Burnett et al. 2007) data, including the fact that the CLAMS study only assessed fish in a specific project area and what this means in the context of the EIS analysis.

Response: Kelly Burnett, Pacific Northwest Research Station, expanded the intrinsic potential model from the initial modeling completed for the CLAMS project to the extent of the Western Oregon Plan Revision planning area for coho, chinook, and steelhead. The FEIS has been revised to clarify what modeling was completed for the FEIS.

147. Comment: The EIS should be revised to clarify what method was used to determine fish productivity for coho salmon, as the text in Section 7.9 and Appendix H are unclear.

Response: Because of concerns by scientists regarding the accuracy of the productivity model, the fish productivity index has been removed from the FEIS analysis. The FEIS has been revised to provide considerably more information on wood model outputs and the effects to fish populations without summarizing the results into a single value, as was previously done with the fish productivity index.

148. Comment: The EIS should be revised to include more information about the effects of water temperature on fish, including expansion on Oregon's numeric water temperature criteria and a more extensive discussion of the extensive literature on effects of water temperature on listed salmonid fish found in the plan area.

Response: The FEIS has been revised to include more information about the effects of water temperature on fish, including expansion of the water temperature criteria to include the Oregon Department of Environmental Quality's core cold water habitat criterion and designation. Oregon's state-wide narrative and numeric criteria for water quality are listed in the DEIS and also the FEIS (*Appendix I-Water*, in the Best Management Practices section).

149. Comment: The effects of roads are not modeled or considered, even though they often contribute to increased peak flow responses (Johnson 2000, Grant et al. 2008). The EIS should be revised to model or consider the effects that roads have on anadromous fish habitat at the stream reach scale.

Response: The effects of roads on peak flows were included in the analysis for water and fisheries. Refer to the FEIS, *Chapters 3 and 4* (Water sections) and *Appendix I-Water* (Analytical questions #1 and #2).

Land use activities can generate cumulative watershed effects dispersed through space and time. Various interactions can occur, such as responses acting independently, sequentially, or synergistically, over an increasing watershed area. Researchers (Reid 1993, Megahan et al. 1992) suggest that watersheds of 10-200 square kilometers are an appropriate scale for non-point source pollution assessments. The EIS analysis conducted a peak flow cumulative effects analysis from the effects of forest management (harvest units and roads) across BLM-administered and all other lands at a sub-watershed scale of 10,000-40,000 acres, (15 to 62 square kilometers). This scale of analysis was purposeful, and was based on research recommendations from Thomas and Megahan (1988) and others.

The peak flow methodologies in the EIS for the rain and rain-on-snow hydroregions rigorously analyzed 1,192 different subwatersheds within a larger watershed context. Based on the peak flow analysis, the EIS analysis found less than 1% of the subwatersheds at risk for peak flow increase. The effects of these increases on fish habitat are dependent on the channel types at the reach-scale (as discussed in *Chapter 4-Fish* section and *Chapter 4-Water* section). Therefore, reach scale assessments are more appropriate at the project scale



to evaluate the effects of these increases on the stream channel and fish habitat. Additionally, because hydrologic recovery occurs within a relatively short time period, the reach-specific analysis is better done at the time of the project using the methods suggested by Grant et al. (2008).

150. Comment: The DEIS assumes that channels with low geomorphic intrinsic potential (IP) for rearing habitat require less protection than channels with high intrinsic potential. This assumption is also unwarranted in that channels with low IP for juvenile salmonid fish may be important sources of water, sediment, organic matter or nutrients to channels with high intrinsic potential (Rice et al. 2001, Kiffney et al. 2006). In other words, the intrinsic potential of a river network is likely a result of habitat attributes as defined in the IP model, but also a result of important connections between habitat types and basal productivity. Therefore, conserving, restoring and protecting linkages among habitat and channel types may be a key action needed to increase populations of these fish species.

Response: The EIS does not assume that channels with low intrinsic potential require “less protection” than high intrinsic potential (HIP) channels. Also, the EIS does not discount the contribution of water, sediment, and organic matter from lower intrinsic stream channels to higher intrinsic potential streams. The FEIS provides comprehensive information on the location of stream reaches with the greatest potential to provide high-quality habitat for salmonids, which was generally missing within the Western Oregon Plan Revision planning area. Additionally, none of the alternatives vary the level of protection based on intrinsic potential. The level of protection under the PRMP Alternative in the FEIS, applies to all stream segments regardless of the level of their intrinsic potential.

The FEIS uses the intrinsic potential model to evaluate the location of the high intrinsic streams relative to BLM landownership patterns; the BLM’s ability to influence the intrinsic potential stream channels that have a greater intrinsic potential to provide high-quality habitat for salmonids (Burnett et al. 2007); and the potential and feasibility of aquatic restoration relative to landscape characteristics. The FEIS wood recruitment rates are reported in terms of channel width classes, rather than in terms of a habitat index that included dependence on calculated intrinsic potential values. The analysis in the FEIS of environmental consequences for the PRMP Alternative demonstrates that the PRMP conserves, restores, and protects aquatic habitat and fish populations in the planning area.

151. Comment: The DEIS definition of large wood is not the same as the definition of large wood used in the literature cited by the DEIS (Beechie and Sibley 1997) to estimate frequency of pool formation. By excluding all pieces of wood less than 20 inches DBH from their analyses, the DEIS grossly underestimates the importance of wood to the formation of pool habitat, and by extension the importance of riparian forests with trees less than 20 inches DBH to instream habitat. Alternatives 2 and 3 will substantially decrease the large wood contribution to fish bearing streams relative to the No Action Alternative, and the decreases will be long-term. This is because thinning will remove wood large enough to form pools from the riparian zone (if the term large wood is defined by its ability to form pools rather than the arbitrary value of greater than 20 inches diameter) (Beechie et al. 2000). Alternative 1 will substantially decrease the large wood contribution to fish-bearing streams from non-fish bearing streams relative to the No Action Alternative.

Response: The wood delivery model has been expanded for the FEIS to also determine the contribution of smaller wood to both non-fish-bearing and fish-bearing stream channels for the FEIS.

152. Comment: The DEIS assumes that standing stock of wood accumulates without consideration of the reduction of wood from decay, floods, and other processes. Proper modeling of wood balance would include balance of inputs vs. outputs, such as decomposition, recognition of (bedrock) bed characteristics making reaches more porous to wood (May and Gresswell 1996, Montgomery 1996), and shifts between hardwoods



(fast decomposition) and conifers (slower decomposition), to quantify changes in standing crop of wood in comparison to natural abundances of wood in streams.

Response: The EIS analyses does not consider accumulation of instream wood since differences in recruitment rates and stand conditions are the most reliable measure of management effects on wood availability. Modeling a comprehensive and complete wood budget to estimate the standing stock of wood involves many poorly constrained and stochastic processes, and would not be feasible with available models.

153. Comment: There is a problem in assigning equal value to wood delivered to fish-bearing streams from debris flows as wood is delivered to streams from direct riparian recruitment or channel migration. Since large wood delivered to fish bearing streams from debris flows occurs infrequently and tends to deposit large piles of wood in and around streams, most of which contributes little to important functions such as pool formation, it may not be appropriate to consider a piece of debris-flow derived wood as functionally equivalent to wood entering streams from other sources. Because the DEIS treats all sources of large wood equally, and estimates long term annual averages, it exaggerates the average amount of functional large wood that will be in streams. For example, a stream could have very little functional wood most years, but a debris flow that deposited a large pile of wood to the stream in a single year would then boost the annual average and potentially make it appear that there was, on average, substantial amounts of functional wood in the stream, when in fact that was not the case.

Response: The FEIS has been revised to determine the potential wood contribution from each source (riparian and debris flow) separately, rather than a combined annual average, in order to evaluate the management effects on these two processes independently. The wood delivery model has also been expanded to include a sensitivity analysis on a subset of watersheds to analyze how the inclusion of stand-type dependent debris flow probabilities affect the potential wood contribution from debris flow sources. This sensitivity analysis integrates the effect of forest cover on the debris flow frequency and recurrence interval at different time periods to better capture the temporal and episodic nature of debris flow wood contribution and to demonstrate how the magnitude of large wood input, when triggered by storm events, would differ between processes (riparian vs. debris flow) for each alternative.

There is some scientific evidence that wood from different sources provide different geomorphic and habitat functions. However, the assumption that wood delivered to stream channels from debris flows contributes little to important stream functions is unsupported. This idea was challenged by Benda and others (Benda et al. 2003, 2005) who document that wood deposited from debris flow sources has a prominent role in: forming pools, wide channels, floodplains, and gravel deposits; creation of complex habitats; and increasing habitat heterogeneity. For many streams, landslides and debris flows provide a large portion of the instream wood (Reeves et al. 2003) that contributes to the habitat heterogeneity in fish-bearing streams (Miller et al. 2007) and creates complex productive stream habitats (Reeves et al. 2005, Bilby and Bisson 1998). For macroinvertebrates and fish, increasing the heterogeneity of habitat conditions (including channel width and depth, stream substrate, wood storage, and water velocity) can increase total species richness (Allan 1995). This has been documented in the Oregon Coast Range, where increased wood storage and pool formation at low-order confluences resulted in increased salmonid rearing (Benda et al. 2004).

154. Comment: The fish productivity model should be revised to include: (1) more valid assumptions about functional wood sizes, value of wood from different sources, and wood longevity; (2) the correct equation for the number of pools per channel width; (3) a more realistic view of the totality of factors that may limit fish productivity; and (4) better disclosure of assumptions and methods used to estimate fish response to stream channel changes.

Response: (1) The FEIS considers woody material to be functional if it is pool forming, based on correlations between functional piece size and stream channel width from Beechie et al. (2000). The wood delivery model has been revised for the FEIS to also determine the contribution of smaller wood to



both non-fish-bearing and fish-bearing stream channels. (2) The correct pool equation was used for fish productivity index in the DEIS analysis. The fish productivity index was not included in the FEIS; however, the FEIS has been revised to provide considerably more information on wood model outputs and the effects to fish populations without summarizing the results into a single value, as was previously done with the fish productivity index. (3) Each component (wood, sediment, temperature, hydrology) is modeled independently; and the effects of each component for fish habitat and consequent productivity are evaluated independently. The FEIS acknowledges that these processes do not act independently, but existing models cannot accommodate interactions between these processes at the spatial scale of the Western Oregon Plan Revision. (4) Additional information regarding the analytical assumptions and methods has been included in the FEIS.

155. Comment: The EIS should include more clarity and specificity on how the reduced buffer widths in the action alternatives adequately address the conservation and recovery needs of listed and sensitive aquatic and riparian species.

Response: The PRMP Alternative and other action alternatives in the FEIS are designed to contribute to the recovery of ESA-listed species and to provide for conservation of sensitive fish and wildlife species that would preclude the need to list under ESA. The DEIS analysis adequately addressed the environmental consequences that would occur to aquatic species. The effects of different management actions on headwater-dwelling aquatic species has not been well addressed by past research. Therefore, there is currently little available information to assist in defining habitat needs for these species, particularly in determining the spatial extent and degree of connectivity for different forest types and the effect of different riparian management area widths on these species. However, the FEIS analyzes the effects of the alternatives on aquatic habitat in both fish-bearing and non-fish-bearing streams. This provides a basis for evaluating the impact of the alternatives to headwater-dwelling species. Additionally, the PRMP Alternative in the FEIS includes wider Riparian Management Areas than those in Alternative 2, the alternative identified as “preferred” in the DEIS.

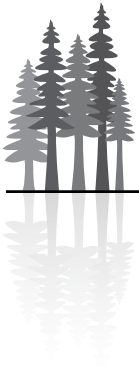
156. Comment: The EIS should disclose the current condition of habitats and populations for fish including both special status and ESA listed species to allow an interpretation of the magnitude of projected effects, an assessment of cumulative impacts and a comparison of alternatives.

Response: The DEIS and FEIS analysis focuses on those ecosystem processes that affect aquatic habitat, and also includes a description of the current aquatic habitat condition for fish species in the plan area; including ESA and Special Status fish populations. The DEIS and FEIS analysis utilized sophisticated models, GIS mapping, and the most relevant scientific information to describe the current condition of aquatic habitats and fish populations in the plan area including the location, status, critical habitat, and limiting factors of ESA-listed fish populations; the location of high intrinsic potential stream channels; and past and current amounts of large wood in stream channels, fine sediment in streams, stream temperatures, and peak flows.

157. Comment: The EIS statement “. . . streams are ranked by their intrinsic potential to provide habitat for chinook, coho salmon, and steelhead” should be revised to explain that the intrinsic potential is for juvenile rearing habitat for chinook, coho, and steelhead.

Response: The FEIS has been revised to provide additional clarity and explanation regarding this issue.

158. Comment: The EIS statement (pg 356) “thresholds beyond which [sediment] impairment occurs in the field have not been established” is incorrect, as methods for assessment and thresholds for sediment have been identified in published literature.



Response: The FEIS has been revised to show that thresholds at which fine sediment affects fish species is highly variant between scientific studies and localized conditions. The Index of Biological Integrity (IBI) approach recently published by the Environmental Protection Agency, Western Division (Wittier et al. 2007) is one of many tools that can be used to assess the biological condition of streams, but its utility is limited for analyzing the future effects on fish of different management strategies. The IBI is more appropriate for monitoring to determine long-term trends. The western IBI used information from state fish books and professional judgment to assign tolerance classes for fish-based metrics. The authors were unable to find any IBI developers who had applied quantitative methods to assign tolerance classes to fish species. The IBI values and tolerances are based on fish assemblages found at undisturbed sites. The values do not account for natural fluctuations in fish assemblages or sediment loads.

For this EIS analysis, sediment yields to stream channels are expressed as tons/mile/year for each fifth-field watershed. This analysis cannot be related to the IBI approach (because the threshold values rely on percent embeddedness). This output (tons/year) cannot be directly equated to a percent embeddedness and, therefore, the thresholds and assumptions from Cederholm and co-authors (1981) provide a better method to evaluate the differences among the alternatives than the IBI approach.

159. Comment: The EIS fails to adequately discuss the affected environment for ESA-listed and special status fish species because the large body of information regarding the current conditions of populations and habitats for these species is necessary to compare the direct, indirect and cumulative impacts of each alternative.

Response: The DEIS and FEIS do describe the affected environment for ESA-listed and Special Status fish species. The DEIS (pages 335-338 and Appendix H, pages 1,071 through 1,081) and the FEIS include a description of fish species designated as threatened or endangered under ESA and Special Status Species (DEIS, Table 256). The DEIS and FEIS also include status summaries for each evolutionary significant unit (ESU) and distinct population segment (DPS) from the National Marine Fisheries Service “Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead” and from Federal Register notices for fish species listed by the U.S. Fish and Wildlife Service. The DEIS and FEIS also describe the current status, population trends, status, and location of critical habitat, as well as limiting factors for each ESU/DPS and the past and current condition of aquatic habitat.

To understand the cumulative effects of a proposed action, it is necessary to understand first what would happen in the absence of a proposed action, which is described in the analysis of the No Action Alternative. Thus, the analysis in the EIS includes the effects of past actions, other present actions, and reasonably foreseeable actions to project over time what would happen if no action is taken to revise the resource management plans. Comparing the action alternatives then against the context provided by the projected trends of the No Action Alternative reveals the incremental effect of those action alternatives. Identification of current conditions is only a step in the analysis of cumulative effects, and it is described in *Chapter 3* of the EIS. It would be erroneous and misleading to compare the effects described for the action alternatives to the current conditions and ascribe the differences as the “cumulative” effect, since that comparison would mask the effects of the other present actions and reasonably foreseeable actions.

160. Comment: The EIS should clarify how the watersheds discussed in Table 107 were selected, the current condition of each watershed's streams, and the proportion of LSMA and other allocations in each watershed.

Response: The representative watersheds used in the DEIS to display the results of the wood delivery model were selected to show examples of various BLM ownership patterns and provinces. The data from these



representative watersheds used in the DEIS was not extrapolated to any other watersheds. The FEIS does not include the use of representative watersheds because the wood delivery model is now used across the entire planning area for the FEIS.

161. Comment: The EIS should include criteria for when to thin riparian forests, and additional non-timber management actions to maintain and restore riparian areas — such as correcting damage to riparian vegetation and streambanks due to livestock grazing, invasive plants, recreational activities, and roads.

Response: The PRMP in the FEIS includes criteria for thinning riparian forests (including when to thin) and non-timber management actions to maintain and restore aquatic and riparian habitat. Thinning in riparian management areas would occur under the PRMP where necessary to speed the development of large trees in order to provide an eventual source of large woody debris to stream channels. Under the PRMP, thinning would not occur within 60 feet of a perennial or fish-bearing stream channel, or within 35 feet of a non-fish-bearing intermittent stream.

162. Comment: The EIS should disclose limitations as well as peer review, validation, and sensitivity analysis of the three wood recruitment models developed for this analysis, as these steps are part of the scientific model process and should be disclosed.

Response: Only one wood delivery model was used for the DEIS and FEIS analysis. The riparian tree-fall portion of the wood recruitment model has been discussed at length in the literature with evaluations of model sensitivity to parameters such as channel width, riparian management area width, channel-adjacent slope gradient, and riparian stand characteristics (Robison and Beschta 1990, Van Sickle and Gregory 1990, Beechie et al. 2000, Bragg 2000, Benda and Sias 2003, Meleason et al. 2003, Sobota et al. 2006). For the DEIS and FEIS analysis, the application of this framework was extended to include a spatially explicit framework with additional inputs for landsliding and debris flow. This greatly expanded the number of factors that affect model results to include basin topography and channel network structure. The model is sensitive to the spatial distribution of forest stand types to management strategies that alter that spatial distribution. Applying the model to different management alternatives provides an indication of sensitivity to changes in the spatial distribution of stand types. The wood delivery model was also revised for the FEIS to include sensitivity analysis for the effects of forest stand growth on debris flow recurrence and potential wood contribution.

In terms of model validation, the distribution of tree fall directions is based on empirical model components from (Sobota et al 2006) and calibrated to Oregon data. The debris flow model relies on empirical modeling described in Miller and Burnett (2007a), which was calibrated in the Oregon Coast Range, Cascades and Klamath Provinces. The debris flow model also relies on an empirical model of debris-flow runoff described in Miller and Burnett (2007a) and calibrated to data from the Oregon Department of Forestry 1996 Storm Study (Robison et al. 1999). Estimates of channel extent, channel width, and floodplain extent were based on digital elevation data using empirical models described in Clark, Burnett and Miller (2008). Although validation of model predictions (potential wood contribution) has not been completed as part of this analysis, this is not necessarily a shortcoming in use of the model for the analysis. The wood delivery model is used to estimate the potential wood contribution based on forest stand conditions and is not used to predict actual instream conditions for a given time period. Even in the absence of field validation, the modeled predictions provide sophisticated tools to evaluate the topographic attributes that affect the debris-flow extent across the plan area and how the magnitude and contribution of wood delivered from these sources vary between alternatives; such comparisons were largely unavailable prior to development of this analytical tool.

Although modifying key assumptions to evaluate difference in model outcomes may be appropriate in scientific research, it is not directed by the Council on Environmental Quality regulation for implementing



the National Environmental Policy Act, nor would it help in providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14). Agencies are directed to conduct their analyses based on actions and effects that are “reasonably foreseeable” (40 CFR 1502.22(b), 40 CFR 1508.7), rather than varying assumptions about uncertain actions and effects. Additionally, the FEIS has been revised to include additional information regarding any modeling uncertainties, errors, biases, assumptions and validation.

163. Comment: The EIS should clarify if the wood recruitment models were developed for this analysis as stated on Page H-1084, or if the method published in Miller and Burnett 2007 was used as stated in the beginning of the section.

Response: Components of previously published models and scientific studies (Miller and Burnett 2007) were used in the development of the wood delivery model developed for the DEIS and FEIS analysis by Dan Miller (Earth Systems Institute). The 10-meter Digital Elevation Model (DEM) debris flow initiation and runout model portion of the model is described in Miller and Burnett (2007), but was expanded from the initial Coast Range work and calibrated to accommodate the extent of the Western Oregon Plan Revision planning area for this analysis. The FEIS has been clarified to reflect this information.

164. Comment: The EIS should be revised to include sensitivity analysis of the numeric values chosen for any of the various key model parameters, because this data is critical to understanding the merits and consequences of model predictions, even more so when several models are used together in ways that can compound their strengths and weaknesses. As case in point: the range of value for habitat vs. coho smolt production is highly variable geographically and year to year; therefore, a geometric mean might result in erroneous assumptions.

Response: The fish productivity index has been removed from the FEIS analysis. The riparian tree-fall portion of the wood recruitment model has been discussed at length in the literature with evaluations of model sensitivity to parameters such as channel width, riparian management area width, channel-adjacent slope gradient, and riparian stand characteristics (Robison and Beschta 1990, Van Sickle and Gregory 1990, Beechie et al. 2000, Bragg 2000, Benda and Sias 2003, Meleason et al. 2003, Sobota et al. 2006). For the EIS analysis, the application of this framework was extended to include a spatially explicit framework with additional inputs for landsliding and debris flow. This greatly expanded the number of factors that affect model results to include basin topography and channel network structure. The model is sensitive to the spatial distribution of forest stand types to management strategies that alter that spatial distribution. Applying the model to different management alternatives provides an indication of sensitivity to changes in the spatial distribution of stand types. The wood delivery model was also revised for the FEIS to include sensitivity analysis for the effects of forest stand growth on debris flow recurrence and potential wood contribution. The FEIS has been revised to include a more thorough description of the sensitivity analysis, model parameters, and modeling assumptions.

165. Comment: Further explanation and evidence should be added to support the statement “differences among the alternatives, in terms of fish productivity, would be less than 3%” and to support the information about fish habitat.

Response: The fish productivity index has been removed from the FEIS analysis.

166. Comment: The EIS should discuss impacts on the survival and recovery of Oregon Coastal Coho Salmon Evolutionary Significant Unit and Southern Oregon Northern California Coho Salmon ESU. The WOPR action Alternatives are most similar to Alternatives 7 and 8 in the Final Supplemental Environmental



Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest related Species within the Range of the Northern Spotted Owl (USDA and USDI 1994b) and Alternatives A, B, C in the Medford District Proposed Resource Management Plan and Final Environmental Impact Statement (USDI, BLM 1994e; see p.xix for comparisons of Riparian Management Area Protections and narrative comparisons on p. 4-19). These FEIS's made scientifically credible comparisons between alternatives that contained all aspects of the Aquatic Conservation Strategy (WOPR No Action with ACS) and alternatives which primarily rely on minimized riparian protective buffers (WOPR action alternatives).

Response: The EIS analyzes the effects of the alternatives on aquatic habitat for all fish species in the planning area, including Oregon Coast Coho salmon and Southern Oregon Northern California Coho. The FEIS analysis uses scientific information and analytical tools that were not available in 1994 for the Northwest Forest Plan analysis. It would be inappropriate to incorporate an analysis completed 14 years ago for alternatives that do not match the alternatives analyzed in this EIS and that fail to address new information and scientific analyses.

167. Comment: The EIS environmental consequences for Fish should be revised to provide an integrated discussion that determines compliance with the ESA because legal compliance with the ESA for listed fish species is currently based on compliance with the Aquatic Conservation Strategy (ACS), which is not discussed in the EIS and BLM projects are legally required to meet all ACS objectives.

Response: Management actions implemented under the FEIS would not be legally required to meet ACS objectives. Demonstrating compliance with the Aquatic Conservation Strategy objectives to ensure compliance with the Endangered Species Act (ESA) for listed fish species is not a statutory or regulatory requirement. Rather, compliance with the ACS objectives is a requirement only under Northwest Forest Plan, which is neither a statute nor regulation.

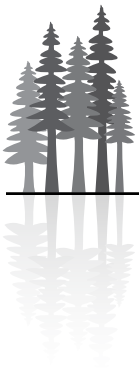
The Endangered Species Act requires the BLM to consult on actions authorized, funded, or carried out to ensure they do not jeopardize any listed species or destroy or adversely modify designated critical habitat. The BLM will meet this requirement by consulting under section 7(a)(2) of the Endangered Species Act with the regulatory agencies (USFWS and NMFS).

168. Comment: The modeling inappropriately uses large wood as a surrogate for fish production, which is not adequate for providing certainty of protection for ESA listed species.

Response: The FEIS analysis regarding the effects of the alternatives on fish habitat and fish populations has been revised, and the fish productivity index was dropped from the FEIS analysis.

169. Comment: The analysis of environmental consequences to fish is flawed because the analysis decouples sediment and stream temperature impacts from logging which eliminates numeric negative "multipliers" from logging.

Response: The FEIS analysis focused on the ecosystem process that affects fish habitat and fish populations including: large wood delivery, fine sediment delivery, stream temperature, and peak flows. The analysis did not separate sediment and stream temperature impacts from timber harvest. Rather, each component of the analysis relied on the forest stand projections that accounted for timber harvest over time under each alternative, and the effects on these aquatic ecosystem components are shown.



170. Comment: The analysis of environmental consequences to fish is flawed because it is inconsistent with the analytical assumptions and conclusions of the series of BLM 1994 programmatic impact statements which showed differences among alternatives with respect to the impact analysis for salmonids due to substantial differences in amounts of riparian protection from logging.

Response: The analysis completed for the NWFP used a delphi, outcome-based scale methodology to determine the range of possible aquatic habitat trends and future habitat conditions on federal land and the likelihood of attaining a set of habitat outcomes for each fish population. The FEMAT (1993) acknowledged that the Northwest Forest Plan viability assessment did not directly correspond to the actual population viability of the species since limited science existed to establish direct relationships between land-management actions and population viability (FEMAT 1993).

Since 1994, analytical tools have become available that greatly increase the ability to project forest conditions and determine the outcomes for aquatic habitat under management scenarios. The FEIS analysis does not correlate the condition of the aquatic habitat over time to the viability of fish populations, because analytical tools to assess population viability are limited at the scale of the Western Oregon Plan Revision planning area. Unlike the analysis completed for the current (1995) RMPs/EISs, the FEIS analysis utilizes new scientifically credible analytical tools and other updated scientific methods that can be used to make direct correlations between the effects of the PRMP Alternative and the other action alternatives on aquatic habitat that was not possible at the time of the current (1995) RMPs. Although many of these correlations are based on extrapolations of data to the planning area, the FEIS analysis provides a greater ability, beyond what was available in previous analysis, to evaluate future conditions and process rates, and is far more comprehensive than other existing wood delivery models (Reeves 2005).

171. Comment: The EIS should clearly state whether risk of salmonid extirpation increases or not due to (1) poor riparian protection standards and (2) no restraint on road building, which exist when the management of BLM lands and private lands are intermingled.

Response: The FEIS includes a cumulative effects analysis for fish habitat and fish productivity, which includes an assessment of the effects of various riparian management actions and road construction activities for each alternative relative to land ownership patterns. The premise in the comment that under the alternatives the riparian protection standards would be poor and that there would be no restraints on road building is false. The EIS analysis does not show the deleterious effects implied in the commenter's presumption. In analyzing effects of road building, the EIS analysis must be based on what is reasonably foreseeable. On the intermingled BLM and private lands, the road systems providing access to these lands are already in place and have been for many decades. The EIS analysis must assume that private landowners will abide by laws and regulations, rather than the commenter's presumption that they will be unrestrained. The EIS analysis is based on the likely levels of road construction, which in turn is based on historical experience over the past few decades, rather than unsupported speculation.

The FEIS concludes that the contribution to fish habitat, including salmonids and fish productivity, would increase from BLM-administered lands under the PRMP Alternative in the FEIS. Therefore, the risk of extirpation would decrease under the PRMP.

172. Comment: The EIS should quantify or evaluate the impact of fine sediment from OHV use to salmonids.

Response: The DEIS and FEIS included a qualitative analysis to evaluate the impact of fine sediment from off-highway vehicle use on fish habitat. The environmental conclusions regarding the effects of fine sediment on fish habitat in the DEIS and FEIS concluded that, compared to the current condition, fine sediment delivery to stream channels would be reduced under the PRMP Alternative and the other action



alternatives, since a more restrictive OHV-use designation has been adopted under the PRMP and the other action alternatives, and because the Best Management Practices in the FEIS include measures to minimize or eliminate effects to water quality from OHV activities. Under the PRMP Alternative and the other action alternatives, OHV area designations would move from “open use” designation (under No Action) to “limited” or “closed,” where off-highway vehicle activities would be limited to existing roads and trails.

A quantitative analysis on the fine sediment effects from off-highway vehicle use is not possible at the scale of the Western Oregon Plan Revision planning area, since designated trail and road locations, proximity to stream channels, OHV use levels, and season of OHV use is unknown. Additionally, off-highway vehicle use would be the same under the PRMP Alternative and all other action alternatives, and would only differ in the No Action Alternative. The qualitative analysis used to evaluate the impacts was sufficient to compare the effects of off-highway vehicle use on fish habitat between alternatives, particularly since OHV use did not vary between the PRMP and action alternatives.

173. Comment: The EIS should be revised to include streambed scour and fill as an important mortality factor for egg-to-fry survival of fall spawning salmonids, as scouring flows may scour out and kill incubating salmonid eggs, in particular the coho salmon population in Evans Creek.

Response: Determining the amount of streambed scour and fill is a reach level analysis. Analyzing reach level effects at the scale of the planning area would not be appropriate because: 1) Whether an increase in peak flows translates to an increase in stream bed scour depends on the channel type and existing substrate of the stream reach. Including channel type and stream bed information for all streams within the planning area is not possible, nor is the data available. 2) Analyzing reach-specific impacts at the planning area would require speculation about other actions taking place at the time of the project-level actions and weather conditions during the period of hydrologic recovery.

Additionally, the filling and scouring of stream channels does not correlate well with increases in peak flows. Stream filling does not happen at higher stream flows, but rather in low velocity areas at stream margins or during the recession of stream flows. Although, the FEIS identifies four sixth-field watersheds (<1%) that are susceptible to peak flows, it does not imply that adverse impacts to stream channels would occur for the following reason: (1) The majority of stream channels on BLM-administered lands in the planning area are small headwater channels where streambed material is collected and transported downstream, rather than along lower gradient alluvial channels where streambed material is stored and scour and fill typically occur (Grant et al. 2008). Site-specific information regarding stream types and the resistance of each channel reach to flows would need to be considered during subsequent NEPA analysis where peak flows and scour and fill are issues requiring analysis.

174. Comment: The EIS should revise the peak flow impacts to fish and analyze much smaller watersheds where coho salmon are known to spawn (e.g., upper West Evans Creek), and analyze areas where watershed analyses have identified peak flows from rain-on-snow as a threat.

Response: The FEIS analyzes peak flow impacts at the smaller sixth-field subwatersheds (a U.S. Geological Survey hydrologic unit) scale, because they are small enough areas to capture the patterns of BLM forest lands and because tributary streams are more sensitive to vegetation and runoff-related changes. The FEIS identifies the susceptible sixth-field sub-watersheds to peak flow increases in both rain-dominated and rain-on-snow hydroregions. The sixth-field sub-watersheds identified in the FEIS as “susceptible” to peak flow increases in the rain-on-snow hydroregion do not match those identified in previous watershed analysis. Watershed analysis generally relied either on the Equivalent Clear-cut Acre (ECA) method to determine where increases in peak flow would occur, or considered all rain-on-snow watersheds to be susceptible to



increases in peak flows. Although this ECA method may be useful in the rain-dominated hydroregion, since response is roughly proportional to area harvested, merely tallying acres of harvest in a watershed does not address the underlying mechanisms of how snow accumulates and melts in the rain-on-snow hydroregion.

The vertical and horizontal dimensions of forest openings and their size, as well as their distribution and juxtaposition at the stand level, are sensitive to snow accumulation and melt processes (Harr and Coffin 1992). In this hydroregion, melt is enhanced by energy released from condensation of moisture onto snowpacks during warm and windy weather. This relationship is scaled by size; there are greater wind speeds in larger openings that promote the process (Harr and McCorison 1979).

Since watershed analyses were completed, new scientific methods have become available to better evaluate the watersheds that are susceptible to increases in peak flows in the rain-on-snow hydroregions. The peak flow analysis in the FEIS is a more reliable and current method compared to ECA, because it utilizes an empirical analytical technique to identify susceptible subwatersheds to peak flow increase within the rain-on-snow hydroregion. This technique is patterned after the Washington State Department of Natural Resources hydrologic change watershed analysis methodology (Washington State DNR 1997a). The peak flow analysis is based on up-to-date published regression equations to generate a winter snowpack (Greenburg and Welch 1988) that relates to snow accumulation by elevation using the snow telemetry (SNOWTEL) data from the National Resources Conservation Service; basin characteristic regression analysis with gauged watersheds that have long-term records (Harris et al. 1979); flood frequency equations; GIS spatial analysis; satellite imagery for non-BLM-administered lands; and snowmelt equations from the U.S. Army Corps of Engineers (USACE 1956, 1998).

175. Comment: The EIS should evaluate the impacts to fish from episodic land-sliding and elevated sediment transport in the action alternatives because several large storm events are certain to occur on lands denuded by logging and road-building. Models for mass erosion and threshold for fish impacts are “available information” as defined by NEPA in previous BLM impact statements that analyze logging and road building impacts to fish.

Response: The susceptibility of landsliding from forest management in the Timber Management Area has been modeled in the FEIS, using a state-of-the-art geomorphological methodology (Miller and Benda 2005). The procedure determines susceptibility of shallow colluvial landsliding and delivery to a stream channel and the subsequent results to fish habitat. (Refer also to comment 101).

176. Comment: The treatment of debris flows is biased in the DEIS because the models used in analyzing potential debris flows favored those area that would provide beneficial large wood to streams (DEIS, pages 732 and 1,089) and ignored those areas where shallow landsliding harmful to fish would occur in logged areas. The intermittent stream channels with the highest probability of debris flows to fish bearing stream channels (DEIS, page 732) are not protected with 100 ft no cut buffers unless they were “stream channels that are below unstable headwalls (as identified by the timber production capability classification (TPCC) codes indicating significant instability (i.e. FGNW, FPNW, and FGR2).” See DEIS:80 footnote 4. This will create inevitable sediment impacts to fish since there will be streams at high risk for contributing huge amounts of fish killing sediment as evidenced by photos from Seattle Times and numerous case studies (Frisell 1992, FEMAT V-19) that will not be protected with 100 ft no cut buffers. In addition, the BLM’s use of timber production capability classification (TPCC) to identify areas that would periodically deliver large wood to streams is flawed.

Response: The debris flow component of the wood delivery model is not based in any way on TPCC, but rather with a highly detailed 10-meter Digital Elevation Model topographical analysis that identified landslide initiation sites across the entire planning area. This analysis determines the susceptibility of every 10-meter Digital Elevation Model pixel to deliver small and large wood to fish-bearing and non-fish-bearing stream channels. Additionally, the PRMP Alternative of the FEIS includes a one-half site potential tree



height distance and one site potential tree height distance Riparian Management Area along all streams, which increased the Riparian Management Area width from the preferred alternative in the DEIS.

177. Comment: The EIS should adequately describe or quantify impacts to fish and fish habitat from earthflows because earthflows are a second type of mass movement quite different from debris flows. Once activated, the earthflow can deliver sediment directly to stream channels for years if not decades, and chronic sediment from earthflows is particularly damaging to fish and fish habitat. “Occasional failures” identified in the DEIS could be catastrophic for specific populations of coho salmon.

Response: The location and susceptibility of all shallow landslides, including debris flows, was modeled for the DEIS and FEIS analysis. The location of deep seated landslides, including earthflows, was not included in the DEIS or FEIS analysis. There are no existing models or scientific literature that provides the ability to predict deep seated landslide locations, behaviors, or how management would affect the susceptibility. Preliminary research is being done for the Tyee-Sandstone geographic region, but is too preliminary to be extrapolated outside of the Tyee-Sandstone region, nor does it provide the ability to determine the response of timber harvest on the susceptibility of failure. Additionally, the FEIS has been revised to include additional analysis on the effect of land stability at a watershed-scale. That analysis is based on forest stand projections using a GIS-based mass wasting hazard model (Miller and Burnet 2007) to estimate debris flow susceptibility and the relative amount that would occur within the Timber Management Area outside of the TPCC withdrawn areas and the relative effects to aquatic habitat.

178. Comment: The EIS should be revised to analyze impacts on the expected viability of coho salmon in West Evans Creek and other locations where it is federally listed, because the data from various BLM and state watershed analyses conclude that the viability of coho in West Evans watershed is at risk of extirpation because of logging related sediment, which would increase under the WOPR action alternatives.

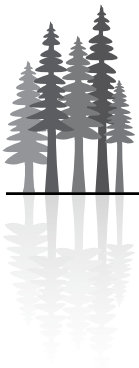
Response: Background rates of sediment in stream channels vary between watersheds. Within the planning area, some watersheds function with higher background rates of sediment than others. The Evans Creek Watershed was used as an example to show that in some cases viable fish populations continue to exist within stream channels with higher levels of fine sediment. This discussion has been revised in the FEIS for additional clarity.

179. Comment: The EIS should include an analysis of the adverse impacts that suction dredge mining disturbance has on fall-spawning salmonids, such as the coho salmon. Egg-to-fry survival decreases regardless of the size of suction dredge.

Response: Table 290 of the DEIS is a scenario. The actual future locations of where the suction dredging would occur are unknown. Because programmatic, ongoing activities (i.e., suction dredging, road rights-of-way, etc.) would occur at the same rate under all alternatives, and because it is impossible to predict at the plan-level scale where these activities would occur in the future, the site-specific effects of these actions on aquatic habitat and fish populations will be analyzed in setting the context for determining the cumulative effects of subsequent project-scale NEPA analysis.

180. Comment: The EIS should analyze Oregon’s requirement, where salmon spawning and rearing is a designated beneficial use, and in which the surface water temperature exceeds 64 degrees Fahrenheit, to allow no measurable surface temperature increase from anthropogenic activities.

Response: The DEIS and FEIS contain a detailed analysis of stream shade and temperature and the effects to fish populations using the Oregon Department of Environmental Quality’s water temperature criteria and



standards for fish species within the plan area. The analysis of environmental consequences in the FEIS for the PRMP Alternative and the other action alternatives conclude that management actions occurring on BLM-administered lands would not contribute to an increase in stream temperature.

181. Comment: The EIS should include analysis about how large wood should be balanced with some disturbance near the stream to increase light and primary production to create “hot spots” in order to benefit to fish populations.

Response: The FEIS has been revised to include an analysis of the effect of increased light near stream channels and subsequent effects on primary production and fish species.

182. Comment: The EIS should specify which fish passage standards for new and replacement culverts the BLM will use.

Response: The objective of providing fish passage is clearly stated in the FEIS. Specifics of fish passage and stream crossing design would occur at the project implementation stage of the resource management plan. Determining project-level protective measures and specifications at the scale of the planning area would be inappropriate because it would eliminate flexibility needed to adapt to site-specific conditions. Therefore, detailed specifications and protective measures based on applicable fish passage standards would be incorporated at the project scale.

183. Comment: The analysis of sediment impacts to anadromous fish and their habitat is flawed because it describes a linear comparison that equates the increase in stream sediment (1%) to a decrease in fish survival (3.4%). The assumption that this relationship is linear and can be applied universally across the planning area is oversimplified and flawed. In addition, the DEIS states (page 741) that fine sediment delivery analysis will focus on changes in sediment that would “overwhelm the ability of fish to cope with or avoid the stress” of sediment. There is no such analysis described in the DEIS.

Response: A linear, inverse relationship between fine sediment and the effects on fish species has been documented frequently since the 1960s (Bjornn 1968, Phillips et al. 1975, Cederholm et al. 1981) and more recently (Suttle et al. 2004). For this analysis, sediment yields to stream channels are expressed as tons/mile/year for each fifth-field watershed. Since this output (tons/year) cannot be directly equated to a percent embeddness, the thresholds and assumptions from Cederholm and co-authors (1981) provide the utility of a relative increase method to evaluate the differences between the action alternatives, including the PRMP Alternative. The DEIS and FEIS sediment analysis utilize this particular threshold to determine where increases in fine sediment would overwhelm the ability of fish to cope with stress or to avoid stress. The FEIS has also been revised to include an analysis of the non-lethal physiological effects that may occur to fish species below this threshold.

184. Comment: The DEIS (page 741) contends that “thresholds have not been established for the levels of sediment that would cause impairment to fish”. There is a wealth of literature on the effects of fine sediment and aquatic organisms including salmon (Suttle et al. 2004). It is possible to establish targets that avoid most sediment impacts to salmonid fish, their forage organisms, and their habitat.

Response: The FEIS has been revised to reflect this information and to include an analysis of the non-lethal physiological effects that may occur to fish species below these thresholds.



185. Comment: The DEIS conclusion that there will be no effect to fish populations from increased sediment loads is flawed because it is based on an assumption that no additional landslides would occur under increased intensity of land management due to the use of the TPCC. This DEIS conclusion is also flawed because it relies on optional BMPs and the ability of fish to avoid turbidity. Relying on optional practices and potential avoidance behavior of fish is not a reasonable basis to base the conclusion that anadromous fish and their habitat will not be affected by sediment.

Response: The environmental consequences under the DEIS and FEIS are not only based on the landslide analysis, but other variables as well. However, the FEIS has been revised to include additional analysis on the effect of land stability at a watershed scale based on forest stand projections using a GIS-based mass wasting hazard model (Miller and Burnett 2007) to estimate the susceptibility to shallow landsliding under the action alternatives, including the PRMP Alternative. The landslide model was used to determine the relative amount of unstable lands that would occur within the Timber Management Area outside of the Timber Productivity Capability Classification (TPCC) withdrawn areas and the relative effects to aquatic habitat.

The use of Best Management Practices is not optional; rather, the RMP will direct managers to use appropriate BMPs in designing projects that would be used to maintain water quality standards.

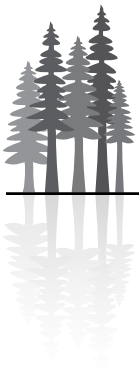
The DEIS and FEIS discuss the direct effects of fine sediment (substrate) and increased concentrations of suspended sediment (turbidity) and the direct effects on fish behavior.

The DEIS and FEIS point out that it is well known that fish have the ability to avoid high concentrations of suspended sediment (Hicks et al. 1991); however, the conclusions were not entirely based on this assumption. The analysis of environmental consequences in the DEIS and for the PRMP Alternative in the FEIS concluded that the timing and magnitude of increased suspended sediment has the greatest effect on fish species; and that activities under all alternatives would increase suspended sediment during low flow periods when fish are most vulnerable. The analysis of environmental consequences in the FEIS also concluded that these effects would be short term and localized because of the application of Best Management Practices and the local nature of the activities. This discussion in the FEIS has been strengthened with a more thorough description of the direct effects to fish species from suspended sediment.

186. Comment: The preferred alternative is likely to increase water temperature in fish bearing streams. This will result in increased adult mortality of salmonids, reduced growth of alevins and juveniles, reduced competitive success with non-salmonid fish, out-migration from unsuitable areas, increased disease virulence, delay, prevention or reversal of smoltification and potentially harmful interactions with other habitat stressors.

Response: The analysis of environmental consequences of the DEIS concluded that stream shade would be insufficient to maintain stream temperatures only within the Management Area Adjacent to the Coquille Forest land use allocation. However, the Coquille Tribal Management Area, which is included in Alternatives 2 and 3, has not been included in the PRMP Alternative in the FEIS. The analysis of environmental consequences in the FEIS concludes, as did the analysis in the DEIS, that management on BLM-administered lands would not contribute to an increase of stream temperatures under the PRMP Alternative and the action alternatives, except in the Management Area Adjacent to the Coquille Forest land use allocation under Alternatives 2 and 3.

187. Comment: The DEIS also asserts (page 763) that shallow landslides will not increase over the next 10 years under any alternative because of the TPCC, and because of site-specific review of proposed activities. However, the DEIS has not provided information about the effectiveness of the TPCC withdrawals, or about



the procedures, decision criteria, and effectiveness of the site-specific reviews. Because of the increased amount of timber harvesting under Alternative 2, NMFS assumes the risks of sedimentation from landslides will also increase.

The EIS should disclose potential effects related to the effectiveness of the TPCC withdrawals, the risks of egg to fry survival of anadromous fish from probable increases in sedimentation, degradation of interstitial habitat that support rearing juveniles, and decreases in production of invertebrate forage organisms in affected stream reaches.

Response: The FEIS has been revised to include additional analysis on the effect of land stability at a watershed scale, based on forest stand projections using a GIS-based mass wasting hazard model (Miller and Burnett 2007) to estimate the susceptibility to shallow landsliding under the PRMP Alternative and all other alternatives. Additionally, the DEIS and FEIS include a thorough analysis of fine sediment delivery to stream channels and the effects to fish species including: egg to fry survival (Cederholm et al. 1981), degradation of interstitial habitat, and decreases of forage (Suttle et al. 2004). Additionally, a riparian management strategy with wider riparian management areas and with more restrictive management direction than that for Alternative 2, which was identified as the preferred alternative in the DEIS, has been adopted in the PRMP Alternative in the FEIS.

The FEIS has been revised to include additional analysis on the effect of land stability and forest stand projects under the PRMP Alternative and other action alternatives using the Miller model developed for the plan area (based on Miller and Benda 2005). The analysis determines the susceptibility of 10-meter Digital Elevation Models to shallow colluvial landsliding.

188. Comment: The EIS should be revised to consider the effects of the alternatives on other factors limiting fish populations, such as water temperature, substrate sediment, and passage.

Response: The DEIS and FEIS analysis focused the analysis on those ecosystem processes that directly influence aquatic habitat and limiting factors for listed fish species in the planning area. The DEIS and FEIS used updated information from the National Marine Fisheries Service and Southwest Fisheries Science Centers biological review teams regarding limiting factors for listed salmon and steelhead ESUs/DPSs in the planning area (Good et al. 2005). Habitat degradation was determined to be a limiting factor for the majority of the ESUs/DPSs. Maintaining or increasing the amount of woody debris in stream channels is one of many factors analyzed relative to the effects on fish productivity, because it has been documented as an important factor in creating and maintaining habitat complexity that addresses this limiting factor.

For example, the Independent Multidisciplinary Science Team (IMST) and NMFS, as part of the Oregon Coastal Coho Assessment (2005), found that although a diverse set of conditions affect the viability of the ESU (water quality, ocean conditions, hatchery impacts, etc.), increasing freshwater habitat complexity provides the greatest opportunity to improve fish productivity of the ESU. Nickelson (1998) also documented in the Habitat-Based Assessment of Coho Salmon Production Potential and Spawner Escapement Needs for Oregon Coastal Stream's assessment that a large part of the recovery process of coho salmon involves improvements in the habitat conditions in fresh water. As did the DEIS, the FEIS also includes a thorough analysis on the other limiting factors for fish populations, including the effects of fine sediment delivery, water temperature, peak flows, nutrient input, and aquatic restoration activities (e.g., fish passage) on fish habitat and populations for the PRMP Alternative and the other action alternatives.

189. Comment: The EIS should disclose the effects of eliminating the Aquatic Conservation System (ACS) on BLM Lands, which was designed to provide for the survival of at-risk resident and anadromous fish



populations in the face of a severely degraded environmental baseline. The BLM should conduct a viability analysis similar to that done in the NWFP for seven stocks of salmonids to determine the percent likelihood that populations would be well distributed, be restricted to refugia or extirpated under each alternative.

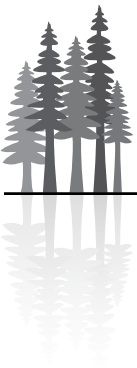
Response: The Aquatic Conservation Strategy (ACS) was a region-wide strategy designed to protect those processes and land forms that contribute habitat elements to streams and promote good habitat conditions for fish and other aquatic organisms (FEMAT 1993), which is a component only of the No Action Alternative. The FEMAT (1993) recognized that other aquatic conservation strategies are also effective to maintain and restore aquatic habitat. The Riparian Management Area objectives in the action alternatives are designed to provide for the survival and recovery of listed fish populations in the planning area. The FEIS fully discloses the effects to fish populations for the No Action Alternative, which utilized the Aquatic Conservation Strategy, and for the PRMP Alternative and other alternatives. The analysis of environmental consequences for the PRMP Alternative in the FEIS concludes that the PRMP would provide for the survival and recovery of fish populations over time.

The viability assessment done for the Northwest Forest Plan used a delphi, outcome-based scale methodology to determine the range of possible aquatic habitat trends and future habitat conditions on federal land and the likelihood of attaining a set of habitat outcomes for each fish population. The FEMAT (1993) acknowledged that the Northwest Forest Plan viability assessment did not directly correspond to the actual population viability of the species since limited science existed to establish direct relationships between land management actions and population viability (FEMAT 1993). However, since 1993, existing science and analytical tools has greatly increased the ability to project forest conditions and to determine the outcomes for aquatic habitat under management scenarios. However, analytical tools are limited at the scale of the Western Oregon Plan Revision to correlate the condition of the aquatic habitat over time to the viability of fish populations. Unlike the analysis completed for the Northwest Forest Plan, the FEIS analyses utilized sophisticated GIS, forest growth modeling, 10-meter Digital Elevation Model (DEM) analysis, and other scientific methods to make direct correlations between the effects of the PRMP Alternative and the other action alternatives on aquatic habitat. The BLM's obligation under NEPA, to describe the effects of BLM actions on aquatic habitat and fish species, has been fulfilled in the FEIS analysis.

190. Comment: The EIS should analyze the effects of the alternatives on the Lost River and shortnosed suckers, bull trout, McKenzie River bull trout populations, and Oregon chub which are species listed as Endangered under the ESA as well as special status fish species.

Response: The FEIS analyzes the effects of the alternatives for all fish species in the plan area. The FEIS includes a thorough analysis and discussion of the affected environment, current habitat condition, species status, existing and historical distribution, and effects of the alternatives for all threatened and endangered fish species in the plan area including the Lost River and short-nose suckers and bull trout. The FEIS acknowledges that the requirements for habitat and the responses to habitat changes vary by fish species and the life history stage of the species. However, the habitat requirements for fish species within the planning area are similar enough to permit an analysis of the effects for all aquatic and fish species together. Therefore, a species-specific analysis and discussion was unnecessary. The Columbia River chum salmon and the Oregon chub do not occur on BLM-administered lands in the planning area; and management activities occurring on BLM-administered lands would not affect these species. The FEIS has been revised for clarity to reflect this information.

191. Comment: The EIS conclusions regarding forest activity effects on downstream water temperature are flawed because the EIS discounts the importance of both site-specific and cumulative effects from forest practices, which is contrary to the scientific literature and extensive temperature assessment efforts completed as part of DEQ's total maximum daily loads.



Response: The FEIS does not discount the effects of forest practices on water temperature. The FEIS documents the science used to design Riparian Management Areas in the alternatives (*Chapter 3, Water section*). Further, the analysis of environmental consequences in the FEIS concludes that the levels of shade retention are expected to meet water quality standards and non-point source Total Maximum Daily Load (TMDL) waste-load allocations under all alternatives. Additionally, the Oregon Department of Environmental Quality's core cold water designations have been included in the FEIS.

192. Comment: The EIS should be revised to clarify what method was used for the Fish Productivity Model, and the EIS should disclose any peer review of validation of the Lawson model.

Response: Because of concerns by scientists, the fish productivity index has been removed from the FEIS analysis. Additionally, the FEIS has been revised to include a more detailed description of the analytical methods and assumptions used for the analysis.

193. Comment: The EIS should be revised to identify the Oregon Coast Coho Salmon Evolutionary Significant Unit as threatened.

Response: Because the Oregon Coast Coho Salmon ESU was listed under the Endangered Species Act subsequent to preparation of the DEIS, the FEIS has been revised to include the Oregon Coast Coho Salmon as a listed fish within the planning area.

194. Comment: The BLM should run the large wood delivery model with different assumptions and input variables to include smaller minimum tree diameters, higher site-potential tree heights, and different distances from debris-flow prone streams over which trees can be incorporated into debris flows.

Response: Based on interaction with Pacific Northwest Research Station Scientists, the Western Oregon Plan Revision Science Team, and National Marine Fisheries Service, the input variables for the wood delivery model were revised for the FEIS analysis to include: 1) the contribution of smaller wood, based on correlations from Beechie et al. (2000), to fish-bearing and non-fish-bearing stream channels; 2) highly detailed stand-level tree height information for each 10-meter Digital Elevation Model (DEM) pixel to determine site-potential tree height.

For the debris flow modeling, the model assumes that all standing trees and downed wood within a debris flow track will be incorporated into the debris flow delivery. The modeling assumption is that downed wood accumulates within a tree height of the stream channel, and that the debris flow tracks are six meters wide, which is the average width reported for debris flows in the Oregon Department of Forestry's 1996 storm study (Robison et al. 1999). Because the model examines every possible debris flow track traced on the DEM, starting from every DEM cell with landslide susceptibility greater than zero, the model effectively includes all potential wood sources to debris flows that can be resolved with the Digital Elevation Model.

Water

195. Comment: The EIS should disclose the specific strategies and action that the BLM will use to replace each aspect or component of the Aquatic Conservation Strategy and components that are not specifically part of the Aquatic Conservation Strategy, but that were intended to further the goals of the Aquatic Conservation Strategy

Response: The Aquatic Conservation Strategy is part of the land use allocations and management direction of Northwest Forest Plan that this RMP revision proposes to replace. The action alternatives were not designed to accomplish each aspect or component of the Aquatic Conservation Strategy, because the



purpose of this RMP revision differs from the purpose of the Northwest Forest Plan. The Draft EIS analyzed the effect of each alternative on various resources, including fish, water, and aquatic and riparian special status species. This provides a basis for comparing the effects of the No Action Alternative (which includes the Aquatic Conservation Strategy) with the action alternatives.

196. Comment: The EIS should be revised to fully discuss the ecological role of BLM lands within areas of mixed ownership including an examination of all potential sediment sources, including roads currently excluded from analysis, harvest activity, debris flow, and blowdown.

Response: The Draft EIS analyzed the ecological role of BLM-administered lands within areas of mixed ownerships. For many resources, the Draft EIS analyzed conditions both on BLM-administered lands and across all ownerships with unprecedented detail and quantification. Specifically, the analyses of sediment included the effects of activities across all ownerships. It is not possible to model activities on other ownerships with the same degree of precision and accuracy as the analysis models activities on BLM-administered lands. However, the analysis of the cumulative effects of the BLM action together with actions on other ownerships is sufficient to compare the effects of the alternatives.

197. Comment: Table 211 of the DEIS should be revised to include clearcutting on non-federal lands. The action alternatives are very likely to push watersheds over thresholds of concern for peak flows.

Response: The analysis considers the effects of management actions on all lands, including non-federal lands. The data are separated for the rain and rain-on-snow hydroregions (refer to the FEIS, *Chapter 3-Water* section, and *Appendix I-Water*, Analytical Questions 1 and 2). Table 211 in the Draft EIS shows the projected BLM stand establishment acres for each time period by alternative. There is no similar reference for the variability of harvest from private lands, as such information is proprietary or market driven. For all non-federal lands, the BLM relied on satellite imagery to develop acres of open conditions (similar to stand establishment), and then compiled this information by hydroregion and particular methodology to determine the likely effect on peak flow for the alternative projections.

198. Comment: The DEIS should be revised to explain the derivation of the ground cover correction factor that applies to cut and fill slopes. Without knowing where the vegetation cover data came from, it is impossible to evaluate the accuracy of the final vegetation correction factor layer.

Response: The ground cover correction factor data were supplied by district hydrologists who are familiar with each watershed; they used a combination of district knowledge, aerial photography, and satellite imagery. A public set of aerial photography is available for copying at each district office. The Interagency Vegetation Mapping Project using satellite imagery was a collaborative effort between the United States Forest Service (USFS) and the (BLM). Imagery can be obtained at: <http://www.blm.gov/or/gis/data-details.php?theme=dt000003&grp=IVMP&data=ds000103>. The ground cover correction factors that were used are included in the FEIS, in *Appendix I-Water*.

199. Comment: Alternatives 2 and 3 in the DEIS should be revised because they lack a sound scientific basis for the aquatic/riparian strategy. Alternatives 2 and 3 would have substantial, long-term impacts to water quality and exacerbation of current exceedances of water quality standards in streams listed as impaired under Section 303(d) of the Clean Water Act (impaired waters) are anticipated. Other issues include significant impacts to drinking water and aquatic species that could be corrected by project modification or choosing another feasible alternative. Direct, indirect and cumulative impacts would affect waters on both BLM and non-BLM lands.



Response: The BLM sees no substantive basis for these conclusions. It is well known that the primary water quality parameters of concern from forest management in Northwest streams are variations of stream temperature and deliverable sediment (Meehan 1991). Forest width and density of the Riparian Management Areas (RMAs) under the alternatives are structured to maintain fully shaded perennial streams, as well as provide an effective sediment filtration area along all stream channels. Under Alternatives 2 and 3, water quality would be fully protected because a sufficient forested Riparian Management Area of varying width from 25 to 100 feet would be retained along each side of all stream courses to meet water quality goals. In Alternative 2, the Riparian Management Area varies from 25 feet for intermittent streams, to 100 feet for perennial and debris flow streams. Contrast the design of the BLM Riparian Management Areas for these alternatives with private lands RMAs, where small streams are not required to include retained merchantable trees at all in the RMAs (versus 25 feet from the stream edge for BLM), and perennial streams are only required to maintain 20 feet of continuous retention from the stream edge (versus a minimum of 60 feet for BLM). The strategy for BLM invokes considerable greater riparian management areas and functionality, even though the Department of Environmental Quality found that RMAs on private forestlands in Oregon to be sufficient for water quality protection (ODF and DEQ 2002).

In addition to the BLM Riparian Management Area strategy, Best Management Practices would be applied to maintain water quality. For source water watersheds, this may involve having seasonal restrictions, limiting road development and stream crossings, controlling access, or taking other measures. Water quality in 303(d) listed waters would be maintained by Riparian Management Area design and Best Management Practices. Water Quality Restoration Plans coordinated between BLM and the Department of Environmental Quality would be followed, where Total Maximum Daily Loads (TMDLs) and waste-load allocations have been determined. Therefore, the BLM sees no significant impacts to drinking water or aquatic species, or furthering of 303(d) impairment under these alternatives.

200. Comment: The EIS predictions for steam temperatures should be revised based on the Heat Source model run by the environmental Protection Agency (EPA), which resulted in an increase substantially higher than the results reported in the Draft EIS (DEIS). The EPA conducted several temperature model runs for Canton Creek. Canton Creek is a temperature-impaired waterbody located in the Umpqua Basin for which a total maximum daily load (TMDL) was recently completed. We employed the Heat Source model used in development of the Umpqua TMDL to evaluate the temperature change resulting from the application of Alternatives 2 and 3. This modeling demonstrates that the application of Alternatives 2 and 3 would increase the 7-day average daily maximum (ADM) stream temperatures on Canton Creek over 0.7° F. This is substantially greater than the 0.2° F per mile temperature increase predicted by the DEIS (p. 750). Further, the EPA modeling results indicate that management on BLM lands under Alternatives 2 and 3 would increase instream temperatures on downstream “private” lands along Canton Creek.

Response: A point of clarification is that the Oregon Department of Environmental Quality (ODEQ) rather than the Environmental Protection Agency constructed a temperature report for the Western Oregon Plan Revision with Heat Source modeling runs using data from Canton Creek in the North Umpqua Subbasin (ODEQ 2007). Canton Creek is atypical because of “naturally occurring grassy meadows, wetlands, or open canopy forest” (ODEQ 2007). The simulations found the largest cumulative temperature increase (0.9° F) that would increase the 7-day average daily maximum, to occur in these areas, which is different than a typical, fully stocked, forested riparian management area.

Furthermore, BLM asserts there are various discrepancies within the simulations:

- 1) Reducing the model distance step from 328 feet (used in TMDL analysis) to 164 feet to increase model sensitivity may not be appropriate. If the distance step was not increased, the ODEQ 2007 shows error statistics of 1.0° F versus 1.6° F for the plan simulations. This error is greater than the predicted cumulative temperature increase. The simulations indicate multiple small spike elevations of stream temperatures above the TMDL load allocations and then sharp returns to the pre-existing



stream temperatures over very short distances (ODEQ 2007, Figures 10, 12 and 13). This suggests that the predicted stream temperature change is false (would not actually occur) because of the sharp temperature reversals not normally found in natural stream systems. Rather, it is more probable that as sensitivity is increased, error noise is also increased.

- 2) The 303(d) listed stream segments are normally listed from mouth to headwaters. Streams warm slowly in a downstream direction over long distances due to a variety of factors (e.g., stream turbulence and ambient air temperature). Conversely, small streams higher in the watershed that are typical of many BLM streams can recover when flowing from an opening into a downstream forest. The Oregon Department of Forestry and the Oregon Department of Environmental Quality (ODEQ) sufficiency analysis review of the Oregon Forest Practices Act (as reported by Dent and Walsh 1997) showed that by using Analysis of Variance statistical tests, the streams higher in watersheds showed a decrease in temperature 500 feet downstream of treatment, whereas streams lower in a watershed did not. Figures 10, 12, and 13 in ODEQ (2007) show this temperature reversal when proceeding from the simulation areas into system potential forest.

Reasonable measurement error of stream temperature with monitoring instruments (considered to be 0.9° F) has not been taken into account. The BLM suggests that a 0.9° F measurement error threshold level be shown on the ODEQ 2007 figures for comparison.

The spatial and temporal scale of the management activities would be far different than ODEQ 2007 modeled simulations. The BLM would not apply continuous treatments of thinning to 50% canopy closure in the secondary shade zones of Riparian Management Areas (RMAs), nor continuous RMA boundary regeneration harvests. Although BLM has shown that the RMA strategy in Alternatives 2 and 3 that provide 80% effective shade as a surrogate for stream temperature increases at an antidegradation level, the BLM spatially distributed pattern of harvest in watersheds within and adjacent to RMAs over time would provide an additional factor of safety.

201. Comment: The EIS should be revised to use the BLM inventory of riparian stream channels in its analysis, and should present data by appropriate watershed scales into functional condition classes.

Response: It is not practicable to use BLM inventory of specific riparian stream channels in the analysis of areas as broad as that of the Western Oregon Plan Revision, which is approximately 2.6 million acres. At the field level, the BLM may assess the condition of riparian areas by using the process for assessing Proper Functioning Condition (USDI BLM 1993) or similar methodology. These intensive inventories, involve field crews and specific funding, and have only been completed primarily on portions of the Medford District. The assessment data is on field forms and has not been assimilated in such a way as to make comparisons for broad areas possible. The usefulness of the assessments as a surrogate for the planning area is not practicable because of the breadth of data and replications required by the community type differences of riparian management areas on other districts. Factors that make meaningful comparisons problematic include: differing physiographic provinces, topography, riparian vegetative communities, valley bottom types, stream types, stream channel condition, and watershed condition.

202. Comment: The EIS should disclose how BLM plans to ensure the use of Best Management Practices (BMPs) to prevent significant water quality impacts, and should provide analytical data to support the effectiveness of the BMPs.

Response: The introduction to the Best Management Practices in the FEIS, *Appendix I-Water*, has been revised to show how BMPs would be typically selected and used. The BMPs are not designed to be an engineering handbook showing design specifications, nor provide analytical or monitoring details to prove



effectiveness. Notwithstanding, the BMPs do provide stringent measures to maintain water quality. The BMPs have been developed by specialists over many years of field trials, adaptive learning from monitoring, and knowledge gained from specific research studies.

203. Comment: The EIS should disclose whether or not the models used analyzed the effect of timber harvest and road building on debris flows and landslides.

Response: Approximately 90,000 acres (3.5% of BLM-administered lands) are currently withdrawn due to land stability concerns under the BLM timber productivity capability classification (TPCC) inventory. Based on commenter inquiries, an additional assessment has been made to analyze the effect of land stability at a watershed scale from forest management projections of timber harvest and road building. Miller (2003), Miller and Benda (2005), and Miller and Burnett (2007) have developed a GIS-based mass wasting hazard model for western Oregon to estimate the susceptibility to shallow colluvial landsliding. This model was used to determine the relative density of unstable lands that “as modeled” may occur in the harvest land base. The results of this analysis are presented in the FEIS, in *Chapter 4* (Water section). Because the TPCC inventory included ground reviews in addition to aerial photography interpretation, it is considered to be more accurate and reliable in mapping areas of instability, and is believed to have captured the most likely sites. However, Best Management Practices for soil and water protection (included in the FEIS, *Appendix I-Water*) require that project planning for a proposed harvest area include completion of geotechnical investigations. Where susceptibility to landsliding is indicated, criteria would be developed for adjustments to the manner or location of harvest and road building. If additional lands are found that would have high mass wasting potential, they would be added to the TPCC withdrawn areas.

204. Comment: The EIS should be revised to explain how the anti-degradation provisions of the State of Oregon’s water quality standards would be met by each alternative.

Response: Oregon’s rules on anti-degradation (OAR 340-41-0004) designate waters as either Outstanding Resource Waters (ORW), High Quality Waters, or Water Quality Limited Waters. There are no ORW on BLM-administered land in the planning area. High quality waters are maintained by meeting applicable numeric or narrative water quality criteria to meet standards by alternative design or by the application of best management practices. Water quality limited waters usually identified on 303(d) lists, become part of a basin scale Total Maximum Daily Load (TMDL).

Waste-load allocations for TMDLs are apportioned among basin landowners, depending on land condition, level of collaboration, and ability to contribute. A component of Oregon’s TMDL process is Water Quality Restoration Plans (WQRPs). These management plans are coordinated between the agency and DEQ and specify passive or active restoration actions. To date, most of these plans involve stream temperature reduction and specify passive restoration actions over time necessary to achieve results. The applicable WQRP targets for the parameter of concern, such as stream temperature, are reviewed during project planning to identify actions necessary to meet milestones. This method is used to implement anti-degradation provisions on BLM-administered lands where there are 303(d) listed waters with a TMDL and WQRP.

205. Comment: The EIS should be revised to discuss whether or not BLM will seek NPDES permit(s), per recent legislation on the issue.

Response: Under the Federal Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permitting program, administered by the Environmental Protection Agency and the Department of Environmental Quality, regulates the discharge of pollutants to surface waters. Pollutant discharges may be from point sources (discrete discharges) such as those from wastewater treatment plants, or industrial



processing plants. Pursuant to the Clean Water Act amendments (1987), the Environmental Protection Agency developed a Storm Water Program that applies to three sources of nonpoint discharge: industrial sources, construction sites, and municipal separate storm sewer systems. Logging operations, road building, and the array of silvicultural activities fall under the construction sites category and are viewed as nonpoint in nature. In 2002, the 9th Circuit Court of Appeals issued an opinion that requires an NPDES permit for aerial pesticide applications over forest lands (*League of Wilderness Defenders v. Forsgren*, No. 01-35729, 9th Cir 2002) where pollutants enter surface through other than stormwater runoff. The BLM is evaluating this issue, but has no plans to apply for NPDES permits for activities at the present time. In any case, since this revision is not making any decision on whether to aerial spray or not any specific area, there is no basis on which to request an NPDES permit.

206. Comment: The EIS should define intermittent stream, as the definition impacts how many streams may be clearcut over with no buffer.

Response: The glossary has been updated with a working definition: *A drainage feature with a dry period, normally for three months or more, where the action of flowing water forms a channel with well defined bed and banks, supporting bed-forms showing annual scour or deposition, within a continuous channel network.*

207. Comment: The EIS should include a modified sediment analysis that avoids the assumption that the timing of sediment delivery is more important than the volume, considers effects of both the existing road network and proposed roads, and that includes consideration of long-term sediment routing and effects.

Response: Timing and volume of sediment delivery are intertwined. The volume of sediment delivery is highly dependent on streamflow level, where the few high flows of each annual series of stream flows carry the majority of the sediment load (Luce and Black 1999). The analysis considered the effect of sediment delivery from existing and proposed roads within a sediment delivery buffer by using the Department of Natural Resources methodology (see the FEIS, *Chapter 3-Water* section; also see *Appendix I -Water*, Analytical Question # 3). The modeled sediment yields are separated for new roads (less than 2 years old) and existing roads (more than 2 years old), and when summed give a picture of long-term potential sediment delivery. The model parameters and processing were not sensitive enough to infer seasonal timing of potential sediment delivery. The BLM has observed that under normal precipitation and runoff, many roadside ditches carry little to no water or sediment. The BLM expects this seasonal pattern of a few large storms to produce higher runoff and to yield the majority of the sediment load. Additionally, the variability of watershed intrinsic factors in unmanaged areas, including widely scattered and infrequent landsliding and streambank erosion, occurs with the few high annual stream flows and reduces the contributory effect of road delivered sediment as a percentage of total sediment.

208. Comment: The EIS should explain whether the stream sizes, tree types, and heights used in the Brazier and Brown (1972) study used by the EIS to explain how angular canopy density varies with different buffer strip widths are applicable to the entire plan area, how that was determined, and what other information is available. If the SHADOW model is used to support assumptions about angular canopy density, stream shade, and water temperature, then the EIS should: better describe the data set used to develop the model; disclose what streams were used to develop the statistical relationships; document model validation in the different ecoregions covered by the WOPR; and report confidence limits, assumptions, and uncertainties.

Response: Table 3 in the Northwest Forest Plan Temperature Total Maximum Daily Load (TMDL) Implementation Strategies (2005) was used to support assumptions about angular canopy density. The derivation of Table 3 to determine the width of the primary shade zone was developed with a number of Shadow model runs by the developer, Chris Park. Data from southwest Oregon, as well as the original data from the Brazier and Brown study (1972), was used in the model runs to optimize the primary shade zone



width for different hillslopes and forest vegetation heights (Chris Park 2007). The BLM chose the largest distance in Table 3 (60 feet) to use as a primary retention area.

209. Comment: The DEIS does not provide sufficient information to support the assumption that areas farther than 100 feet from streams do not contribute to shade. The DEIS analytical assumptions regarding the effectiveness of stream buffers to regulate temperature are inconsistent with existing science (Kiffney et al. 2003).

Response: The BLM does not dispute that areas further than 100 feet from streams may provide shade to streams. However, studies with the Shadow and Heat Source models show that this shade is secondary, is of very marginal importance, and has little bearing on overall effective shade duration or quality throughout the day. The BLM is satisfied, based on Shadow modeling, that normal stocking of riparian forest young-mature trees at 100 feet width provide 80% or greater effective shade. The DEQ modeling with Heat Source for the Western Oregon Plan Revision showed that shade and temperature goals could be met at 150-foot riparian area widths, even though BLM believes that some of the modeling assumptions may not represent average and fully stocked forested conditions.

210. Comment: The analysis in the DEIS is inadequate because it does not assess the likelihood of blowdown of riparian trees under the various strategies, and analyze how this factor could affect stream shade and water temperatures

Response: The riparian area analysis has been expanded to include blowdown of riparian trees, and to show how some alternatives include riparian area widths that act as a factor of safety (see FEIS, *Chapters 3 and 4, Water sections*).

211. Comment: The DEIS analysis is inadequate because it does not provide sufficient information about the status and trends of water temperature on BLM lands, the status of stream shade on BLM lands, and how land management has contributed to these conditions. These current condition and trends are necessary to understand the effects of the alternatives.

Response: The status of stream shade has been added to the FEIS (see *Chapter 3, Water section*). Options modeling for riparian trees within 100 feet of fish-bearing streams (includes all perennial and intermittent fish bearing) indicates that 4% are currently in the stand establishment structural stage, 41% are young, 28% are mature, and 27% are structurally complex. Based on comparing this forest structure with shade levels of potential natural shade, there is a very high confidence that 80% effective shade goals are being met on more than 55% of the Riparian Management Areas, and a high confidence that goals are met on more than 96% of the Riparian Management Areas. The BLM believes the status and trends of water temperature on BLM-administered lands parallel improvements in riparian area forest structure, resulting in increased shade. Although there is insufficient data to confirm this premise, stream monitoring is required for most Total Maximum Daily Loads with Water Quality Restoration Plans to indicate the trajectory of water temperature with forest tree growth. The BLM will use the results of these monitoring efforts to confirm that the objectives for Riparian Management Areas are meeting water quality standards .

212. Comment: The EIS must consider the following factors in analysis of the effectiveness of riparian management areas: stream orientation, sinuosity, aspect, bank and channel stability, channel migration, and the potential for sediment loading.

Response: The factors of stream orientation, sinuosity, and aspect were included within Shadow modeling to determine a sufficient Riparian Management Area that would provide adequate shade to maintain stream temperatures. Bank and channel stability and channel migration is an “in field” higher level inventory,



and these attributes are usually included within riparian assessments such as Proper Functioning Surveys (USDI BLM 1993). Further, the stream channel stability attribute is not needed to make a reasoned choice among the alternatives for the plan revision. The Riparian Management Area widths as described for the alternatives in the FEIS, *Chapter 2*, are retained for a migrating stream channel, because the zone includes the channel migration zone.

213. Comment: The EIS should be revised to explain or resolve apparent inconsistency in choosing to include private land as a variable in predicting large wood inputs to streams while also choosing to exclude private roadways as variables in predicting sediment impacts.

Response: Existing mapped private roads were included within the analysis (see the FEIS, *Appendix I- Water*, Analytical Question #3, and Step # 4). The BLM GIS general transportation (roads) data layer was used. This coverage includes all BLM primary, secondary, and tertiary roads and a high proportion of private roadways. On BLM under the alternatives, roads needed for the types and amounts of forest management indicated are projected into the future for the 10-, 20-, 50- and 100-year time periods. No such comparison can be made for private land roads, because future management and transportation system options are unknown.

214. Comment: The EIS should be revised to properly estimate the number of watersheds susceptible to peak flow increases and related water quality impacts. The modeling approach taken in the DEIS likely underestimates the contribution of sediment from the road network, land management activities, and debris flow events (see analysis enclosed with comments).

Response: The BLM used a modeling approach to screen for watersheds that may be susceptible to peak flow increases from the effects of vegetation management. First, the planning area was separated at a sixth-field watershed scale (10,000 to 40,000 acres) by rain-dominated and rain-on-snow hydroregions. The analysis was completed using GIS resource layers and computer programmed scripts that use logical and mathematical relationships based on hydrological science (see the FEIS, *Appendix I-Water*, Analytical Questions #1 and #2). The hydrological sciences used the relationships of rain and/or snow accumulation and melt with rain (Grant et al. 2008, USACE 1998) and effect on water available for runoff from different vegetation conditions (Harris et al. 1979, WA DNR 1997a). The FEIS, *Chapter 3* (Water section) has been further expanded to include Grant et al. (2008) science report findings from the review of northwest experimental watershed studies. The BLM uses equivalent area relationships with basal area for the rain-dominated hydroregion, and an empirical modeling approach for the rain-on-snow hydroregion. The BLM believes the approaches are valid and reflect the hydrological processes involved.

The modeling approach used in the DEIS to model potential deliverable sediment from roads was based on an existing model (WA DNR 1997b). The BLM automated the model to include spatial GIS data layers such as soils, roads and ownership (see the FEIS, *Appendix I-Water*, Analytical Question #3). This road model does not consider land management activities or channelized debris flow events, but only road sources of fine sediment from the cutslope, road tread, and fill slope (see the FEIS, *Appendix I-Water*, Analytical Question #3; and *Chapter 3-Water* section).

The roads methodology that was used lacks a subroutine to calculate small road-related slumps or slides that may sometimes occur. The random and non-intelligent nature of these occurrences leads to modeling difficulties, and as such is an under-estimation of potential sediment delivery at a gross scale. The degree of underestimation is uncertain, because road construction practices have dramatically improved in the last 20 years with corresponding fewer road failures (see the FEIS, *Chapter 3-Water* section). Extensive slide inventories, which do not exist, would be required in each physiographic region to determine an adjustment factor. However, the purpose of the plan-level roads sediment model was not to determine an absolute mass balance of deliverable sediment, but rather to determine a consistent relative baseline, and then show how



each alternative compared to the baseline and the percent of departure. As such, the existing modeling is a powerful tool to assess differences between alternatives, and is much improved over past land management impact assessments where relative ratings or Likert scales were used.

215. Comment: The EIS should be revised to include data and reference to work completed by Swift on roads where slash was used to increase roughness and reduce travel distance, because while Swift is referenced in this discussion, these results were omitted. Another reference to incorporate on travel distance research is Woods et al. 2006.

Response: This section in *Chapter 3* (Water section) discussing road-related sediment travel distances has been revised for the FEIS to include expanded discussion from Swift 1986 and others.

216. Comment: The buffer width model assumptions should be revised in the EIS, because EPA believes they are flawed and that the model significantly underestimates shade levels and the potential temperature responses of Alternatives 2 and 3. There are a number of limitations to the use of the Brazier and Brown study which are not acknowledged in the DEIS. It is also important to acknowledge that the Brazier and Brown shade study did not account for the likelihood of riparian corridor blow-down, disease, or other factors that reduce angular canopy density.

Response: The Riparian Management Area width design portrayed under Alternatives 2 and 3 for perennial streams is based on published science findings. The commenter is unsatisfied with the statistical design of the landmark Brazier and Brown (1972) study, but offers no proof that the study does not support the angular canopy density and riparian shade width conclusions. The Steinblums (1984) study science findings on angular canopy density and riparian width from blowdown have been included in the FEIS, *Chapters 3* and *4*, Water section.

217. Comment: The EIS should be revised to correct the conclusion that 80% effective stream shade "... corresponds to less than a 0.2°F change in stream temperature per mile of stream..." (DEIS, page 750), because this approach relies on a non reach-specific temperature model sensitivity analysis conducted in 1999 as part of the Upper Sucker Creek Temperature TMDL analysis. In this analysis, the model sensitivity analysis was not used to evaluate stream temperature response. The DEIS, however, uses these modeling results to predict temperature response to timber harvest across the plan area. Because this model is not reach-specific and does not consider site specific conditions or seasonal temperature variation, EPA believes this approach does not predict or evaluate stream temperature response to the proposed alternatives in a meaningful way.

Response: The commenter is referring to Figure 3-106, Stream Shade and Change in Water Temperature, in the FEIS. This figure illustrates that as effective shade increases beyond 40%, there is a corresponding reduction in stream temperature to a point (e.g., approximately 80%) beyond which further reduction in stream temperature as a function of shade is not measurable (Boyd 1986). Boyd (1986) demonstrates that the various temperature heat exchange pathways between a stream and its environment (in addition to direct solar such as diffuse solar, long wave radiation, conduction or convection) introduce noise and negate incremental additions of effective shade above the 80% level. In other words, shading by forest vegetation has little effect above the 80% effective shade level because of other temperature fluxes operating in the environment.

The BLM agrees that 0.2°F change in stream temperature per mile of stream, at an 80% effective shade level, may not always capture site-specific conditions, but this does not diminish the broader scale value. These relationships of effective shade and temperature increase were developed during low streamflow conditions during a short temporal, maximum stream warming period (August) where seasonal variation is portrayed



as the worst case. The BLM only has control over riparian area forest vegetation management and uses shade as a surrogate measure for stream water temperature increase. Therefore, the use of the Upper Sucker Creek TMDL sensitivity analysis over a summertime period almost certainly exaggerates changes in stream temperatures, which would further diminish the possibility that shade contributions beyond the 80% level would have any meaningful effect, contrary to the assertion of the commenter.

218. Comment: The sediment modeling in the EIS should be revised to account for forestry related activities such as yarding, skidding, site preparation, and canopy removal which have been demonstrated to contribute to surface, gully and large-mass soil movements, because they are currently not being considered.

Response: Potential sediment delivery impacts from cable yarding and ground-based skidding were dropped from detailed plan-wide consideration because effects on water quality are minor and site specific when Best Management Practices are applied at the time of project activity (Refer to the FEIS, *Appendix I-Water*, Best Management Practices). Specific BMPS (e.g., suspension over certain stream channels, or ground-based equipment limitation zones) are identified to minimize or prevent sediment delivery to streams and waterbodies to a negligible level. Discussions in the FEIS (*Chapter 3*, Water section; as well as *Appendix I-Water*, Analytical Questions #2 and #3) provide details about forest canopy removal. The principal effects are relevant to streamflow runoff response being scaled by hydroregion, watershed size, and level of forest basal area removal. Aside from burning, overland flow is seldom observed in the analysis area because infiltration capacities in undisturbed forest soils most often exceed 3 inches per hour, which is greater than the most intense precipitation periods of characteristic storms (Meehan 1991).

Site preparation broadcast burning can have temporary effects on increasing onsite soil loss and potential sediment delivery to watercourses, because of the consumption of ground cover and possible temporary hydrophobic effects from hot burns. To maintain soil fertility, alleviate potential sediment delivery concerns, and lower risk of wildfire, there are prescriptions for the majority of site preparation broadcast burning to be completed in the late winter and spring. Soils and fuels moisture contents are higher during these time periods and burn intensities are expected to be low. Furthermore, BLM broadcast burning prescriptions often leave areas unburned (swamper burn), as long as replanting can achieve satisfactory results. The shrub and noncommercial 25-foot Riparian Management Area along intermittent streams under Alternative 2 would have the highest probability for sediment delivery from burning. The anticipated amount of regeneration harvest broadcast burning was estimated for each alternative and time period (see the FEIS, *Chapter 4*, Water section). In summary, to differentiate between the alternatives, the BLM has analyzed the important sediment pathways at a plan scale, which are the effects from harvest placement and roads on land sliding and sediment delivery. Best Management Practices for individual forestry activities are specified when site-level NEPA is completed. When implemented correctly, the hypothetical effects of concern to the commenter are prevented.

219. Comment: The EIS should be revised to clarify which datasets were used to determine removal of basal area and to provide the rationale for dataset and “surrogate measure” selection (i.e., 10% crown closure) for the following reasons: On BLM lands, stand establishment structural stage was used as a surrogate for the removal of basal area. For adjacent non-BLM lands areas of less than 10%, crown closure was used as a surrogate for the removal of basal area (DEIS, page 384). Data underlying the peak flow analysis on BLM lands was derived from the OPTIONS model, and data for “other lands” was derived from the 1996 Interagency Vegetation Mapping Project (IVMP).

These methods raise a number of issues:

- 1) Rationale for establishing surrogate measures for the removal of basal area is not provided.
- 2) Methods employed to evaluate surrogate measures use two different time frames (BLM lands used modeled outputs and non-BLM lands used a 1996 dataset).
- 3) Use of 10% crown closure as a surrogate for the removal of basal area may underestimate the



- actual area which should be included as part of the “surrogate measure”. The 1996 Interagency Vegetation Mapping Project (IVMP) produced several high quality datasets. The EPA identified four IVMP datasets that could be used to estimate the canopy cover conditions on non-BLM lands: 1) “Vegetation Canopy Cover” 2) “Conifer Canopy Cover” 3) Harvest History (1972 through 2002).
- 4) Size Class (Quadratic Mean Diameter). EPA analyzed each of these IVMP datasets as potential “surrogate measures” for “basal area removal”. Our analysis found that the number of 6th field HUCs shown to exceed 40% cut varied depending on the dataset considered (between 0 and 19%). This discrepancy calls into question the DEIS conclusion that only 1 out of 635 subwatersheds in the rain hydroregion (DEIS, page 385) and only 3 out of 471 subwatersheds in rain-on snow hydroregion (DEIS, page 387) within the Plan Area are currently susceptible to peak flow increases. We recommend that the Final EIS (FEIS) address this discrepancy, clarify which datasets were used, and provide the rationale for dataset and “surrogate measure” selection (i.e., 10% crown closure).

Response: The 1996 Interagency Vegetation Mapping Project (IVMP) ARC classified satellite imagery dataset “Vegetation Canopy Cover” that was used by BLM in several peak flow analysis. The IVMP “Vegetative Canopy Cover” dataset is 1996 data. The IVMP “Harvest History” change detection dataset can assess open conditions from 1996-2004. This change detection dataset was unintentionally omitted in the DEIS. However, re-analysis for the rain and rain-on-snow using this additional dataset has been completed for all alternatives in the FEIS.

When evaluating the alternatives, the findings for private or other lands open areas are held constant, because there is no available information on which we may determine how age class distribution on private lands would change over time. Much of this data is proprietary and market driven. Therefore, it was assumed that existing proportions of forest age classes comprising the stand history in each sixth-field watershed is near an equilibrium condition. Almost all private timber lands have now been managed for a period longer than their average rotation cutting ages and, therefore, it is reasonable to assume that the current age class distribution will roughly reflect the rate of change at the stage of equilibrium. Each alternative effect is measured by determining the amount of the stand establishment structural stage on BLM-administered lands in each sixth-field watershed for the 10-, 20-, 50- and 100-year time periods and the amount of open area on other lands from these IVMP datasets. Specific details for the peak flow planning criteria using these data layers is shown in the *Table* below and in *Appendix I-Water* (Analytical Questions #1 and #2). Peak flow susceptibility in the rain-dominated hydroregion is based on removal of forest tree basal area and equivalent clear-cut area; however, the rain-on-snow analyses uses physical processes of snow accumulation and melt and requires a range of forested and open cover classes.

TABLE T-1. VEGETATION DATA LAYERS USED IN THE PEAK FLOW ANALYSIS

Data Layer	Rain Hydroregion	Rain-on-Snow Hydroregion	Domain
IVMP Vegetation Canopy Cover	<30% crown closure	<10% crown closure	BLM & private for current condition
IVMP Vegetation Canopy Cover		> 70% crown closure & <75% of the crown in hardwoods or shrubs	BLM & private for current condition
IVMP Vegetation Canopy Cover		10% - 70% crown closure & <75% of the crown in hardwoods or shrubs	BLM & private for current condition
IVMP Harvest History	<10% crown closure, 1996-2004	<10% crown closure, 1996-2004	BLM & private for current condition
IVMP Vegetation Canopy Cover; Nonforest		Included	BLM & private for current condition
Options Structural Stage	Stand establishment	Stand establishment without legacy	Alternatives



For the rain-dominated hydroregion, the DEIS was in error on page 384, which reported that “10% crown closure was used as a surrogate for the removal of basal area” for non-BLM lands. The correct figure of <30% crown closure was reported in the DEIS analytical methods in Appendix I (page 1,096). The error on page 384 of the DEIS has been corrected in the FEIS. As seen in *Chapter 3-Water* section, Ziemer (1981, 1995) found a nonstatistical (4%) increase in peak flow for 80-year old conifer stands that were harvested where 50% of the basal area was retained. It is reasonable to expect that any increases in peak flow would decrease as the intensity of treatment decreases. For example, a greater increase in peak flow would be expected from regeneration harvest (many acres) versus small patch cuts (less than one acre to several acres) and thinning, the latter of which would have the least decrease. Although this general relationship is reasonable, past experimental studies of peak flows in the Northwest have not fully examined the differences in peak flows relative to many contemporary forest practices (Grant et al. 2008). The surrogate used in this analysis for other lands in the rain-dominated hydroregion was set at less than 30% canopy closure. For a given timber stand species, age spacing, etc, there are variations of crown area on the IVMP datasets when cross-walked with basal area removed (Grant et al. 2008) for susceptibility of peak flow increase.

The BLM looked at tree diameter/crown diameter where ratios vary from 0.7 for mature trees, to 2 for trees in young plantations. A normal forest density management treatment may remove one-third of the volume and one-half of the stem count, resulting in 80 to 100 remaining trees per acre. For harvestable coniferous forest stands, vertical projections were made to determine the area of remaining crowns after this normal treatment. Stand summaries indicate that 40-50% canopy closure as a surrogate measure would maintain 50% of the basal area. However, as discussed in the FEIS planning criteria, canopy closure as a surrogate for basal area removal was set at <30% canopy closure. This is because there are large areas of low density unmanaged forest not attributable to timber harvest activities. These unmanaged low density forests are not equivalent clearcut forest and could not be reasonably separated in the analysis, because the GIS algorithms that processed the IVMP satellite imagery cannot distinguish between forest harvest and natural low density forest. The affected subwatersheds are more numerous in southern Oregon in areas of higher fire frequency and low precipitation. The degree in nonharvested area is uncertain.

A number of iterations by area inspection showed that the false identification increases as the canopy closure is increased, even though the BLM did not absolutely quantify the differences over broad areas. From these trial optimizations, the BLM chose to use the <30% canopy closure as a surrogate for basal area removed. Others (Rothacher 1973, Harr 1976) have shown that decreases in evapotranspiration are expected to scale somewhat lineally with the amount of vegetation removed by forest harvest. Although Grant et al. (2008) defines a process to measure effects in the rain hydroregion using basal area removal with envelope curves, they do not address the underlying hydrological processes for contemporary forest practices, especially partial removals.

The Stratum-Weighted Accuracy for Vegetation Cover on all Lands by Interagency Vegetation Standards Categories is 79% for the Oregon Coast Range and 67% for the Klamath region (Congalton and Green 1999). No IVMP accuracy data is available for the Western Cascades or Willamette Valley.

220. Comment: The EIS sediment analysis should be revised using a computer-based model that predicts slope stability of potential landslide initiation sites based on slope, topography, rainfall, and other variables, such as SHALSTAB. Papers developing the SHALSTAB model and showing its application include Dietrich et al. 1992, 1993, 1995; Montgomery and Dietrich 1994; and Montgomery et al. 2000. This model works various topographic data sources such as digitized 7.5 minute USGS quadrangle maps with enhanced topographical contours at 10-m intervals. The model assigns to each 1 0-m topographic cell a relative hazard rating (low, medium, or high). Other slope stability models using similar input variables are also available. If it is not possible to run such models for the entire plan area before the FEIS, then the FEIS should describe a plan to update its slope stability investigations to include computer modeling.



Response: Computer landslide modeling was undertaken in the FEIS. The Shalstab model was considered, but was rejected in favor of the Miller and Burnett (2007) model. This landslide model includes two components: a measure of landslide susceptibility and an estimate of landslide runout potential. Both components are necessary to estimate sediment and wood delivery to stream channels from landsliding. SHALSTAB also provides a measure of landslide susceptibility, but no estimate of runout potential. SHALSTAB is a process-based model that can be applied without calibration. It utilizes certain simplifying assumptions (e.g., surface-parallel flow of shallow groundwater) with which topography and soil properties can be related to the spatial distribution of soil pore pressures under steady-state rainfall conditions. These assumptions have been challenged by Iverson (2000), who presents an alternative framework for estimating spatially and temporally variable pore pressures. The model for landslide susceptibility that BLM has used is empirical, so it must be calibrated and relies solely on spatial correlations among mapped landslide locations and topographic and land cover (forest type, roads) attributes. The basis for the landslide susceptibility portion of the model is described in Miller and Burnett (2007), and the basis for the runout portion of the model is described in Miller and Burnett (2008).

221. Comment: The EIS should be revised to apply other models for validated peak flow response in rain-on-snow hydroregion or compare the WOPR's analytical model with other validated, peer-reviewed models, because the model used (Washington Department of Natural Resources 1997) represents an untested hypothesis with a series of untested parameters. (WOPR_PAPER_01962-18).

Response: The Washington Department of Natural Resources Hydrologic Change module has been used in a number of watershed assessments and follows the fundamental science of the generation of peak stream flows from water stored in shallow snowpacks. The BLM is aware of only one other model to assess peak flow response in the rain-on-snow hydroregion: the Distributed Hydrology-Soil-Vegetation Model (DSHVM). It is a GIS water balance model developed at the University of Washington that simulates runoff and the impact of forest roads on watershed hydrology (Wigmosta et al. 1994). The model involves a high level of parameterization, is costly to implement, and is not suitable for large planning areas.

222. Comment: The EIS TMDL ISE methodology should be revised, because it is simply a white-paper on temperature modeling, and is a flawed basis for riparian management. The white-paper is technically weak and incomplete despite its much iteration. It selects the Brazier and Brown (1973) shade curve rather than the Steinblums et al. (1987) shade curve (the competing shade curve that has traditionally been reported jointly with Brazier and Brown) because it permits narrower buffers. This approach increases risk to aquatic resources greatly. Some assumptions in the white-paper do not comport even with Brazier and Brown. Others are not internally consistent. The Brazier and Brown model itself is so poorly documented and ridden by technical flaws that its use is highly suspect. In addition, shade and temperature modeling by the BLM is not consistent with ODEQ TMDL standards and goals.

Response: The analysis in the FEIS has been expanded to include the Steinblums et al. (1987) shade curve. This study includes the influence of blowdown. In order to accommodate similar sun blocking ability as in the Brazier and Brown (1973) study, Riparian Management Areas become wider because there are fewer trees resulting in lower forest density and fewer tree crowns to provide shade. See the FEIS, *Chapter 3* (Water section) for explanation of solar physics and influence of topography and forest trees. The BLM views the Steinblums et al. (1987) shade curve as a factor of safety because the 40 study sites had a range of blowdown from 11-54%, which is substantially higher than blowdown observed within riparian management areas in a managed forest. Where higher levels of blowdown are present in the riparian zone, the Steinblums et al. (1987) shade curve shows that 80% effective shade is reached within a riparian management area at 120 feet from the stream, compared to 100 feet with incidental or no blowdown.

The Department of Environmental Quality (DEQ) has used their Heat Source shade and stream temperature prediction model to evaluate the alternatives and find that stream temperatures do not change when riparian



management areas along perennial streams are a minimum of 150 feet in width. The BLM believes that DEQs assessment methods may have some technical shortcomings. Nevertheless, DEQs results indicate that the Riparian Management Areas for the No Action Alternative, Alternative 1, and the PRMP Alternative would fully meet shade goals and stream temperature water quality standards.

223. Comment: The EIS Peak Flow analysis should be revised to properly incorporate Gordon Grant's research results. The threshold for increases is percent in open category, not basal area (DEIS, page 1,096). Grant (2007) suggested the threshold was at 30%. Rain-on-snow modeling in WOPR does not agree with results using different techniques in NEPA documents and watershed analyses. Sensitivity testing is needed on watersheds that were known to be damaged from recent 96/97 rain-on-snow events (e.g. Fish Creek near Salem District, Sucker Creek in Medford District). The analysis did not look at 5 year events which are certain to occur (see effects to SW Washington/ Veneta, Oregon from December 07 rain only storm).

Response: In the FEIS, the peak flow analysis in the rain hydroregion has been revised, using Grants findings where maximum response at detection level is 29% of the watershed area cut with roads and a mean of 45%. Analytical Question #1 in the FEIS, *Appendix I-Water* has been revised with 29% open area used as the threshold.

The rain-on-snow modeling undertaken in the Western Oregon Plan Revision is a more rigorous approach than techniques previously or even currently used in watershed analysis or other NEPA documents. The model uses information on climatology, topography, hydrology, and physical processes to calculate water available for runoff. This degree of rigor is greater than the most commonly used method that involves interpolating a risk diagram. The user enters a risk class figure with area information, which is the percent of land within a rain-on-snow elevation, and the percent of the rain-on-snow area with less than 30% crown closure, to determine a risk of peak flow enhancement (Watershed Professionals Network 1999 IV-11). This methodology ignores some rather obvious major factors that would determine a watershed's susceptibility to peak flow issues, such as the climate and topology in the watershed. Although ongoing verifications are underway, the output from the analytical rain-on-snow procedure used in preparation of the Western Oregon Plan Revision certainly results in more accurate and supportable conclusions in terms of susceptibility as this risk procedure.

All event sizes are certain to occur from ordinary to extreme, but the recurrence interval increases for the larger runoff events. The methodology used for peak flow analysis in the rain dominated hydroregion is not recurrence interval specific and, therefore, covers all return periods. The methodology used for peak flow analysis in the rain-on-snow hydroregion looked at 2-year events rather than 5-year events, because these stream flows are in the range of effective streamflow that do the most morphological work on the channel (modification of bed and banks) in the long run (Leopold 1994).

Different land areas within the same watershed or different watersheds have different susceptibilities to landsliding and stream channel changes based on inherent watershed characteristics. Precipitation and runoff may vary widely from extreme storms in watersheds with differential effects. The BLM does not consider landsliding, deposition of sediments, or large wood from extreme storms to be "damage" unless watershed equilibrium has so markedly shifted that it can be traced to anthropogenic activities. Despite differing watershed characteristics and uncertain climatology, the BLM has withdrawn from timber management the majority of susceptible mass wasting lands under the Timber Productivity Capability Classification.

224. Comment: The EIS should be revised to provide adequate cumulative effects analysis of the 16 subwatersheds deferred from timber harvest in 1994. The current analysis does not demonstrate that conditions have improved enough to warrant renewed timer harvest as proposed in the WOPR action alternatives.



Response: This comment refers to the Medford District 1995 RMP management direction: “Defer the following areas (approximately 49,636 acres) identified as having high watershed cumulative effects from management activities, including timber harvest and other surface-disturbing activities for ten years, starting from January 1993.... The following areas will be reevaluated during the next planning cycle or by January 2003.”

This 49,636-acre area within 16 subwatersheds on the Medford District was analyzed in the Western Oregon Plan Revision DEIS for cumulative watershed effects. Important cumulative watershed effects across all lands were evaluated, including a peak flow analysis and a roads potential sediment delivery to streams analysis (refer to the DEIS, *Chapter 4*, Water section). Variations in modeling assumptions were evaluated in the DEIS: 1) deferrals were continued for one decade under the No Action Alternative, and 2) deferrals were continued under Alternative 1, with no ASQ simulated (refer to the DEIS, *Appendix Q-Vegetation Modeling*, page 1,568). The results of these analyses in the DEIS did not reveal environmental impacts that warrant reinstating the 1993 deferral of harvest.

225. Comment: The EIS should be revised to consider cumulative impacts of stream shade variation in mixed ownership areas, because streams flowing through mixed ownerships will be affected by lower shading levels on private lands.

Response: The BLM recognizes a disparity of stream shade rules between federal and state agencies. Although appearing intuitive, the observation that “streams flowing through mixed ownerships will be affected by lower shading levels on private lands” does not necessarily translate to stream temperature increase. As is the case on many private forests, the majority of streams on BLM-administered lands are headwater streams, where approximately 67% of the stream network is intermittent and do not require shade to ameliorate temperature increase. Many other channels have low summer stream flows. For small streams (<2 cfs average annual streamflow), streams flowing through unbuffered regeneration harvest units receive significant cooling downstream as the streams re-enter the forest (Robison et al. 1995). Dent and Walsh (1997) showed, based on Analysis of Variance statistical tests, that streams higher in watersheds showed a decrease in temperature 500 feet downstream of treatment, whereas streams lower in a watershed did not. Their conclusions infer that streams warm naturally in a downstream direction. This is partly due to wider, low gradient streams in the valleys with more surface area exposed to solar heating and lower rates of water flow.

Larger streams in lower watershed areas more frequently encounter private lands. State Forest Practices protection measures along riparian management areas include 20 feet of continuous no-cut area along each side of medium and large streams with a variable basal retention area up to 350 square feet outward to 100 feet (100 x 1,000) (OAR 629-640-0200). Dent and Walsh (1997) reported for a sample of medium to large private forestland streams that stream temperatures were at or below the 64°F numeric criteria 90% of the time. Furthermore, they could not differentiate the proportion of the temperature increase that was due to a partial decrease in shade from the proportion attributable to expected downstream increases in stream temperatures.

In consideration of the foregoing, it is concluded that the cumulative impacts of stream shade variation in mixed ownership lands are not being aggravated by BLM. The BLM conservative shade rules manifested in the design of Riparian Management Areas under all of the alternatives already promote an anti-degradation standard with a high level of effective shade. Higher levels of effective shade beyond 80% are not expected to change stream temperature profiles from ambient conditions (see FEIS, *Chapter 3-Water* section).

226. Comment: The EIS should be revised to disclose the impacts to aquatic resources from logging on private land as well as on public land. Although the BLM asserts that sediment delivery to streams from



1,000 miles of new roads and hundreds of thousands of acres of new clearcuts is negligible, the cumulative impact of sediment delivery from these types of actions are expected to be significant.

Response: Based on literature findings (in *Chapter 3-Water* section), and as indicated in the planning criteria (DEIS, Appendix I, pages I-1106 to I-1113), water runoff from roads that could deliver sediment to streams was modeled across all BLM and private lands by fifth-field watershed. A 200-foot sediment delivery buffer was used as a reasonable approximation for the source area of potential road erosion. Each alternative's total miles of new roads were considerably reduced when this methodology was applied. It is important to consider that much of the road system is already developed within watersheds, along transportation routes that cross streams, and the road additions to forest treatment areas include many short road segments on ridges or topography well separated from streams. Findings from the analysis for all lands show that miles of new permanent road, within a potential sediment delivery distance to streams under the alternatives as an addition to the existing roads (reported as a watershed average), ranged from less than 0.005 to 0.14% increase, which is a negligible amount. Furthermore, the analysis showed the potential fine sediment delivery addition to streams from all lands (reported as a watershed average) to be less than 0.27 tons per year addition, which is also a negligible amount (refer to the DEIS, *Chapter 4, Water* section, Table 212).

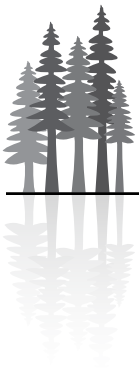
227. Comment: The EIS should be revised to take a more conservative approach to classifying and managing landslide prone areas. The assumption that “the rate of susceptibility to shallow landsliding from timber harvests...would not increase... because fragile soils that are susceptible to landsliding... would be withdrawn” (DEIS, page 763) marginalizes the issue, and conflicts with observed landslides on BLM lands not withdrawn from timber harvest. Given the observed landslides on BLM harvest units and research demonstrating that clearcut logging on unstable landforms increases landslide frequency, this approach should be revised.

Response: The BLM has not attempted to marginalize the issue of preventing landslides in managed areas. The BLM soil scientists have identified 89,937 acres (3.5% of BLM-administered lands) that need protection due to land stability concerns. These areas are currently withdrawn from programmed timber harvest. During project-level planning in the Timber Management Area, field reconnaissance by specialists would also identify any further stability concerns that are more discernible with the closer site-specific look taken during project planning. Based on these assessments, the type or area of proposed harvest would be adjusted. Additionally, for the FEIS, a GIS computer modeling landsliding assessment (Miller and Burnett 2007) was made, based on forest management projects, to analyze land stability at a watershed scale and to disclose any related impacts within the harvest land base and other BLM-administered lands, by alternative.

228. Comment: The EIS should be revised to consider the potential effects of increased magnitude, duration, frequency, or timing of peak flows, and how increased peak flows may affect the biological communities and primary constituent elements of critical habitat of listed salmonid fish within susceptible subwatersheds.

Response: The magnitude and frequency of peak flows from management activity and potential effects has been analyzed and discussed thoroughly in the FEIS, *Chapters 3 and 4, Water* sections. The potential effects to biological communities and associated primary constituent elements for fish have been discussed thoroughly in the FEIS (*Chapters 3 and 4, Fish* sections). Duration or timing of peak stream flows is primarily dependent on climatic conditions. Demonstration of an impact on biological communities and primary constituent elements of critical habitat of listed salmonid fish within susceptible subwatersheds is guided by site-specific evaluation procedures.

The DEIS and FEIS (*Chapter 4, Water* sections) have shown that less than 1% of the subwatersheds are susceptible to peak flow increase from the degree of forest management activities described under all



alternatives. No studies have shown a direct correlation between peak flow changes due to forest harvest and measured changes to the physical structure of streams (Grant et al. 2008). This is partly due to the problems separating causal mechanisms. Nevertheless, within the few susceptible subwatersheds, a useful framework described by Grant et al. (2008), that will be used during site-specific NEPA, would be to classify the stream types as cascade, step-pool, gravel-bed, or sand-bed (Montgomery and Buffington 1997). A rigorous channel cross-section assessment would be required. In general, percent increases in peak flows from forest management would be indexed against the capacity of the channel to move sediment; however, sediment movement does not imply destruction of the channel armor layer. Risk factors could also be used to consider the degree of road connectivity to streams by roadside ditches, drainage efficiency, forest patch size, and characteristics of riparian buffers. Based on these findings, a determination would be made for the likelihood of potential to affect and the degree of channel change.

229. Comment: The EIS should address the impacts of road-related changes in peak flows for both hydroregions and also consider the frequency and duration of peak flows and their effects to stream processes and the biological communities.

Response: Runoff response from roads was considered in the analysis. Within the rain hydroregion subwatersheds, the area of forest harvest and roads was summed in aggregate, divided by the subwatershed area, and compared against the maximum reported change envelope curve of Northwest experimental studies (Grant et al. 2008). Results from this aggregation are discussed in *Chapter 4* (Water section). Within the rain-on-snow hydroregion, roads were modeled as open areas along with non-forest, agricultural lands, and waterbodies, and they were subject to the same snow accumulation and melt processes within rain-on-snow elevations. These results are discussed in *Chapter 4* (Water section).

230. Comment: The EIS should be revised to analyze and disclose the effects of soil compaction caused by roads, landings and logging; the impacts of roads on peak flows; and the amount of area occupied by existing landings.

Response: Soil compaction was not analyzed in detail because the area of compaction from new roads, landings, and logging for forest management operations seldom reaches a level that statistically increases runoff. At the catchment scale, Harr (1975) indicates that peak flows on Deer Creek in the Alsea experimental watersheds were increased significantly when roads, landings, and skid trails occupied more than 12% of the watershed. For somewhat larger watershed areas (1.7 square miles), Keppeler and Ziemer (1990) found that the roads, landings, and skid trails that occupied 15% of the South Fork on Caspar Creek in northern California had no significant effects on peak flow. An average of 64% of the timber volume was also removed in a three-year period in the same watershed. Based on these findings at the site level, Best Management Practices specify “plan use on existing and new skid trails, to be less than 12 percent of the harvest area” (refer to FEIS, *Appendix I-Water*). Grant et al. (2008) concludes that peak flow response can never be greater than at the site level, and that larger watershed scales diminish peak flow levels for a variety of reasons (refer to the FEIS, *Chapter 3, Water section*).

From the effect of the alternatives, the net effect of road building versus road decommissioning results in less than 1% increase over the current road and landing acreage in Alternatives 2 and 3, and a net decrease in acres in the No Action and Alternative 1 (refer to *Chapter 4, Soils section*). At the fifth-field watershed level, the BLM assessed several individual watersheds and derived estimates of total compacted area, summing the area of existing and new roads, landings, and logging disturbance under alternative projections. Findings from these assessments show that compacted area does not exceed 6% of the watershed area, which is below a peak flow response level. Therefore, significant effects on the elevation of peak flows from management activities of road building and harvest are not anticipated from any of the alternatives.



231. Comment: The EIS should provide references for the assertion that sediment generation by overland flows (the mechanism for sediment from cutting and yarding timber) is not an issue because of high water infiltration in forest soils.

Response: Infiltration capacity in forest soils is the rate at which rain or melted snow enters a wetted soil surface. This rate is governed by soils composition and the depth, size, and shape of pore spaces. Coarse-grained soils derived from colluvium, alluvium, or tills are highly permeable, whereas fine-grained soils derived from marine materials or weathered siltstone, sandstone, or volcanic rocks usually have lower permeability. Two studies in the western Cascades (Coyote Creek, located on the South Umpqua Experimental Forest; and the H. J. Andrews Experimental Forest) show that fall infiltration capacities average 4.8 inches per hour (Johnson and Beschta 1981). A review of soil survey data, from the Natural Resources Conservation Service, in the analysis area reveals that infiltration rates can vary from 2 inches to 6 inches per hour, depending on location. The Pacific Northwest precipitation amounts rarely exceed these infiltration capacities of forest soils on an hourly basis.

232. Comment: The EIS should be revised to assess the impacts of eliminating riparian reserve buffers on unstable slopes.

Response: The BLM Timber Productivity Capability Classification identifies susceptible landforms to mass wasting, and these lands have been withdrawn from management activity (see *Chapter 3, Water section*).

233. Comment: The EIS should be revised to address the physical and biological impacts of reduced riparian reserves considering all relevant information available, particularly relevant considering that BLM produced many of these documents.

Response: The DEIS and FEIS include a thorough analysis on the different riparian management widths for each alternative and the effects to water and fisheries resources using state-of-the art modeling, analytical methods, and current scientific literature. The FEMAT scientists originally proposed *interim* riparian management areas, pending the outcome of watershed analysis. Riparian forest effects on streams as a function of buffer width (FEMAT 2004 V-27) show that most attributes (including root strength, litter fall, shading, and coarse wood cumulative effectiveness) to be leveling off at 0.5 tree height (approximately 100 feet from the stream edge).

Riparian “buffer effects science” in the last 10 years reveals that primary functionality, including riparian buffer effects on microclimate, can be retained within this distance (Chan et al. 2004, Rykken et al. 2007). These conclusions demonstrate the adequacy of the Riparian Management Area design for the No Action Alternative, Alternative 1, and the PRMP Alternative for all streams. By retaining sufficient widths for large wood delivery, perennial and intermittent debris flow streams in Alternative 2 and perennial streams in Alternative 3 are also fully functional for the primary attributes. In Alternatives 2 and 3, intermittent stream channels are fully functional where harvest does not occur, and are functional to an undetermined but lesser degree for some attributes in riparian areas adjacent to areas of regeneration harvest.

234. Comment: The DEIS analysis of impacts to stream temperature are flawed because it is based on a limited and selective view of riparian science that is heavily skewed toward consideration of only the shade function.

Response: The BLM recognizes land uses that can contribute to stream heating include vegetation removal (resulting in loss of shade), stream channel modifications (resulting in wider and shallower streams), floodplain dissection and downcutting (resulting in loss of cooler stored water that can exchange with stream water), and hydrologic alterations (such as groundwater withdrawals). To determine primary effects



in most situations, the BLM relies on the shading ability of forest vegetation as a surrogate for temperature change. When considering all energy fluxes of temperature gain or loss, direct solar radiation has been shown to be the greatest contributor to stream heating from the loss of shade (Brown 1969, Boyd 1996, Chamberlin et al., 1991).

In forest watersheds during the summer months, the combination of direct solar radiation reaching the stream surface, the relative number of stream tributaries, and a decrease of stream discharge has the greatest effect on stream temperature change in a downstream direction (Beschta et al. 1987). The BLM has little to no control over seasonal stream discharge, but has shown in Chapter 4 (Water section) that the Riparian Management Area strategies under the alternatives and resulting effective shade is expected to fully meet water quality standards along most stream reaches. Stream channel modifications, floodplain downcutting, and withdrawals are unique, reach specific analysis, and are best suited for evaluation during development of a project activity.

235. Comment: The EIS analysis of impacts of harvest in riparian areas on stream temperature, and impacts to fish and other aquatic biota is flawed because it did not consider data from FWS, EPA and NMFS evaluations (Oregon Department of Forestry and Department of Environmental Quality 2002; National Marine Fisheries Service 2001).

Response: The FEIS analysis utilizes the best scientific information available from a variety of sources. Additionally, the PRMP Alternative and FEIS fisheries and water management actions and analysis were revised in part based on evaluations and input from the Environmental Protection Agency, Fish and Wildlife Service, National Marine Fisheries Service, and other cooperators. For example, the BLM examined the stream temperature modeling by the Department of Environmental Quality for the various alternatives. Also, due to comments received from the Environmental Protection Agency and the National Marine Fisheries Service, the PRMP Alternative in the FEIS has an additional area beyond 100 feet as a factor of safety for the primary and secondary shade zone for episodic occurrences of blowdown.

236. Comment: The EIS should more fully acknowledge the risks to the water, fish and wildlife in the Coos Bay District from coal bed methane development; analyze these impacts and the develop protective lease stipulations, including a prohibition on discharge of produced water and an option to require treatment of produced water prior to reinjection. The EIS should also list the requirements for management of produced water.

Response: For the Western Oregon Plan Revision, Reasonably Foreseeable Developments (RFDs) oil and gas potential impact assessments were prepared for each district (including Coos Bay) (see the Energy and Minerals Appendix). The assessments provide an overview of potential hydrocarbon energy resources within the planning area. Overarching leasing stipulations are also listed in the Energy and Minerals Appendix. The analysis of effects in *Chapter 4* shows how the Reasonably Foreseeable Developments interact with the land use allocations to determine the appropriate lease stipulations. Further assessments of the Coos Bay District coal bed methane development beyond that in the RFDs will be completed in subsequent project-level NEPA. The BLM is not making any decision on whether to proceed to develop coal bed methane under this FEIS. Management of produced water would be addressed through the Department of Environmental Quality's authority, as delegated by the Environmental Protection Agency through the Clean Water Act. The BLM, and state and federal agencies, would be involved in determining measures to mitigate potential impacts to fish and wildlife. Where needed, area-specific leasing stipulations would be augmented at the application for Permit to Drill (APD) level through Conditions of Approvals (COA).

237. Comment: The EIS should be revised to address the fact that vegetation removals (and in particular, logging) exacerbates seasonal extremes of water runoff from watersheds.



Response: The BLM has described the effect of vegetation removal from timber harvest on water runoff in watersheds in *Chapter 3* (Water section). The discussion focuses on stream flows that fill the active channel up to a 6-year recurrence interval event. These are the stream flows most susceptible to having stream forms changed or biological communities negatively impacted from the effects of forest management. It is well known that low flows are increased by forest management (Ziemer 1998, Jones and Grant 1996). However, these stream flows are well contained within the boundaries of the active channel and normally do not have enough stream power to mobilize and carry sediment. Increasing seasonally low stream flows has beneficial effects as well, such as augmentation of water volume to buffer against summertime stream heating. As discussed in *Chapter 3* (Water section), large floods (>6- year recurrence interval event) are not evaluated either because the runoff effects from forest management are overridden by the storm flow volume of runoff, or because the smaller effects of forest management are subsumed by the far larger effects of the storm itself.

238. Comment: The EIS should provide justification for the five representative watersheds that were selected in the analysis. It certainly does not describe Lost Creek on the Middle Fork Willamette, which is an intense rain-on-snow watershed. This needs to be addressed and analyzed in the WOPR.

Response: Representative watersheds were not used in the peak flow analysis. Rather, all subwatersheds (10,000 to 40,000 acres) within the rain-on-snow hydroregion were analyzed for the susceptibility of enhancement of peak flows (refer to *Chapters 3 & 4*, Water sections).

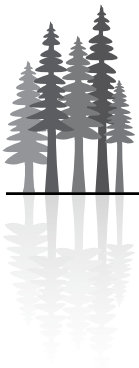
239. Comment: The EIS should take into account the mobility of aquatic corridors over time.

Response: In drainage evolution, the most probable state always exists to satisfy physical requirements. New drainage is built or extended only if erosion exceeds resistance to erosion. Further, geomorphology obeys laws of geometrical proportions for the resulting stream network (Leopold et al. 1964). The rates of channel development within incipient headwater channels are episodic, but slow; changes are certainly not important in a management plan timeline. Meandering rivers or streams can migrate laterally over time, depending on the equilibrium between bed and bank materials, stream slope, width and depth, discharge, and sediment supply (Rosgen 1996). Little lateral movement occurs under most ordinary streamflow conditions, but changes can occur during large flood events, with scour on the convex side of the river or stream and accretion on the concave side. For these unique situations, the FEIS includes delineation criteria for measuring Riparian Management Areas from the ordinary high water line of the channel migration zone.

240. Comment: The EIS should address the fact that Alternatives 2 and 3 would result in substantial, long-term impacts to water quality and exacerbate continued exceedance of water quality standards in streams listed as impaired under Section 303(d) of the Clean Water Act (CWA).

Response: The BLM believes that Alternatives 2 and 3 would maintain water quality just as well as the other alternatives. The BLM has shown in *Chapter 3* (Water section) how the primary and secondary shade zones would maintain effective shade at levels of 80% or higher, which is near potential system shade in most watersheds.

The BLM has cooperated with DEQ regarding Water Quality Management Plans in TMDL watersheds, and many are either approved or in development. These plans specify active or passive restoration and monitoring to coincide with the assigned temperature allocation.



241. Comment: The EIS should address the fact that Alternatives 2 and 3 are not consistent with the TMDL Strategy (Northwest Forest Plan Temperature TMDL Implementation Strategies 2005) and do not meet the terms of the DEQ conditional approval.

Response: The majority of BLM streams are not 303(d) listed for stream temperature, and the management goal along these streams is to meet the applicable DEQ numeric criterion of 64 degrees Fahrenheit in most basins (OAR 340-041). Only a very small portion of BLM streams (<4%) are TMDL listed for temperature. The Riparian Management Areas, including width and retained forest tree density, under all alternatives were designed using the primary elements within the Northwest Forest Plan Temperature TMDL Implementation Strategies 2005 (TMDL strategy), which included a primary and secondary shade zone along summertime waters. Furthermore, the minimum requirements for these Riparian Management Areas under the alternatives were developed using primary science findings contained within the TMDL Strategies (Brazier and Brown 1972) and Shadow Temperature Model iterations.

The BLM adopted the width of the primary shade zone from Table 3 of the TMDL Strategies (referenced above), using the most conservative assumptions (greatest width), as well as the 50% canopy cover recommendation for the secondary shade zone. Therefore, Alternatives 2 and 3 are believed to be entirely consistent with the TMDL Strategy. The BLM has an ongoing agreement with DEQ as a Designated Management Agency for implementation of the Clean Water Act and amendments on BLM-administered lands. This agreement is currently being updated and will be revised to reflect the PRMP Alternative of the FEIS.

The DEQ performed a temperature analysis on Canton Creek, which in BLM's view has some shortcomings. The BLM encourages DEQ to retest Alternatives 2 and 3 along several other forested stream environments using the design for Riparian Management Areas for Alternatives 2 and 3. The Riparian Management Areas would be shown to be effective.

242. Comment: The EIS should discuss the limitations of the Brazier and Brown study, including (1) that the study was done on a small non-random sample of 13 reaches along nine small mountain streams in Oregon; (2) the relationships identified in the study may be subject to artificially high R² values; and (3) the study did not account for the likelihood of riparian corridor blow-down, disease or other factors that reduce angular canopy density. The EIS should also explain the complex nature of the analysis of buffer width.

Response: (1) The 1973 Brazier and Brown study "Controlling Thermal Pollution in Small Streams" does not include information about randomness of the selected sample reaches. The sample reaches were split between two physiographic provinces: the Oregon Coast Range and the Cascades. Although the BLM believes that having two samples are important because overstory and understory forest vegetation type and density varies between regions, the results were remarkably similar. (2) In an effort to remove non-comparable influences, the study did exclude several reaches from the sun blocking (change in heat) and buffer width relationships. As noted by the authors, the overriding topographic influences, stream channel shape, and influence of groundwater within the study reach were separated to derive better comparisons. Whether or not this separation led to artificially high R² values in the regression equations is a matter of opinion; however, the Brazier and Brown study findings were reinforced by combining data sets with the Steinblums et al. (1984) study. (3) Discussion was added to the FEIS regarding riparian corridor blowdown, disease, other forest risk factors, and the effect on shade. The complex nature of riparian forest community types, topography, and stream factors in providing effective shade has been described in *Chapter 3* (Water section).

243. Comment: The EIS should address the conclusions that a 0.2°F increase over 1 mile, and that this is "within the range of natural variability" (DEIS, page 750) would conflict with the TMDL load allocations established for some basins.



Response: In a planning area context, less than 4% of BLM total stream miles are listed on the 303(d) list for temperature, and a lesser subset is covered by completed Total Maximum Daily Loads (TMDLs) load allocations. The most restrictive load allocations given to BLM as a target are 0.1°C (0.18°F) temperature increase, which is nearly equivalent to 0.2°F. For example, the Umpqua Basin TMDL (approved by EPA 04/12/2007) has 0.1°C temperature increase allocated to nonpoint source activities. Further, surrogate measures as effective shade targets for riparian vegetation translate the numeric TMDL allocation. Although these shade targets sometimes exceed 80% in the TMDL, the objective is to stay within the temperature allocation. The BLM has shown how maintaining 80% effective shade would limit water temperature increase to this range (refer to *Chapter 3, Water section*).

Additional points to consider regarding the 0.1°C TMDL allocation level of precision are:

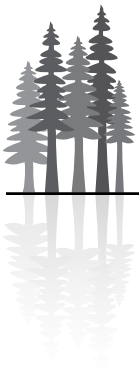
- 1) Stream temperatures increase naturally in a downstream direction, regardless of riparian vegetation removal, and this warming effect is difficult to separate from harvesting effects on stream temperature (Dent and Walsh 1997).
- 2) At this expected level of attainment, stream monitoring studies are inconclusive because the variance of temperature measurement instruments is greater than the variance of the expected results. For example, measurement errors in water monitoring studies can be up to 0.5 °C (0.9°F) different, even when initially calibrated against a National Institute of Standards and Technology (NIST) thermometer. Reasons for the differential may include drift throughout the temperature range due to irregularities in hardware manufacture or programming algorithms, placement in the stream, or other factors.
- 3) Heat losses to stream temperature occur normally (e.g., stream bed conduction or groundwater inflows confound interpretation).
- 4) Proximity factors leading to stream temperature fluctuation over space and time cannot be separated out.

244. Comment: The EIS should analyze the contribution of sediment from a larger portion of the road network and its impacts to water quality. A 1997 study of channel network extension by forest roads in the western Cascades of Oregon found 57% of roads are hydrologically connected to streams (Wemple et al. 1996).

Response: Results for sediment delivery from roads planning criteria (refer to FEIS, *Appendix I-Water*) estimate that 36% of all roads on BLM-administered lands are within the likely sediment delivery distance. All streams mapped on the BLM GIS streams layer (updated prior to the Western Oregon Plan Revision) received a 200-foot sediment delivery buffer, and then the GIS roads layer was merged with the common areas of the streams and the sediment delivery data layer. This 200-foot coverage was based on the results of research within different geologies, and for different parts of the road corridor (cutslope, travelway, ditchline, fillslope) where mean sediment travel distances range from 12 feet to 126 feet (refer to *Chapter 3, Water section*).

The commenter notes that Wemple et al. (1996), in a study in the Cascades, found that 57% of all roads surveyed drained to stream channels. However, this study also reveals that 34% of the roads surveyed actually drain to stream channels, but the remaining 23% were ditch relief culverts draining to a gully that traveled a minimum of 35 feet below the road. The study notes that most of these gullies are discontinuous and do not link with a stream. Inasmuch as the emphasis of this paper focuses on the hydrologic implications of extension of stream channels by roads and not sediment delivery, it is inappropriate to use these results in the FEIS because there is not a sediment travel pathway from a discontinuous gully to a flowing stream.

Another monitoring study in western Oregon, where road systems were randomly sampled in watersheds within five physiographic provinces, found that for 285 miles of forest road, 25% drained directly to streams and another 6% were rated as possible (Skaugset and Allen 1998). The BLM estimation of road length with



stream connectivity, although calculated differently, appears to be very similar to research and monitoring findings. Therefore, the BLM maintains that the portion of the road network analyzed is appropriate.

245. Comment: The EIS conclusions regarding water quality in relation to source water are flawed because they are inconsistent with DEQ/ODF Sufficiency Analysis February 28, 2001. The RMA boundaries and no cut zones along perennial streams under Alternatives 2 and 3 are similar to prescriptions in place on private lands that EPA, NMFS and USFWS have found are not sufficient to protect water quality and restore salmonid fisheries. We recommend the proposed action in the FEIS maintain the network of key watersheds as mapped under the No Action Alternative and continue to manage those areas consistent with direction obtained from watershed analyses and source water protection plans.

Response: The comparison of BLM Alternatives 2 and 3 to the DEQ/ODF Sufficiency Analysis and evaluation of Oregon Department of Forestry forest practices is not appropriate because the management prescriptions are far different. The commenter suggests that the boundaries of the Riparian Management Areas along perennial and intermittent streams under Alternatives 2 and 3 are similar to the Oregon Department of Forestry forest practices. However, there are large differences. The DEQ's source water guidance defines sensitive zones along streams within an eight-hour travel time to the withdrawal point of a public water supply, rather than whole watersheds (even if mapped for location purposes). Oftentimes, the entire sensitive zone or source water protection area is downstream of BLM-administered lands, or within perennial stream areas on BLM-administered lands, where the widths of Riparian Management Areas under the alternatives vary from 100 feet to approximately 440 feet.

Source water watershed locations have little correlation with key watersheds developed under the Northwest Forest Plan. Source water watersheds should be managed consistent with source water protection plans when they are developed. The FEIS concludes that streams contributing to source water sensitive zones from BLM-administered lands are adequately protected by BLM actions based on:

- a pattern of lands that are distant relative to many public water supply intakes
- Riparian Management Area designs that retain the functionality of stream systems and are expected to maintain water quality
- Best Management Practices that would be applied during projects where the objective of maintaining water quality is not expected to be attained

246. Comment: The EIS should be revised to ensure that the cumulative impacts of existing conditions and proposed actions on peak flows are analyzed and disclosed from soil compaction caused by grazing.

Response: Livestock grazing is currently allocated on approximately 560,000 acres in the Medford District and Klamath Falls Resource Area. However, under the PRMP Alternative in the FEIS, grazing authorizations would decrease to approximately 419,000 acres, which is a net reduction of 25% of the current grazing lands. The decrease represents allotments that are vacant and not currently grazed. Livestock distribute unevenly on the range resource, often being controlled by topography and the availability of water. For example, cattle and horses both generally prefer grazing on slopes less than 20%, unlike deer (Ganskopp and Vavra 1987). During the growing season, there is a propensity for increased grazing in riparian areas because of the low slopes, increased forage, and close availability of water.

Riparian areas in rangeland systems often comprise less than 5% of the watershed area. Within an allotment, compacted areas could occur from livestock hoof action. There is an array of variables including the type of livestock, season of use, and grazing system. Also, livestock may congregate on susceptible soils that lack adequate ground cover during wet conditions. The effects of livestock that may compact the ground surface are correlated with vegetation and soil properties. Different vegetation types show variation in responses



to hoof action, which could affect the impacts of livestock on riparian areas (Kauffman et al. 1983). The proportion of sand, silt, and clay in soils determines their water-holding capacity and surface firmness during wet conditions.

Although there is an intuitive causal mechanism, the BLM is unaware of any specific range studies demonstrating livestock compaction and an effect on peak flows. This lack of specific studies may be due to livestock habits and livestock management in a watershed, where total compacted area is too limited to measure an effect.

Grazing evaluations done to determine specific effects are best performed at the project level. The BLM will manage livestock grazing in accordance with the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington*. General guidelines include providing adequate vegetation and plant residue cover to promote infiltration, promoting surface soil conditions that support infiltration, and avoiding sub-surface soil compaction that retards movement of water in the soils. The FEIS closures of 25% of the analysis area rangelands, along with management and planned improvements of livestock fences and off-stream water development would have a beneficial effect on further reducing livestock compaction (see *Chapter 4, Grazing* section).

247. Comment: The EIS should be revised because the action alternatives would violate the Clean Water Act, as water quality management plans for 303(d) listed streams on BLM land would no longer be valid because the criteria and standards from the ACS would no longer apply to BLM lands with the WOPR action alternatives.

Response: The Aquatic Conservation Strategy (ACS) as defined under the Northwest Forest Plan does not confer any water quality standard. The BLM finds that ACS objectives are goal statements or concepts that cannot be reasonably measured under forest plan spatial and temporal scales. Where possible, important elements of the ACS objectives have been retained within the design of the alternatives and within Riparian Management Areas in the action alternatives. The environmental conclusions for the PRMP Alternative and other alternatives (including the No Action Alternative with ACS) in the FEIS, are that the alternatives meet water quality standards and nonpoint source TMDL waste-load allocations and, therefore, would not violate the Clean Water Act.

Currently, it is BLM's understanding that approved TMDLs by the Department of Environmental Quality and the Environmental Protection Agency, and appurtenant Water Quality Restoration Plans (WQRP), do not have provisions for updating when agency land management plans change. However, the BLM's portion of the nonpoint source TMDL waste-load allocations do not change, nor does the BLM commitment to maintain water quality. As a designated management agency, the BLM is working with the Department of Environmental quality to update WQRPs to reflect how BLM will meet the nonpoint source TMDL allocation.

248. Comment: The EIS conclusion (DEIS, page 723) that alternatives other than 2 and 3 would not result in increases in stream temperature that would affect fish habitat or populations is flawed because it conflicts with watershed analysis of Sucker Creek drainage in Josephine County that stream temperatures would increase due to Port-Orford-cedar mortality. Stream temperature analysis in the DEIS (page 756) is flawed because it does not take into account mortality of Port Orford cedar.

Response: *Chapter 4* (Fish and Water sections) have been clarified in the FEIS to show that the BLM conclusions regarding effective shade levels and effect on stream temperature do not include riparian areas along waterbodies with infected or infested Port-Orford-cedar (POC) forest stands. The mortality of Port-Orford-cedar within riparian areas has been previously analyzed under the FSEIS for *Management of Port-*



Orford-Cedar in Southern Oregon (2004). The Port-Orford-cedar infestations are limited to no more than 40 feet downslope from roads, except where streams or wet areas are present to facilitate further movement (Goheen et al. 1986). Further, Port-Orford-cedar infestations occur lineally, close to the stream channel. In a downstream direction, high risk vectors for Port-Orford-Cedar spread include water flowing in stream channels and connected off channel areas and floodplains. Predicted stream temperature increases from Port-Orford-cedar mortality were modeled within the Port-Orford-cedar FSEIS (Appendix 9). Results show that for small and large watersheds, temperature increases of no more than 0.5 to 1.2 °C per mile would occur where the first 15 feet of the stream-side stand is killed.

249. Comment: The DEIS analysis of OHV activity is flawed because it fails to adequately address point and non-point source discharge resulting from OHV use and the effects of OHV use on water quality, particularly drinking water.

Response: The FEIS recreation management actions for off-highway vehicle area designations (refer to *Chapter 2*, Alternatives section) indicate no acres in the “open” use designation, an increase from 2,156,712 acres to 2,373,908 acres in the limited designation, and an increase in the “closed” designation from 84,589 acres to 98,795 acres when comparing all alternatives against the No Action Alternative. For the action alternatives, *Chapter 4* (Water section) has been corrected to show that these off-highway vehicle designations would have a positive impact on water quality compared to the No Action Alternative. This is because there is no open acreage where OHV traffic is allowed to have indiscriminate pathways across the land nor unrestricted access and crossing of streams. Within the largest designation of “limited,” off-highway vehicles are restricted to existing roads and trails, and this acreage has been increased. The Best Management Practices for soil and water protection (*Appendix I-Water*) include more than 15 measures for off-highway vehicles. These conservation practices are expected to maintain water quality and are applied at the site level, where needed, regardless of whether the area is within a source water watershed or within the Timber Management Area.

250. Comment: The EIS should be revised to include an operational definition of Channel Migration Zone.

Response: Channel migration zone has been added to the glossary. It is the extent of lateral movement of a river across a floodplain toward the convex side of an original curve.

251. Comment: The EIS should explain how the BMPs outlined in the EIS are different from existing BMPs in order to allow a comparison of effectiveness in preventing resource damage.

Response: The BLM chose a Best Management Practice (BMP) framework in the FEIS that displays, side by side, a BMP by forest activity category, causative mechanism, and applicable water quality standards (see *Appendix I-Water*). This logic path shows potential pathways for nonpoint source pollution to affect water quality, the reference water quality standard, and the Best Management Practices that are expected to control such impairment. In contrast, past plans show objectives for categories of forest practices and corresponding Best Management Practices expected to minimize water quality degradation. However, in the past plans, primary causative mechanisms are not identified nor are the expected attainment level to maintain water quality.

The Best Management Practices in the FEIS, including those from past plans, were selected by resource professionals and determined to be effective through field trials or monitoring. A soil and water interdisciplinary team (IDT) compiled the Best Management Practices for the FEIS by reviewing BMPs in each district’s current (1995) resource management plans. Those Best Management Practices that, in practice, are highly effective were included in the FEIS. The BMPs that showed marginal benefit through



implementation or effectiveness monitoring, or professional experience, were not included in the FEIS. Furthermore, some Best Management Practices have been modified or deleted altogether due to improvements in forest technology, equipment, and methods or erosion control materials.

Each interdisciplinary team member worked individually on a specific category of forest practices and corresponding Best Management Practices; therefore, the merged lists cannot be easily disentangled to show additions or deletions from past plans. However, Best Management Practices were only included in the FEIS when there was consensus among the interdisciplinary team members following review. In some cases, these Best Management Practices were further modified where internal cooperators or public comments indicated revising them for clarity, or to address situations where Best Management Practices may have been overlooked.

Fire and Fuels

252. Comment: The EIS should disclose the degree of confidence in their estimates of how many trees might die post-fire, and the risk and consequences of false positive findings of tree mortality.

Response: Analysis of the effects of such disturbances prior to their occurrence and the possible associated salvage would require making so many speculative assumptions regarding specific circumstances that the conclusions of the analysis could not be used to make reasonably informed decisions regarding management action. Such detailed analysis is only possible after fire occurrence when specific circumstances can be analyzed. Determination of post-fire mortality is done after analysis of site-specific information such as fire severity, scorch height, species, and diameter of trees that were burned.

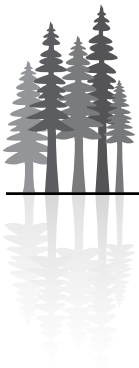
253. Comment: Table 213 of the DEIS should be revised to include another important principle of fire resiliency which is that an ample canopy cover helps provide cool, moist and less windy conditions and helps suppress the growth of ladder fuels.

Response: The EIS acknowledges the role of canopy cover in fire resiliency. Table 213 in the DEIS relates structural stages to various principles of fire resiliency. The amount of canopy cover cannot be derived from BLM data bases or structural stage information. The EIS acknowledges that a complete and detailed assessment of fire hazard and fire resiliency is dependent on site-specific stand conditions including canopy density, which cannot be modeled at the scale of analysis necessary for the Western Oregon Plan Revision.

254. Comment: The EIS should be revised to include wildfire modeling within the alternatives analysis.

Response: A detailed modeling of wildfire is dependent on many variables (e.g., location and weather conditions); therefore, such analysis would be so speculative as to have little utility. In addition, detailed modeling of wildfire behavior requires site-specific information that is unavailable at the scale of analysis of the Western Oregon Plan Revision. The analysis in the EIS is based on fire behavior models. Specific fire behavior models have been assigned to the various structure classes to provide examples of the surface fire behavior that can be expected from each structure class. This process facilitates the analysis of long-term effects on surface behavior between various alternatives as structure classes change over time.

The level of detail in the data is not sufficient to allow modeling with change over time by a more sophisticated model such as Flammap. The Flammap model, which would be necessary to model crown fire behavior, requires site-specific information. This type of fire behavior modeling is more appropriate at the landscape or project level. The analysis in the DEIS revealed the need to develop a silviculture prescription in the high fire frequency areas of Medford and Klamath Falls to address fire hazard and fire resiliency. The



application, in the PRMP Alternative in the FEIS, of an uneven-age management prescription and area to which the prescription would be applied is a result of the information gained through analysis completed in the DEIS.

255. Comment: The EIS should analyze the impacts that increased fire risk would have on habitats and resources of concern. The EIS should take into consideration the following when determining the distribution of fuel treatments: the topographic diversity of the WOPR planning area and its unique weather patterns during fire season.

Response: The EIS analyzed fire severity, hazard and resiliency and also ranked the alternatives in terms of these factors. The analysis in the EIS included consideration of diversity within the planning area and unique weather patterns. Accordingly, the analysis was separated into different geographic areas to more effectively address topographic and weather conditions. In *Chapter 3* of the EIS, the burning index (degree of fire behavior) is discussed as a function of weather patterns. The EIS analysis addresses the importance of height to live crown and canopy base height. In addition, the significance of tree diameter and basal area were considered. Management direction was incorporated into the PRMP Alternative in the FEIS to address the dry forests of Medford and Klamath Falls in acknowledgement of fire risk to habitat and resources of concern.

256. Comment: The EIS should be revised to consider the effects altered fire regimes and increases in disturbance by fire will have on forest species. The EIS currently discloses the changes to fire regimes under the action alternatives but does not analyze impacts to biodiversity, listed species, big game, or other species.

Response: The Draft EIS analyzed the effects on listed species, big game, and other species that would result from the same changes in vegetation conditions that would result in changes in fire severity and fire hazard ratings. This analysis was included in the wildlife, botany, and fish sections. However, the Draft EIS did not specifically analyze the effects of future wildfires on species. The Draft EIS identified that there is inadequate information to predict the location, timing, severity, and extent of future wildfire. Additional discussion has been added to the Final EIS to provide more description of the general effects of wildfire.

Recreation, Wilderness, Wilderness Characteristics, Off Highway Vehicles

257. Comment: The EIS should be revised to explain the apparent contradiction concerning OHV designated areas. The planning document states that all alternatives would reduce the amount of OHV areas, but the EIS itself states that all alternatives would increase opportunities for OHV use.

Response: The action alternatives reduce the amount of acres of areas where motorized vehicles are permitted to travel cross country off existing trails (open areas). Due to the terrain and dense vegetation that characterizes much of the planning area, most OHV use occurs on existing trail surfaces. The change in designation from “open” to “limited” would not by itself result in a reduction of off-highway vehicle opportunity, since during the interim period before route designation, all existing routes would continue to be available for use. The determination of which of these existing trails would remain open for OHV recreation will be determined at a later date through the Comprehensive Travel Management Plans that will be completed after the plan revision is finalized.

Compared to the No Action Alternative, the action alternatives in the FEIS (including the PRMP Alternative) increase the number of areas in the planning area where off-highway vehicle recreation would be emphasized and receive focused management. The No Action Alternative has 3 OHV emphasis areas,



and there are between 4 and 17 under the action alternatives. The perceived contradiction may be explained by the fact that OHV Emphasis Areas and Special Recreation Management Areas that focus on off-highway vehicle recreation improve OHV opportunity by enhancing the quality of the recreation experience through trail maintenance and other management activities, while at the same time reducing the areas open to unregulated OHV use.

258. Comment: The EIS should be revised to examine additional areas for wilderness characteristics. On the Medford District, the Wellington Mountain/Long Gulch, Dakubetebe, Wild Rogue (including the Whiskey Creek area) and the Enchanted Forest roadless areas are all over 5,000 acres in size and should be protected as Wilderness Study Areas (WSA) like the Soda Mountain WSA. Failure to consider these areas as WSAs using updated inventories violates FLPMA. The BLM must assess the wilderness qualities in the WOPR and include the information in the EIS, regardless of whether the BLM believes that the areas are exempt from wilderness review due to the presence of O&C lands. See *Portland Audubon Society v. Lujan*, 998 F.2d 705, 709 (9th Cir. 1993) (NEPA was “passed after the O&C Act” and it applies “to all governmental actions having significant environmental impact, even though the actions may be authorized by other legislation”); *Portland Audubon Society v. Lujan*, 795 F.Supp. 1489, 1507 (D. Or. 1992) (“There is not an irreconcilable conflict in the attempt of the BLM to comply with both NEPA and the O&C Act”).

Response: The Department of the Interior, Bureau of Land Management completed the wilderness review of public land in Oregon as required by the Federal Land Policy and Management Act (FLPMA) on October 7, 1991. The Oregon and California Railroad Company lands (O&C lands) were exempted from the wilderness review by the provision in Section 701 (b) of FLPMA that directs that the management of timber resources shall prevail on lands administered under the O&C Act when a conflict or inconsistency arises between the two Acts. The designation of wilderness study areas (WSAs) through the wilderness inventory and study process, and the subsequent management under the non-impairment standard required by FLPMA, was determined to be inconsistent with the management of these areas for timber resources. The BLM’s authority to designate additional lands as Wilderness Study Areas expired on October 21, 1993 as affirmed in the agreement that BLM settled in *Utah v. Norton*.

The BLM may accord management protection for special values, including wilderness characteristics, through the land use planning process by the designation of Areas of Critical Environmental Concern and Special Recreation Management Areas, to the extent such designations are consistent with laws, regulations, and the resource management plan. The areas cited in the comment were evaluated by the Medford District to determine if they contained wilderness characteristics. Dakubetebe and Whiskey Creek were found to contain wilderness characteristics that included naturalness and were selected for ACEC designation in the PRMP Alternative in the FEIS. Wellington Mountain/Long Gulch was found to have outstanding opportunities for primitive and unconfined recreation, but did not warrant designation as a Special Recreation Management Area. The Enchanted Forest unit was not found to possess any wilderness characteristics.

259. Comment: The EIS should be revised to address all eligible and suitable Wild and Scenic Rivers, including considering potential additions and how the rivers would be protected.

Response: The eligibility determinations and suitability studies for all potential Wild and Scenic Rivers in the planning area were completed as part of each BLM’s 1995 district resource management plans. New eligibility determinations and suitability studies would only occur if the BLM were to acquire additional acreage along potentially eligible rivers that warrant further study.

260. Comment: The EIS should be revised to include the Wild Rogue Additions for wilderness recommendation because the BLM itself noted the value of the large roadless areas for aesthetics, solitude,



undeveloped recreational opportunities, wildlife, fisheries, water quality, and the intrinsic value of having wild, undeveloped places (see Version 2.0 of this analysis, issued in December 1999 and available online: http://www.blm.gov/or/districts/medford/plans/files/wild_rogue_north_wa_acc.pdf).

Response: The BLM completed the wilderness review of public land in Oregon as required by the Federal Land Policy and Management Act (FLPMA) on October 7, 1991. Much of the Oregon and California Railroad Company lands (O&C Lands) within the Wild Rogue Additions proposal were exempted from the wilderness review by the provision in Section 701 (b) of FLPMA that directs that the management of timber resources shall prevail on lands administered under the O&C Act when a conflict or inconsistency arises between the two Acts. The designation of wilderness study areas (WSAs), and the subsequent management of O&C lands under the non-impairment standard required by FLPMA, was determined to be inconsistent with management of these areas for timber resources. Currently, it is not possible for the BLM to designate additional lands as Wilderness Study Areas nor to recommend lands for designation as wilderness since the BLM's authority to designate WSAs expired on October 21, 1993, as affirmed in the agreement that BLM settled in *Utah v. Norton*.

The BLM may accord management protection for special values, including wilderness characteristics, through the land use planning process by the designation of Areas of Critical Environmental Concern and Special Recreation Management Areas, to the extent such designations are consistent with laws, regulations, and the resource management plan. The areas cited in the comment were evaluated by the Medford District to determine if they contained wilderness characteristics. Dakubetebe and Whiskey Creek were found to contain wilderness characteristics that included naturalness and were selected for ACEC designation in the PRMP Alternative in the FEIS. Wellington Mountain/Long Gulch was found to have outstanding opportunities for primitive and unconfined recreation, but did not warrant designation as a Special Recreation Management Area. The Enchanted Forest unit was not found to possess any wilderness characteristics.

261. Comment: The EIS should consider and disclose the effects of the action alternatives on State Scenic Rivers, including the area of O&C lands within state scenic river corridors and the effects of the proposed action on these rivers, and whether or not BLM would need a permit to comply with requirements related to these rivers.

Response: The EIS analyzed the effects of the action alternatives on all river segment corridors that are designated, suitable, or eligible for inclusion in the National Wild and Scenic Rivers System on the lands administered by the Bureau of Land Management within the planning area. The analysis examined the effects of the alternatives on 78 river corridors that were a 0.25-mile wide on each side of each river segment. These river corridors overlap with the eight State Scenic Waterways that have been designated within the planning area.

262. Comment: The EIS should be revised to address the enforcement and management challenges, such as the need to increase police funds and staff, which are likely to arise due to the planned increase in OHV emphasis areas with the implementation of any of the action alternatives.

Response: Operations and maintenance issues are implementation level concerns that are addressed by recreation area plans rather than at the resource management plan level. The EIS includes an overall estimate of the BLM staffing and budgets that would occur under the alternatives.



263. Comment: The DEIS analysis of the Anderson Butte OHV Emphasis Area is flawed because it does not consider effects on the complex mosaic of ecosystems on the south slopes of Anderson Butte and because it ignores the fact that 11,094 acres of designated Deer Habitat Management Area, also known as critical deer winter range are within the 11,742-acre Anderson Butte OHV Emphasis area.

Response: The Anderson Butte area has been designated for only limited motorized vehicle use on designated routes and trails in order to limit environmental impacts from OHV use. The routes and trails that will be open to motorized vehicle use will be determined through development of a Comprehensive Travel Management Plan and associated environmental analysis, as appropriate, which will be completed after the Western Oregon Plan Revision Record of Decision.

The designation of these routes and trails will be consistent with the criteria outlined under BLM's regulatory requirements in 43 CFR 8342.1. These designation criteria require that trails be located so as to:

- (a) Minimize damage to soil, watershed, vegetation, air or other resources of the public lands.
- (b) Minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.
- (c) Minimize conflicts between off-road vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.

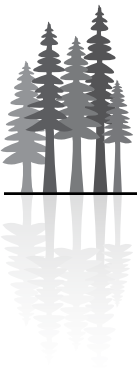
264. Comment: The EIS should be revised to explain why it predicts a 27 percent increase in non-motorized recreation and a 5 percent increase in motorized recreation, but does not focus on how the action alternatives would foster providing quality areas for non-motorized recreation.

Response: Most of the potential recreation trails and potential recreation sites in the 1995 resource management plans would be carried forward under the action alternatives, and 26 new potential recreation sites and 29 new potential recreation trails would be identified. Most of these sites and trails would provide benefits to support non-motorized recreation in recognition of the growing demand for these opportunities throughout the planning area.

265. Comment: Appendix K of the EIS should be revised to clarify the criteria used to define wilderness characteristics. Appendix K currently specifies that the wilderness characteristics must be in a roadless area of 5,000 acres, or a smaller roadless area of sufficient size to make its preservation practical, or adjacent to a U.S. Forest Service roadless area such that the combined acreage is a minimum of 5,000 acres (K-1257). Appendix K goes on to assert that the "size of the roadless area is a critical factor in the determination of the presence or absence of individual wilderness characteristics, since such characteristics are dependent on the sufficient size of the roadless areas (K-1258)." This latter statement is entirely circular and inconsistent with BLM's current guidance.

Response: The BLM's current policy outlined in Instruction Memorandum No. 2003-275, Consideration of Wilderness Characteristics in Land Use Plans, makes no mention of minimum size criteria as a precursor to determining if an area possesses the wilderness characteristics of naturalness; outstanding opportunities for primitive and unconfined recreation; and outstanding opportunities for solitude. For the purposes of establishing objective scale, roadless areas of at least 5,000 acres are generally considered large enough to support the wilderness characteristics of naturalness, outstanding opportunities for primitive and unconfined recreation, and solitude. However, there are four exceptions in which smaller areas can be considered to meet the minimum size criteria:

- (1) Roadless areas that represent an unusual situation when they are less than 5,000 acres, but because of their topography, vegetative screening, or other features are considered large enough to provide for preservation and use in an unimpaired condition.



- (2) Roadless islands of any size.
- (3) Roadless areas that are contiguous with a Wilderness Area managed by BLM or another agency.
- (4) Roadless areas that overlap the boundary of another agency when the BLM portion is less than 5,000 acres, and the other agency has authority to manage components of the National Wilderness Preservation System (Forest Service, National Park Service, U.S. Fish and Wildlife Service).

The *Wilderness Appendix* has been revised to clarify this distinction in the evaluation criteria.

Soil

266. Comment: The EIS should include an analysis that quantifies the magnitude of road-related sediment sources. The EIS should identify sites for road upgrades and/or restoration treatment in order to mitigate these effects. These predictable and definable sediment sources are found all along the 14,000 miles of existing forest roads in the Plan area and the EIS fails to address these ongoing threats.

Response: The analysis identifies the potential delivery of fine sediment by existing and proposed roads, and the magnitude of the effects are described in terms of tons/square mile/year. These estimates are based on the road surface type for each fifth-field watershed and summed for the planning area.

The identification of specific road upgrades and restoration treatment of 14,000 miles of roads within the planning unit is not practicable in the large scale analysis of the Western Oregon Plan Revision effort. Specific road upgrades or restoration treatments will be addressed through the site-specific analysis and planning associated with implementing the approved RMP.

267. Comment: The EIS should be revised to identify the cumulative impacts of all sources of sediment and not adopt the reasoning that one sediment source will mask other sources.

Response: The risks of sedimentation are described in the EIS. The EIS does not assert that one source of sediment will “mask” the effects of another. However, based on a review of the literature, the EIS states that it appears road runoff and landslides in the planning area are the primary sources of sediment in terms of the volume of material moved. The EIS has estimated the potential delivery of fine sediment by road runoff in terms of tons/square mile/year for the planning area in the Water section of *Chapter 4*. This estimate is based on a reasonable assumption of the soils and geology the roads will be built on. The analysis in the EIS estimated the impacts of sedimentation from all sources that would occur in the event no revision of the plans are made. The analysis then compared that to the sedimentation that would occur for each of the action alternatives under detailed consideration. The difference in sedimentation impacts between the No Action Alternative and each of the action alternatives is the incremental effect (i.e., the cumulative effect of each of those alternatives).

Grazing

268. Comment: Grazing reduces the density and vigor of grasses that usually outcompete tree seedlings, leading to dense stands of fire-prone small trees. Cows also decrease the abundance of fine fuels that are necessary to carry periodic, low intensity fires. This reduces the frequency of fires, but increases their severity (Belsky and Blumenthal 1997, Wuethner 2003). The EIS should be revised to further analyze these livestock grazing effects on forest health, as well as outline possible mitigation measures to avoid these negative effects.

Response: All alternatives provide for the control of tree density through thinning to prevent the development of over-dense forest stands and to reduce fire hazard.



The commenter cites references that suggest grazing reduces the density and vigor of grasses leading to dense stands of fire-prone small trees. The conclusions in those studies are not applicable, because they are based on circumstances that do not currently exist on BLM-administered lands in the planning area and practices that would not occur under any of the alternatives. In addition, recent studies (Hosten 2007) in southwest Oregon suggest that native perennial grasses have increased in response to improved management of livestock and, therefore, livestock grazing is not playing a major role in altering forests (grazing on BLM-administered lands only occurs in southwest Oregon).

Areas of Critical Environmental Concern

269. Comment: The EIS should be revised to provide justification and analysis for removal of the existing Baker Cypress Area of Critical Environmental Concern (ACEC). The Baker Cypress meets the importance and relevance criteria for an ACEC, yet it's being removed under all action alternatives.

Response: The BLM would manage ACECs where their management would not conflict with sustained yield forest management in areas allocated to timber production on O&C lands. The Baker Cypress ACEC continues to meet the relevance and importance criteria; however, it occurs within the Timber Management Area land use allocation under all action alternatives, and the special management attention required to maintain the relevant and important values conflicts with the purpose and need described in *Chapter 1* of the EIS for managing the O&C timberlands.

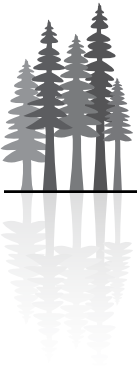
270. Comment: The EIS should be revised to provide justification and analysis for removal of the existing Sterling Mine Ditch ACEC. This area includes an important trail, historic mining trail and special status plants, yet no justification is provided from removing the ACEC.

Response: The Sterling Mine Ditch was incorrectly included on Table 285 in the DEIS appendices. The Sterling Mine Ditch is protected under the National Historic Preservation Act as eligible for listing and, therefore, does not require special management attention through designation as an ACEC.

271. Comment: The EIS should be revised to clarify how the Crabtree Valley ACEC will be managed under Alternative 2. The Alternative 2 map shows the entire ACEC/Research Natural Area (RNA) as administratively withdrawn, but Appendix M in the DEIS says the ACEC without O&C lands will be managed as an ACEC. This means everything outside of section 16 (which is public domain), would be part of the timber base and not specially managed to maintain or enhance R&I values. In addition, the DEIS (page 807) states that all RNAs would be retained.

Response: The Crabtree Complex Research Natural Area (RNA)/Outstanding Natural Area (ONA) encompasses two existing RNAs (Shafer Creek and Carolyn's Crown) and the existing Crabtree Lake ONA. Appendix M includes these three areas under the Crabtree Complex RNA/ONA. The two RNAs would continue to be retained under all alternatives in their entirety. The Crabtree Lake ONA includes Timber Management Areas that are on O&C lands under Alternatives 2 and 3; only the areas outside of the Timber Management Area within the O&C lands area would be designated under these alternatives.

272. Comment: The EIS should be revised to include the Jimbo Mountain and Marten Creek ACEC under Alternative 2 because the area has been found to meet ACEC eligibility criteria, and it requires special management attention to protect its important and relevant values. This status is needed to protect the area's late-seral and old-growth habitat from inappropriate logging practices (allowed in the AMA designation under the NWFP) that would degrade or destroy these special values.



Response: Jimbo Mountain and Marten Creek are included within the boundaries of the proposed Lower Elevation Headwaters of the McKenzie River ACEC. Jimbo Mountain and Marten Creek were not analyzed as a separate ACEC. The Lower Elevation Headwaters of the McKenzie River occur within the Timber Management Area on O&C lands under all action alternatives, and the special management attention required to maintain the relevant and important values conflicts with O&C timber management.

273. Comment: The EIS should be revised to provide justification why proposed ACECs did not meet the relevance and importance criteria and subsequently were not included in the EIS.

Response: The proposed ACECs in each BLM district were reviewed by district staff against the eligibility criteria. The reason that proposed ACECs were not given ACEC status under the action alternatives is because they did not meet criteria for importance and relevance; did not need special management attention; or conflicted with sustained yield timber management on O&C lands. The documentation of the reviews by district staff is part of the administrative record.

274. Comment: The EIS should be revised to include an analysis of the impacts associated with removing ACEC designations in the Eugene District (specifically Coburg Hills and Dorena Lake Relic Forest Islands, Cougar Mountain Yew Grove, and Cottage Grove Old-Growth Environmental Education Area) under Alternative 2, because removing designations is contrary to the 1995 ROD. The ROD states, “Preserve, protect or restore native species composition and ecological processes of biological communities in ACEC. ACEC, especially RNA, will be available for short or long term scientific study, research and education and will serve as a baseline against which human impacts on natural systems can be measured.”

Response: The 1995 record of decision is being revised in this decision, and subsequent revisions of plans are not required to comply with the plan they are revising. Such a rule would prevent any plan from ever being changed once adopted.

The BLM would manage ACECs on O&C lands where management of the ACEC would not conflict with sustained yield forest management in areas dedicated to timber production. All RNAs, regardless of land status, are retained in all action alternatives since their scientific value is relevant to sustained yield forest management. Several Areas of Critical Environmental Concern that are on O&C lands (including Coburg Hills and Dorena Lake Relic Forest Islands, and Cougar Mountain Yew Grove) and that are not also Research Natural Areas occur within the Timber Management Area under one or more action alternatives. Special management attention required to maintain the relevant and important values of these areas conflicts with the purpose and need described in *Chapter 1* of the EIS for managing the O&C timberlands.

The Cottage Grove Old Growth Environmental Education Area (EEA) was incorrectly included on the ACEC table in Appendix M of the DEIS. This area will continue to be managed as an EEA and is included in the Recreation section in the Final EIS.

275. Comment: The proposed Waldo-Takilma ACEC boundary should be revised to include sections 26 & 36 (T4OS, RO5E) on the slopes of Hope Mountain; in Section 3 (T4IS, RO5E) on the saddle between Scotch and Cedar Gulches; and in Section 10 (T41 S: RO5E) on the east side of Takilma Road across from Long Gulch, because they do not appear to be included. These areas are as worthy as the recommended ones and their inclusion will strengthen the ACEC in retaining its outstandingly remarkable ecological and historical attributes.



Response: The DEIS maps did not show the entire proposed Waldo-Takilma ACEC boundary. This has been corrected in the Final EIS. It is likely that the commenter mistakenly listed the wrong range for these areas since Range 5 East is in California. The disjunct parcels included in the proposed Waldo-Takilma ACEC are located in Township 40 South, Range 8 East, Sections 26 and 35 (Section 36 is privately owned) and Township 41 South, Range 8 East, Sections 3 and 10.

276. Comment: The EIS should designate the “Low Elevation Headwaters of the McKenzie River” ACEC for recreational, scenic, and wildlife values.

Response: The proposed Lower Elevation Headwaters of the McKenzie River ACEC occurs within the Timber Management Area on O&C lands under all action alternatives. The special management attention required to maintain the relevant and important values conflicts with the purpose and need described in *Chapter 1* of the EIS for managing the O&C timberlands.

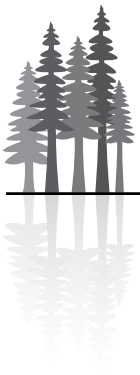
Cultural

277. Comment: The EIS should be revised to state that any land transfers/disposals within the original boundaries of the Siletz (Coast) Reservation should be initially offered to the Confederated Tribes of the Siletz Indians, because it is the tribe’s position that the intent of the 1855 Executive Order was to create as permanent the Siletz (Coast) Reservation.

In addition, the EIS should be revised to recognize the Confederated Tribes of the Siletz Indians in the following ways:

1. Since several of the parcels identified for disposal are within one of the four areas in which the Siletz Tribe has an interest in acquiring land, it is suggested that the language be revised to read, “Suitability of the land for management by another Federal agency or Federally Recognized Indian Tribe” instead of “Suitability of the land for management by another Federal agency.”
2. Add a criterion to this section that reads “Disposal assists a Federally Recognized Tribe in restoring its land base pursuant to the Indian Reorganization Act 25 USC 465.”
3. Add a fifth criterion for disposal: “Disposal would be beneficial to the Federally Recognized Indian Tribe with the strongest ancestral and legal successorship ties to the parcels in question.”

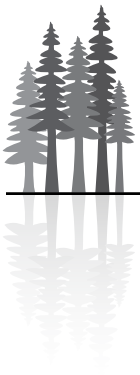
Response: The BLM will follow the land disposal process as set forth in 43 USC 1713 (Federal Land Policy and Management Act of 1976), Title 2, Sec. 203 – 214. The Secretary does have authority, under 25 USC §450j(f), to donate real property found to be in excess of the needs of the Federal government.





Comment Letters From Congressional Representatives, Indian Tribes, and Government Agencies

On the following pages are the comment letters that the BLM received from congressional representatives; federal, state and local governments; and Indian Tribes.





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COMMITTEE ON ENERGY AND NATURAL RESOURCES
SUBCOMMITTEE ON PUBLIC LANDS AND FORESTS
SPECIAL COMMITTEE ON AGING
SELECT COMMITTEE ON INTELLIGENCE
COMMITTEE ON FINANCE

September 25, 2007

Ed Shepard
State Director
Bureau of Land Management
333 S.W. 1st Avenue
Portland, Oregon 97204

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State Director's Office

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Dear Mr. Shepard:

I have heard from County Commissioners and other constituents from several Oregon O&C counties regarding their concerns about the limited opportunity for meaningful public review and comment for the Western Oregon Plan Revisions (WOPR). Due to their concerns, and the breadth, complexity and importance of this proposal, I am writing to support their requests for a 120 day extension of the review period.

The WOPR is a voluminous document with huge implications for Oregon and the Pacific Northwest. Over 1,600 pages are included in the Draft Environmental Impact Statement, including 310 tables, 348 figures and 35 maps. Not only is this a massive document that is complex for the public to read, assess and analyze, the conclusions in the WOPR DEIS rely on additional maps, models and related GIS files. The substantial amount of material and data makes it challenging for both elected officials and the public-at-large to provide a thoughtful review within the 90-day comment period. In addition, it has come to my attention that several public outreach sessions were moved with limited notice, resulting in interested parties being denied the opportunity to participate. This underscores the need for additional time for further review and participation in the public process.

I know that a great deal of work has gone into the preparation of the WOPR and that the Bureau of Land Management has invested significantly in preparation of the materials and the accompanying public outreach. As merits such a significant and important effort, I would urge that requests to extend the public comment period be granted.

Sincerely,

Ron Wyden
Ron Wyden
United States Senate

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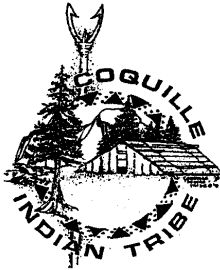
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January 9, 2008

Ed Shepard, State Director OR/WA.
Bureau of Land Management
P.O. Box 2965
Portland, Oregon 97208

Re: Western Oregon Plan Revision EIS comments

Mr. Shepard,

The Coquille Indian Tribe (the "Tribe") appreciates the opportunity to participate in the Western Oregon Plan Revision (WOPR) process. This is truly the most intensive environmental analysis that has been undertaken by a federal agency in the Pacific Northwest; we applaud the BLM's efforts. We have reviewed the WOPR draft EIS and provide the following comments:

BACKGROUND:

The Tribe manages 5,410 acres of forest land, the "Coquille Forest", within the WOPR planning area. Congress transferred the Coquille Forest to the Tribe to be held in trust by the Assistant Secretary of the Interior (P.L. 101-42) (The "Coquille Forest Act"). In the Coquille Forest Act, Congress requires the Secretary of the Interior to manage these forest lands subject to the standards and guidelines of plans of nearby or adjacent federal lands. The most "nearby" and adjacent Federal forest lands are Coos Bay District BLM O&C lands subject to this WOPR process. Therefore, federal law places the BLM in a position to establish the minimum standards and guidelines for management of the Coquille Forest. Because the management of the Coquille Forest has great bearing on the Tribe's Self-Sufficiency, the WOPR process, by definition involves a great degree of control over the use and management of this trust asset and the welfare of Coquille Tribal members.

It is well-established that the Department of Interior must act in the best interest of tribes when developing or administering management plans that effect trust assets. This U.S. Supreme Court has indisputably established this trust obligation, specifically in the



context of the management of Indian forest lands. United States v. Mitchell, 463 U.S. 206, 224 (1983) (commonly referred to as “Mitchell II”). This forestland trust obligation extends to the WOPR process and its resulting management plan. Establishment of a Tribal Cooperative Management Area (TCMA) as proposed by the Tribe is the means by which BLM may satisfy this obligation in this context.

CHAPTER 1—PURPOSE AND NEED

PP. 3-7—The purpose and need for the plan revisions should be revised to include a brief discussion about the Department of the Interior’s trust obligation to Tribal forestlands as well as a background on the unique management requirements for the Coquille Forest Lands. The discussion described here is necessary to establish the “need” for analyzing the TCMA management direction on federal lands in this DEIS. The discussion on the top of page 20 could be re-worded slightly to include this necessary legal background.

CHAPTER 2—ALTERNATIVES

Although none of the alternatives completely meet all of the needs of the Tribe, the Alternative 2, most closely fits the Tribal forest management goals, while providing the economic benefits to the Counties, and protections for the environment.

In light of the Supreme Court’s decision in Natl. Ass’n of Homebuilders v. Defenders of Wildlife, 127 S. Ct. 2518, 168 L.Ed.2d 467 (June 25, 2007), we believe that BLM must first establish and define the non-discretionary duties mandated by the O&C Act. Only after completion of that process should the document determine what discretion is permissible under Federal environmental laws. This evaluation is imperative because the O&C Act itself constitutes the very motivation for this WOPR planning process. The document must expressly state what the requirements of the O&C Act are, whether the selected alternative(s) comply with that Act, and why or why not the alternative deviates from the O&C Act requirements. We assert that, if the O&C Act is the dominant use act, the alternative must yield to it. If you determine that the O&C Act is not the dominate use act, the document should include your analysis to reach this conclusion, including citations to relevant legal sources.

PP. 84 — The TCMA area should be better defined. The number of acres is not arbitrary, the proposed 15,000 acres represent those BLM lands that are both within 1/2 mile of tribal lands and within shared watersheds.



CHAPTER 3— AFFECTED ENVIRONMENT

Map 16 (pg. 165) — This map is hard to read; this should be a colored map that shows the TCMA area (BLM lands), the Tribal lands, and shared watershed boundaries.

CHAPTER 4—ENVIRONMENTAL CONSEQUENCES

Spotted Owls and Marbled Murrelets

The use of suitable habitat to assess affects on Northern Spotted Owls (NSO) and Marbled Murrelets (MAMU) is confusing to the reader. There are no clear definitions of suitable habitat for these species in the document. The definition on page 868 is vague, and needs refinement. We suggest defining suitable habitat based on individual species needs.

Although page 637 states: “[e]ffects to populations were not analyzed because population size is affected by numerous factors other than habitat”, the way that the analysis is written makes the reader assume that changes in habitat are synonymous with changes in population. This statement needs clarification.

The differences between suitable habitat and critical habitat should be made clearer. In addition, further clarification as to why suitable habitat was used to analyze effects to NSO and MAMU as opposed to population is needed. Is there population data that can be assessed? This document never addresses current occupancy by NSO and MAMU on BLM lands.

Does the establishment of LSMA’s for maintaining MAMU and NSO habitat, conflict with the O&C Act?

If LSMAs are created in areas where occupancy has not been determined, then the establishment of these areas would be arbitrary and capricious. These areas would not meet the O&C act, nor would these areas fall under the BLM’s mandate under Section 7 of the ESA..

“insure that any action authorized, funded, or carried out” by the agency “is not likely to jeopardize the continued existence of any endangered species . . . or result in the destruction or adverse modification of habitat of such species.” 16 U.S.C. § 1536(a)(2).

Without appropriate surveys to verify occupancy, there is not enough scientific evidence to support the development of LSMAs. According to the 9th Circuit Court of Appeals case Oregon Natural Resources v. Allen, No. 05-8350 (July 28, 2006), habitat cannot be used as a surrogate for Jeopardy; there must be a numerical measurement for take.



ADDITIONAL COMMENTS

In order to meet the O&C act in LSMA areas, the BLM might want to consider a more intensive management strategy in these areas.

Although the NEPA process requires a federal agency to analyze the worse case scenario, it might be important for the BLM to point out that the economic and environmental effects in this analysis have been overstated to reflect the worse case, and that it would take some period before these effects would be seen, if at all.

Under the current Northwest Forest Plan, the BLM and other agencies managing federal lands with the range of the Northern Spotted Owl are required to conduct monitoring of the effects of implementation of the Plan's Standards and Guidelines. One element of monitoring identified in the Record of Decision for the Plan is "American Indians and Their Culture" (ROD Implementation E-9). Effectiveness monitoring under the Plan is to take place at 10-year intervals. The results of the tribal monitoring component for the first 10-year period were completed in 2003 and published as: "Northwest Forest Plan - The First Ten Years (1994-2003) Effectiveness of the Federal-Tribal Relationship" (R6-RPM-TP-02-2006). This important tribal monitoring component needs to be incorporated into the monitoring strategy of the WOPR and subsequent management plans.

Thank you for the opportunity to provide comments to the BLM regarding the Western Oregon Plan Revision Draft Environmental Impact Statement.

Sincerely,

Edward L. Metcalf, Tribal Council Chairman
Coquille Indian Tribe

CC: Dick Prather
Western Oregon Plan Revisions
P.O. Box 2965, Portland, OR 97208



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JAN 07 2008

Confederated Tribes of Siletz Indians

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December 14, 2007

Team Leader
Western Oregon Plan Revisions Office
P.O. Box 2965
Portland, OR 97208

Dear Team Leader:

On behalf of the Confederated Tribes of Siletz Indians, I offer the following comments regarding the Bureau of Land Management's Western Oregon Plan Revisions. I am writing this letter in support of the Lands Actions as described in Appendix O, and I am suggesting modifications in those actions that would support the Siletz Tribe's efforts at increasing its land base.

The Confederated Tribes of Siletz Indians is a federally recognized tribe, headquartered in Siletz, Oregon. Our tribe has over 4,000 enrolled members. Most live in the area covered by the Western Oregon Plan Revisions.

One goal of the Siletz Tribe is to consolidate and diversify its land base to support sustainable economic growth. The Tribal economy is reliant on a sovereign land base, its resource stewardship, and its economic commodities to provide a cornerstone for sustainable economic growth and stability. The Tribal economy, in turn, supports tribal services including health care, housing, and educational and employment opportunities. As a self-governance tribe, the Siletz Tribe is steadily building its capacity to operate such programs sufficient to serve the growing memberships' needs. The Western Oregon Plan Revisions offer your agency a unique opportunity to help the Siletz Tribe achieve economic growth and meet the needs of tribal members by targeting land disposal actions to benefit federally recognized Indian tribes.

There are four geographic scales for which we are interested in the proposed Lands Actions. The first is our ancestral lands. In pre-contact times, the ancestors of the Confederated Tribes of Siletz Indians belonged to over 25 diverse tribes from western Oregon and Northern California. Because of the diversity of the bands that comprise our ancestors, our ancestral land in Oregon stretches from the Oregon coast to the crest of the Cascade Mountains, from the Columbia River to the California state line. Any land disposal action within this area, including exchanges or sales, would be of inherent interest to our tribe. Land exchanges or disposals to non-Tribal entities could have





adverse affects on areas important to our culture. Additionally, we would be interested in any land acquisition opportunities that may arise throughout the Western Oregon Plan Revision affected area, so we may manage and protect resources important to our culture.

The second scale of interest to the Siletz Tribe is land within the original boundaries of the Coast (Siletz) Reservation. Our Siletz Reservation was established by an Executive Order, signed by President Franklin Pierce on November 9th, 1855, and originally contained over 1.1 million acres. The establishment of a permanent reservation was called for by several treaties signed with our western Oregon Tribes as early as 1853, which had been ratified and proclaimed law by the President prior to the 1855 Executive Order. In particular, the Rogue River Treaty of September 10, 1853, established a "temporary reservation" in the Rogue Valley (Table Rock) "until a suitable selection shall be made by the direction of the President of the United States for their *permanent* residence, and buildings erected thereon, and provision made for their removal" (emphasis added). The original Coast Reservation boundary included all the lands from Cape Lookout to the divide between the Siuslaw and Smith Rivers, including all that drained into Siltcoos Lake and Siltcoos River and eastward to the western boundary of the 8th Range of Townships West of the Willamette Meridian. The map that accompanied the Executive Order confirms this description. Under the language of the Rogue River Treaty, the President only had power to create a permanent reservation in discontinuing the temporary Table Rock Reservation and others like it in Western Oregon. He did not have the discretion to make the Coast Reservation "temporary" under the language of the treaty. In spite of this, our reservation was systematically dismantled by having large chunks opened to settlement without our consent. Our position is that the intent of the 1855 Executive Order was to create as permanent the Siletz (Coast) Reservation. Therefore, any land transfers/disposals within the original boundaries of the Siletz (Coast) Reservation should be initially offered to the Confederated Tribes of Siletz Indians.

The third scale of interest to the Siletz Tribe is our 11-county "service area." The Siletz Tribe was terminated by the Western Oregon Indians Termination Act of 1954, 25 U.S.C. § 691 *et seq.* In 1977, Congress restored the Siletz Tribe to federally recognized status (25 U.S.C. § 711, *et seq.*), but a land base for the Tribe was not restored at the same time. The Siletz Reservation Act of 1980 created a 3,600-acre permanent reservation, but it consisted only of small scattered parcels around Siletz. Since restoration, we have been able to add to our land base through the Bureau of Indian Affairs' "fee to trust" process, but our land base is still inadequate to meet the needs of our members. Because many federal programs for which Indians and Indian tribes are eligible require residence on or near an Indian reservation, Congress created a Siletz "Service Area" that was deemed equivalent to an Indian reservation for purposes of qualification for federal services and programs. The Siletz Service Area includes the counties of Lincoln, Benton, Linn, Lane, Multnomah, Polk, Washington, Yamhill, Marion, Clackamas, and Tillamook. Land acquisition opportunities in these 11 counties where we could provide housing, economic opportunities, or services to tribal members would directly benefit the Siletz Tribe. In fact, some years ago, BLM and CTSI were working together with the Oregon Congressional delegation to transfer the public domain land in Lincoln County to the Siletz Tribe. Unfortunately, there was not enough support



among Oregon's Congressional delegation to make it happen. Regardless, we remain interested in acquiring the public domain land in Lincoln County. We would like an opportunity to revisit this issue in the near future.

The fourth and smallest scale of interest to the Siletz Tribe is our Tribal Land Consolidation Area. The Indian Reorganization Act of 1934 (IRA), 25 U.S.C. § 465, allows the Secretary of Interior, at his or her discretion, to take land into trust for the benefit of an Indian tribe or of individual Indians. The Bureau of Indian Affairs adopted regulations to implement the provisions of the IRA (see 25 CFR 151.3(a)(1)). These regulations allow for acquisition of land into trust when the land lies within the exterior boundaries of an established reservation, or when the land is within a tribal consolidation area. In 1980, the Bureau of Indian Affairs Northwest Regional Director adopted a consolidation area for the Siletz Tribe. Acquisition of land within the Consolidation Area is important to the Siletz Tribe because these lands are centered around the community of Siletz, which is the historic, cultural, and social center of the tribe. The consolidation area consists of the following area:

Township 9 South, Range 11 West;
Township 9 South, Range 10 West;
Township 9 South, Range 9 West;
Township 10 South, Range 11 West;
Township 10 South, Range 10 West;
Township 10 South, Range 9 West; and
Portion of Township 10 South, Range 8 West,
Willamette Meridian, Lincoln County, Oregon.

I have three suggested modifications in Appendix O that would recognize our tribe's historic and cultural ties to the land. First, on page O-1361, one of the "General Land Tenure Adjustment Evaluation Factors" reads, "Suitability of the land for management by another Federal agency." You allocate many parcels of land for Land Tenure Zone 3 (disposal). Several of those parcels are within one of the four aforementioned areas in which the Siletz Tribe has an interest in acquiring land. I suggest an amendment to that factor, so that it reads "Suitability of the land for management by another Federal agency *or Federally Recognized Indian Tribe.*" Second, I proposed that another criterion in this section should be "***Disposal assists a Federally Recognized Tribe in restoring its land base pursuant to the Indian Reorganization Act, 25 USC § 465.***"

Third, on page O-1362, you list four criteria for disposal. I suggest adding a fifth criterion: "***Disposal would be beneficial to the Federally Recognized Indian Tribe with the strongest ancestral and legal succession ties to the parcels in question.***"

With this amended language, if the Siletz Tribe and the Bureau ever entered into a planning process for transferring ownership to the Bureau of Indian Affairs or the Siletz Tribe directly, the actions would clearly be in conformance with your land use plan, which will be important when you consider specific proposals.

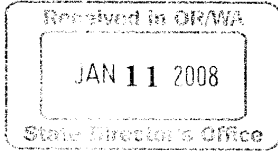


Thank you for the opportunity to provide comments on the plan revisions. My hope is that your agency and the Tribe can develop a mutually beneficial relationship in achieving our goals.

Sincerely,

A handwritten signature in cursive script that reads "Delores Pigstey".

Delores Pigstey
Tribal Chairman



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

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January 11, 2008

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Mr. Edward W. Shepard
Bureau of Land Management State Director
Oregon State Office
P.O. Box 2965
Portland, Oregon 97208

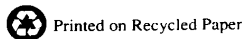
Re: Review of Draft Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts

Dear Mr. Shepard:

The National Oceanic and Atmospheric Administration (NOAA) is pleased to provide comments on the draft environmental impact statement (DEIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management (BLM) Districts of Salem, Eugene, Coos Bay, Roseburg, and Medford Districts, and the Klamath Falls Resource Area of the Lakeview District, dated August, 2007. According to the DEIS, the BLM proposes to revise the resource management plans for each of the districts, and provide guidance for future management of approximately 2.6 million acres of public and tribal land in the coastal mountains and on the west slope of the Cascade Mountains in Oregon.

In August, 2007, a team from the Northwest Region of NOAA's National Marine Fisheries Service (NMFS) met with a team of your staff to discuss potential issues with the DEIS analyses, provide a list of preliminary comments, and request additional information on various aspects of the analyses. The comments provided at the August meeting should be considered and incorporated into the final environmental impact statement (FEIS), as appropriate.

In addition to those previously provided comments, NMFS has enclosed additional comments that have arisen following a thorough review of the DEIS. The comments are based on a review by my Habitat Conservation Division staff, as well as by staff of NMFS' Northwest Fisheries Science Center (NWFS). The NMFS is providing these comments due to our responsibilities to manage, conserve, and protect marine and coastal living resources as provided under the Endangered Species Act (ESA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and the Fish and Wildlife Coordination Act. In all cases, the comments are relevant, either directly or indirectly, to NMFS' responsibilities under the aforementioned statutes, and are consistent with the agency's regulatory obligation to its trust resources.





These comments do not satisfy the obligation of the BLM to consult under the ESA or MSA on the selected alternative. The following species of Pacific salmon and steelhead that are listed or proposed for listing under the ESA occur within the planning area for the proposed action: Lower Columbia River and Upper Willamette River Chinook salmon; Southern Oregon/Northern California Coast, Oregon Coast, and Lower Columbia River coho salmon; Columbia River chum salmon; and Upper Willamette River and Lower Columbia River steelhead. All of the above species are listed as threatened, except for Oregon Coast coho salmon, which are proposed for listing as threatened. NMFS has also designated critical habitat for all of the above listed species except Lower Columbia River coho salmon. Essential fish habitat also has been designated under the MSA for Chinook salmon and coho salmon within the planning area.

The following is a summary of the major issues with the DEIS and with the preferred alternative that NMFS found in its review of the DEIS:

1. The DEIS does not contain a coherent and cohesive conservation strategy for anadromous fish and their habitat in any of the action alternatives. A clearly defined, scientifically-robust strategy is essential to conserving these resources.
2. The riparian management scenario proposed in the preferred alternative would not adequately maintain and restore the riparian and aquatic habitat conditions and processes that are critical to the conservation of anadromous fish.
3. The action alternatives do not include well-defined management objectives for fish habitat or firm standards and guidelines, both of which are needed to ensure adequate conservation of anadromous fish.
4. The action alternatives rely on reach-scale analysis and management, and thus do not accommodate the watershed-scale analysis and conservation that are the underpinnings of conservation biology for anadromous fish.
5. Several of the critically important analyses (i.e., fish productivity, large wood, shade, peak flow) rely heavily on models that in some cases have not been fully documented, and in other cases have not been adequately validated for the entire plan area. This introduces considerable uncertainty into the analyses.
6. There are a number of assumptions or methods associated with the modeling exercises listed in number 5 above that do not comport with the findings of published scientific literature. These assumptions and methods cascade through the analyses, leading to some conclusions that likely are erroneous.

A substantial amount of work must be completed to ensure that the FEIS adequately describes the existing environment and adequately analyzes and discloses impacts to the environment that would arise from the proposed action. We expect that many of these issues, which are discussed in greater detail in the enclosure associated with this letter, will be important for the eventual consultations under the ESA and the MSA on the selected alternative.

NMFS staff has begun to formulate a framework that would help to address some of the issues that are listed above and described more fully in the enclosure. Although we are severely limited in staff resources, we would welcome the opportunity to work closely with your staff to incorporate this framework into the proposed action before release of the FEIS. The key




elements of this comprehensive conservation strategy for anadromous fish, which are described in detail at the beginning of the enclosure, are listed below:

1. Identification and differential management of a network of aquatic-emphasis watersheds for fish recovery, public water supply, and water quality.
2. Use of watershed-scale assessment and planning to guide land management actions.
3. Protection of current high-quality fish habitat, in addition to restoration of habitat with high intrinsic geomorphic potential as is planned.
4. Adjusted riparian management areas (RMAs) with more conservative management in aquatic-emphasis watersheds.
5. Increased specificity of objectives for conservation of anadromous fish habitat.
6. Standards and guidelines that are mandatory, but are selected based on type of management action and site conditions.
7. Clearer pathways for plan implementation, monitoring, and adaptive management.

NMFS appreciates the opportunity to comment on this DEIS and looks forward to continuing to provide BLM with assistance on development of the FEIS. Please direct questions regarding this letter to Dr. Kim Kratz of my staff in the Habitat Conservation Division of NMFS Northwest Region at 503.231.2155.

Sincerely,


for D. Robert Lohn
Regional Administrator

Enclosure Comments on Draft Environmental Impact Statement for the Western Oregon
Plan Revisions

cc: Linda Goodman, USFS
 Elin Miller, EPA
 Kemper McMaster, USFWS



**Comments of National Marine Fisheries Service, Northwest Region
Draft Environmental Impact Statement (DEIS) for the Western Oregon Plan Revisions
(WOPR)
January 11, 2008**

The below comments begin with an overview of how well the preferred alternative (Alternative 2) in the August, 2007, draft environmental impact statement (DEIS) for the Western Oregon Plan Revisions (WOPR) of the Bureau of Land Management (BLM) meets the conservation needs of anadromous fish at the landscape scale. This analysis is followed by a list of key elements needed for a successful conservation strategy for anadromous fish. The list is followed by comments organized according to the chapters of the DEIS, and by references.

GENERAL COMMENTS ON CONSERVATION OF ANADROMOUS FISH

The following species of Pacific salmon and steelhead that NMFS has listed or proposed for listing under the ESA occur within the planning area for the proposed action: Lower Columbia River and Upper Willamette River Chinook salmon; Southern Oregon/Northern California Coast, Oregon Coast, and Lower Columbia River coho salmon; Columbia River chum salmon; and Upper Willamette River and Lower Columbia River steelhead. All of the above species are listed as threatened, except for Oregon Coast coho salmon, which are proposed for listing as threatened. NMFS has also designated critical habitat for all of the above listed species except Lower Columbia River coho salmon. Essential fish habitat also has been designated under the MSA for Chinook salmon and coho salmon within the planning area.

The preferred alternative (Alternative 2) does not include a coherent and cohesive conservation strategy for anadromous fish, including those that are listed or proposed for listing as threatened in the WOPR area. BLM's Land Use Planning Handbook (H-1601-1) includes the following statement under Special Status Species, Land Use Plan Decisions (Appendix C, p. 4) that indicates the need to develop a conservation strategy for threatened and endangered species:

Given the legal mandate to conserve threatened or endangered species and BLM's policy to conserve all special status species, land use planning strategies, desired outcomes, and decisions should result in a reasonable conservation strategy for these species. Land use plan decisions should be clear and sufficiently detailed to enhance habitat or prevent avoidable loss of habitat pending the development and implementation of implementation-level plans. This may include identifying stipulations or criteria that would be applied to implementation actions. Land use plan decisions should be consistent with BLM's mandate to recover listed species and should be consistent with objectives and recommended actions in approved recovery plans, conservation agreements and strategies, MOUs, and applicable biological opinions for threatened and endangered species.

The Purpose and Need statement on p. XLIV states that "In accord with the Endangered Species Act, the plans will use the BLM's authorities for managing the lands it administers in the



planning area to conserve habitat needed from these lands for the survival and recovery of species listed as threatened or endangered under the Endangered Species Act.” The section does not explain how the WOPR will “conserve” this habitat.

Other sections of the DEIS include some information that pertains to conservation strategy – such as ecological objectives – but the information is not tied together as a cohesive strategy to accomplish this end. Below is a list of objectives for Alternative 2 related to fish conservation, which we compiled from the Fish section on p. 34, the Water Quality section on p. 57, and the Riparian Management Area section on p. 81:

- Restore stream complexity.
- Restore access to stream channels for all life stages of fish species.
- Prevent livestock from causing trampling disturbances to spawning beds where federally-listed salmonid fish species occur.
- Maintain and restore water quality.
- Maintain and restore the proper functioning condition of riparian and wetland areas to provide shade, sediment filtering, and surface and streambank stabilization.
- Maintain or promote the development of mature or structurally complex forests.
- Provide for the riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and root masses that stabilize streambanks.
- Maintain and restore water quality.

There are some additional objectives for particular BLM districts or areas subject to special management, such as the Klamath and Coquille Resource Areas. These are special cases NMFS is not analyzing in this part of its review due to the need to focus on core issues because of insufficient time and staff resources.

Other sections of the DEIS include information about a restoration strategy based on areas with high IP for rearing. Taken together, these components do not comprise a suitable conservation strategy for the following reasons:

- There is no centralized description of a conservation strategy for anadromous fish that would include all of the relevant ecological objectives, management actions to protect and restore fish habitat at the watershed scale, and provisions for: (1) Implementation, effectiveness, and validation monitoring; and (2) adaptive management.
- There is no analysis of the status of fish populations in plan area lands, such as abundance, distribution, diversity or productivity; location of particularly important spawning or rearing areas; or connectivity between populations and population segments.
- With the arguable exception of the objective for mature and structurally complex forests in riparian areas, the objectives listed above do not include descriptions of what constitutes desired conditions or levels of functional processes (*i.e.*, desired future conditions or DFCs). The objective for mature and structurally complex forests in riparian areas, if pursued aggressively, is likely to sharply reduce recruitment of wood



pieces from non-mature trees that are able to form pools and trap sediment in the small streams that are most numerous on plan area lands. Please see an extensive discussion of this issue under Chapter 4 – Environmental Consequences/Fish/Large Wood-Fish Productivity.

- There is no consideration of how management and restoration actions would affect factors limiting anadromous fish populations in their freshwater life-history stages.
- “Proper functioning condition” for riparian areas is not defined.
- There is an objective for stream complexity, but the variable is not defined, and there is no DFC. There are no objectives for other aspects of stream and watershed conditions and processes that may limit populations of anadromous fish.
- The livestock objective is clear, but too narrow, as it implies the only negative effect of livestock grazing is trampling of redds. This objective should also consider streambank stability, the composition, vigor and structure of riparian vegetation, sediment generation, and other factors affected by livestock grazing.
- There are no objectives or DFCs for hydrologic function, sediment generation and routing, stream substrate, stream channel conditions, or nutrients.
- Most land management activities are not constrained by whether or not they would contribute to, delay, or prevent attainment of the objectives listed above.
- There are no provisions for analyzing and understanding watershed-scale conditions and processes that create and maintain fish habitat, or for using this information in planning actions. This is likely to result in uncoordinated actions, planned at the scale of the stream reach, that are unlikely to maintain and restore fish habitat at larger scales.
- There is no strategy for identifying and protecting the functionality of areas of existing high-quality fish habitat at either the reach or the river-basin scale. Due to the patchwork configuration of BLM ownership, and the different management histories of BLM vs. non-Federal lands, many streams on BLM lands likely are functioning as habitat refugia supporting remnant populations of salmon and steelhead due to higher stream channel complexity, lower fine sediment loads, and higher amounts of stream shade.
- Land management actions at the site scale are not constrained by mandatory standards and guidelines that would ensure that actions meet aquatic habitat objectives, but by best management practices (BMPs), the selection of which is optional for individual actions. The DEIS states on p. 1135 that the BMPs are intended to “reduce nonpoint source pollution to the maximum extent practicable” and “to meet water quality objectives when implementing management actions.” Meeting water quality objectives (which in this case are Oregon water quality standards) would, in some cases, support the conservation of anadromous fish, but may not be sufficient to achieve levels of habitat protection and



restoration needed to recover threatened species. Besides improving water quality, conserving anadromous fish will require standards and guidelines supporting the maintenance and restoration of landscape, watershed, hydrologic, riparian, and instream habitat conditions and processes. Without adequate aquatic management objectives and firm standards and guidelines to establish sideboards, there is no assurance that individual actions completed under the WOPR will maintain and restore anadromous fish populations.

- The proposed stream restoration strategy focuses on stream reaches with high IP for rearing, but does not address larger scales (*i.e.*, river basin or landscape), other than including a description of a general action to give priority to high-priority fish populations that have been defined in recovery plans (p. 34). There is no strategy for areas where recovery plans have not been completed.

NMFS expects that many of the above issues will surface in the eventual ESA and MSA consultations on the selected alternative, and recommends that the FEIS address all of the issues in the above bullet list. Regarding the scale issue, the river basin is the scale most relevant to the metapopulation structure of Pacific salmon (National Research Council 1996). Healthy populations of salmonid fishes use habitats throughout watersheds (Naiman *et al.* 1992), and riverine conditions reflect biological, geological and hydrological processes operating at the watershed level (Nehlsen *et al.* 1997, Bisson *et al.* 1997). Most land management effects on streams and rivers are carried downstream readily, and some can travel upstream as well (*e.g.*, channel head cutting). Also, watershed divides provide clear boundaries for analyzing the combined effects of multiple activities (National Research Council 1996).

A watershed perspective is needed to identify and assess biological habitat refugia and highly productive habitat patches, and to assess connectivity between these areas and between fish population segments (Sedell *et al.* 1990, Naiman *et al.* 1992, Li *et al.* 1995, Bisson *et al.* 1997). For these reasons, habitat conservation and restoration strategies are most likely to be effective if carried out at the scale of the watershed (or composites of multiple watersheds in a species' range; Reeves *et al.* 1995, Frissell and Bayles 1996), not the stream reach (Reeves and Sedell 1992, Botkin *et al.* 1995, National Research Council 1996, Nehlsen *et al.* 1997).

As described in previous meetings, NMFS would like to work with BLM to develop the following components of a comprehensive conservation strategy for anadromous fish. According to EPA Region 10, such a strategy would also help meet the requirements of the Clean Water Act:

1. Network of aquatic-emphasis watersheds for fish recovery, public water supply, and water quality.

NMFS would like to work with the BLM to develop a network of aquatic-emphasis watersheds, that would be managed in a more biologically conservative manner, to provide an adequate level of confidence that habitat essential for recovery will be maintained and improve over time at the watershed scale. This could be done using available information, such as data on: (1) Status of fish populations in plan area lands,



including available information about abundance, distribution, diversity or productivity; and (2) location of particularly important spawning or rearing areas; and connectivity between populations and population segments. The work done by NMFS' technical recovery teams (TRTs) and critical habitat review teams would be highly valuable in this effort.

2. Watershed-scale assessment and planning to guide recovery and other land management actions.

The selected alternative in the FEIS should commit to continued use of existing Federal watershed analyses, source water protection plans, and local watershed analyses for planning and implementing land management actions, particularly in aquatic emphasis watersheds. The selected alternative should require use of watershed-scale information when planning actions at the reach scale, and updating existing watershed analyses with new information, as it becomes available.

3. Ecological objectives to support aquatic habitat.

The selected alternative in the FEIS should include a set of objectives specific to aquatic habitats that pertain to watersheds, riparian areas, and instream habitat, and are adequate to maintain and restore anadromous fish populations. The objectives should include descriptions of what constitutes desired conditions or levels of functional processes (*et al.*, DFCs) for hydrologic function, sediment generation and routing, stream substrate, stream channel conditions, or nutrients.

4. Standards and guidelines to aid project development and implementation.

The selected alternative in the FEIS should include mandatory standards and guidelines to set sidebars for individual actions. Management activities should be constrained under the standards and guidelines depending on whether they would contribute to or delay attainment of the aquatic habitat objectives listed above.

5. Provisions to protect and restore high-quality fish habitats.

Successful conservation of anadromous fish will require the protection of currently functioning high quality or highly productive fish habitat, at the watershed scale, in addition to restoring habitat with high intrinsic geomorphic potential (IP). Information used to prioritize restoration actions in aquatic-emphasis watersheds should include Federal and local watershed analyses, source water protection plans, and targets in total maximum daily loads (TMDLs) prepared under the Clean Water Act.

6. Adjusted riparian management areas (RMAs).

NMFS would like to work with BLM to develop a RMA strategy that provides adequate protection and recovery potential for anadromous fish habitats and water quality. Aquatic-emphasis watersheds should have more protective RMAs than other watersheds.



Rather than simple default values, RMA widths should be based on factors relevant to factors forming and maintaining aquatic habitat functions, *et al.*, floodplains, channel migration zones, unstable slopes, site-potential tree heights, shade, bank stability, etc. RMA widths, and the constraints that apply within RMAs, should balance the need to maintain or protect existing aquatic habitat conditions and processes with the need for active restoration in some situations. RMAs should include zones of different management intensity including a zone of total protection to protect bank stability; a zone for protection of shade and litterfall; a zone accommodating both protection of existing values and active management, where needed, to improve aquatic habitat conditions; and a zone for transitioning into upland management strategies.

7. Expanded provisions for plan implementation, monitoring, and adaptive management.

The selected alternative needs to describe a clear framework for linking individual resource management plans (RMPs) to regional-scale conservation efforts, including recovery plans for listed fish species. The selected alternative should also explain how the plans will be implemented in each BLM district, and how the districts will contribute to meeting aquatic habitat objectives at the watershed scale. The BLM should fill in needed details about how implementation, effectiveness, and validation monitoring will be carried out as the plans are implemented, and how it will use adaptive management to respond to new information about plan effectiveness. The BLM should commit to participating in the regional framework for federal land management aquatic effectiveness monitoring. NMFS would like to work with BLM to better define how the individual RMPs would link to other adjacent land management plans (*e.g.*, those of the U.S. Forest Service and affected Indian tribes), and how they tier to project planning and implementation.

CHAPTER 1 – PURPOSE AND NEED

This section provides a rationale for the proposed plan revisions; identifies cooperators, affected laws and guidance; and defines the planning area, issues identified, and the planning process.

The section discusses coordinating plan revisions with draft recovery plans for anadromous fish species listed under the Endangered Species Act (ESA) on p. 5, but the alternatives do not appear to incorporate key elements of draft recovery plans or related recovery planning products (*et al.*, documents from TRTs). The FEIS should explain how BLM will integrate recovery planning for ESA-listed anadromous fish into the plan revision.

The DEIS (p. 23) acknowledges the requirement to consult under section 7 of the ESA on amendments to the individual resource management plans under the proposed action, but does not propose a framework for completing these consultations. Due to past litigation on adoption of Federal forest management plans, it is essential that BLM work closely with NMFS on such a consultation framework.

The DEIS says on p. 24 that draft recovery plans will be incorporated into BLM plan revisions if they are completed before WOPR implementation. NMFS expects that recovery plans for the



Upper Willamette River and Lower Columbia River species of ESA-listed anadromous fish will be proposed in 2008. The FEIS should explain how recovery plans that are completed after WOPR implementation begins would be incorporated into land management actions.

CHAPTER 2 – ALTERNATIVES

Management Common to All Alternatives

Fish

This section (p. 34) consists of a list of three objectives and four management actions that apply to all alternatives. The stated objectives are:

- Restore stream complexity.
- Restore access to stream channels for all life stages of fish species.
- Prevent livestock from causing trampling disturbances to spawning beds where federally listed salmonid fish species occur.

The following management actions are listed:

- Priority for restoration activities would be given to projects in streams with a high intrinsic potential for fish and to high-priority fish populations that have been defined in recovery plans.
- Stream complexity would be restored through the placement of large wood and boulders.
- New and replacement stream-crossing structures on fish-bearing streams would be designed to provide access within stream channels for fish.
- For streams with salmonid species listed under the Endangered Species Act, livestock would not be released into riparian areas until 30 days following the emergence of salmonids from spawning beds.

Considering the complexity of interactions between forest lands and the habitat of anadromous fish, the numerous problems with fish habitat in the plan area, and the range of actions needed to maintain and restore fish habitat, the lists of objectives and management actions seem to be overly simple and incomplete. The lists are not supplemented by additional objectives and management actions for fish or stream habitat in any of the action alternatives, although the alternatives do have short lists of objectives and management actions for riparian areas.

The list of objectives for fish and fish habitat does not include many of the habitat factors limiting populations of anadromous fish that are listed or proposed for listing in the plan area that could be affected by how BLM lands are managed, such as water quality, flow, and substrate conditions. The list of management actions seems to assume that restoration by itself can restore habitat, and misses the importance of not degrading existing habitat quality, and the role of other factors affecting complexity of stream habitat (*et al.*, flow regime, sediment regime, disturbance regime). Adding these features to the FEIS is critical to demonstrating a conservation strategy for anadromous fish. A commitment to address the limiting factors in recovery plans as they are



developed, through habitat protection and restoration, would be a reasonable step for BLM to take pending completion of recovery plans.

Regarding the list of management actions for all alternatives, the FEIS should specify which fish passage standards for new and replacement culverts the BLM will use (NMFS and Oregon Department of Fish and Wildlife each have their own standards; we recommend that BLM commit to meeting NMFS' standards in streams with anadromous fish). Regarding the last management action in the above list, it is unclear how the BLM will know when complete fry emergence has occurred in order to define the 30-day period before release of livestock into areas near streams. NMFS recommends that BLM include a commitment in the FEIS to implement recovery plan actions that are appropriate for Federal lands.

Riparian Areas

The action alternatives (alternatives 1, 2 and 3) include the following two objectives for riparian areas:

- Maintain or promote the development of mature or structurally complex forests.
- Provide for the riparian and aquatic conditions that supply stream channels with shade, sediment filtering, leaf litter and large wood, and root masses that stabilize streambanks.

NMFS commented on the aquatic habitat objectives above under "General Comments on Conservation of Anadromous Fish."

The alternatives share the following management actions for riparian areas:

- Thinning and other silvicultural treatments would be applied along smaller-order streams (generally, first-, second-, and third-order streams) to promote the development of mature forests.
- Thinning and other silvicultural treatments would be applied along larger-order streams (generally, fourth-order and larger streams) to promote the development of structurally complex forests.
- Snags and coarse woody debris would be retained in thinning operations, except for safety or operational reasons (*et al.*, maintaining access to roads and facilities).
- Salvage would not occur in stands that are disturbed by a fire, windstorm, disease, or insect infestations, except to reduce hazards in wildland urban interface areas.
- Timber from thinning and salvage operations would be available for sale, with different amount of emphasis on active management in riparian areas.

The above actions emphasize thinning in riparian areas for all stream sizes, but this will only benefit the habitat of anadromous fish under certain conditions (*et al.*, where there is sufficient instream wood already present to provide habitat functions during the lag between thinning a forest and recruitment of logs from the thinned forest to the stream, and where existing trees are too small to form pools when they fall into streams). Available research (*et al.*, Beechie and Sibley 1997, Bilby and Ward 1989) indicates that trees as small as 5-6 inches in diameter can form pools in small streams. Thinning along small streams with wood deficits can



significantly reduce recruitment of wood to streams (Beechie *et al.* 2000), and the risks of this happening appear to be significantly increased by the above management actions. NMFS provides additional information about this issue in its review of the DEIS's large wood analyses in later sections of this document.

NMFS recommends that BLM develop criteria for when to thin riparian forests, and additional non-timber management actions to maintain and restore riparian areas – such as correcting damage to riparian vegetation and streambanks due to livestock grazing, invasive plants, recreational activities, and roads.

The Alternatives

Alternative 2

The DEIS provides information about proposed RMAs for Alternative 2 in Table 31 (p. 79-80). Some needed definitions are lacking. What scientific information was used to define the “streambank zone,” “water influence zone,” and “intermittent, non-fish bearing streams,” and how would these zones be delineated in the field?

The only difference we could discern among the action alternatives with respect to objectives and management actions is that Alternative 3 includes a management action not found in the other action alternatives:

- Prescribed burns would be used in areas of high fuel loadings to reduce the potential for uncharacteristic wildfires.

The FEIS should include a discussion of whether or not this action would be useful in the preferred alternative.

CHAPTER 3 – AFFECTED ENVIRONMENT

General Comment

It is confusing to have subchapters on sediment, temperature and stream flow in both the Fish and Water sections of this chapter, especially since the subchapters are only rarely cross-referenced. It is unclear why most of the details are in the Water sections, and the Fish sections are relatively brief. NMFS recommends that the BLM use cross-referencing to minimize duplication between the sections.

Fish

Large Wood

This section, which begins on p. 340, provides a more extensive historical background, literature review, and baseline assessment than any of the other sections within the “Fish” chapter. It



would helpful if the other sections with the Fish chapter provided a similar amount of background information.

The DEIS analysis of large wood examines only five out of 176 fifth-field watersheds within the plan area that contain BLM ownership. Three of the five “representative” watersheds were selected from the Klamath Province, which probably is not representative of BLM lands in other provinces. It is not clear how effective these five watersheds are in characterizing wood delivery or potential impacts of management activities to the 10 listed fish species described in this section. Wood delivery to streams by debris flows is influenced by forest condition, topography and other factors that would vary dramatically between the provinces. The FEIS needs to include a larger sample size of watersheds, well distributed across the plan area and stratified by physiographic province, BLM ownership, and other meaningful geomorphic and watershed variables, that would more accurately model wood recruitment to streams.

The conclusion that only wood >20 inches diameter at breast height is ‘functional’ is contrary to published relationships between wood size and pool formation (*et al.*, Beechie and Sibley 1997, Bilby and Ward 1989), leading to the erroneous conclusion that significant timber harvest in riparian zones under alternatives 2 and 3 has little effect on habitat for anadromous fish. Other issues with the methodology used for the wood recruitment model that NMFS’ staff has previously discussed with BLM’s staff include assumptions of site-potential tree heights that seem too low for parts of the WOPR area, and the distances from debris-flow prone streams over which trees can be incorporated into debris flows. NMFS understands that BLM is working on new model runs with different assumptions and input variables, and we encourage BLM to include model runs with smaller minimum tree diameters, and to report the results of these investigations in the FEIS.

Large wood contribution is used as a surrogate for productivity of salmonid fish populations in this analysis. The DEIS states that “improved habitat complexity correlates to improved fish survival and production” (p. 343). This assumption ignores the concept of limiting factors for species’ productivity (Wilson and Bossert 1971). Observations where augmenting wood densities did not lead to increases in smolt production (p. 343) substantiate that habitat complexity is not the only limiting factor for anadromous fish. The fish analysis should consider effects of the alternatives on other factors limiting fish populations, such as water temperature, substrate sediment, and passage. Information about limiting factors often is available in proposed recovery plans, TRT products, and Federal or local watershed analyses.

Sediment

This section (p. 355-357) begins with a paragraph about provision of organic matter to streams from vegetation that appears to be out of place. It continues with a brief (<2 pages) summary of various effects of fine sediment and turbidity on salmonid fish and their habitat. NMFS provides some comments on this summary below.

The DEIS states (p. 356) that “The timing of the sediment inputs relative to the biological vulnerability of each fish species is more important than the absolute quantity of sediment.” This statement is true only where habitat effects of sediment are transient and very short term (days to



weeks), which is only the case for turbidity effects. In the case of turbidity, it may be reasonable to assume that timing is critical, because sediment delivered and evacuated during non-critical periods is unlikely to kill large numbers of fish. However, the statement seems to assume that sediment deposition in streambeds is short term, and is not coincident in time with incubation of salmonid eggs in spawning gravels. In fact, sediment usually is not so transient in the gravel, and salmonid eggs are incubating during most periods of erosion and fine sediment delivery. Introduction of fine sediments (*et al.*, sand and smaller particles < 2mm in diameter) alters channel morphology and habitat by several mechanisms. The smallest particles travel downstream as wash load, while larger particles may travel as bed load (Richards 1982). Suspended particles and fine bed load can accumulate in spaces between gravel particles (Beschta and Jackson 1979, Lisle 1989), restricting the subsurface movement of water through the gravel and reducing survival of eggs and fry. Fine sediments can also fill pools and interstitial rearing spaces, and can increase turbidity during high flows. This assumption also does not consider indirect effects of increased fine sediment, such as reduced production of invertebrate food organisms (Suttle *et al.* 2004).

The DEIS does not explicitly consider these non-transient sediment effects and bases its analysis only on the proposed increases in road length, rather than total road length. Moreover, the method underestimates surface erosion by at least a factor of two (see discussion under Water, Sediment below). Thus, it remains unclear what the overall effect of forest roads will be under any of the alternatives.

Effects of changes in coarse sediment supply are not considered in the alternatives because all alternatives assume no increase in landslide rates, and therefore no increase in mixed-grain-size sediment supply. This assumption may not be well-supported (see comments about how BLM uses the “timber productivity capability classification” (TPCC) to screen for landslide-prone areas, and withdraws them from general forest management, that pertain to Chapter 3, Water, Sediment on p. 378 of the DEIS). If the possibility of increased landslides due to increased intensity of land management were considered, it would be clear that sediment quantity is of greater importance than timing of erosion for coarse sediments. This is because there is a time lag of years to decades between a change in sediment supply and a change in morphology of a downstream reach (*et al.*, Kelsey 1982b, Madej and Ozaki 1996, Beechie 2001, Beechie *et al.* 2005b), and the amount of sediment determines channel and habitat response. The time lag is due to the time required for sediment to travel from its source to the reach of concern (Kelsey 1982a). Once sediment enters a stream reach, its persistence is partly a function of the sediment transport capacity of the reach (Benda and Dunne 1997b), and both the timing and persistence of changes in the morphology of downstream reaches are related to the rate at which sediment moves through a channel network (Madej and Ozaki 1996). Therefore, timing of erosion is rarely equal to timing of impact on salmonid fish, and erosion timing cannot be considered a reasonable criterion for concluding that erosion has little effect on these fish.

The effects of coarse sediments on fish habitat quality vary, depending on the amount of sediment delivered. In general, increased supply of sediments to lower-gradient reaches increases the amount of fine sediment on streambed surfaces (Dietrich *et al.* 1989), reduces pool depth (Lisle 1982, Madej and Ozaki 1996), and causes channel aggradation (Madej 1982, Lisle 1982) and channel widening (Kelsey 1982b, Madej 1982). Initial increases are accommodated



by deposition of finer sediments into pools (*et al.*, Lisle and Madej 1992, Lisle and Hilton 1992, 1999). Larger increases cause aggradation of the channel bed and channel widening (*et al.*, Lisle 1982; Madej 1982, 1992; Harvey 1987; Pitlick and Thorne 1987; Harvey 1991), and channels may become laterally unstable (Bergstrom 1982, Church 1983). As sediment moves through a reach, the proportion of sediment stored in bars increases rapidly, and then decreases over a few years to a few decades (Lisle 1982, Madej 1987, Madej 1992). Depths of pools may begin to recover while sediment remains within the reach (Madej and Ozaki 1996), but typically do not fully recover until the sediment pulse passes through the reach (Lisle 1982, Collins *et al.* 1994). All of these effects persist for years to decades.

The final three paragraphs of this section (p. 356-7) downplay the effects of sediment on fish and their habitat, including a statement that "...no model can predict the exact mechanism of sediment delivery and instream routing. Therefore, it is not possible to quantify or accurately predict the affects that sediment delivery has on fish species." Yet the DEIS uses a sediment model in the "Water" section of the DEIS to predict routing mechanisms and quantify the amount of sediment transported to streams within the plan area.

NMFS recommends that the FEIS include a modified sediment analysis that avoids the assumption that the timing of sediment delivery is more important than the volume, that considers effects of both the existing road network and proposed roads, and that includes consideration of long-term sediment routing and effects.

Temperature

The effects of water temperature on fish, which are limiting factors for some of the anadromous fish populations in the plan area, are addressed with a striking lack of detail in the Fish section in less than half a page (p. 357). The section includes a table with most of Oregon's numeric water temperature criteria (it is not the complete standard, since the standard includes the beneficial use designations and the antidegradation policy, which the DEIS does not mention). Missing from the table is Oregon's "core cold water" criterion of 60.8 degrees F, which DEQ designated in the North Coast Basin (an upper portion of the Necanicum River, Ecola Creek and Plympton Creek) and Mid-Coast Basin (Siuslaw River) (Oregon Department of Environmental Quality 2003).

This section outlines very general effects of high temperatures on salmonid fish, and gives the total amount of stream miles on BLM lands that are listed by ODEQ water-quality impaired for temperature. NMFS assumes this is for the plan area, although that is not clear; BLM should clarify this in the FEIS. NMFS suggests that this section of the FEIS include a more extensive discussion of the extensive literature on effects of water temperature on listed salmonid fish found in the plan area, including inferences about effects of water temperatures in the plan area on salmonid fish. Suitable reviews that may be helpful include McCullough (1999), Dunham *et al.* (2001), Materna (2001), McCullough *et al.* (2001), and Sauter *et al.* (2001).

Stream Flow

The pattern of stream flow, including the timing and volume of peak and base flows, is another critical environmental attribute for salmonid fish (Spence *et al.* 1996). The Fish section of this



chapter includes only one paragraph about stream flow. The single paragraph poorly describes the affected environment, as it does not describe any conditions within the plan area, does not describe factors that contribute to stream flow problems, and does not outline the BLM's role with respect to stream flows. NMFS recommends this section refer the reader to the more complete analysis in the Water Quantity section of the Water chapter, and that either this or the Water Quantity section describe conditions within the plan area, describe factors that contribute to stream flow problems, and outline the BLM's role with respect to stream flows.

Water

Stream Temperature

The bulk of this section (four of six pages beginning on p. 366) is devoted to building a case for the sizes of the RMAs and proposed management strategies within those RMAs under Alternative 2, as opposed to actually describing the affected environment (*et al.*, status and trends in water temperature in the plan area, and the reasons for those conditions), which is what is needed. This case as it relies heavily on dated literature and unpublished sources, and does not include a broad or representative treatment of the extensive literature on physical controls of stream temperature and how land management affects temperature. Neither does the section demonstrate that the studies and models used are valid and suitable for the diversity of ecoregions and conditions in the WOPR plan area (*et al.*, Lower Columbia River tributaries, Coast Range, Willamette River Basin, Umpqua River Basin, Klamath Mountains, and East and West Cascade Range). Because the BLM has not provided this information, NMFS has limited confidence in the proposed strategy as a tool to avoid increasing water temperature following timber management within riparian areas. NMFS elaborates on the reasons for this statement below.

The analysis in the DEIS relies on canopy closure as a surrogate for stream shade. On p. 367, the DEIS cites Brazier and Brown (1972) to explain how angular canopy density (a measure of vegetation canopy closure) varies with different buffer strip widths up to 100 feet (Fig. 98, p. 367). It is unclear whether the stream sizes, tree types and heights used in this study are applicable to the entire plan area. If they are, how was that determined, and if not, what other information is available?

Also on p. 367, the DEIS cites Park (1991) to demonstrate a relationship between angular canopy density and stream shade (as shown in Fig. 99 on p. 367). This citation is not in the References section of the DEIS; NMFS assumes this should be Park (1993), which the References section in the DEIS has as the SHADOW model. If the BLM is going to use the SHADOW model to support their assertions regarding angular canopy density, stream shade, and water temperature, then it needs to better describe the data set used to develop the model (*et al.*, what streams were used to develop the statistical relationships?); document model validation in the different ecoregions covered by the WOPR; and report confidence limits, assumptions and uncertainties in the FEIS. That will allow for a full evaluation by NMFS, decision-makers and the public.

The strategy for Alternative 2 is to maintain 80% effective or potential shade, whichever is less, in the "primary shade zone." The DEIS does not adequately demonstrate that this 80% shade is a



valid target for the “mature, structurally complex” forests that are the objective for riparian areas, nor does it adequately demonstrate that this amount of shade will maintain and restore water temperatures. On p. 368, the DEIS asserts that shade levels over 80% do not produce measurable decreases in stream temperature. This information is based on Boyd (1996), which is an unpublished master’s thesis that was based on limited sampling. NMFS is concerned that the DEIS is relying so heavily on one source for this information. The DEIS has provided no information on the data set used to develop the model, model validation for the different ecoregions covered by the WOPR, confidence limits, assumptions and uncertainties. Also, was Boyd (1996) considering only the ‘primary shade zone’ in the calculations used for this figure? Other available information suggests that the relationship explained in the DEIS may not be universally true. A recent master’s thesis found differences in water temperature between 80% and 100% shade following harvest in riparian areas of Oregon Coast Range streams where retained shade ranged from 51% to 99%, with a mean of 79%, which is essentially the same as BLM’s target of 80% (p. 31 and Fig. 3.9 in Fleuret (2006). Based on this information, the uncertainties around BLM’s analysis, the requirement for site-potential shade in all total maximum daily loads completed by the Oregon Department of Environmental Quality under the Clean Water Act, a target of site-potential shade, at least in aquatic emphasis areas, would be a better strategy for the selected alternative.

The assertion in the DEIS that areas greater than 100 feet from streams cannot contribute shade to stream is not adequately demonstrated. On p. 368, the DEIS asserts that Fig. 100 demonstrates that “there is marginal improvement in shade for riparian areas wider than 100 feet, because the variables of total solar radiation reaching a stream is (sic) diminished by the blocking ability of a tree’s canopy.” This is a confusing statement. Fig. 100 does not include widths of riparian areas, and the last clause of the sentence does not have enough information to make sense. NMFS is not confident that riparian areas wider than 100 feet cannot contribute shade. Among other variables, this would depend on stem density and canopy density at various distances from the stream, tree heights, and topography. Water temperatures of three streams in British Columbia, Canada increased by 1.6° C relative to control streams when streamside areas were logged with buffers of 30 m (98 feet) (Kiffney *et al.* 2003). This suggests that buffers essentially the same as the 100 feet cited by the DEIS did not fully protect shade. The analysis in the FEIS needs to consider this additional information.

A discussion of riparian widths for primary and secondary shade zones begins on p. 369 the DEIS. This section relies on information presented in Table 113, which is based on tree heights of only 100 feet or less – considerably shorter than site-potential trees in much of the plan area. How would the sizes of the primary and secondary shade zones change for trees that were as tall as the site potential trees in the plan area (as shown in Fig. 102 on p. 370)? Also, we have not seen data explaining the effects of varying tree retention in the ‘secondary shade zone’ on effective shade. The BLM should provide this information (*et al.*, the rationale for why retaining 50% canopy in the secondary shade zone is adequate) in the FEIS. The FEIS also should assess the likelihood of blowdown of riparian trees under the various strategies, and analyze how this factor could affect stream shade and water temperatures. Overall, the DEIS has not provided sufficient justification for how its riparian management areas under Alternative 2 would protect stream shade and prevent heating of streams. The BLM should work with NMFS to amend its



RMA delineations and actions to provide a higher level of confidence that its management strategies will maintain and restore shade and stream temperatures.

In order to adequately describe the existing condition, NMFS recommends that this section of the FEIS provide more information about the status and trends of water temperature on BLM lands. Information that could be provided, if it is available to BLM, includes which streams are monitored, status of compliance with the Oregon temperature standard and trends over time, and summaries of results of TMDLs done in the plan area, particularly modeling of natural thermal potential and how this compares to current temperatures. This section in the FEIS should also discuss the status of stream shade on BLM lands, to the extent that information is available to BLM, and discuss how land management has contributed to current shade and water temperature levels. All information about how the proposed management strategies would affect stream shade and temperature should be moved to Chapter 4, Environmental Consequences, in the FEIS.

Sediment

The sediment section contains limited information about the status and trends of sediment in streams within the plan area. Table 115 includes information about potential fine sediment yield from existing roads, but the DEIS does not explain how this information was generated, nor does it explain whether any empirical data is available for lands in the plan area. Table 116 shows ratings of the Oregon Department of Environmental Quality (ODEQ) for sediment in four physiographic provinces occurring in the plan area for 1994 to 2001. On p. 382, the DEIS states that it is unclear how these results apply to BLM lands because of mixed land uses in the watersheds. Do ODEQ sampling stations occur on BLM lands? Additional information on substrate sediment is available from habitat surveys done by Oregon Department of Fish and Wildlife.

On p. 376, the DEIS begins a summary of the results of modeling of how the alternatives would affect delivery of fine sediment into streams. This information would fit better in Chapter 4, Environmental Consequences.

Some of the assumptions that went into the sediment modeling do not appear to be well-supported, including the following:

- An assumption of moderate traffic under all alternatives, when the log traffic logically would vary with the different rates of tree cutting among alternatives.
- An assumption that fine sediment yield would not vary with the varying amounts of timber cutting and slash burning under the different alternatives.
- An assumption that sediment is not delivered to streams from portions of the road that are more than 200 feet from channels. This is problematic if the average cross-drain spacing is 500 feet, which is another assumption of the model (p. I-11106). This will underestimate the length of road connected to streams by a factor of two or more.¹ The

¹ This assumption is not part of the method that the DEIS follows. The Washington Department of Natural Resources' (DNR) watershed analysis methodology states, "If the road drains directly to a stream channel via a ditch or gully: assume 100% delivery from the parts of the road that drain directly to the stream."



DEIS assumes that sediment is not delivered to streams from portions of the road that are more than 200 feet from channels. It may also be appropriate to determine a correction factor that accounts for the percentage of cross-drain culverts that are not functioning at any given point in time, and apply this factor to the analysis.

- The section includes an implicit assumption that BLM's methods for identifying landslide-prone lands and their mitigation measures for these lands are 100% effective, which seems unlikely (see discussion below regarding p. 378).

There may be important ecological implications for the habitat of anadromous fish if the various sediment modeling assumptions are not met. What information does BLM have to support these assumptions? In order to support the results of its modeling exercise, the BLM should explain the basis for these assumptions in the FEIS. NMFS also recommends that BLM complete a sensitivity analysis by running the model with varying log truck traffic and sediment yield based on varying levels of timber harvests, and report the results in the FEIS.

There are other parts of the methodology used for the sediment modeling exercise that may be problematic, but it is difficult to tell due to insufficient information. These potential issues include:

- The method includes an assumption (p. I-1107) that roads not crossing a stream do not deliver sediment, yet also includes an assumption about delivery of sediment from drainage ditches. These ditches can deliver sediment to streams regardless of where the road segment crosses a stream. Also, the validity of the assumption about stream crossings depends heavily on the map resolution for streams used in the analysis. Even the smallest stream channels route fine sediments, and many of these tend not to show up on geographic information system hydrography layers (*et al.*, 1:24,000 blue lines of the U.S. Geological Survey miss a significant portion of the stream network). This means that the analysis likely underestimates the number of road segments hydrologically connected to streams.²
- Table 212, p. 760, indicates that Alternative 2, which has the greatest amount of timber cutting, has the lowest projected mileage of new roads. The FEIS should explain how this is possible.
- The DEIS does not explain the derivation of the "ground cover correction factor" (p. I-1107, also called "ground cover density factor" in Table 262 on p.-1107), which applies to cut and fill slopes. Without knowing where the vegetation cover data came from, it is not possible to evaluate the accuracy of the final vegetation correction factor layer. The FEIS should explain the derivation of this factor.

On p. 378, the DEIS describes how BLM uses the "timber productivity capability classification" (TPCC) to screen for landslide-prone areas, and withdraws them from general forest management. This classification is done by silviculture and soil specialists based on the interpretation of aerial photography and ground review. Over 89,937 acres of BLM-

² In the DNR watershed analysis methodology, channel locations are determined in the field, with a channel defined as "any drainage depression with a defined bed and banks, extending continuously below the drainage site. The flow regime can be ephemeral, intermittent, or perennial."



administered lands (3.5% of BLM administered lands) are withdrawn due to forest capability or land stability concerns. NMFS would expect the amount of lands susceptible to shallow, rapid landslides alone to be larger than 3.5% of BLM lands in the plan area, considering the amount of steep lands and the stream density in much of the plan area. Since all of the NEPA alternatives rely on this system, and since it is relevant to both the analyses of the risk of sedimentation and of the recruitment of large wood to streams from landslides, the FEIS should provide any evidence BLM has about the effectiveness of the TPCC in identifying landslide-prone lands. The FEIS should also include information about the procedures, decision criteria, and effectiveness of site-specific reviews that can also be used to withdraw areas from harvest due to slope stability concerns.

Ideally, BLM would redo its sediment analysis using a computer-based model that predicts slope stability of potential landslide initiation sites based on slope, topography, rainfall, and other variables, such as SHALSTAB. Papers developing the SHALSTAB model and showing its application include Dietrich et al. 1992, 1993, 1995; Montgomery and Dietrich 1994; and Montgomery et al. 2000. This model works various topographic data sources such as digitized 7.5 minute USGS quadrangle maps with enhanced topographical contours at 10-m intervals. The model assigns to each 10-m topographic cell a relative hazard rating (low, medium, or high).³ Other slope stability models using similar input variables are also available. If it is not possible to run such models for the entire plan area before the FEIS, then the FEIS should describe a plan to update its slope stability investigations to include computer modeling.

On p. 379-381, the DEIS discusses studies of landslides by the U.S. Forest Service and the Oregon Department of Forestry that occurred during winter storms in 1996, but includes no information about landslides on BLM lands. The FEIS should provide any available information about landslides on lands in the plan area in 1996 or other years.

Water Quantity

The DEIS cites studies done in the 1970s (DEIS, p. 388) by Rothacher (1973) and Harr (1976) to support analysis of management effects on peak flows with 5-year return intervals. Jones (2000) and Bowling and Lettenmaier (1998), which address road effects on peak flows, would also be appropriate references to discuss.

The DEIS concludes (p. 385) that one out of 635 subwatersheds in the rain hydroregion, and only three out of 471 subwatersheds in rain-on-snow hydroregion (p. 387), within the plan area are currently susceptible to peak flow increases. This is an underestimate, because it assumes that baseline peak flow conditions within the plan area are currently functioning naturally. These conclusions also seem difficult to accurately predict in any meaningful way without considering site-specific information regarding the spatial distribution of patch cuts with respect to current conditions. Peak flow analysis in the DEIS (p. 361) considers the largest spatial scale (sixth-field subwatersheds, 10-40 square miles, that is generally acceptable to recognize any change in

³ Some inner gorges (See Kelsey 1988 for a definition) may not be included in the model results and would need to be identified by field surveys for actual layouts of timber sales, since these features do not typically show up on topographic maps.



magnitude of peak flows, obscuring dispersed localized impacts that may be occurring at a finer scale. The temporal scale of peak flow analysis is relatively short (*et al.*, 5-year return).

The effects of roads are not modeled or considered, even though they often contribute to increased peak flow responses (Johnson 2000, Grant *et al.* in review). The FEIS should include a cumulative effects analysis that examines not only the cumulative decrease in peak flow response at large watershed scales (Grant *et al.* in review), but also the cumulative effects of many small watersheds (*et al.*, < 10 square kilometers) dispersed within target landscapes experiencing increases in peak flows. The gross geomorphic effects of these dispersed increases in magnitude might be small due to resilience of channels (Grant *et al.* in review); however, a variety of effects (*et al.*, fine sediment transport, reduced streambank stability, reduced large wood retention) may result in significant effects to anadromous fish habitat at the stream reach scale.

Peak flow analysis for the rain-dominated hydroregion (p. 384-385) was performed for the DEIS through comparisons to empirical results from paired watershed studies, using OPTIONS modeling and 1996 data from the Interagency Vegetation Mapping Project to estimate amount of disturbance (equivalent clearcut area or ECA). The DEIS compares anticipated ECAs to ECAs that caused peak flow response in small watershed studies (roughly 25 to 2,500 acres) to develop predicted responses in sixth-field watersheds. The DEIS used a 40% ECA threshold to classify sixth-field subwatersheds susceptible to peak flow increases. A regression analysis of twelve previously published Pacific Coast studies by Stednick (1996) suggested a harvest of 25% or more of a watershed can measurably increase annual water yield (although none of the studies examined areas where less than 25% of the watershed had been cut). The BLM should complete sensitivity analysis using a lower ECA threshold, and disclose results in the FEIS. Pending results of this analysis, NMFS recommends a more conservative ECA value (perhaps 20-25%) to be used as the threshold for classifying subwatersheds susceptible to peak flow increases.

Peak flow analysis for the rain-on-snow hydroregion used a process model derived from estimated winter snowpack (from empirical data) and forest cover data. Snow melt was simulated for "average environmental conditions" of a rain storm with a 2-year return interval. Water equivalents from this analysis were converted to rainfall and used to estimate stream flow. This stream flow value was compared to flows for storms with a 5-year return interval. Sixth-field watersheds that exceeded 5-year flows were considered susceptible to peak flow change. NMFS has concerns with the validity and practical application of this analysis, including the extent of the mapped intermittent snow zone, the applicability of gauged watershed data used for comparison, the response metric, and the use of an untested process model when other models and empirical results are available. NMFS recommends that BLM strengthen this analysis by validating this model with a comparison to either empirical evidence from the plan area or with another validated model that is applicable to the plan area.

The DEIS analysis of peak flow response in rain-on-snow hydroregion used a unique process model (Washington Department of Natural Resources 1997), although other more detailed process models (Lewis *et al.* 2001) and spatially distributed dataset models (Bowling and Lettenmaier 1998, Tague and Band 2001) have been developed, validated and published. It is difficult to assess the value of this modeling approach since it represents an untested hypothesis



with a series of untested parameters. NMFS recommends that BLM strengthen this analysis by either applying those validated models in the DEIS or, at a minimum, comparing the WOPR's analytical model with these validated, peer-reviewed models.

The FEIS should provide any available empirical data from within the plan area that supports the validity of the Washington Department of Natural Resources' model for use in this area. As with the rain-dominated region, the effects of existing and new roads should be included in the analysis. Using generalized average environmental conditions (*et al.*, 15 mph wind speed during 2-year storms) does not seem to emulate actual conditions that would develop in such a storm; NMFS recommends using sensitivity analysis to explore responses under higher wind speeds.

CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

Fish

Large Wood

NMFS questions whether the large reduction in buffer widths along different stream types relative to the No-Action Alternative, particularly for Alternatives 2 and 3, would provide fully functioning riparian and stream ecosystems. The recommended 100-ft buffer for perennial and fish-bearing streams in Alternative 2 (the preferred alternative) is considerably less than the published studies the DEIS cites to justify this width on p. 730. In addition, this buffer does not account for wetlands or sensitive habitats that may require a wider buffer to ensure a fully functioning stream network. Along many streams in the Cascade and Coast Ranges, the 25-foot no-cut buffer consists of a scattered string of alders that may deliver little functional wood.

Fish Productivity

The DEIS fish productivity model makes several erroneous assumptions regarding the 'value' of channel or habitat types for salmon, and these assumptions lead to an erroneous conclusion that smaller streams have less value for salmonid fish than larger rivers. The DEIS fish productivity model incorrectly applied equations relating pool spacing to wood loading, contributing to an erroneous conclusion that there is little difference in fish productivity across the alternatives.

The DEIS assumes that available habitat is proportional to available channel area (*et al.*, large channels can support more fish than small channels). This assumption is not warranted, because available habitat depends more on channel complexity than channel area. Large, simple (*et al.*, low wood density) channels may support lower densities of fish than small, complex channels. (*et al.*, Beechie *et al.* 2005 found very low densities in large mainstem pools, riffles and glides that had low wood densities).

The DEIS assumes that steelhead avoid unconstrained reaches. This assumption is simplistic as juvenile steelhead are typically observed rearing in unconstrained reaches with coho (*et al.*, Beechie *et al.* 2005a found steelhead rearing throughout the Skagit River mainstem, which is unconstrained). They may be at lower densities in low gradient sections, but this may be more a result of competition with coho than habitat selection.



The DEIS seems to assume that the quality and productivity of fish habitat are controlled solely by physical characteristics. This assumption is unwarranted, because a large amount of evidence supports the hypothesis that fish growth and survival are also dependent on aquatic productivity (*et al.*, prey availability). For example, unconstrained, low gradient channels that have a higher density of prey available will likely have a higher potential to support juvenile coho salmon than a similar stream with low prey density (*et al.*, Kiffney and Roni 2007). Furthermore, high gradient, confined reaches may be actually provide a high level of support for rearing coho and Chinook salmon if prey availability is high.

The DEIS assumes that channels with low geomorphic intrinsic potential (IP) for rearing habitat require less protection than channels with high intrinsic potential. This assumption is also unwarranted in that channels with low IP for juvenile salmonid fish may be important sources of water, sediment, organic matter or nutrients to channels with high intrinsic potential (Rice *et al.* 2001, Kiffney *et al.* 2006). In other words, the intrinsic potential of a river network is likely a result of habitat attributes as defined in the IP model, but also a result of important connections between habitat types and basal productivity. Therefore, conserving, restoring and protecting linkages among habitat and channel types may be a key action needed to increase populations of these fish species.

The DEIS definition of large wood is not the same as the definition of large wood used in the literature cited by the DEIS (Beechie and Sibley 1997) to estimate frequency of pool formation. For example, Beechie and Sibley determined that the minimum pool forming diameter of wood varies as a function of stream size and can be expressed by the equation:

$$\text{Minimum pool forming wood diameter} = 0.028 * (\text{Bankfull Width}) + 0.0057,$$

and that pieces < 15 cm (6 in) diameter could form pools. However, the DEIS only considers wood > 50.8 cm (20 in) diameter at breast height (DBH) to be large wood. By excluding all pieces of wood < 20 inches DBH from their analyses, the DEIS grossly underestimates the importance of wood to the formation of pool habitat, and by extension the importance of riparian forests with trees < 20 inches DBH to instream habitat.

Another critical problem with the FPI (pp. H-1091-1092) is that it uses an incorrect equation (derived from Beechie and Sibley 1997) to estimate that:

$$\text{The number of pools per channel width} = 2.7 - 4.6(\text{slope} \times \text{LWD}/\text{m}) + 1.6(\text{slope}).$$

Using this equation, one would erroneously conclude for example that a stream with no wood and a slope of 0.01 will have about 3 pools per channel width, which is extremely high. The equation should read:

$$\text{number of channel widths per pool} = 2.7 - 4.6(\text{slope} \times \text{LWD}/\text{m}) + 1.6(\text{slope}),$$

which means that the distance between pools is three channel widths.



Using this inaccurate information, the DEIS erroneously concludes that the pool frequency ranges from a maximum frequency of 2 pools per channel width (with high wood loading) to a minimum frequency of $2.7 + 1.6 * \text{Slope}$ (*et al.* about 3 pools per channel width for a stream gradient of 0.01). These results clearly contradict Beechie and Sibley (1997, Table 2 and Figure 3), which shows that fewer wood equals fewer pools, and that when there is no wood, estimate the distance between pools can be as great as 8 channel widths. The cause of this error is that the analysis confuses “pools per channel width” with the distance between pools, measured in channel widths. It is not clear how far this error permeates the DEIS.

Because the DEIS inappropriately applies the data from Beechie and Sibley (1997) to estimate pool frequency, and because these data are applied to estimate the FPI, the FPI appears to be inaccurate, and the conclusion that there is little difference (< 3%) in fish productivity among the four alternatives most likely is erroneous.

The DEIS states (p. 734) “relative proportion of the maximum potential watershed coho salmon productivity ... would increase from the current level of 38% to 2106 levels of 49%...”, yet presents no basis or source of these values, nor does it discuss the uncertainty associated with each. Assessing the scientific basis for these claims is virtually impossible without a clear identification of the analytical assumptions underlying each result, and evaluating the meaning of any change is truly impossible without a statement of the confidence intervals surrounding these numbers.

The DEIS assumes that standing stock of wood accumulates without consideration of the reduction of wood from decay, floods, and other processes. This contributes to the conclusion that “large wood contributions would increase over time under all four alternatives...” (p. 729). Proper modeling of wood balance would include balance of inputs vs. outputs, such as decomposition, recognition of (bedrock) bed characteristics making reaches more porous to wood (May and Gresswell 1996, Montgomery 1996), and shifts between hardwoods (fast decomposition) and conifers (slower decomposition), to quantify changes in standing crop of wood in comparison to natural abundances of wood in streams.

There are also problems in defining as important only those trees > 150 feet high and > 20 inches diameter at breast height, so that harvest of any trees smaller than these dimensions has no effect on model outputs (*et al.*, there will be no change in the FPI). This makes it appear that Alternatives 2 and 3 have little effect on recruitment of large wood, and therefore the FPI, relative to the No-Action Alternative or Alternative 1. Thus, for example, the DEIS (p. 113) concludes that the large wood contribution from all four alternatives “Increases to near maximum in long term”, and that the large wood contribution from Alternatives 2 and 3 is “slightly less” (than the No-Action Alternative). Both of these statements are incorrect. Alternatives 2 and 3 will substantially decrease the large wood contribution to fish bearing streams relative to the No-Action Alternative, and the decreases will be long-term. This is because thinning will remove wood large enough to form pools from the riparian zone (if the term large wood is defined by its ability to form pools rather than the arbitrary value of >20 inches diameter) (Beechie *et al.* 2000). Alternative 1 will substantially decrease the large wood contribution to fish-bearing streams from non-fish bearing streams relative to the No-Action Alternative.



Also, there is a problem in assigning equal value to wood delivered to fish-bearing streams from debris flows as is wood delivered to streams from direct riparian recruitment or channel migration. Since large wood delivered to fish bearing streams from debris flows occurs infrequently and tends to deposit large piles of wood in and around streams, most of which contributes little to important functions such as pool formation, it may not be appropriate to consider a piece of debris-flow derived wood as functionally equivalent to wood entering streams from other sources. Because the DEIS treats all sources of large wood equally, and estimates long term annual averages, it exaggerates the average amount of functional large wood that will be in streams. For example, a stream could have very little functional wood most years, but a debris flow that deposited a large pile of wood to the stream in a single year would then boost the annual average and potentially make it appear that there was, on average, substantial amounts of functional wood in the stream, when in fact that was not the case. NMFS recognizes that a considerable amount of work went into the fish productivity model, but for the reasons described above, additional work is needed using: (1) more valid assumptions about functional wood sizes, value of wood from different sources, and wood longevity; (2) the correct equation for the number of pools per channel width; (3) a more realistic view of the totality of factors that may limit fish productivity; and (4) better disclosure of assumptions and methods used to estimate fish response to stream channel changes.

Nutrient Input

This short section (three paragraphs on p. 741) asserts that all four alternatives will maintain a level of allochthonous nutrient input that is similar to current levels, which may not be justified. The DEIS says on p. 741 that "...along non-fish bearing intermittent streams, some localized shifts in vegetation would occur because the riparian management areas would not include all of the areas that provide organic matter inputs to streams." In fact, these streams receive very little protection under Alternative 2 or 3, and organic matter inputs would be reduced. The FEIS should provide a more realistic analysis of the effects of the alternatives on nutrient inputs to non-fish bearing intermittent streams, and discuss how these changes relate to productivity of fish-bearing streams.

Fine Sediment Delivery

The DEIS states on p. 741 that the fine sediment delivery analysis will focus on changes in sediment that would "overwhelm the ability of fish to cope with or avoid the stress" of sediment. This section describes a linear comparison to equate the increase in stream sediment (1%) to a decrease in fish survival (3.4%). Assuming that this relationship is linear and can be applied universally across the plan area tends to over-simplify the variety of conditions found within the plan area. There is no analysis described in this section.

The DEIS (p.741) contends that "...thresholds have not been established for the levels of sediment delivery that would cause impairment to fish." There is a wealth of literature on the effects of fine sediment and aquatic organisms including salmon (*et al.*, Suttle *et al.* 2004), and although true thresholds are difficult to identify, it is certainly possible to establish management targets that avoid most sediment impacts on salmonid fish, their forage organisms, and their



habitat. Such an approach would require an analysis similar in depth to that completed for the in-stream wood issue in the DEIS.

The section concludes that there will be no effect to fish populations from increased sediment loads. This conclusion is based in part on an assumption of no additional landslides under increased intensity of land management due to use of the TPCC. Please see our comments about TPCC under Chapter 3, Fish, Sediment, above. The other basis for the conclusion appears to be reliance on the optional BMPs and the ability of fish to avoid turbidity. Relying on optional practices and potential avoidance behavior of fish does not provide a reasonable level of confidence that anadromous fish and their habitat will not be affected by this sediment.

The BLM should provide additional analysis and documentation for this section in the FEIS to address the issues described above.

Peak Flows

This short section (three paragraphs, p. 743) does not consider the potential effects of increased magnitude, duration, frequency, or timing of peak flows. This section should discuss how increased peak flows may affect the biological communities and primary constituent elements of critical habitat of listed salmonid fish within susceptible subwatersheds, as this is likely to be an issue during site-specific ESA consultations on timber harvest projects completed after WOPR is in effect.

Temperature

This one paragraph section on p. 743 primarily downplays the potential effects of increasing temperature in 31 miles of perennial streams within the Coquille Basin that are currently listed as water quality limited by the ODEQ for temperature. The reference to mitigation provides an optional suggestion to maintain additional canopy within the secondary shade zone, but the DEIS does not provide any meaningful assurance that the mitigation will be applied during project implementation. The FEIS should provide this assurance by modifying the strategy.

Considering that OC coho are proposed for listing as threatened under the ESA, the FEIS should provide a higher level of assurance that it will provide the necessary habitat conditions to maintain and recover their populations. It would be appropriate for the FEIS to make a commitment to complete mitigation, at the very least, that would restore temperatures on its lands within the Coquille Basin.

Based on the information presented above for Chapter 3, Water, Temperature, the preferred alternative (Alternative 2) is likely to increase water temperatures in some fish-bearing streams in the plan area. By increasing water temperatures in some areas, Alternative 2 is likely to increase risks to anadromous fish of: (1) increased adult mortality and reduced gamete survival during pre-spawn holding; (2) reduced growth of alevins or juveniles; (3) reduced competitive success relative to non-salmonid fish; (4) out-migration from unsuitable areas and truncation of spatial distribution; (5) increased disease virulence, and reduced disease resistance; (6) delay, prevention, or reversal of smoltification; and (7) potentially harmful interactions with other



habitat stressors (Zaugg and McClain 1972, Adams *et al.* 1975, Zaugg and Wagner 1973, Zaugg 1981, Reeves *et al.* 1987, Berman 1990, Marine 1992, 2004, McCullough 1999, Dunham *et al.* 2001, Materna 2001, McCullough *et al.* 2001, Sauter *et al.* 2001, Marine and Cech 2004). This is one of the reasons NMFS is recommending that BLM work with us and EPA to amend the RMA delineations and management strategies in the selected alternative.

Water

Peak Water Flow

Streams are most susceptible to change in peak flows at scales smaller than sixth field watersheds (Grant *et al.* in review). Thus, individual logged reaches within a sixth field watershed could have peak flow increases that are masked by uncut reaches sharing the same sixth field watershed. The cumulative effects of multiple small watersheds having increased peak flows may include limited stream geomorphic change, since most small watersheds are dominated by large particle size (Grant *et al.* in review), but could increase fine sediment transport, with downstream deposition. The DEIS uses the sixth field as the scale for its analysis and therefore does not acknowledge the potential compounding effects of increased peak flows from multiple smaller subwatersheds.

Empirical and modeling studies summarized in Grant *et al.* (in review) suggest that at a minimum road-related processes increase peak flows; modeling studies for Washington suggest an approximate doubling of harvest-only effects (Grant *et al.* in review, p. 15). Road effects are not included in the DEIS analyses for either hydroregion. The FEIS should include the effects of road-related changes in peak flows for both hydroregions.

The DEIS analyzes only the magnitude of peak flows. It would also be appropriate to also consider the frequency and duration of peak flows and their effects to stream processes and the biological community. Lewis *et al.* (2001) found that the return interval for the largest peak flows was halved following clearcutting. Thus the largest peak flows did not increase in size, but doubled in frequency, “roughly doubling the geomorphic work on the channel.”

Timing of peak flow changes should also be considered in the analysis. Lewis *et al.* (2001) found that peak flows increased after clearcut logging, but the increase was only significant at the beginning of the rainy season, when the soil is driest. These potential changes may have considerable effects on salmonid fish due to adults spawning at this time. Many of the changes in peak flow measured following harvest are within the yearly range of flows in studied watersheds (Grant *et al.* in review), complicating the ability to detect changes. However, the full range of flow responses should be considered to determine whether substantive changes in flow regime would occur following logging.

There are a number of reasons that the results of both paired small watershed studies and process models, such as those used in the DEIS, should be interpreted cautiously. The sample size described in the meta-analysis by Grant *et al.* (in review) relevant to the plan area is small (*et al.*, n=3 for 40-80% ECA rain-dominated systems), with a large amount of variability. Grant *et al.* (in review) state that peak flow responses can be highly variable due to management factors



including roads, types and arrangements of harvest (*et al.*, clearcut vs. thinning, clumped vs. dispersed), as well as landscape pattern (Grant *et al.* in review, p. 53). Hydrologic process models (Lewis *et al.* 2001) and spatially distributed dataset models (Bowling and Lettenmaier 1998, Tague and Band 2001) have been developed and used in the Pacific Northwest and can incorporate some of these parameters. Rain-on-snow modeling used in the DEIS analysis apparently did not incorporate these parameters.

The FEIS should provide a validation or accuracy assessment for the peak flow models used in the analysis. The variability across the plan area and the fact that both analyses are untested within the plan area create low confidence that the results are reliable and accurate. Coupling these factors with the use of the largest spatial scale suitable to detect changes in peak flows further reduces confidence in the analysis.

Water Quality – Shade

Based on the information presented above for Chapter 3, Water, Temperature, NMFS disagrees with the assertion on p. 754 that under Alternatives 2 and 3, the riparian management areas along permanently flowing non-fish-bearing and fish-bearing streams would fully retain the shade that is necessary to block sunlight from reaching the streams and increasing their temperature.

Water Quality – Sediment

The DEIS asserts on p. 758 that sediment generation by overland flows (the mechanism for sediment from cutting and yarding timber) is not an issue because of high water infiltration in forest soils. The DEIS should provide references for this assertion in the FEIS. Log yarding and subsequent site preparation (*et al.*, prescribed burning, scarification prior to planting) can increase soil exposure, runoff, and surface erosion (Chamberlin *et al.* 1991). The magnitude of effects depends on the type of equipment used; the location (*et al.* proximity to stream channels), extent, and type of disturbance; slope; soil types; the time required for revegetation; and whether runoff can be concentrated by roads or other features. Under Alternative 2, ground disturbing activities will occur as close as 25 feet to perennial (including fish-bearing) streams, or up to the bank of intermittent streams not subject to debris flows. Because buffer widths needed for sediment filtration vary from 100 to 300 feet or more depending on slope, parent rock type, and other factors (Spence *et al.* 1996 p. 219, FEMAT 1993 p. V-38), NMFS predicts that Alternative 2 will increase fine sediment yield to streams in the plan area. Stream-side buffers are not effective in removing sediment carried in channelized flows (including intermittent streams) that originate outside of the buffer and continue through it (Belt *et al.* 1992).

The DEIS also asserts (p. 763) that shallow landslides will not increase over the next 10 years under any alternative because of the TPCC, and because of site-specific review of proposed activities. However, the DEIS has not provided information about the effectiveness of the TPCC withdrawals, or about the procedures, decision criteria, and effectiveness of the site-specific reviews. Because of the increased amount of timber harvesting under Alternative 2, NMFS assumes the risks of sedimentation from landslides will also increase.



Probable increases in sedimentation under Alternative 2 would increase risks that egg to fry survival of anadromous fish will be reduced, that pool volume and interstitial habitat that support rearing juveniles will be degraded, and that production of invertebrate forage organisms will decrease in affected stream reaches (Chapman and McLeod 1987, Gregory *et al.* 1987, Bjornn and Reiser 1991, Hicks *et al.* 1991).

NMFS recommends that the FEIS disclose the potential effects described above. Adjustments to the preferred alternative likely are needed to ensure that fine sediment yields are not increased in watersheds that are important to anadromous fish. As stated earlier, NMFS is willing to work with BLM to develop these adjustments.



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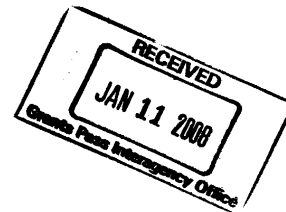
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 United States Department of the Interior

 NATIONAL PARK SERVICE
 Oregon Caves National Monument
 19000 Caves Highway
 Cave Junction, Oregon 97523

 IN REPLY REFER TO:
 A76(ORCA)

January 11, 2008

 Tim Reuwsaat , District Manager
 Bureau of Land Management
 Medford District
 3040 Biddle Road
 Medford, OR 97504-4119


Dear Tim,

Thank you for providing the opportunity to comment on the BLM's Western Oregon Plan Revision. In general, this planning document is one of the most comprehensive and well-written ones we have seen. However, as required under NEPA, Oregon Caves National Monument should have been directly consulted as an "affected federal agency" before the final draft. Absent that consultation, we have some specific comments and questions prior to the end of the public comment period.

The No Action Alternative would have the least adverse impacts to species on the Monument in terms of air quality (smoke & CO₂), fire hazard and resiliency, soil disturbance (grazing & harvest), streams (large-wood, sedimentation & temperatures, non-native invasions, forest fragmentation, forest recovery from salvage logging, road and ORV trail density, edge effects, and global warming. Alternative 3 would be most detrimental to the Monument, for most of the same reasons, including the fact that it would result in the least acreage of ACECs (p. 809).

Under the section dealing with mineral extraction, there is no mention of the marble quarry adjacent to Monument. We assume that the quarry will continue to be withdrawn from mineral extraction under all alternatives.

Off Road Vehicles

Your planning document states that all alternatives would reduce the amount of area open to off-highway vehicle use. However, the document also states that under all alternatives, the off-highway vehicle opportunities would increase (page 777). Does this apparent contradiction mean that in the action alternatives, ORV areas would be better marked, publicized, or otherwise developed? The document suggests this but does not directly address the apparent contradiction.

Effects on Species

Extirpations of species on BLM administered lands from some of the listed impacts may lengthen stochastic extirpations on and in the Monument as a result of reduced migration. Given past anthropogenic extinctions in southern Oregon, some species have such narrow or narrowed ranges (one or two counties) that extinctions are likely to occur as well over a hundred year span.

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There are some actual or likely lepidopteran endemics to the Klamath-Siskiyou. Most have ranges more restricted geographically, have higher taxonomic status or smaller populations than those species assessed on p. 714, such as:

Whulge (Taylor's) checkerspot butterfly (southern range limit in Willamette Valley);
Callophrys polios (hoary elfin) (boreal Pacific NW from NWT to Rockies, disjuncts in sOR coast, AK, sRockies);
Oregon silverspot butterfly (near coastal southern limit), Fender's blue butterfly (endemic to Willamette Valley);
Insular blue butterfly (*Plebejus saepiolus insulanus*) possibly in Lane Co. near or at southern limit in range);
Chloealetis aspasma at the southern limit in Jackson Co. of its Benton Co. to sOR range;
Littorina subrotundata (= *Algamorda s.*; *A. newcombiana*) at the southern end of its OR to WA range.

The high biodiversity and endemism of species in caves in Oregon Caves National Monument suggests that certain BLM-managed caves in the Siskiyou may have similar biologic values that would qualify them to be nominated as significant under the Federal Cave Resources Protection Act, an authority not referenced in your document. Therefore, some non-listed species need to be assessed under environmental consequences, consistent with page 719 in which "special status species would be managed to avoid contributing to the need to list as threatened or endangered under the Endangered Species Act."

As with about ten beetle taxa, some of the taxa listed below are presently known only from Siskiyou County in California. These species might soon have a major portion of their range identified on Oregon BLM lands once comprehensive databases for Oregon are completed. Further, many of these species are likely to move northward due to climate change. Some of these species have already been documented over the past few years as appearing at Oregon Caves National Monument for the first time. Comparison with just one genus from the more comprehensive (Oregon and California) snail databases suggests that more pebblesnails should be evaluated than what are listed on page 715 and that beetles and lepidopterans with narrow ranges are almost as common in Josephine or Jackson counties as in Siskiyou Co. Larger lists could have been generated for beetles, snails, macrofungi, and dipterans and smaller lists could be compiled for many other taxa, such as the stonefly *Hydatophylax schuhi* (endemic to Klamaths in Jackson Co., & westernmost Great Basin in Klamath Co., Oregon) and the caddisfly *Rhyacophila colonus* endemic to Josephine & Del Norte Cos.).

Species listings should be reviewed by your exceptional staff of botanists before final publication of the plan to correct some typographical or misspelling errors as indicated in the following examples:

Volume 1 p. 20

Gentener's fritillary is misspelled and should be Gentner's fritillary

Fritillary gentneri is misspelled and should be *Fritillaria gentneri*

Castelleja is misspelled and should be *Castilleja levisecta*



Astaragalus applegatei is misspelled and should be *Astragalus applegatei*

Some statements in the plan should be revised to enhance clarity. We believe that the following statement could cause confusion:

“State listed species where the BLM has not entered into a conservation agreement and species listed by the BLM as sensitive or assessment species will be managed on public domain land and on O & C lands where protection does not conflict with sustained yield forest management in areas dedicated to timber production. This is so that special status designation would no longer be warranted and so that actions will not contribute to the need to list the species under the Endangered Species Act. Where conflicts with sustained yield management occur, protections on O & C lands will only be applied to prevent extinction of a species even if it is not yet listed under the Endangered Species Act”

The statement as written gives the impression that sustained yield forest management will help remove special status designation and such actions will not contribute to the need to list the species. Yet there is no evidence given that this would be the case. Also, preventing extinction needs to be better defined. Does this mean, for example, the likely elimination of a species from greater than 50% of its range?

To better understand ways to avoid plant extinctions, it would be useful to analyze species that likely were once within or close to the management areas covered by this document but which are now apparently extinct, such as *Neothremma siskiyou*, *Fluminicola* undescribed sp. (Frest & Hohannes, 1999) (endemic in Shasta River valley, Siskiyou Co.), *Plagiobothrys lamprocarpus* and *Calochortus indecorus*. The latter should be included even if it was considered a hybrid and not a true species.

Appendix G-1068 – Why is *Vespericola sierranus* listed as a species of concern? It is abundant in northern California. Does this document assume that species at the limit of their geographic range are of concern because they are more likely to be extirpated there than elsewhere? Several similar examples could be cited.

Effects of Climate Change

“The analysis assumes no change in climate conditions, because the specific nature of regional climate change over the next decades remains speculative”. We believe that any analysis that assumes no change in climate conditions is itself speculative. Global climate change has been identified as one of the greatest potential impacts to our National Parks and their natural and cultural resources. An increase in the average annual regional temperature is not just likely; it has already occurred. Increased temperatures could also result in significant changes to hydrologic processes, including reduced snow pack, earlier snowmelt, and shifting of the rain-on-snow zones. Some of these changes have already occurred.



There is no mention of the likely effects of increased atmospheric carbon dioxide on changing the carbon versus nitrogen ratio in plant biomass and the resulting effect on decomposition rates as cited in a recent USFS contracted paper.

Forest Management and Effects from Timber Harvest Activities

p. 564 – The assumption here is that fertilization would speed up growth but there are no cited references supporting that assertion. Several published studies indicate that the effect may be negated by adverse effects on ectomycorrhizae and aquatic animals. The document does not adequately discuss potentially antagonistic effects between mycorrhizae and fertilization and how that interaction may be important in assuring the survival of planted trees and enhancing the growth of desirable trees in harvested or disturbed areas

The assumption that “improved genetics” would increase tree growth also has no cited references. Several published articles suggest that “improved genetics” for faster growth may also make trees more vulnerable to insect and fungal infestations.

P. 494 – It is unlikely under most definitions of what defines “old forest” that the “patch size of mature and structurally complex forests” would increase across all ownerships under Alternative 3 if 63% is harvested in a century. This is likely to be especially true when on the same page where it is asserted that “On the BLM-administered lands, the size and connectivity of the patches of the mature and structurally complex forests would decrease in all provinces under Alternative 3.”

p. 510 – We recommend that you cite Daniel Sarr, NPS Klamath Network Inventory and Monitoring Coordinator, and others on the increase in salmonberry dominated areas in highly productive riparian areas in our region.

p. 557 - It would appear that the volume from thinning is highest under the No Action Alternative. If true then this alternative would be most likely to accelerate the attainment of a more natural mix of old growth and structurally complex forests.

Page 723 – We disagree with the assertion that none of the alternatives would result in increases in stream temperature that would affect fish habitat or populations, except under Alternatives 2 and 3. Federal key watershed analysis of the Sucker Creek drainage in Josephine County concluded that stream temperatures would increase due to Port Orford mortality in riparian areas as a result of Port Orford-Cedar rot. Further into the document, (p. 756) stream temperatures are analyzed to some extent, although Port Orford mortality was not taken into account.

Page 745 – We disagree with excluding dissolved oxygen “because their effects are site specific and have limited applicability to forest management” This needs to be reworded to say that there are only a few sites with such problems - if indeed this is the case (see comments on Port Orford mortality).



p. 749 – “This inconsequential stream lengthening would have no effect on the timing of runoff...” We believe this statement would be more accurate written as “This inconsequential stream lengthening would have no *measurable* effect on the timing of runoff”

p. 775 – We disagree that sightseeing does not require recreation developments. Increased activity of this nature generally leads to requested or constructed improvements on roads and trails including but not limited to roadway enhancement, pullouts and overlooks.

p. 865 – The definition of sustained yield includes “without impairment of the productivity of the land”. In conjunction with other BLM goals and objectives, something should be said of biodiversity, as often the two are incompatible. We believe, biodiversity should be a goal, as well as the fish productivity stated on page 738, even if both goals cannot be maximized.

p. 866 – The term “recover potential mortality” is unclear and may not be understood by other agencies, cooperators or the public.

If you have any specific questions or desire clarification of these comments, please contact me or Natural Resource Specialist John E. Roth at 541-592-2100. The National Park Service looks forward to working with you on implementation of the final, selected alternative in a manner that will protect Monument resources and benefit our shared stakeholders and owner public.

Sincerely,

A handwritten signature in black ink, appearing to read 'Craig W. Ackerman', written over a horizontal line.

Craig W. Ackerman
Superintendent



United States Department of the Interior

1990

FISH AND WILDLIFE SERVICE
911 N.E. 11th Avenue
Portland, Oregon 97232-4181

In Reply Refer to:
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Memorandum

To: Project Manager, Western Oregon Plan Revisions
Bureau of Land Management

From: Assistant Regional Director, Ecological Services, Region 1
Portland, Oregon

Theresa E. Rabot

Subject: Comments on the Western Oregon Plan Revisions

The Fish and Wildlife Service (Service) has reviewed the August 2007 Draft Environmental Impact Statement (DEIS) for the Western Oregon Plan Revisions (WOPR). Our review has focused on important trust resources including species listed under the Endangered Species Act (ESA). In our role as a cooperating agency on the WOPR, we have been involved for the last 3 years in discussing and advising Bureau of Land Management (BLM) on the development of the DEIS. We have continued to work with the BLM following release of the DEIS and have made progress in offering recommendations for a final action. We have focused our attention on identifying important conservation needs of listed species and possible management actions to address those needs.

We recognize that BLM must balance a number of goals and objectives as they move forward with revised land management plans. Our comments reflect our mandate to comment on concerns with fish and wildlife resources as addressed in the DEIS, especially those associated with the Late-successional Reserve (LSR) network established via the Northwest Forest Plan.

The LSR network provided a conservation strategy for many old grow dependent species, including marbled murrelets and northern spotted owls (spotted owls), federally listed species under the ESA. The Service's Draft Recovery Plan for the northern spotted owl relies on a smaller footprint of management areas than is currently provided for with LSR, although management of the areas would be similar. The Service received a number of comments from scientists and the public on the draft recovery plan. Based on the concerns raised, we have requested a science panel to review the scientific basis of the plan in addition to the science relevant to the ecology of the owl. We recognize that the BLM relied on the same science relevant to the owl, including the draft recovery plan, and will keep BLM informed as to the results of the science panel.





General Comments:

1. We believe Alternative 1 provides a protected network of large blocks of late-successional forest habitat that contains the greatest level of conservation among the action alternatives.
2. The landscape management outcomes produced from Alternative 3 do not appear favorable for achieving a viable conservation strategy for spotted owls, marbled murrelets and fisher (a candidate species). The alternative does not provide large blocks of habitat, removes and degrades current habitat through partial harvests, increases fragmentation, thereby reducing overall habitat quality over the planning horizon, and only provides temporary protection to known sites of listed species. Additionally, Alternative 3 does not specifically provide any special management direction in designated critical habitat for listed species.
2. We believe the retention of structural legacies including green trees, snags, and down wood is a fundamental component of providing for wildlife and ecological diversity and should be incorporated as a strategy in the preferred/final alternative. Without a robust strategy to provide for structural legacies there is concern that these older forest characteristics will be lost in future stands produced from regeneration harvest. The incorporation of structural legacies in young stands provides those elements needed to more quickly accelerate the development of habitat for species associated with late-successional forest. We recommend that green tree and snag retention be representative of the average stand diameter or larger.
3. In August 2007, the Service, BLM, and Forest Service signed a Conservation Agreement for the Siskiyou Mountains salamander (*Plethodon stormi*). The agreement and associated Conservation Strategy are intended to promote the conservation of the species. We suggest acknowledging the implementation of this Agreement in the final EIS and RMP.
4. For the purposes of jeopardy analyses under section 7 of the ESA, the Service must address the effect of an action, in this case the BLM's selected alternative of the WOPR, on a species numbers, distribution, and reproduction. While we have commented on a broader scale, information needed to address these parameters is included in species specific comments.

Below are more specific comments on particular species or species groups.

Northern Spotted Owl

Population Issues

BLM has contributed to supporting the Northern Spotted Owl Effectiveness Monitoring Plan as part of the regional monitoring strategy developed under the NWFP. The purpose of this monitoring effort is to assess trends in spotted owl populations and habitat. Monitoring efforts have provided integral information on northern spotted owls since inception of the NWFP. We recommend that the DEIS state whether BLM will continue to participate in this monitoring



effort in Western Oregon and whether any changes to that monitoring effort will be proposed under the selected alternative.

We recommend the DEIS contain an evaluation of the effect of the alternatives on known spotted owl sites. BLM has some of the best and most extensive spotted owl databases; apparently there is no use of this information in the DEIS beyond describing the 2001 to 2004 occupancy, including no analysis specific to the alternatives. In addition, the description of occupancy would be more useful if addressed by District and/or physiographic province.

With respect to the key points on page 282, the DEIS states that populations have been stable since 1985 on Roseburg, Coos Bay, and Medford Districts, and the Klamath Falls Resource Area. What is the basis for this conclusion on Coos Bay, Medford, and Klamath Falls? We are unaware of demographic studies addressing these Districts, and therefore assume that BLM extrapolated from data on other study areas, which carries uncertainties of comparability. The statement does not indicate the source of the information, nor does it seem to acknowledge the uncertainty potentially involved. We recommend that BLM cite the information used for this statement, including the basis for this extrapolation and indicate which demographic study areas are being used in this portion of the document.

Other Non-habitat Factors

The analysis of the effect of the alternatives on spotted owls is generally limited to habitat conditions and does not address non-habitat effects to populations that may operate on BLM lands. There appears to be an implicit assumption that habitat (at appropriate distribution and levels) will be occupied by spotted owls. However, this does not acknowledge the effect of non-habitat factors, in particular barred owls. The Service acknowledges that there are information gaps regarding the effects of barred owls on spotted owls and habitat usage, and that research is underway to address these information needs. The DEIS should acknowledge these uncertainties over barred owl effects on spotted owl populations and describe the manner in which BLM intends to respond to future changes in spotted owl numbers. A final Recovery Plan should assist BLM in developing an adaptive management response to an unacceptable decline in spotted owl numbers.

Habitat Issues

Page 634 states that both quantity and *quality* of habitat is analyzed. However, the rest of the section does not address quality, but simply shows the quantity for each alternative and the change over time. We recommend including a discussion of the quality of the various forest classes. This is particularly important given that the increase in younger forest habitat acres is used to offset the loss of “152,400 acres of existing old forest under Alternative 1 [sic]...” (should read Alt. 2 on page 507 assuming Table 151 is correct). Figure 201 also displays a reduction of old-growth forests on BLM lands and an increase of younger forest habitat over the 100 year analysis time frame (page 589). The impact of replacing existing old forest with younger habitat needs to be fully analyzed since not all spotted owl habitat provides equal benefits to spotted owls. Younger replacement habitat may not provide the full range of benefits to spotted owl survival and reproduction.



Dispersal habitat analysis

The current analysis addresses the total amount of dispersal habitat in general and by 6th field watershed, but is not as clear on how the distribution of the 6th field watersheds with lower amounts of habitat effects the potential dispersal. Furthermore, the maps in the DEIS (pages 664-665) demonstrate the current status and no harvest scenario, but lack a similar visual for the other alternatives, including the preferred alternative. Without a similar spatial representation of dispersal habitat for the preferred alternative, we have insufficient information to provide specific comments. Some type of landscape-level discussion of the pattern is important to the understanding of dispersal.

Stand Level Management Issues

Neither Alternative 1 nor Alternative 2 provides any leave trees in regeneration harvest units. This would likely, over time, reduce the quality of harvested units to provide for spotted owl dispersal across the landscape between the Late-successional Management Areas (LSMAs) by depleting the majority of the prey-base and structural cover in harvested units. The Service recommends adding green tree retention and snag creation/retention guidelines at levels that will increase the likelihood of spotted owl prey species persisting in harvested areas until habitat develops again.

Down wood is a critical component of spotted owl habitat, in particular for spotted owl prey. There are no down wood requirements for Alternative 1 and 2 in timber management areas other than leaving noncommercial wood. We recommend adding requirements that would establish a base level of retained wood, requiring larger wood be left to meet the target if noncommercial wood is insufficient.

Reserve Design – Size and Location

It is our understanding that Alternative 2 was developed based on the guidelines for Options 2 in the Draft Recovery Plan for the Northern Spotted Owl (USFWS 2007) As previously stated, peer review of the draft plan identified issues regarding the scientific foundation of the plan, particularly Option 2. The Service is undertaking an independent, scientific review to address these criticisms. The Service will continue to work with BLM as we identify ways to resolve the issues raised by the peer review.

Page 652 of the DEIS states that in Alternative 2 LSMAs “were allocated explicitly to create spacing of no more than 12 miles between blocks large enough to support 20 pairs (defined in Table 187), and to create spacing of no more than 7 miles between blocks large enough to support 10-19 pairs” with the support of Forest Service lands. We concur with the inclusion of Forest Service LSRs in your analysis of future habitat blocks, but question the size of some blocks. Some of the Alternative 2 LSMAs, as described in Table 190, appear to rely on the inclusion of adjacent non-federal acres to achieve the large block size needed to maintain 20 pairs. This is problematic because of the low likelihood that these lands will provide significant contributions of suitable habitat in the long-term. We agree with the assessment on page 639 that most non-federal lands are unlikely to provide suitable habitat and these lands should not be relied upon for significant contributions for long-term planning. We suggest this assessment be considered in the block size and spacing analysis of Alternative 2.



Reserve Management

The Service believes thinned stands in the LSMA allocation should follow a variable density thinning prescription in an effort to create stands with a greater diversity of canopy heights, tree size, species diversity and openings, among other characteristics. We recommend adding this specifically to the thinning management action for this allocation in Alternatives 1 and 2. Currently, there is not enough specificity for us to understand how thinning in LSMAs will allow or accelerate owl habitat development.

As described above, down wood is very important to northern spotted owl prey. The legacy snags and downed wood created by stand replacing events are important components of high-quality spotted owl habitat, and the landscape distribution of pockets with high quantities of snags and down wood are likely the most difficult to mimic through silvicultural actions. Retaining some percentage of these components in LSMAs would help meet BLM objectives for this allocation. If salvage is allowed in LSMAs, we recommend that the DEIS include standards specific to the minimum amount of leave trees (burned and not) to meet the ecological development needs, with the remainder available for harvest.

Marbled Murrelet

The marbled murrelet recovery plan (USFWS 1997) relies on the LSR network of the Northwest Forest Plan (USDA and USDI 1994) to achieve recovery and describes any suitable habitat in LSRs within Zone 1 as essential nesting habitat for the species (USFWS 1997, page 131). These areas are also currently designated and proposed critical habitat for murrelets (USFWS 1996 and 2006 Alternative 1 is consistent with the murrelet recovery plan in providing a network of well distributed, large blocks of protected habitat. Alternative 1 projects a gradual increase in murrelet habitat in Zone 1 (0-35 miles inland) during the first 50 years and additional increases out to 100 years. In addition, Alternative 1 would maintain and improve habitat quality and possibly reduce nest predation

We believe the strategy for Alternative 2 overlooks key recommendations of the marbled murrelet recovery plan and its guidance for achieving the recovery needs of the species. Alternative 2 projects a continual decrease in the amount of murrelet habitat for the first 50 years, and excludes important areas from habitat protection in LSMAs. Although the Alternative projects habitat will increase from 50-100 years, this has uncertain value to the species if the preceding 50 years of habitat declines produces population impacts that result in fewer murrelets occupying BLM administered lands. Alternative 2 holds the potential to decrease habitat quality and increase nest predation. Nest predation is a major threat to the species and increased predation resulting in reduced reproductive success of murrelets could forestall recovery. The Service believes the LSMA network of Alternative 2 and projected loss of habitat during the first 50 years does not provide an effective strategy to address the conservation and recovery needs of the marbled murrelet.

In our role as a Cooperator, the Service has worked with the BLM to review the murrelet recovery plan actions along with BLM's most recent survey and habitat information to develop a potential strategy that recognizes BLM's timber management needs as well as the recovery needs of the murrelet. The outcome of the team was a mapped LSMA network that focused on



conservation in Zone 1. We recommend this work be further refined and considered as a basis for a final strategy in the WOPR.

Currently, BLM management under the RMPs implements murrelet surveys prior to timber harvest in suitable habitat. When surveys identify murrelet occupied sites, those areas are protected from harvest. This is an important management action in determining where occupied murrelet sites occur on the landscape and is emphasized in the recovery plan under recovery action 4.1.6. The plan states, "all aspects of marbled murrelet recovery in the terrestrial environment depend on identification of nesting habitat". Surveys are the only practical means of identifying marbled murrelet nesting areas (i.e. occupied sites). Alternative 1 proposes to maintain surveys prior to habitat-disturbing activities and the DEIS projects that surveys would lead to the discovery of 601 new occupied marbled murrelet sites. Alternative 2 does not propose to maintain surveys prior to habitat-disturbing activities, and using the same projection from Alternative 1, approximately 600 occupied murrelet sites would be available to timber harvest impacts. Furthermore, the number of murrelet sites that could be impacted would likely be higher under Alternative 2 because of its smaller LSMA network compared to Alternative 1. The DEIS does not contain an analysis of the population effects from the loss of occupied murrelet sites due to discontinuing surveys and protection of additional sites under Alternative 2. The Service believes that surveys prior to removal of suitable habitat that result in protection of occupied nest sites are a critical component in providing for adequate conservation of nesting habitat and breeding sites. We recommend the final EIS/RMPs include direction to continue surveys prior to timber harvest and protect areas where occupied behaviors are observed.

Aquatic Species and Riparian Habitat

The designation of Riparian Management Areas relies heavily on the information contained in the document "Northwest Forest Plan Temperature TMDL Implementation Strategies" dated September 9th 2005. The Service was asked by the BLM and Forest Service to comment on the TMDL Implementation Strategies and did so in a letter addressed to Kathryn J. Silverman and Michael J. Haske dated July 24, 2007 (attached). In the letter, the Service comments on several items in the TMDL Implementation Strategy that could benefit from further description or explanation. Given the significant role of the TMDL Implementation Strategies document/SHADOW model in regard to the designation of riparian buffer widths/management areas, clarity in the DEIS could be provided by addressing our previous set of comments.

The information provided in the DEIS chapter 3, affected environment, stream temperature section, heavily cites the Northwest Forest Plan Temperature TMDL Implementation Strategies document in regard to describing solar physics and relationships between shade zones and temperature changes. The TMDL Implementation Strategies document is specific in regard to a narrow/focused evaluation of solar radiation delivery to water bodies and the resultant temperature change. The TMDL Implementation Strategy document acknowledges that the strategy only pertains to temperature related issues and does not address other important riparian functions such as hydrologic, geomorphic, and ecologic processes that affect riparian condition. The DEIS relies on shade zones to set Riparian Management Area widths, but the DEIS does not resolve issues associated with reduced riparian area widths as it pertains to hydrologic, geomorphic, and ecologic processes that affect riparian condition and ultimately fish resources (listed or not).



The TMDL Implementation Strategy document acknowledges that stream orientation, sinuosity, aspect, bank and channel stability, channel migration, and the potential for sediment loading must also be considered in determining the width of the primary shade zone. The DEIS needs to explain how these factors are accounted for in delineating the width of the Riparian Management Areas across the broad landscape of the WOPR area.

Aquatic species of high interest to the Service include bull trout, shortnose and Lost River suckers, coastal cutthroat trout, and Pacific lamprey, in addition to anadromous salmonids. These species would benefit from management that provides for recovery or conservation measures that would preclude the need to list under the ESA. In addition to fish-bearing streams, the riparian buffers for non fish-bearing streams are equally important for the needs of sensitive species, including amphibians such as the tailed frog and torrent salamanders (BLM sensitive or assessment species). These amphibians rely on cold, clear water and adjacent riparian areas with late-successional forest characteristics. The buffers in Alternative 2 provide little forest retention that maintains these characteristics, and in the case of small streams, no conifer forest buffer is retained. On page 345 the DEIS states, “a small portion of the headwater stream network is important in producing landslides and debris flows that can provide large wood to streams”, however, this rationale does not recognize that the majority of watershed area is adjacent to intermittent and low order headwater streams, so cumulatively, these areas may be disproportionately important in creating and maintaining aquatic habitats. We recommend the DEIS include more clarity and specificity on how the reduced buffer widths in the action alternatives adequately address the conservation and recovery needs of listed and sensitive aquatic and riparian species.

Botany

Federally Listed Plants

The DEIS on page 594 describes all alternatives as having no loss of occupied habitat, individual plants, or populations as a result of management activities because species recovery measures would be applied. We understand that Appendix E provides an abbreviated summary of recovery plan actions, but we are unclear how these actions relate to management commitments in WOPR that lead to protecting plants as intended. For example, if plant surveys were a key action to ensuring no loss of plants or populations prior to management, they should be identified as a management action. It would be helpful to provide more specificity on which recovery actions would be implemented. This is particularly important for listed plants that do not have completed recovery plans.

On page 46, Table 19, we note an error in the inclusion of Kincaid’s lupine as a species with a completed recovery plan. The Service anticipates a draft recovery plan available for review in the summer of 2008.

BLM Sensitive and Assessment Species

There are 134 species identified as BLM special status species that occur in the planning area. Under BLM’s Special Status Species Policy conservation measures would be applied for many of these species. According to the DEIS, conservation measures would not be applied to special status species in the conifer habitat group that occur on O&C lands unless 20 or fewer



populations were known to exist. On page 46, it states that where species conflict with sustained yield management, protections on O&C lands will only be applied to prevent extinction. The Service is concerned that managing species populations to only prevent extinction could reduce species numbers or populations to a point where conservation measures are applied too late to be effective. This could present a high risk of local extirpation and contribute to the need to list species under the ESA. Page 604, states, "Any population losses from management activities to species with 20 or fewer populations would contribute to the trend toward local extirpation or extinction of the species within the planning area (Ellstrand and Elam 1993, USFWS 2003, Kaye pers. com. 2007, Friedman, pers com, 2007)." The total number of populations needed for species persistence may depend on many factors including the health or robustness of the individual populations, distribution, rate of decline, and the degree of threats affecting those populations. For example, eight plant species in Oregon were listed under the ESA with greater than 20 populations. We recommend the DEIS acknowledge that the health of individual populations, the threats to those populations as well as the total number of populations need to be examined when considering whether to provide conservation measures. There may be concern for species persistence when greater than 20 populations exist.

We recommend the final EIS provide more clarity as to whether BLM management presents a risk of extirpation or extinction of any sensitive and assessment species in the conifer habitat group, and whether certain species may need additional conservation measures. In the interest of complete information, we suggest a table of the Special Status Species in the conifer forest habitat group that would be provided with conservation measures and those species that would not be protected. The table should include number of populations, the population size in areas, and respective number of individuals in the populations. The final EIS should also acknowledge the Conservation Agreement for the Wayside Aster (*Euchecephalis vialis*) recently completed in 2006 between the Service, BLM, and Forest Service.

Land Birds

Appendix A of the DEIS lists various major legal authorities relevant to the proposed plan revisions, but does not include the Migratory Bird Treaty Act (MBTA)(1918). The MBTA makes it unlawful, "by any means or manner, to pursue, hunt, take, capture [or] kill" any migratory bird except as permitted by regulation (16 U.S.C. 703-704). On July 18, 2000, the United States Court of Appeals for the District of Columbia held in *Humane Society v. Glickman*, 217 F. 3d 882 (D.C. Cir. 2000), that the MBTA applies to Federal agencies. As all Federal agencies are subject to the jurisdiction of the D.C. Circuit, the Service implements the MBTA consistent with this decision. Therefore, take of migratory birds by Federal agencies is prohibited unless authorized pursuant to regulations promulgated under the MBTA. The DEIS analyzes effects on land birds (i.e. migratory birds), but it is not clear how those effects comport with the BLM's obligations under the MBTA. We suggest adding the MBTA to the list of major legal authorities that are relevant to the planning process.

In concert with the MBTA and other relevant legal authorities, we recommend adding Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), which states that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations is directed to develop and implement a Memorandum of Understanding with the Fish and Wildlife Service that shall promote the conservation of migratory bird populations, with special emphasis on management for Birds of Conservation



Concern. We suggest some analysis on whether such an MOU is necessary to address any negative effects to migratory bird populations, especially in eastside conifer forests where the analysis predicts significant negative trends in habitat.

In the DEIS, we support the use of the Partners in Flight (PIF) bird conservation plans, structural features of the habitat classes, and focal species that indicate those desired conditions. In particular, we emphasize support for retention of legacy components of green trees and snags (in clumps) in regeneration harvest units. We note that none of the focal habitats in Altman's Lowlands and Valleys bird conservation plan is incorporated (see Table 103) despite the overlap with BLM lands, and your reference to this bird conservation plan (Altman 2000b on p. 327). This could be addressed by including plant groups called Riparian, Oak, & Chaparral, and choose focal species that represent habitat conditions as with the other analytical groups adopted in the DEIS from the other PIF plans.

On page 328, the habitat objectives are general, but no link is provided to the Focal Species in Table 103. Focal species are responsive to the habitat conditions listed in Table 103, and their abundances indicate success in achieving desired habitat conditions. Monitoring abundance of focal species should be mentioned here, as the path to evaluating the effectiveness of management. Since they are 'analytical groups' of land birds, the DEIS should explain how they will be analyzed. It should be noted that several species in Table 100 should occur in more than one group. For example, Purple Martin and Lewis's Woodpecker under the 'snag-dependent' group, Yellow-breasted Chat under the 'riparian' associates, and White-headed Woodpecker and Flammulated Owl should be under the 'older forest' associates.

The analysis of effects on land birds from the alternatives concludes that all alternatives meet objectives for mature and structurally complex forests. While this may be the case at 100-year projections, the analysis does not evaluate the effects to species in the near term (10-50 years) where some alternatives exhibit a decline of structurally complex forests prior to later increases (50-100 years out). The consequences for some birds of concern would be improved with retention of structural legacies including green trees, snags, and down wood well distributed in regeneration harvest units. Lacking a strategy for retention of structural legacies is likely to add to the declining status of some Birds of Conservation Concern.

Summary

In closing, these comments are intended to assist the BLM in developing a final management plan that addresses late-successional and old-growth forest resources and complies with the ESA. We have significant concerns that the preferred alternative would undermine current efforts to provide conservation and recovery of currently listed species, in particular the northern spotted owl and marbled murrelet. However, we believe the DEIS has analyzed the building blocks for a strategy that would fully meet the BLM's obligations. We are currently working with your agency to address these issues and value our role as a cooperator in the development of the final Resource Management Plans. We appreciate the opportunity to review the DEIS and look forward to continued collaboration. If you have questions regarding these comments, please contact Lee Folliard or Miel Corbett at (503) 231-6179.



References:

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USFWS (U.S. Fish and Wildlife Service). 1996. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Marbled Murrelet; Final Rule. Fed. Reg. Vol. 61. 102:26256-26320. May 24, 1996.

USFWS (U.S. Fish and Wildlife Service). 1997. Final recovery plan for the marbled murrelet. U.S. Fish and Wildlife Service. Portland, Oregon.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

January 9, 2008

Reply to
Attn Of: ETPA-088

EPA Ref: 91-0079-BLM

Edward W. Shepard, State Director
USDI Bureau of Land Management
Western Oregon Plan Revisions
P.O. Box 2965
Portland, OR 97208

Dear Mr. Shepard:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management (BLM) Districts of Salem, Eugene, Roseburg, Coos Bay, and Medford, and the Klamath Falls Resource Area of the Lakeview District (CEQ No. 20070332). Our review has been conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The Western Oregon Plan Revision (WOPR) will establish management guidelines for approximately 2.6 million acres of BLM-managed land in Western Oregon. The DEIS considers a “no action” alternative (current management under the Northwest Forest Plan) and three additional action alternatives. The current annual timber harvest level is 268 million board feet and riparian management area (RMA) widths range from 180 feet to 360 feet depending on stream type. Alternative 1 proposes an annual timber harvest level of 456 million board feet and proposes RMA widths of 90 feet to 180 feet depending on stream type. The preferred alternative, Alternative 2, proposes an annual timber harvest level of 727 million board feet, proposes RMA widths of 25 feet to 100 feet depending on stream type, and increases timber harvest levels within RMAs. Alternative 3 sets annual timber harvest at 471 million board feet and employs a riparian strategy similar to Alternative 2.

EPA recognizes the management challenges created by the mixed private/federal ownership of the WOPR landscape, the diverse resource needs, and multiple statutory requirements. The BLM EIS interdisciplinary team is to be commended for their effort in this ambitious and difficult undertaking. We also want to recognize BLM’s efforts to engage and inform the public in new and innovative ways and trust this will help inform BLM’s selection and development of the proposed action in the final EIS.

EPA has served as a cooperating agency on this project for over two years. In that capacity, EPA has consistently raised concerns about the sufficiency of the aquatic/riparian strategy in Alternatives 2 and 3 in meetings, during WOPR planning criteria and alternatives development, and in writing. EPA’s concerns have not been addressed in the DEIS. These concerns are heightened by what EPA believes to be the lack of a sound scientific basis for the aquatic/riparian strategy proposed in Alternatives 2 and 3.

EPA is concerned that Alternatives 2 and 3 would result in substantial, long-term impacts to water quality and exacerbate current exceedances of water quality standards in streams listed as impaired under Section 303(d) of the Clean Water Act (impaired waters). EPA is also concerned about significant impacts to drinking water and aquatic species that could be corrected by project modification or choosing



another feasible alternative. Direct, indirect and cumulative impacts would affect waters on both BLM and non-BLM lands. Therefore we have assigned this draft EIS a rating of EO-2 (Environmental Objections - Insufficient Information). A copy of the rating system used in conducting our review is enclosed for your reference.

Watersheds covering approximately one million acres of the BLM planning area include streams that do not meet water quality standards (WQS) designed to protect drinking water, aquatic life, and other beneficial uses. Over 900 stream miles on BLM lands in the planning area are listed as impaired due to management-related temperature, sediment, and other pollutant loadings. Over one million Oregonians receive their drinking water from source water originating in watersheds on BLM lands in western Oregon. Salmon and trout species listed under the Endangered Species Act (ESA) and numerous at-risk fish stocks are dependent on cold water refugia on BLM lands within a fragmented western Oregon landscape where degraded conditions exist on non-BLM lands. To ensure that management of BLM lands protects and restores water quality, drinking water, and aquatic life, EPA recommends inclusion of a demonstrated, conservative aquatic protection strategy in the proposed action alternative in the final EIS.

On streams listed as impaired for failing to meet WQS, the Oregon Department of Environmental Quality and EPA are required to develop total maximum daily loads (TMDLs) that address water quality impairments. The Aquatic Conservation Strategy (ACS) under the Northwest Forest Plan (NWFP) has been a cornerstone of the federal land contribution to water quality improvement for BLM lands and for developing and implementing TMDLs. Monitoring and assessment efforts have demonstrated the success of the ACS in improving watershed health on federal lands. EPA considers these improvements to be an important achievement and we are deeply concerned that alternatives 2 and 3 would reverse positive trends achieved under the ACS. Extensive research and assessment efforts support continued application of the ACS as necessary to protect riparian functions critical to maintenance and restoration of water quality and beneficial uses.

For example, there are 710 stream miles in the WOPR planning area that do not meet the State WQS for temperature. The RMAs currently in place under the ACS will provide the system potential shade as well as the full complement of large wood inputs and sediment filtering necessary for improved stream conditions and reduced stream temperatures. In addition to the broad body of science related to water quality and riparian function (please see our enclosed detailed comments), modeling conducted by EPA indicates that application of WOPR Alternatives 2 and 3 would increase stream temperatures substantially more than predicted in the DEIS.

Additional water quality concerns identified in our review include impacts to sediment loading and peak flow from increased harvest levels and decreased riparian protection. Our analysis, also detailed in the enclosure, indicates that the modeling approach taken in the DEIS likely underestimates the contribution of sediment from the road network, land management activities, and debris flow events. It appears that the DEIS underestimates the number of watersheds susceptible to peak flow increases and related water quality impacts, due to the nature of data and assumptions that were used in the peak flow analysis.

Finally, we are concerned that the action alternatives in the DEIS do not afford additional protection for BLM lands in the WOPR planning area that provide drinking water to over one million Oregonians through 113 community water systems. Given the importance of BLM lands to drinking water in Oregon, the potential direct water quality impacts under the action alternatives, and the cumulative effects to water quality from harvest on BLM and adjacent private lands, EPA believes that a more protective approach should be pursued in source water areas on BLM lands.



In order to address the issues we have identified in our review, we recommend that the final EIS consider the adoption of a more conservative approach to RMAs as follows:

- In those watersheds currently meeting water quality standards, and which are not designated for fish recovery or public water supply, EPA recommends adoption of RMAs as described in the no action alternative or as described in Alternative 1.
- In watersheds with impaired waters, and watersheds designated for fish recovery or public water supply, we recommend adoption of RMAs as described in the no action alternative.
- Where Key Watersheds have been identified, EPA recommends that they be maintained, and managed consistent with direction obtained from watershed analysis and source water protection plans.
- We also recommend that the final EIS consider the adoption of a requirement for continued watershed analysis and a monitoring and adaptive management program.

Our detailed comments and recommendations are enclosed. EPA appreciates the opportunity to engage with BLM as a cooperating agency and recognizes the challenges posed by adhering to the rigorous schedule assigned to this EIS. EPA remains committed to working with BLM to address these issues. If you have any questions regarding EPA's comments, please contact me at 206-553-1272, or Christine Reichgott, Manager, NEPA Review Unit at (206) 553-1601.

Sincerely,

/s/

Michelle Pirzadeh, Director
Office of Ecosystems, Tribal and Public Affairs

cc: ODEQ, Neil Mulane
NOAA, Mike Tehan
USFWS, Kemper McMaster
EPA, Dave Powers

Enclosures: 1) EPA Region 10 Detailed Comments
2) EPA Rating System for Draft EISs



Western Oregon Plan Revision Draft Environmental Impact Statement EPA Detailed Comments

1.0 WATER QUALITY

EPA is concerned that Alternatives 2 and 3 would result in substantial, long-term impacts to water quality and exacerbate continued exceedances of water quality standards in streams listed as impaired under Section 303(d) of the Clean Water Act (CWA). EPA's concerns are based on a broad body of science related to riparian buffer effectiveness and water quality, information provided in the DEIS, and EPA water quality temperature modeling of the DEIS riparian protection strategy. EPA's analysis of the alternatives' potential impacts related to temperature, sediment and peak flow is provided below. We also provide input on the analytical assumptions underlying the DEIS modeling effort that relate to shade and buffer width.

1.1 SCOPE AND CONTEXT

BLM lands in Western Oregon provide drinking water to over one million Oregonians through 113 community water systems (USDI/USDA, 1996). In addition, there are many Oregonians not served by community water systems that rely on BLM lands for drinking water. There are currently over 900 stream segments on the 303(d) list in the BLM planning area which are impaired by excess temperature, sediment, and other pollutants. These streams do not meet the water quality standards which are deemed to be protective of beneficial uses such as fish and aquatic life and drinking water.

The aquatic conservation strategy (ACS) currently in place on BLM lands is recognized by EPA and the Oregon Department of Environmental Quality (DEQ) as key to the implementation of TMDLs and meeting water quality standards. The ACS is also a critical element of DEQ's conditional approval of BLM's temperature total maximum daily load (TMDL) implementation strategy.

When the Northwest Forest Plan (NWFP) was adopted, studies showed 70 percent of streams on lands administered by the BLM to be out of compliance with CWA standards (FEMAT Report, Chapter V). After 10 years of NWFP implementation, watershed conditions for 57% of the watersheds across the NWFP area have improved and only 3% of the watersheds, primarily in areas that have experienced large scale fires, are on a declining trend (Gallo, et. al., 2005). In an analysis of several hundred research, assessment, and monitoring efforts, investigators found that the level of management in the NWFP is appropriate, stating that there is "no scientific evidence that either the default prescriptions [riparian reserves] or the options for watershed analysis in the Northwest Forest Plan...provide more protection than necessary to meet stated riparian management goals." (Everest et. al., 2006). The overwhelming body of science and the



importance of aquatic resources to drinking water and aquatic species strongly support continued application of aquatic protection measures currently in place on BLM lands.

1.2 TEMPERATURE ANALYSIS

EPA has examined the science and assumptions in the DEIS supporting the proposed stream shade target and the proposed riparian management area (RMA) widths for perennial streams. We have concerns about how the information was used to support conclusions in the DEIS. In addition, we have concerns about relying on “natural variability” as a management concept in the analyses. Based on our review and our own modeling efforts, we are concerned that Alternatives 2 and 3 would result in impacts to water temperature and exacerbate continued exceedances of temperature standards in impaired waters.

1.2.1 Shade Target

The DEIS states that 80% effective stream shade “...corresponds to less than a 0.2°F change in stream temperature per mile of stream, which is considered to be within the range of natural variability.” (p. 750). This conclusion is based on an interpretation of figure 311 in the DEIS (p. I-1116). Figure 311 was developed as part of the 2005 Northwest Forest Plan Temperature TMDL Implementation Strategy (TMDL Strategy). EPA worked closely with DEQ, the Forest Service and BLM as the TMDL Strategy was developed. We are concerned that individual components of the TMDL Strategy (such as figure 311) have been excised and incorporated into the DEIS in ways that are inconsistent with agreed upon criteria and caveats associated with TMDL Strategy implementation.

The TMDL Strategy was developed to demonstrate the adequacy of existing direction (i.e. the NWFP ACS) to protect and maintain stream shade, and to demonstrate how riparian thinning could benefit long-term achievement of higher shade levels and other riparian functions in site specific cases. It was not intended that an 80% stream shade target would be adopted as a landscape target. Nor was it intended that the site-specific management provisions within the TMDL strategy would be implemented independent of the Northwest Forest Plan and its attendant standards and guidelines.

Under the TMDL Strategy, riparian thinning is limited to projects in dense stands that would benefit from thinning. The Strategy also limits thinning within the RMAs and calls for continued application of the NW Forest Plan ACS. The need to implement the ACS was reiterated by DEQ in their 2005 approval of the temperature TMDL Strategy for use on federal lands within the NWFP area. In addition, DEQ's approval letter calls for continued monitoring, and additional analysis for shade, sediment, and cumulative effects. EPA believes that WOPR alternatives 2 and 3 are not consistent with the TMDL Strategy and do not meet the terms of the DEQ conditional approval.



1.2.2 Riparian Management Area Determination

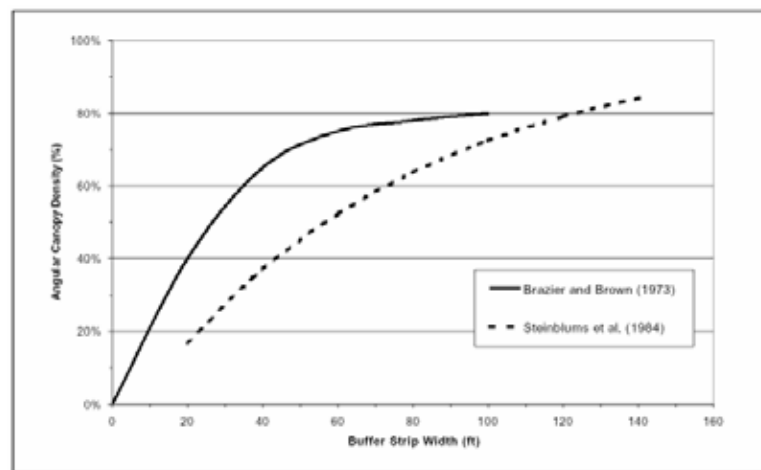
Alternatives 2 and 3 apply a 100-foot Riparian Management Area to perennial streams. The justification for this prescription relies on Figure 5 in Brazier and Brown (1972), which is represented as Figure 98 in the DEIS (p. 367). This figure relates angular canopy density (ACD) to buffer width. There are a number of limitations to the use of the Brazier and Brown study which are not acknowledged in the DEIS. First, this study was done on a small non-random sample of 13 reaches along nine small mountain streams in Oregon bringing into question the extrapolation of the study to a broad scale. Secondly, the relationships identified in the Brazier and Brown study may be subject to artificially high R^2 values.

For example, Figure 3 in Brazier and Brown illustrates the observed relation between buffer strip width and heat blocked. While the calculation behind this figure includes a regression with a high R^2 (0.8749), that high R^2 is achieved by excluding 4 data points and forcing the regression calculation through 0. Recalculating that regression with all 13 data points and without forcing the regression through 0 leads to an R^2 of less than 0.2. This key relationship on which the analysis of buffer width is largely based is much more complex than portrayed in the DEIS.

It is also important to acknowledge that the Brazier and Brown shade study did not account for the likelihood of riparian corridor blow-down, disease, or other factors that reduce angular canopy density. Research has found that in the 1 to 3 years after harvest, windthrow affects, on average, 33% of buffer trees with blowdown exceeding 90% at the high end of the range (Grizzel and Wolff 1998). Other analysis from the west Cascades of Oregon indicates that about 75% of riparian buffers less than 80 feet wide experience greater than 20% blowdown (Pollock et. al. 1998). In 2007, the Washington Department of Ecology compared the Brazier and Brown shade curve with a shade curve derived from a study done by Steinblums et al. (1984) that accounted for blowdown in the riparian buffer. (WADOE, 2007). The results of that comparison are captured in

Figure 1:

Figure 1. Shade Curve Comparison





As can be seen in Figure 1, the buffer widths needed to achieve a given shade level are wider under the Steinblums curve than are those under the Brazier and Brown curve. For example, to achieve an angular canopy density of 80%, the Steinblums curve suggests that a buffer of at least 120 feet is needed. We also note that the Steinblums curve shows ACD to be still increasing beyond 120 feet. Brosofske et al. (1997) analyzed the relationship between solar radiation received by streams and buffer widths for streams in western Washington. The Brosofske study measured solar radiation directly (using a LI-COR silican pyranometer) as opposed to visually estimating solar radiation (ACD measurement). This study found that 100% of natural shade levels are provided by riparian areas approaching 250 feet wide. These findings are in contrast with the DEIS which states, “There is little shade gained from trees that are more than 100 feet away from a stream’s edge” (p. 366).

Based on the information presented above, EPA believes that there are flaws with the analytical assumptions associated with the buffer width model, and that the model therefore significantly underestimates shade levels and the potential temperature responses of alternatives 2 and 3.

1.2.3 Managing to “Natural Variability”

As noted above, the DEIS concludes that maintaining 80% effective shade corresponds roughly to a 0.2°F increase over 1 mile, and that this is “within the range of natural variability” (DEIS, p. 750). EPA is concerned that a 0.2° F increase would be in conflict with TMDL load allocations established for some basins. DEQ’s TMDLs generally call for system potential shade (which may be greater or less than 80% shade) and some TMDLs in the planning area have load allocations less than 0.2° F for nonpoint sources (Umpqua basin and Willamette TMDLs). The TMDLs within the planning area include load allocations that represent a threshold protective of both aquatic life and water quality. We recommend that the DEIS use TMDL allocations or other scientifically supported targets at least as protective of stream temperature conditions as TMDLs. Another sound approach would be for the DEIS to commit to and analyze no net increase in stream temperature loading, and propose a system of modeling (and monitoring) at smaller spatial scales.

1.2.4 Temperature Modeling

As noted above, the DEIS bases its conclusion that 80% effective stream shade “...corresponds to less than a 0.2°F change in stream temperature per mile of stream...” (p. 750) largely on figure 311. This approach relies on *a non reach-specific* temperature model sensitivity analysis conducted in 1999 as part of the Upper Sucker Creek Temperature TMDL analysis. In this analysis, the model sensitivity analysis was not used to evaluate stream temperature response. The DEIS, however, uses these modeling results to predict temperature response to timber harvest across the plan area. Because this model is not reach-specific and does not consider site specific conditions or seasonal



temperature variation, EPA believes this approach does not predict or evaluate stream temperature response to the proposed alternatives in a meaningful way.

Recent modeling efforts and field studies indicate that stream temperature response to buffer width can be highly variable, and sensitive to site-specific conditions. The Washington Department of Ecology (2007) modeled the effects of several riparian buffer widths on stream temperature. Over 1,000 feet of harvest, they documented increases of 1.5, 1.2, and 1.1°F for buffer widths of 30, 50, and 75 feet, respectively. In 2005, Moore considered field studies looking at 30 meter buffers. That publication described temperature responses ranging from 0.5° F (in British Columbia) to 3.6° F in Oregon (Moore 2005, Table 1).

This observed variability and sensitivity to small changes in the riparian zone suggests that application of heat budget models, such as Heat Source¹, should be used to diagnose temperature variations in response to riparian stand treatments and as a tool for confident extrapolation to new management situations. To this end, EPA conducted several temperature model runs for Canton Creek. Canton Creek is a temperature-impaired waterbody located in the Umpqua Basin for which a TMDL was recently completed. We employed the Heat Source model used in development of the Umpqua TMDL to evaluate the temperature change resulting from the application of alternatives 2 and 3. This modeling (included as attachment A) demonstrates that the application of Alternatives 2 and 3 would increase the 7-day average daily maximum (ADM) stream temperatures on Canton Creek over 0.7° F. This is substantially greater than the 0.2° F per mile temperature increase predicted by the DEIS (p. 750). Further, the EPA modeling results indicate that management on BLM lands under Alternatives 2 and 3 would increase instream temperatures on downstream “private” lands along Canton Creek.

In addition, because it can be expected that the narrower riparian buffers under Alternatives 2 and 3 would result in significant blowdown (see blowdown discussion in section 1.2.2), EPA adjusted the Canton Creek model to evaluate the effects of blowdown on stream temperature consistent with appropriate blowdown research. Results showed that the 7-day ADM temperature increases would exceed over 2 degrees F on Canton Creek (see Attachment A).

These modeling results lead us to conclude that the riparian management scenario under Alternatives 2 and 3 would significantly compromise BLM’s ability to meet water quality standards for temperature and TMDL load allocations. The impacts would be direct, cumulative and have long-term effects both on and off of BLM lands.

¹ Heat Source is the temperature model used by Oregon Department of Environmental Quality to quantify temperature response to prescribed TMDL allocations. The Heat Source model was review by the Independent Multidisciplinary Science Team (IMST) and they concluded that it is a scientifically sound model and incorporates the major physical factors that determine stream temperature - <http://www.fsl.orst.edu/imst/reports/summaries/2004-01es.pdf>.



1.3 SEDIMENTATION ANALYSIS

The DEIS states that the increase in the amount of fine sediment delivered to streams from new permanent roads would be less than 1% under each of the alternatives (p. LXI). This appears to be the primary source of management-related sediment considered to impact water quality in the DEIS. EPA is concerned that this conclusion appears to understate the contribution of sediment from the larger road network, land management activities, and management-related debris flow events. EPA recommends that the FEIS further consider the following issues as they relate to Alternatives 2 and 3.

1.3.1 Road Related Sediment

In the DEIS, the analysis of sediment delivery to streams is limited to the portion of BLM roads “within 200’ of a stream channel where ditch flow carrying fine sediment could enter streams” (p. 377). DEIS Table 115 projects that approximately 36% of the BLM road miles would likely deliver sediment. This stream-connectivity value is lower than values established by previous research. A 1997 study of channel network extension by forest roads in the western Cascades of Oregon found 57% of roads are hydrologically connected to streams (Wemple et al. 1996). Reid and Dunne (1984) reported 75% road-stream connectivity in the Clearwater basin of Washington. Waterbars, midslope road segments, and cross-drain culverts not associated with stream crossings can also deliver sediment to streams (Skaugset and Allen, 1998). EPA believes the contribution of sediment from a larger portion of the road network is likely and should be considered in analyzing potential sediment impacts.

1.3.2 Harvest Related Sediment

The sediment modeling approach in the DEIS does not account for forestry related activities such as yarding, skidding, site preparation, and canopy removal which have been demonstrated to contribute to surface, gully and large-mass soil movements (Megahan 1972, Karwan et al. 2007). Alternatives 2 and 3 are of particular concern, as they have narrower RMAs on both perennial and intermittent streams and allow extensive timber harvest within and outside of RMAs.

Under Alternatives 2 and 3, harvest of trees within and adjacent to RMAs would decrease both bank stability and canopy-related protection of soils with attendant increases of sediment delivery to streams. Vegetation strongly influences the mode and timing of erosion processes through modifications to soil strength, surface materials, and hydrology. Roots are effective at avoiding progressive bank failure (Thorne 1990) and root networks in forests can lend cohesion to soils of low inherent strength (Schmidt et al. 2001). Shallow landslides in some areas are characteristically located at some distance from the nearest trees (Roering et al. 2003). Forest canopy intercepts precipitation and contributes periodic inputs of organic material to the forest floor reducing the displacement of soils near streams. Sediment inputs from bank disruption tend to be relatively fine-grained, and can increase turbidity during low-flow periods when natural turbidity levels tend to be low. Low-flow inputs can stress aquatic organisms already impacted by low flows or high stream temperatures (Reid 2005).



Alternatives 2 and 3 would allow harvesting of all but 10 - 15 trees per acre (leaving approximately one tree every 115 feet) within the 25-foot RMAs along non-debris flow intermittent streams. These streams constitute a major portion of the stream network, particularly in western Oregon, and have a high probability of excessive erosion from ground disturbing activities where a moderate to high erosion hazard is present. In some watersheds (e.g., Scappoose Bay Watershed) the majority of the intermittent stream network on forested lands has a moderate to high erosion hazard rating (David Evans and Associates, 2000). In addition to extensive harvest next to intermittent streams, removal of 50% of the canopy over a substantial portion of the RMAs within 100 feet of perennial streams would be permitted under alternatives 2 and 3. Clearcutting with no green tree retention would occur directly adjacent to the 25-foot and 100-foot buffers, respectively.

1.3.3 Stream Channel Sediment

The significant reduction of trees within harvested riparian buffers and clearcutting adjacent to RMAs would result in near term and long term reductions of inputs of large wood, particularly for intermittent stream channels. Wood, in both intermittent and perennial streams, serves to route, store, and attenuate the downstream delivery of sediments. Montgomery et.al. (2003) showed that the sediment retained on site behind large downed wood can be fifteen times greater than sediment transported downstream. Large wood also plays an important role in forming and providing habitat for aquatic species.

The ecological impact of reduced large wood inputs has been documented in watersheds with a high proportion of private lands in western Oregon. Oregon Department of Fish and Wildlife surveys on 2,000 miles of streams on private industrial forest lands found that 60% of the surveyed streams were rated as poor for large wood, and large conifer stocking levels on 94% of these streams were rated as poor. The surveys also found elevated sediment levels in smaller streams on private industrial forest lands (Thom et al. 1999). From 1995 - 2004 over \$30 million was spent by the Oregon Plan partnership for riparian and instream enhancement projects to address degraded riparian and stream conditions on private lands. Forest Service and BLM lands are frequently the only source of large wood within mixed ownership watersheds for projects on private lands. BLM's proposed RMAs and harvest requirements under Alternatives 2 and 3 have the potential for significant direct and cumulative impacts related to large wood inputs and associated sediment effects, and EPA believes these issues warrant consideration in the FEIS.

1.3.4 Debris Flow Events

"Landsliding, mass failures, and debris torrents" are discussed as potential results of harvest (DEIS, p. 378). However, sediment and large wood delivery related to these processes are marginalized in the DEIS analysis, which assumes "the rate of susceptibility to shallow landsliding from timber harvests...would not increase...because fragile soils that are susceptible to landsliding...would be withdrawn" (DEIS, p. 763). This assumption conflicts with observed landslides on BLM lands not withdrawn from



timber harvest. The Timber Production Capability Condition (TPCC) approach BLM used to identify “fragile soils” in the DEIS was developed to identify the land base suitable or unsuitable for harvest, not specifically to predict potential landslide sites. The DEIS indicates that 71% of the 1996 landslides measured on BLM lands were from clearcut harvest units that are still in the land base suitable for harvest (p. 379). Based on the DEIS soils analysis, some areas judged to be of lower risk have failed in the past (p. 797). The DEIS indicates that 89,937 acres of the 2,600,000 acre WOPR area (less than 4% of the land base) are withdrawn from timber harvest via TPCC. Given the observed landslides on BLM harvest units and research demonstrating that clearcut logging on unstable landforms increases landslide frequency (Sidle 1985, Swanston 1991, Robison 1999), we believe that a more conservative approach to classifying and managing landslide prone areas is warranted.

1.3.5 Sediment Modeling

In modeling sediment impacts, the DEIS caps the sediment delivery buffer at 200 feet, and assumes that 25-100 feet of filtering duff and vegetation will prevent most diffuse sources of sediment from reaching streams (p. I-1108). EPA believes that a more conservative transport estimate should be used. Belt and O’Laughlin (1994) conclude that an effective buffer width is 91m (300ft) unless the runoff forms a channel. They also note that sediment-laden runoff in channels can travel through buffers up to 1370m (4500ft). While narrower buffers can be effective at filtering sediment, buffer effectiveness is largely dependent on site specific factors such as soil roughness and structure, hillslope, existing vegetation, and the extent of disturbance. Much of the Oregon Coast Range and many other areas in Western Oregon on BLM lands include steep topography and erosive soils. In the absence of site specific analysis, EPA believes the EIS should employ more conservative assumptions about sediment travel distance.

1.4 PEAK FLOW ANALYSIS

An examination of available literature and the assumptions guiding the modeling approach undertaken in the DEIS indicates that the DEIS underestimates the number of subwatersheds susceptible to peak flow increases; specifically, the DEIS states that only one out of 635 subwatersheds in the rain hydroregion and only three out of 471 subwatersheds in rain-on-snow hydroregion within the Plan Area are currently susceptible to peak flow increases.

1.4.1 Peak Flow Literature and Assumptions

The DEIS cites Grant et. al., 2007 (in review) to conclude there would be no detection of changes in peak flows until the area cut in a drainage basin exceeds 40%. Applying this assumption, the DEIS finds that none of the alternatives would result in increases in peak flows in fifth-field watersheds to a level that would affect fish habitat. Because the Grant et al. article has not yet been published, EPA has not had an opportunity to review it. If this study was designed to determine a threshold cut level, above which peak flow alterations are virtually certain, EPA recommends that the EIS analysis acknowledge this



and reassess peak flow impacts using different threshold assumptions. Hypothesis tests designed to minimize Type I errors (false assertion of adverse impacts) are standard and acceptable procedures in scientific research, but they are often inappropriate for assessing alternatives designed to minimize adverse water quality and natural resource impacts. A primary objective in impact analysis is to prevent type II errors in interpretation of data (false assertion of no adverse impact) (McGarvey 2007). Application of this type of statistical equivalence test may require re-analysis or re-interpretation of the cited Grant et al. information to specify a level of cut below which absence of hydrologic alteration is reasonably assured.

In addition, the DEIS relies heavily on this one unpublished citation, while discounting the findings from other published studies on the same topic. For example, Jones and Grant (1996) reported that road construction combined with patch clear-cutting of 10 to 25% of the basin area produced significant, long-term increases in peak discharges. Lewis et al. (2001) found that clearcutting can double the return interval frequency for the largest peak flow. And a study conducted within the planning area (South Umpqua Experimental Forest) found that watersheds treated with partial harvest may be subject to significant peak flow increases (Jones 2000). EPA recommends that the FEIS reanalyze the potential impacts of harvest on erosion rates and stream turbidity levels assuming higher and more frequent peak flow events.

1.4.2 Peak Flow Modeling Approach

On BLM lands, stand establishment structural stage was used as a surrogate for the removal of basal area. For adjacent non-BLM lands areas of less than 10%, crown closure were used as a surrogate for the removal of basal area (DEIS p. 384). Data underlying the peakflow analysis on BLM lands was derived from the OPTIONS model, and data for “other lands” was derived from the 1996 Interagency Vegetation Mapping Project (IVMP). These methods raise a number of issues: 1) the rationale for establishing surrogate measures for the removal of basal area is not provided; 2) the methods employed to evaluate surrogate measures use two different time frames (BLM lands used modeled outputs and non-BLM lands used a 1996 dataset); and 3) the use of 10% crown closure as a surrogate for the removal of basal area may underestimate the actual area which should be included as part of the “surrogate measure”.

The 1996 Interagency Vegetation Mapping Project (IVMP) produced several high quality datasets. EPA identified four IVMP datasets that could be used to estimate the canopy cover conditions on non-BLM lands: 1) “Vegetation Canopy Cover” 2) “Conifer Canopy Cover” 3) Harvest History (1972 through 2002) and 4) Size Class (Quadratic Mean Diameter). EPA analyzed each of these IVMP datasets as potential “surrogate measures” for “basal area removal”. Our analysis found that the number of 6th field HUCs shown to exceed 40% cut varied depending on the dataset considered (between 0 and 19%). This discrepancy calls into question the DEIS conclusion that only 1 out of 635 subwatersheds in the rain hydroregion (DEIS, p. 385) and only 3 out of 471 subwatersheds in rain-on-snow hydroregion (DEIS, p. 387) within the Plan Area are currently susceptible to peak flow increases. We recommend that the FEIS address this discrepancy, clarify which



datasets were used, and provide the rationale for dataset and “surrogate measure” selection (i.e., 10% crown closure).

2.0 SOURCE WATER

EPA is concerned that management within the 5th or 4th hydrologic unit codes (HUCs) upstream from water system intakes do not receive a more protective harvest approach under the proposed action alternatives. In particular, we are concerned that implementation of Alternatives 2 or 3 could result in impacts to drinking water supplies due to increased sediment and harvest related chemical use.

2.1 Management in Source Water Watersheds

As noted above, over 1 million Oregonians in the planning area receive their drinking water from source water watersheds located on BLM land. Under the NWFP a number of these source water watersheds were designated as Tier 2 Key Watersheds in response to concerns over water quality. Within Key Watersheds, management is guided by watershed analysis, road building in inventoried roadless areas is restricted, and priority is given to restoration. These measures have resulted in a higher level of improved watershed conditions than in non-Key watersheds (Gallo et al. 2005). Under the proposed action alternatives, key watershed designations would be removed, riparian protection would be reduced, and a larger proportion of source water watersheds would be managed as part of the timber base.

Given potential water quality impacts from management activities associated with proposed increased harvest, EPA is concerned that source water watersheds would receive insufficient management consideration. Of key concern is increased sediment and harvest related chemical use. Sediment can affect drinking water supplies by causing taste and odor problems, blocking water supply intakes, fouling treatment systems, and filling reservoirs. In addition, higher turbidity levels are often associated with higher levels of disease-causing organisms, such as viruses, parasites and some bacteria. Higher turbidity and associated health problems can result in an acute health threat to the drinking water system users. Many treatment facilities are not designed to deal with turbidity spikes, nor to remove the full spectrum of chemicals from drinking water. The use of fertilizers, herbicides, and other chemicals associated with silvicultural activities is a major concern to many municipalities. Even the best state-of-the-art drinking water treatment facilities cannot fully remove many of the commonly used pesticides and fire retardants (Blomquist, J.D. et al, 2001).

Several Oregon municipalities are currently working to address high turbidity levels in their source water resulting from forest practices on private lands upstream of public water intakes. These turbidity levels can be largely attributed to roads and harvest levels, especially in areas where protection is limited on steep slopes and along intermittent and smaller perennial streams. The RMA boundaries and no cut zones along perennial streams under Alternatives 2 and 3 are similar to prescriptions in place on private lands which EPA, NMFS and USFWS have found are not sufficient to protect water quality



and restore salmonid fisheries. (Multi-agency comment letter on 2000 draft report titled *DEQ/ODF Sufficiency Analysis*, dated February 28, 2001). We also note that harvest within RMAs around a large percentage of intermittent streams under alternatives 2 and 3 would allow harvest right up to the streams edge. This is particularly significant because over half of the streams within a watershed may be intermittent.

EPA believes that providing the highest quality water possible to source intakes at the least cost to downstream users should be the management objective on BLM lands within watersheds providing public water supply (see section 6.0 – Socioeconomics). We recommend the proposed action in the FEIS maintain the network of key watersheds as mapped under the no action alternative, and continue to manage those areas consistent with direction obtained from watershed analyses and source water protection plans. Further, we recommend that a more protective harvest approach be adopted for riparian areas within the 5th or 4th code HUCs upstream from water system intakes (see section 3.0 – Recommendations).

3.0 RECOMMENDATIONS TO ADDRESS SOURCE WATER AND WATER QUALITY CONCERNS

In discussions with BLM to date, EPA has identified the need for additional protection measures for aquatic resources within the planning area. We recommend that the following elements be given consideration in the FEIS and be included in the proposed action alternative ultimately selected by BLM in the Record of Decision. EPA's recommendations are strongly supported by research, monitoring, and assessment efforts relevant to protection of water quality, drinking water, and aquatic resources.

- In those watersheds currently meeting water quality standards, and which are not designated for fish recovery or water supply, EPA recommends adoption of RMAs as described in the no action alternative or as described in Alternative 1.
- In watersheds with impaired waters, and watersheds designated for fish recovery or public water supply, we recommend adoption of RMAs as described in the no action alternative.
- Where Key Watersheds have been identified, EPA recommends that they be maintained, and managed consistent with standards and guidelines under the no action alternative or information obtained from watershed analysis and source water protection plans.
- We also recommend that adoption of a requirement for continued watershed analysis and a monitoring and adaptive management program be considered in the final EIS.



4.0 CUMULATIVE EFFECTS

The DEIS repeatedly notes that in western Oregon, BLM is rarely the predominant landowner within a fifth-field watershed, and that the management of the intermingled private lands differs from that of the BLM-administered lands. This creates implications for the management of BLM lands (DEIS p. 184, 189, 196, 233). It remains unclear, however, to what degree conditions on lands outside of BLM ownership were considered in the analysis. This is of particular concern in the context of stream temperature, stream complexity (sediment and large wood), fish and wildlife habitats, source water impacts, and watershed restoration.

4.1 TEMPERATURE

In determining that none of the alternatives would contribute to an increase in temperature, the DEIS shade analysis on page I-1118 only considers shade zones on BLM-managed lands. BLM's analysis does not consider effects from the mixed ownership present in most of the planning area. EPA recommends that reduced shade levels from BLM alternatives be considered at the watershed scale. Given the importance of shade in regulating stream temperature, EPA conducted an analysis of shade at the 5th field watershed scale on four watersheds in the planning area (Scappoose, Upper Alsea, Upper Siuslaw, and Rock Creek) using the RAPID shade model developed by BLM and the Forest Service. Results of this modeling (included as attachment B) demonstrate that in each of the watersheds considered, shading levels on private land are significantly lower than shade levels on BLM land. Stream shade on private land ranged between 41% and 54%, whereas shade levels on BLM land approached 80%. Streams flowing through mixed ownerships will be affected by lower shading levels on private lands. We therefore recommend that this variability be considered within the context of cumulative impacts.

4.2 SEDIMENT AND LARGE WOOD

Thom and Jones (1999) found that private non-industrial lands in western Oregon are characterized by higher fine sediment levels, lower wood volumes and number of key (large) wood pieces, lower densities of deep pools, and lower levels of shading. They also found that on the private lands surveyed, very few stream reaches had high quality habitat largely due to sediment loading. Within this context, federal lands play a key role in terms of providing areas of high quality refugia. Without high quality refugia, moderate quality areas cannot support a large abundance of salmonids through periods of frequent disturbance (Thom and Jones 1999). We recommend that the FEIS fully discuss the ecological role of BLM lands within areas of mixed ownership. This would include an examination of all potential sediment sources, including (as noted above) roads currently excluded from analysis, harvest activity and debris flow. This analysis should also consider the potential for blowdown. As noted previously, riparian buffers experience an average of 33% blowdown in the 2 years following harvest. This has implications for future large wood recruitment, bank stability, sediment delivery, and temperature.



4.3 DRINKING WATER

Many of the source water watersheds in the planning area are also in mixed (checkerboard) ownership. Within these watersheds, land in private ownership is often managed more intensively than is federal land. In these instances, it is often the federal lands which have the large intact blocks able to provide the ecosystem services (temperature regulation, nutrient cycling, filtration, flow attenuation, and storage) necessary to maintain high quality drinking water (see Attachment C – Example Source Water Watershed). Cumulative impacts to drinking water systems should be considered within this context, and EPA believes BLM should consider guidelines directing federal land managers to work closely with drinking water system operators and local watershed groups to ensure that management on federal land will not adversely impact water systems and drinking water quality.

4.4 WATERSHED RESTORATION

EPA believes that the importance of BLM lands to water quality, drinking water, and fish and wildlife habitat is significant from a cumulative impacts perspective where a substantial portion of watersheds consist of private lands. There are approximately 90 local watershed groups in Oregon that have spent tens of millions of dollars to protect and restore watersheds in Western Oregon. Many of the watershed groups have completed watershed assessments outlining science based conservation and restoration strategies that apply watershed wide, to both federal and private lands. EPA believes that proposed reductions of riparian and upland habitat protection under Alternatives 2 and 3, and to a lesser extent Alternative 1, run counter to many of those strategies. For example, the Scappoose Bay Watershed Assessment (David Evans and Associates, 2000) identifies intact habitat areas and potential salmonid refugia within the watershed. While BLM lands make up only about 15% of the total watershed, a disproportionately high amount of intact habitat and refugia areas are found on BLM lands, including intact riparian areas and all of the remaining old growth in the watershed. The Scappoose Bay Watershed Council has worked with BLM spending almost two million dollars to restore habitat and remove barriers to ESA listed steelhead and coho to allow access to salmonid refugia on BLM lands. BLM lands also provide the highest quality habitat in the Scappoose Bay Watershed's municipal water supply catchments. Alternatives 2 and 3 would allow intensive timber harvest that could adversely impact drinking water and salmon recovery efforts in 3 of the 4 highest priority drainages in Scappoose Bay Watershed.

5.0 ECOSYSTEM BASED MANAGEMENT

In developing the NWFP, scientists and managers from NOAA Fisheries, and the U.S. Fish and Wildlife Service Services, land management agencies, and EPA incorporated knowledge about species needs and aquatic systems functions into an ecosystem management framework designed to conserve both terrestrial and aquatic ecosystems. This integrated approach resulted in significant overlap between areas managed for late successional species (late successional reserves or LSRs) and areas managed for other



ecosystem functions, such as providing high quality water and refugia for at-risk fish species (Key Watersheds and Riparian Reserves).

Monitoring and assessment efforts indicate that this integrated approach is delivering environmental benefits in areas of key concern to EPA, such as water quality protection, watershed restoration, and protection of public water supply. Assessment of 10 years of NWFP implementation found that 97% of the watersheds where the NWFP has been implemented are on a stable or improving trend, and that 74% of the “key” watersheds targeted for restoration showed improvement (PNW-GTR-647, Gallo et al. 2005). Late Successional Reserves (LSRs) also had higher watershed condition scores than Matrix lands designated for timber harvest. Considering these results, we are concerned that the reductions in LSRs and riparian reserves, and elimination of key watersheds proposed in Alternatives 2 and 3 should be considered within an ecosystem-based context.

5.1 LATE SUCCESSIONAL RESERVES

Beyond providing habitat for late successional and old-growth (LSOG) dependent species, LSRs play an important role protecting and restoring water quality, providing refugia for salmonids, and supplying large wood (NWFP 1994). Monitoring and assessment results indicate that these are performing well with respect to improved LSOG and watershed conditions. In spite of these positive terrestrial and aquatic habitat gains, Alternative 2 reduces the amount of area managed for late successional characteristics by 17%. We recommend that consideration be given to the role played by these areas in terms of providing key ecosystem services beyond LSOG habitat.

5.2 RIPARIAN RESERVES

Riparian protection zones are the primary mechanism for protecting water quality on forest lands. However, in taking an ecosystem approach, the NWFP anticipated that the various land use allocations under the NWFP, including riparian reserves, would serve multiple ecological functions. This assumption has been reinforced by research. Numerous studies have demonstrated the importance of riparian habitats as refugia (Olson et al. 2007), in support of biological and process diversity (Richardson 2000), and as a mediator/corridor for processes and species (Olson et al. 2007).

The DEIS departs from this ecosystem-based approach by looking at one parameter (wood delivery) in establishing buffers around intermittent streams under Alternatives 2 and 3. EPA believes that this approach is inconsistent with current research indicating that navigable waters are significantly influenced by headwater streams through hydrological and ecological connectivity (Wipfli et al. 2007). Although the DEIS provides an analysis of management related impacts to large wood delivery under alternatives 2 and 3, it is not clear what other riparian functions or processes might be lost. Considering that headwaters can comprise 60-80% of drainage networks (Benda et al. 2006), and the recognized importance of these systems (Olson et al. 2007, Johnson and O’Neil 2001), we recommend that the FEIS take a more holistic view of the role played by headwater streams. Specifically, the FEIS should analyze the effects of the



Alternatives on riparian fauna, microclimate, and processes such as flow, nutrient, and sediment regimes.

5.3 KEY WATERSHEDS

A cornerstone of the NWFP strategy was the designation of key watersheds. These watersheds, widely distributed across the landscape, were determined to provide, or expected to provide high quality fish habitat, and high quality water. These watersheds were selected not only for their habitat and water production value, but also for their restoration potential. And as noted above, investment in these areas has proven successful, with 74% of the key watersheds targeted for restoration showing improvement (Gallo et al. 2005). In spite of these successes, the DEIS moves away from the key watershed approach. Instead, areas are prioritized for restoration based on “intrinsic potential.” EPA understands that intrinsic potential is an important concept. However, we are concerned that relying solely on intrinsic potential significantly limits the potential for effective BLM restoration efforts, ignores critical salmonid life histories, and does not recognize other key watershed values. As noted on page 339, the percentage of high intrinsic stream miles on BLM land is less than 10% for each of the listed fish stocks. We encourage the BLM to continue to recognize and manage key watersheds according to NWFP standards and guidelines and established watershed analyses. As noted in the FEMAT report (1993), past attempts to recover fish populations were unsuccessful because the problem was not approached from a watershed perspective.

6.0 SOCIOECONOMICS

In our review of the socioeconomic issues in the DEIS, we considered the methodology used to estimate impacts, and sought to review the underlying assumptions and input parameters. As a result of our review, we have concerns about the use of input/output models without complete descriptions of assumptions and limitations, and the treatment of non-market values (such as water quality).

6.1 INPUT/OUTPUT MODELS

Input-Output (I/O) models can be useful tools for estimating economic impacts. As with any model, however, there are limitations that should be acknowledged. Two assumptions of an I/O model are that prices and technology are fixed for the time period being modeled. As a result, I/O models are not able to address flexible supply-demand relationships, and are not able to address consumer and producer surplus and resulting substitutions. We recommend that these limitations be discussed in the FEIS.

In addition, the DEIS uses county level input/output models designed specifically for analysis of this project but does not provide the reviewer with information regarding each county’s model assumptions and inputs. This is important since these models are unique to the DEIS. We recommend that the FEIS include specific information about assumptions and input parameters for each model.



6.2 NONMARKET VALUES

Changes in nonmarket values are not well described or quantified in the analysis. These values affect the economic well-being, health, and resiliency of local communities. As an example, clean drinking water is a valuable commodity produced by BLM forests. There are dozens of drinking water systems fed in part by BLM lands (p. I-1120). BLM management in these areas is of key economic importance because as forest cover decreases in a Source Water Protection Area, treatment costs generally increase (Trust for Public Land 2004). More intensive management in source water watersheds may therefore result in increased costs to the water users. This could be due to increased operations and maintenance costs (filtration, monitoring, chemical treatment, etc) or increased capital costs (plant or system upgrades). We recommend that the FEIS examine, and to the extent possible, quantify these costs so they are included in the economic cost/benefit analysis.

7.0 INVASIVE SPECIES

On page 269 the DEIS states that the condition of invasive plant infestations on BLM land in the planning area can be characterized by analyzing a few (11) representative invasive species. The analysis does a good job of discussing the mechanisms of dispersal and relationships to land management activity, light tolerance, and current distribution. We are concerned, however, that these descriptions address the consequences of the presence of these species in a very limited way. For three (Canada Thistle, False Brome, and Leafy Spurge) there is no discussion of the consequences. For six the consequences are limited to crowding out of native species. This absence of a real focus on economic and ecosystem consequences limits the usefulness of this analysis.

In addition, the analysis of the risk of introduction is limited to a 10-year period (p. 611). While this near-term focus is useful, it doesn't correspond to the temporal horizon of the plan analysis, and thus consequences over longer periods should be evaluated.

Finally, a limited set of mitigation measures is offered, but no evidence is offered of the observed potential cost or experienced effectiveness of these measures in either a relative or an absolute sense. In addition, these measures are all oriented towards reducing the risk of introduction – a necessary, but not sufficient emphasis. We recommend that the FEIS also discuss mitigation measures that could be used in the event of an introduction, as well as the ecosystem consequences of those measures.



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ATTACHMENT A – TEMPERATURE ANALYSIS

The calibrated Heat Source 7.0 model, from the recently completed Umpqua Basin TMDL, was used in this modeling effort. The Heat Source model has undergone extensive peer review and has been field calibrated for numerous EPA approved TMDLs in Oregon. Modeling for Canton Creek was calibrated using both field data and remote sensed data. Higher resolution was provided by changing the model distance step from 100 meters to 50 meters. Model Simulations for Canton Creek reflect the time period July 12-31, 2002 and cover 16.95 river kilometers, from the upstream reach of Pass Creek to the mouth of Canton Creek. The EPA modeling delineates three land management categories (Forest Service, Private, and BLM) and five Riparian Management Area (RMA) zones (i.e., 0 to 25 feet, 25 to 60 feet, 60 to 100 feet, 100 to 150 feet, and > 150 feet). Results of the analysis are presented in figures A-1 through A-3.

Figure A-1 - Partial application of the proposed alternatives in which it is assumed that current conditions will be maintained out to 60 feet.

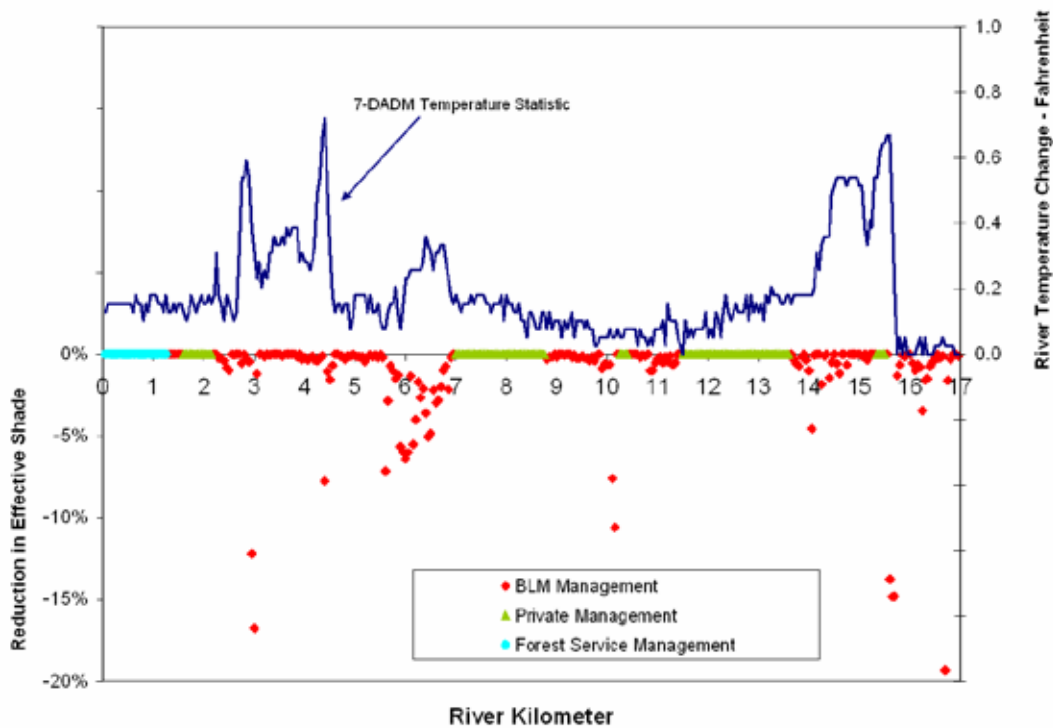




Figure A-2 - Comprehensive application of the proposed alternatives in which the zone from 25-60 feet is assumed to provide 80% shade.

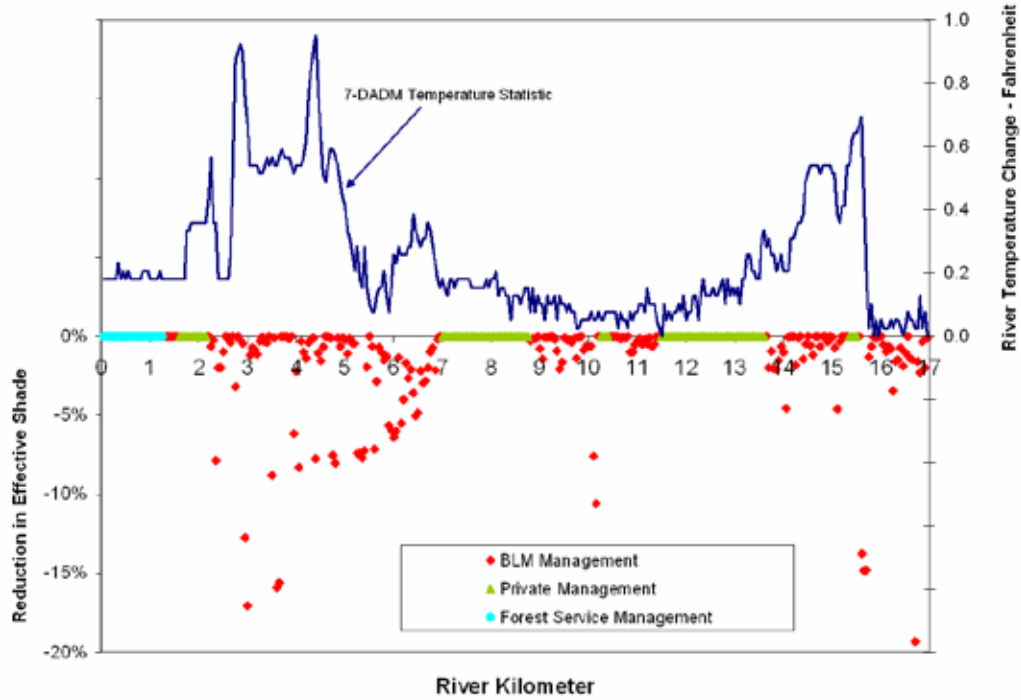
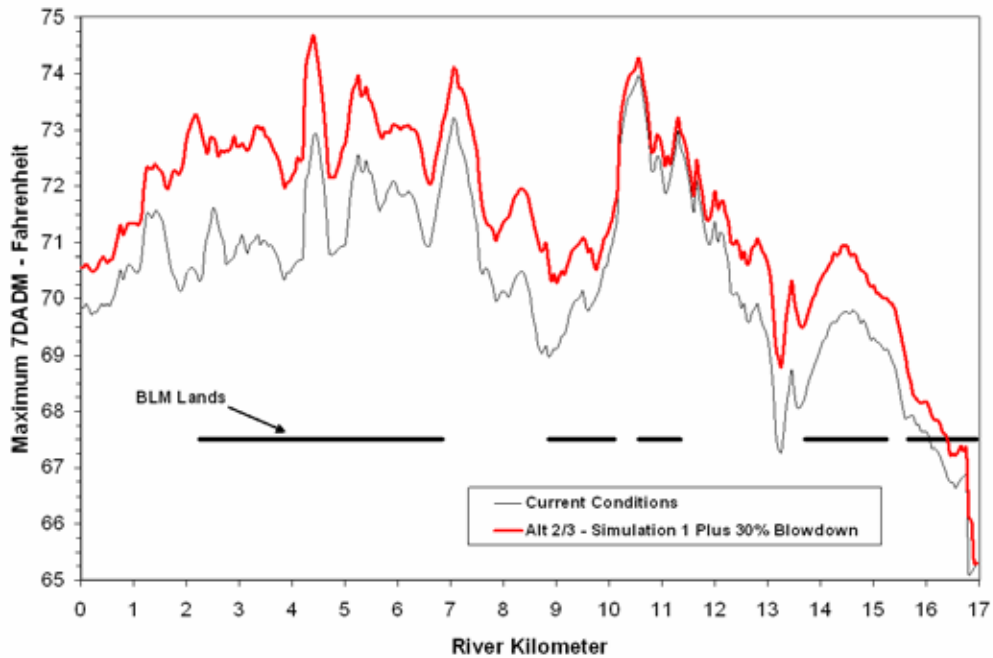


Figure A-3. Temperature change resulting from the application of WOPR Alternatives 2/3, along with 30% windthrow blowdown, to riparian buffers along Canton Creek.





ATTACHMENT B – SHADE ANALYSIS

Analysis associated with shade target development for the draft WOPR EIS was obtained from the “Northwest Forest Plan Temperature TMDL Implementation Strategy (TMDL Strategy - USDA, USDI 2005). The “Shadow” model was the primary tool used to develop the TMDL Strategy. Recently, BLM and the Forest Service, with support from EPA and DEQ, included the algorithms and assumptions associated with the “Shadow” into a watershed scale shade model. That model is now known as the RAPID Shade Model (available at <ftp://ftp2.fs.fed.us/incoming/r6/sis/jhawkins/StreamAssessment/>)

Using the RAPID Shade Model, EPA conducted an analysis of shade at the 5th field watershed scale on four watersheds in the planning area (Scappoose, Upper Alsea, Upper Siuslaw, and Rock Creek). Default model settings were used during these modeling runs. Results of this modeling can be seen in Table B-1. Figures B-1 and B-2 provide examples of model output for the Scappoose watershed. Overall, shading levels on private land are significantly lower than shade levels on BLM land. Stream shade on private land ranged between 41% and 54%, whereas shade levels on BLM land approached 80%.

Table B-1. Calculated Shade using the RAPID Shade Model for Four Oregon HUCs

	Scappoose	Upper Alsea	Upper Siuslaw	Rock
Entire Basin	47	64	61	62
BLM	79	78	75	74
Forest Service	--	89	--	--
Private	41	50	51	54

Figure B-1. RAPID Shade Model output for the Scappoose watershed (red signifies less shade, and green signifies more shade)

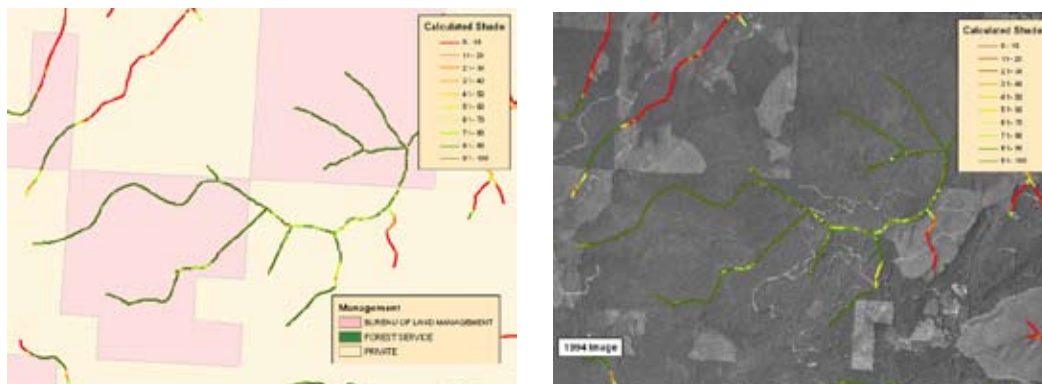
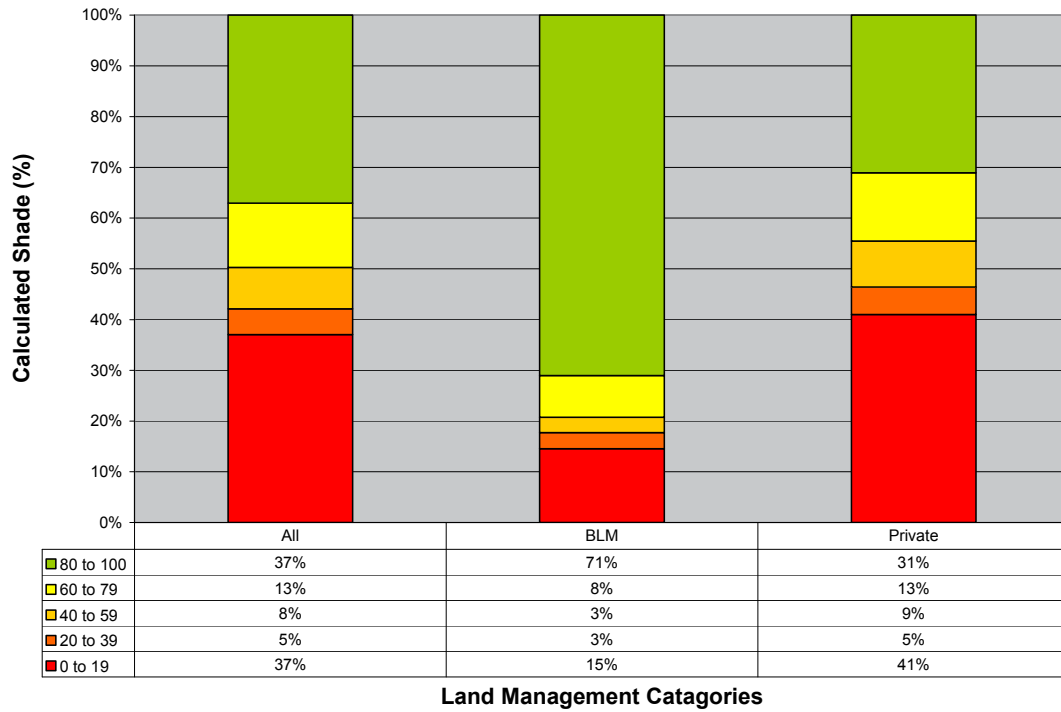




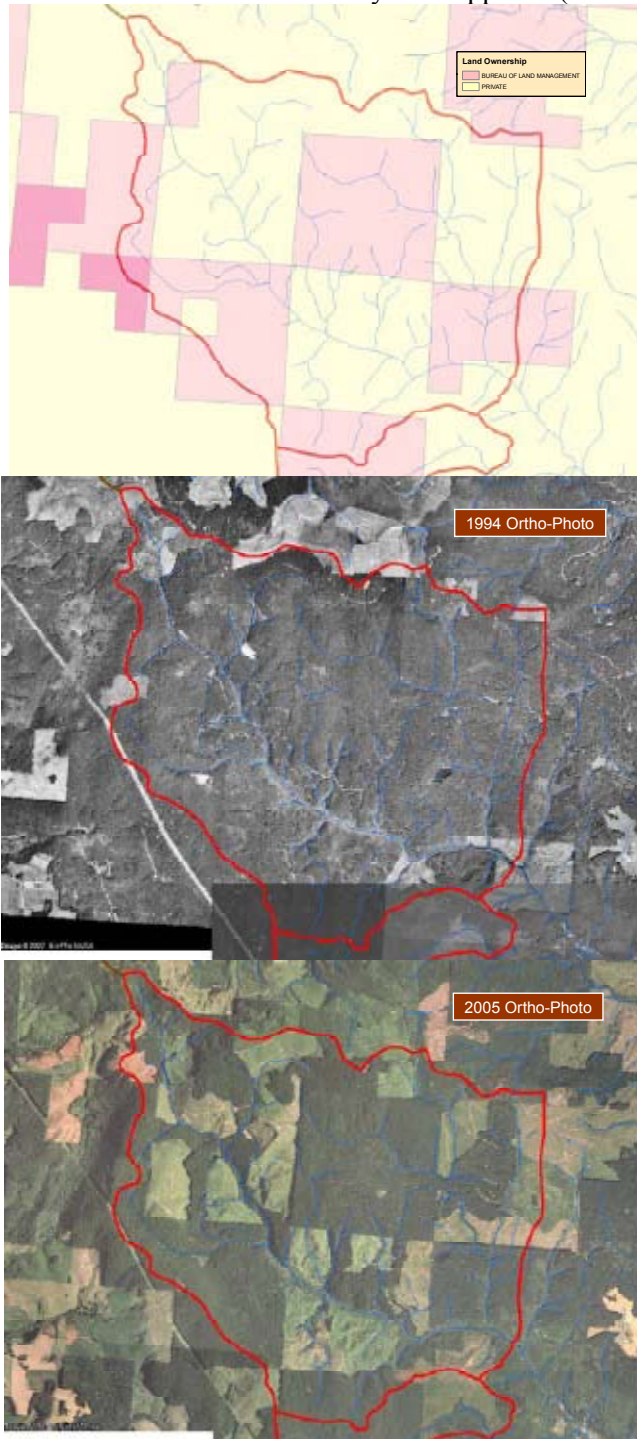
Figure B-2. Calculated Shade Distribution for the Scappoose Watershed





ATTACHMENT C – EXAMPLE SOURCE WATER WATERSHED

Figure C-1. The area indicated by the red line in the middle of the image is the S. Fork Scappoose Creek Source Water Area for the City of Scappoose (BLM lands are in pink)





**U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action***

2010.2

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (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

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 these impacts.

EO – Environmental Objections

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

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 Council on Environmental Quality (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 National Environmental Policy Act 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, 1987.



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Agriculture

Forest
Service

Pacific
Northwest
Region

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11/11

File Code: 1500
Route To:

RECEIVED
DEC 5 - 2007

Date: December 3, 2007

Subject: Western Oregon Plan Revision

To: Ed Shepard, State Director, Bureau of Land Management

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts (WOPR). Forest Service staff have read the document and participated in numerous meetings of your cooperators group.

Our first comment is to extend compliments to your planning team and District participants for the quality of the analyses and the process involved. Considering the scope and scale of this effort, your Draft EIS is impressive. At various work sessions and meetings, Forest Service staff have provided comments on technical aspects of the analyses directly to your planning team.

The Forest Service and Bureau of Land Management are interdependent in management of much of the federal lands in Oregon. In planning for management of ecological processes that operate across administrative boundaries, we acknowledge the complexity of developing plans for BLM managed lands that are intermingled with or in close proximity to National Forest lands.

Forest plan revisions for National Forests in western Oregon are still five to ten years in the future. For purposes of WOPR planning we suggest your analyses assume that neighboring National Forest system lands will continue to be managed under current applicable law, regulation, and land management plans.

As our agencies move forward with land management plan implementation projects, I hope both agencies will continue to seek opportunities to collaborate on project scale planning and operations.

LINDA GOODMAN
Regional Forester



Caring for the Land and Serving People

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THEODORE R. KULONGOSKI
Governor

January 10, 2008

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JAN 11 2008

Mr. Edward R. Shepard, State Director
USDOI Bureau of Land Management
PO Box 2965
Portland, OR 97208

Re: Western Oregon Plan Revisions

Dear Director Shepard:

I appreciate the opportunity afforded the State of Oregon to participate with the Bureau of Land Management (BLM) Western Oregon Plan Revision under the agreement that gives the State cooperating agency status. In keeping with that agreement I anticipate that individual agencies will continue to provide detailed, more technical input as you move further toward a final plan. Recognizing that much of that work remains, I am providing the guiding principles that will frame our ongoing cooperating agency involvement as your planning process advances.

First, the State of Oregon recognizes that the Oregon and California Lands Act of 1937 (O&C Act) places a different set of constraints and management requirements on BLM than exists on other federal forestlands. The O&C Act provides the primary legal authority for the management of most of the BLM land in Western Oregon and requires the lands be managed "... for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilities ..." (43 U.S.C. §1181a).

Oregon also recognizes that BLM's decision space is bounded by the legal requirements in other laws, especially the Endangered Species Act and Clean Water Act, and to a lesser degree by requirements to be consistent with State plans, policies and programs. 43 CFR 1610.3-2(e) says that BLM's plans "shall be consistent with officially approved or adopted resource related plans, and the policies and programs contained therein..." when they are consistent with the purposes of federal statutes.

I feel it is wholly possible to produce a plan that meets all of these requirements and creates outcomes that are clearly in the best interest of national, state and local needs. Attached

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1874.1



Mr. Edward R. Shepard, State Director
January 10, 2008
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is a set of coequal and linked principles that we think will lead to this result. These principles cannot be treated in isolation, but rather they should be read and addressed as an integrated whole. As I have indicated, you can expect these to frame the cooperative work of Oregon's state agencies as you move to completion.

Sincerely,



THEODORE R. KULON GOSKI
Governor

TRK:mc:jb
Enclosure



Attachment: 08Jan10_Governor Letter
WOPR and Oregon NR Agencies Cooperating Status
12 Coequal Principles
January 10, 2008
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1874.2

TWELVE COEQUAL PRINCIPLES

1. The final plan must be fully implemented through adequate leadership, and human and financial resources.

The current Northwest Forest Plan (NWFP) has not been fully implemented. In particular, adaptive management strategies and timber harvest objectives have not been met. The Bureau of Land Management (BLM) needs to have adequate resources to carry out management strategies that will be adopted in the Western Oregon Plan Revision (WOPR). Budget reductions and reallocations have led to major reductions in federal agency resources since the early 1990s, which has influenced agency capacity and created concern over whether institutional capacities are adequate. The State of Oregon (State) believes it is imperative that the final plan be fully institutionalized within BLM and supported by adequate resources both within BLM and cooperating federal agencies. The State strongly supports a plan that can and will be fully implemented.

2. A robust and detailed monitoring strategy supported by appropriate research must be implemented as a key part of BLM's plan. The monitoring strategy must examine key questions related to the implementation, effectiveness and validity of plan assumptions and objectives, land use allocations, and management actions; and must also be designed to support adaptive management.

Monitoring provides essential information about whether management actions are implemented as directed in the resource management plan, and examines their effectiveness in achieving desired outcomes. The BLM's plan must commit to adequate monitoring and research to generate and utilize new information as it becomes available, and employ an adaptive management approach to ensure that the best available knowledge and information is acquired and used efficiently and effectively. The monitoring approach outlined in the BLM plan must be adequate to provide information needed to support adaptive management.

3. The BLM's plan must produce predictable and sustainable timber harvest as well as non-timber resources and values that contribute to the economic stability of the Oregon & California Lands Act counties.

The Oregon & California Lands Act (O&C Act) states that O&C lands "shall be managed... for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating streamflow, and contributing to the economic stability of the local communities and industries, and providing recreational facilities." Timber sale revenues from these lands are shared by the federal government and counties with the 25 percent federal share dedicated to the administration and management of O&C lands. The other 75 percent was to go to the 18 O&C counties after certain repayment obligations were satisfied.

The past obligations were satisfied by 1952 and, in 1953, the counties received their full 75 percent share. Since 1953, the counties voluntarily returned one-third of their share (25 percent of the total) to the federal government for reinvestment in infrastructure on the O&C lands. The counties' "plowback funds" were used by BLM for construction of roads and bridges,



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reforestation, the construction of campgrounds and other recreation sites, and a wide variety of other projects to enhance the economic and recreational value of the O&C lands. The counties view the plowback funds as an investment that would return both revenue and economic contributions. The plowback fund existed from 1953 to 1981.

Since 1982, Congress made the O&C appropriation a direct appropriation to BLM; 50 percent of the total timber receipts were transferred to the US Department of the Treasury as reimbursement for all or part of the direct O&C appropriation. Since 1993, Congress has provided alternative means of making payments to Oregon counties in which Federal timber sales have been restricted to protect listed species. As the authority for the temporary funding from the Secure Rural Schools Act ends, revenue to the 18 O&C counties will again be tied to harvested timber and grazing fees.

Thus, BLM's plan must support local communities through revenues generated by timber sales. The timber sales produced under the plan must be ecologically sustainable and sufficient to contribute to funding sustainable social and economic benefits for local communities. The BLM's plan must integrate the economic contributions and values of fishing, hunting, and wildlife viewing as part of the assessment for the economic values derived under the plan. Timber harvests and other economic contributions from the lands must produce a long-term stable revenue source and economic benefits that are consistent with the intent of the O&C Act.

4. The BLM's approach to managing habitat must comply with the federal Endangered Species Act, aid in the recovery of listed species, and compliment strategies for managing state-owned lands.

The purpose of the Endangered Species Act (ESA) is to protect and recover threatened and endangered (T&E) species and the ecosystems on which they depend. The BLM's management plans must protect T&E species and provide habitat for listed species that is consistent with recovery plans and aids in the recovery of listed species. Federal lands are critical to preventing future listings, ensuring recovery of listed species, and long term sustainability of species at-risk. The BLM plan must be designed to consider future listings, critical habitat determinations, and recovery plans by the USFWS and NOAA Fisheries.

Different forestland ownerships play different roles in providing the habitat conditions necessary for T&E species in Oregon's forests. Forests managed by the Board of Forestry in western Oregon and Klamath County will contribute to the recovery of listed and sensitive species by developing and sustaining a full range of habitat structures and conditions through active management, especially in areas where the amount or distribution of federal lands are not prevalent. These lands are managed to produce and maintain an array of forest stand conditions and structures across the landscape and over time in a functional arrangement supportive of the diversity of species. This approach provides valuable information about the relationship between wildlife and habitat use in landscapes that are actively managed, and will be used to adaptively modify management strategies to improve outcomes over time. The process of defining an overall landscape scale strategy for conserving T&E species is complex, and the approaches on BLM lands must compliment the approaches being taken by the State on its ownerships.

The BLM's plan must add the flexibility needed to design and implement a range of management options for T&E species that provide for the appropriate range of forest conditions



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and structure while addressing the risks from uncharacteristic wildfire within the fire-prone provinces. There is a need to integrate fish and wildlife objectives and habitat relationships into agency efforts to adaptively manage fuels. Adaptive management strategies must be designed and implemented to test the effectiveness of alternative management options.

5. Riparian management strategies and best management practices must maintain and restore freshwater habitat for salmonids, contribute to the conservation of other fish and wildlife habitats, and comply with the federal Clean Water Act including sustaining beneficial uses consistent with state water quality standards and by protecting source water used for drinking water.

Aquatic and riparian areas must be managed to maintain or restore high quality aquatic habitat to aid federal salmon recovery efforts and to contribute to the conservation of other species. The habitat and supporting riparian ecosystem functions needed by salmonids are believed to be very diverse, and the abundance and survival of salmonids and many other aquatic species is closely linked to the abundance of large wood in streams. The BLM's riparian management strategy must promote species diversity and enhance forest structural complexity that emulates the structure of forests shaped by natural processes that promote the recruitment of large wood. The riparian management strategy must serve to reduce the risk of extinction for many unlisted species, in particular, those that depend on riparian/wetland ecosystems or late successional forests. Riparian and aquatic habitats must be managed to maintain or restore key functions and processes of aquatic and riparian systems.

To protect water quality, BLM's riparian management strategy must be similar to, and consistent with, management strategies that have been shown to be sufficient to comply with the federal Clean Water Act and meet state water quality standards. BLM must ensure that its plan minimizes adverse impacts on water quality from pollutants including toxics, sediment, and temperature. The plan must include direction to work in partnership with the state and local communities and others. Riparian management strategies must consider the types and intervals of disturbances that would naturally be expected to occur in a watershed – including historical wildfire – and the planned treatment for the adjacent upslope areas and site conditions. The BLM's management must ensure that source water used for drinking water is protected through Best Management Practices.

6. The BLM's plan must support the Oregon Conservation Strategy.

The Oregon Conservation Strategy (OCS) should be used to help BLM make strategic decisions on conservation issues and for guidance on the types of actions most likely to benefit species and habitats. The OCS describes species and habitats of greatest conservation need, identifies key conservation issues facing those at-risk species and habitats, and provides recommendations for actions and opportunities to address them. Forested, riparian, and aquatic habitats are all priorities in the OCS, as are many aquatic and terrestrial species found in those habitats.

7. The BLM's plan must support the Oregon Coast Coho Conservation Plan, an outcome of the Oregon Plan for Salmon and Watersheds.

It is critically important for the conservation of Oregon Coast coho salmon that the ecosystem functions and processes addressed by NWFP Aquatic Conservation Strategy be maintained. Ecosystem functions and processes on federal lands contribute to the ecological health on



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adjacent and downstream private and state lands and these benefits must be considered from a landscape perspective. The BLM must continue implementation of the comprehensive watershed conservation and restoration programs to restore and maintain the ecological health of watersheds and aquatic ecosystems while protecting salmon and steelhead on federal lands. Thus, the BLM plan must include site-specific, watershed, and landscape level strategies that will recover degraded aquatic habitat and sustain watershed processes important to aquatic and riparian dependent species consistent with State and Federal salmon recovery plans. The BLM must maintain its commitment and work with the State to implement effective salmon conservation and recovery measures. Other innovative approaches, such as stewardship contracts and the Wyden amendment must also be used to support implementation of stream restoration efforts in partnership with watershed councils and others.

8. The BLM's plan must support State management plans for deer and other species that balances habitat protection with providing suitable early successional habitat.

Deer and elk, as well as other significant species with early successional habitat needs, are important to the state. Black-tailed deer populations rely on the native food sources found predominately in early successional forest stages. Timber harvest on federally managed lands has decreased significantly over the past 10-15 years, which is one of the factors contributing to declining deer populations in western Oregon. Additionally, the Coastal Landscape Analysis and Modeling Study (CLAMS) projected the area of structurally diverse older conifer forest and habitat for late successional wildlife species to strongly increase, but open, diverse, early-seral conditions are projected to decline over the next 100 years. The BLM's plan must address maintenance and restoration of biological diversity, which will contribute to providing suitable early successional habitat. Strategies for biological diversity must deal with resources at multiple temporal and spatial levels: forest stand, watershed, and broader landscape/regional. The key is a carefully crafted strategy that manages for a broad range of values, and not to the substantial detriment of any one or group of species or habitats. This work should be in context and balanced with requirements for T&E species and OCS recommendations for Late Successional mixed conifer forest and other priority habitats.

9. The BLM's plan must contain a provision to formalize easement and other right-of-way documentation with other resource agencies having management activities adjacent to or on BLM-owned land.

Formalizing right-of-way provisions with state agencies through the planning process would help to ensure recognition of, and compatibility with, BLM's management plans.

10. The BLM's lands must provide a sustainable mix of outdoor recreational opportunities.

The O&C Act specifically directs BLM to provide "recreational facilities" as part of the mix of its land uses. The BLM's recreation management must be compatible with and complimentary to the Oregon Parks and Recreation Department's Statewide Comprehensive Outdoor Recreation Plan (SCORP). The BLM's plan must also be consistent with Oregon Department of Fish and Wildlife management plans that provide for fish and wildlife based recreation.



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11. Aggressive strategies must be implemented to control existing and prevent/eradicate new invasive species on BLM lands.

Non-native invasive species are a serious threat to federal forests, as well as adjoining non-federal lands. The BLM must create and implement comprehensive invasive species detection, monitoring, and control strategies for BLM lands that also consider potential impacts to adjacent private and public lands. The strategies must include an early detection and rapid response program for new invasive species, and include the full range of tools to eradicate and/or manage invasive species.

12. The plan must address the interactions of forests and a changing climate; including forest management strategies that can help in sequestering carbon or reduce overall emissions into the atmosphere, as well as addressing the forest health risks that may occur due to global climate change.

Forests and forest products play an important role in maintaining a livable climate. Managing and conserving forests and forest products can partially influence how much human-caused carbon dioxide is added to or sequestered from the atmosphere. Management actions can be implemented to influence future forest ecosystems so that they are better able to accommodate the warmer climates they are likely to encounter. Oregon has stepped ahead of the federal government in addressing this issue. Forests contain about 75 percent of the earth's biomass, so in a state like Oregon, with its highly productive forests, the per-acre potential for carbon storage is among the highest in the world. The BLM's plan needs to include adaptive management strategies to explore options related to these issues.



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January 9, 2008

Mr. Ed Shepard, State Director OR/WA
Bureau of Land Management
P.O. Box 2965
Portland, Oregon 97208

Re: Western Oregon Plan Revision EIS comments

Mr. Shepard:

We appreciate the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts (WOPR). As you know, Benton County is a cooperator separate from the Association of O&C Counties (Benton County is not a member of the Association).

On behalf of Benton County, my comments will focus more on observations and general recommendations rather than a specific alternative. My colleagues and I represent diverse community interests and scientific opinion and have received considerable commentary on the WOPR DEIS.

Management focused on forest health and resiliency should be a major factor considered in any plan revisions. Management considerations must include looking at the ecosystem as a whole with focus on soil dynamics, hydrology, water function, air quality and multiple forest uses in addition to timber productivity. Healthy and resilient forests can provide for multiple values including timber harvest. There is concern that the focus on timber production greatly outweighs the functions that contribute to forest health and resiliency; that these functions do not seem to be as important.

We recognize that the Bureau's plan revisions are in response to a settlement agreement centered on the 1937 O&C Act. We have not had the luxury of an in-depth legal review or interpretations thereof. Nevertheless, we propose that an interpretation of the Act should not be so narrow; the Act focused primarily on timber production, overshadows other values so thus the difficulty in making the case that protecting watersheds and streams and providing recreational opportunities have importance. I'm



not convinced that the Clean Water and Air Acts and other legislation should not be considered when interpreting the 1937 Act.

We acknowledge that harvest receipts, or county payments, are the lifeblood of several O&C Counties. Nevertheless, it is not likely that harvests would be restored to historic high levels. We have to find a way to reach a new compact with the federal government that will provide some sort of compensation for significant land acreage exemptions from tax rolls. We do not believe that timber harvest is the only answer. We also recognize that this is outside the plan revision process.

We ask the question, has enough time been given to assess the success or failure of the 1994 Northwest Forest Plan (NWFP) for managing Westside forests in Oregon? We suspect not. We know that the debate continues on whether or not O&C lands should be managed under the NWFP; however, consistent forest management of federal forests should be a goal for our federal agencies. Shared practices and current science can enhance efforts. In my years in forestry research, I learned that longitudinal data are needed to evaluate success or failure; that management prescriptions come from a combination of trial and error and good science. I personally am not convinced that the NWFP was given sufficient time. Instead it was caught in the middle of competing political interests and litigation.

Finally, we are concerned that the debate over the preferred alternative or other alternatives will not abate litigation. In fact, it may lead to more.

In the interest of cooperation we recommend:

- Plan revisions include multiple use sustained yield of forest ecosystem services, rather than management tightly directed at short-term economic return at the expense of long term productivity of the forest as a whole, which might go further in gaining support for plan revisions. In the work of the Federal Forestlands Advisory Committee (for the Oregon Board of Forestry) we have struggled with the complexities of managing the nation's federal forest lands. There appears to be some agreement, however, that restoring forest health and resiliency must be a focus and that harvest as well as restoration is an important component of that effort. Restoring forest health and resiliency will also help combat catastrophic wildfire events. Stewardship and management can be synonymous.
- Expanding economic measures of success to include other values such as those achieved by the requirements of the Clean Water and Air Acts, enhancement of fisheries, recreation, and other forest products.
- Addressing carbon storage; learning more about carbon pluses and minuses. What is the optimum carbon balance?
- Allowing more time and effort in implementing and evaluating the Northwest Forest Plan to provide coordination between federal agencies with the hopeful result of more stability and predictability regarding the management of federal forest lands (including the 2.6 million acres of BLM managed forests in Oregon).




- Proposing a selection of alternatives based on specific landscape features (such as on a basin or province scale).
- Considering the potential consequences of climate change over time and how forests should be managed in response to such change. Should there be some “adaptive management” strategies to consider climate change? And what might they be?
- Working to reach some agreement on the language we use in forest management. This will not be an easy task, as it became very clear to me during the most recent meeting of the Federal Forestlands Advisory Committee’s discussion on how to define or characterize older forests. If industry and academic professionals, foresters and conservationists struggle over this, it is clear that the general public will be confused and struggle even more.
- Providing a public process to discuss and assign relative value to the many dimensions of our forests. Certainly, the revenue produced to support local government is important, but that dimension must be weighed and valued with others such as recreation, habitat, clean air and clean water.
- Building broader community support to reduce the polarization that has led to litigation. It is important that there be parity of information – that is communities need to hear all sides of the debate and be asked to engage in finding solutions. I don’t think that we can ignore a political environment that also includes aesthetic values attached to forests. We have to find a way to manage for diverse community values.

We sincerely hope that you will find our comments useful.

Again, we thank you for the opportunity to comment. We recognize that there will be another opportunity as the Bureau refines the proposed plan.

Sincerely,


Annabelle Jaramillo
Commissioner

cc. Commissioner Jay Dixon
Commissioner Linda Modrell



1878.1

JACKSON COUNTY

Oregon

Board of Commissioners

Dave Gilmour, MD (541) 774-6117
Jack Walker (541) 774-6118
Dennis CW Smith (541) 774-6119
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10 South Oakdale, Room 200
Medford, Oregon 97501

January 4, 2008

Ed Shepard, Director
Bureau of Land Management
Western Oregon Plan Revisions
P.O. Box 2965
Portland, OR 97208

RE: Follow up Comments from Jackson County on the Western Oregon Plan Revisions

Dear Mr. Shepard:

The Jackson County Board of Commissioners is submitting supplemental comments to those submitted on December 6, 2007. We are enclosing a complete package so there is no need to find or refer to our original submission.

Please note that the recommendations submitted on December 6th were pulled from the enclosed report *Recommendations from the Jackson County WOPR Core Group on the BLM Draft EIS Western Oregon Plan Revisions*. In retrospect, we realize it would have been more beneficial to BLM to have the complete report, rather than just the recommendations. I would like to emphasize that every recommendation contained in this report was agreed to by every member of our Core Group, a diverse group of experts and stakeholders. This report and its recommendations was adopted unanimously by the Board of Commissioners and is our official response.

Since submitting our official comments, a committee that advises the board on natural resource issues submitted their response on the DEIS to the board for their consideration. Because this report provides additional information and comments that support and adds to our recommendations, the board decided to forward this report as well.

In addition to the reports mentioned above, I have also included the December 6, 2007 cover letter from the Jackson County Board of Commissioners to complete the package.

If you should have any questions regarding any of the enclosed information, please contact Lin Bernhardt, Jackson County Natural Resources Manager at (541) 774-6086.

Sincerely,

Dennis C.W. Smith, Chair
Jackson County Board of Commissioners

c TimReuwsaat



We thank the Medford District manager, Tim Reuwsaat, and his staff for their support and assistance during this process.

Sincerely,


Jackson County Board of Commissioners



Dennis C.W. Smith, Chair



Jack Walker, Commissioner



Dave Gilmour, Commissioner

c Tim Reuwsaat

enclosures:

- 1) WOPR Core Group Consensus Recommendations
- 2) Jackson County WOPR Core Group



1878.3

Recommendations to the Jackson County Board of Commissioners (BOC)
on
The BLM's Western Oregon Plan Revision (WOPR)

INTRODUCTION

The Forest Management Subcommittee of the Natural Resources Advisory Committee (NRAC) is aware of the results of an effort supported by the NRAC to provide the BOC with recommendations on what feedback to provide the BLM on its Draft Environmental Impact Statement (DEIS) on the WOPR. This subcommittee of the NRAC has traditionally been the principle provider of recommendations regarding forestry matters of concern to the BOC. While acknowledging that the recommendations requested by the BOC from a created "Core Group" provided it a broad spectrum of opinions about the DEIS, this subcommittee believes that the BOC should also entertain information of a more focused kind that reflects the opinions of those particularly well versed in certain parts of the WOPR.

The Forest Management Subcommittee of the NRAC is composed of 5 members: Two retired professional foresters (one of whom owns and manages a small woodland property), one member, a working "professional" forester who has extensive experience in the field, one small woodland owner, and one person well versed in water quality, riparian and fisheries matters. These five members met and discussed specific recommendations that are being forwarded to the general membership of the NRAC for submission to the BOC as additional input.

We stress that this is **additional** input and is not meant to contradict or contest other input that the BOC may receive.

The BOC expressed interest in five major subjects in regard to the WOPR: **Wildfire Timber Management, Socio-Economics, Wildlife and Water.**

The Forest Management Subcommittee will comment on these same subjects and in addition will comment on the WOPR's relation to the O&C Act of 1937.

COMMENTS OF THE SUBCOMMITTEE

This subcommittee supports, and has no additions to the "Statements" contained in the Core Group's submission to the BOC with regard to **Wildfire**.

On **Timber Management** the subcommittee offers the following: Although the WOPR recognizes the uniqueness of the forests of most of the Medford District by applying different harvest methods to timber stands south of a line thru Grants Pass, most reviewers were not convinced that there is enough explanation in the DEIS as to how the harvest methods will differ. This subcommittee does not disagree with any of the statements on this subject from the Core Group. **We recommend that the BLM more fully describe how it would recognize that more partial cutting, selective cutting and thinning be done on Medford District forests, and generally, in what places; and analyze the effects on the condition of the forests and the Allowable Sale Quantity (ASQ). If that, in essence has already been done, then it needs to be better displayed.**



None of the alternatives provides information on the relationship between forest productivity (growth per acre per year) and the ASQ. Based on information obtained from a BLM specialist well versed in growth and yield on the Medford District, alternative 2. still does not harvest all the growth occurring there. (Alternative 2. produces the highest ASQ of all the alternatives). The O&C Act says that timber harvest should be based on the principle of sustained yield. Producing more fiber than is harvested leads to build up of biomass, which leads to high fire hazard, which leads to increased fires and loss of timber and habitat, and as a result, also a loss of wildlife and decrease in water quality. This can cause a net loss to human society as well as the natural environment.

This subcommittee recommends that the BLM more fully describe the relationship between the growth of harvestable timber (especially on the Medford District) and its actual planned harvest under the various alternatives.

The definition of “harvestable timber” for our purposes, and based on Medford District data, is the forested acreage in the District. By multiplying the forested acres, 788,000 X 300 board feet/acre/year = 236.40 million board feet per year. Harvest in alternative 2. = 131.0 million board feet per year, far under the sustained yield of these lands.

The subject of Socio-economics in this presentation is dealt with in relation to adherence to the O&C Act. The Core Group statements on this subject have been treated by this subcommittee under Timber Management above. The O&C Act determined that “forest production” would be dominant in managing the O&C forests. This has been upheld in a court decision. The O&C Act included “providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries...” (underlining added). (A pertinent discussion of this subject is contained in the “Critical Commentary” of the Josephine County Report of the Select Sub-Committee regarding the WOPR on page 9 of that report. The report is in the hands of the Jackson County BOC, and they are able to refer to it.)

It should be noted that even under the highest ASQ level alternative, (Alternative 2.) only 54% of the BLM land base is available for harvest.

We recommend that the BLM explain its reliance on Alternative 3. to comply with the “out of court settlement”, when long rotations in that plan restrict timber growth, timber harvest and revenues to the Counties. This may be a subject where the BLM can deviate from the preferred alternative to achieve a higher level of harvest and revenues by including more acres in the forested land base.

Wildlife

This subcommittee, which is focused on forest management issues, has no specific concerns with the DEIS on wildlife issues. None of the alternatives seems to have a detrimental effect on Wildlife in general. We offer no comment on this subject. The statements from the Core Group cover any concerns we may have.

Water issues in the DEIS are not of significant concern to this subcommittee. The Core Group stated that the riparian buffers should be determined on a site-specific basis. The DEIS indicates a formulaic approach. This may be due to the difficulty of incorporating



in the plan an analysis that reflects site specifics. Although possible to do, it may not be cost effective to do so for planning purposes. If this is so, it would be helpful for BLM to so state in the DEIS.

Note: This same difficulty might be the reason the BLM apparently did not model a partial cut/selective cut analysis for timber management in the Medford District. It would be instructive to find that out from the BLM when it responds to input.

We agree with the Core Group recommendations.

Summary

It is hoped that the BOC will value the perspective of a more focused group whose membership is heavily weighted toward a professional approach to the subject. This group, the Forest Management Subcommittee, is part of the (NRAC) that is an official advisor to the BOC. Those professionals have spent their careers considering the very questions raised by the WOPR DEIS and have observed the results of various management actions on the ground. The other members, who are not “professional foresters” also have on the ground experience that is a cut above the perceptions on natural resource issues of the general public. It is in that spirit that we submit our recommendations to the NRAC for further submission to the BOC.



1878.2

Recommendations
From the Jackson County WOPR Core Group
On the BLM Draft EIS Western Oregon Plan Revisions

December 4, 2007

**Prepared for the Jackson County
Board of Commissioners by
Lin Bernhardt, Jackson County
Natural Resources Manager**



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Recommendations from the Jackson County WOPR Core Group on the BLM Draft EIS Western Oregon Plan Revisions

INTRODUCTION

Purpose

The purpose of this report is to inform the Jackson County Board of Commissioners of the results of a county process to gather local input on the Bureau of Land Management's Western Oregon Plan Revisions (WOPR). This input is provided to the board for consideration in their response to the BLM. The report contains recommendations on key areas addressed in the WOPR.

Background

The BLM released their draft environmental impact statement (DEIS) on the management of public lands in Western Oregon in August of 2007. The DEIS, also known as the WOPR, analyzes the potential impacts of existing plans and three new management alternatives that seek to better meet BLM's mandates. While the analysis takes place under one region-wide EIS, the result will be six consistent but independent resource management plans that will guide the management for the western Oregon BLM districts for the next 10 to 15 years. The deadline for comment is January 11, 2008.

The BLM is revising existing plans to replace the land use allocations and management direction proposed under the Northwest Forest Plan to better meet the agency's dual goals of providing a sustained flow of timber output and providing for habitat and conservation of federally listed fish and wildlife species. Most land in the planning area is managed under the requirements of the Oregon and California Lands Act of 1937. The Act requires that the O&C lands be managed for "permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principle of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilities." The BLM must also meet the requirements of other federal laws such as the Endangered Species Act and Clean Water Act.

The Resource Management Plan for the Medford District adopted as a result of this process will be of great importance to Jackson County, affecting county government and the livability of the area for county residents. This plan should be coordinated with plans



the county has adopted such as the Jackson County Integrated Wildfire Protection Plan and water quality and water resource management plans. The BLM promises to address local issues in their plans, and has requested input from residents and cooperators. As cooperators, counties have significant influence in the outcome of the Resource Management Plans.

PROCESS FOR GATHERING INPUT

Developing a Strategy

Jackson County's Natural Resources Manager, Lin Bernhardt, developed a strategy for gathering local input which would help inform the board in their response to the BLM. The strategy was developed with the assistance of the BLM District Manager Tim Reuwsaat, and Ed Kupillas, a member of the Jackson County Natural Resources Advisory Committee (NRAC). The Board of Commissioners endorsed the proposed strategy at a work session on September 2, 2007.

Establishing the Core Group

A central advisory group of key experts, the "Core Group," was formed to help guide the process and provide recommendations to the board. Membership included several NRAC members as well as experts and representatives from key areas such as forest management, water quality, wildfire prevention, biology/ecology, and economics. For a complete list of members, see Appendix A. Members were chosen for their expertise as well as their demonstrated ability to collaborate. When participating, members spoke for themselves and not for any organization they're affiliated with, especially since many of those organizations will be submitting their own comments. A consultant, Dr. Jon Lange, working for the U.S. Institute of Environmental Conflict Resolution, a group that is helping the BLM with its public participation process for the WOPR, was hired to facilitate the meetings and assist with the process.

The Core Group met three times for half-day meetings and reviewed documents between meetings. The group initially met on September 5, 2007, and agreed to focus on five key areas. (Given the expansiveness of the DEIS and the timeline for comment, it was essential to limit the scope.) Those areas included timber management, wildfire, socio-economics, wildlife, and water quality.

The Core Group was briefed by BLM on the WOPR prior to beginning their discussions. On September 17, 2007 a second meeting was held to ask and discuss more in-depth, technical questions. As suggested by BLM, the group focused on the many different *elements* of the alternatives, and not on the alternatives themselves, since BLM is likely to adopt a hybrid of the alternatives listed.



Expanded NRAC Workshop

A workshop was held on September 18, 2007 immediately prior to a regularly scheduled NRAC meeting to gather additional and more widespread feedback from a an even wider variety of interests,. All NRAC members were invited, as well as Core Group members, and members of other groups who would potentially have an interest in – or be affected by – the resource management plan. This included the chairs of relevant county advisory committees as well as others from industry, conservation/environmental organizations and community groups. Of the more than 80 invitations sent, 32 people attended. See Appendix B for the list of participants.

The meeting began with a background presentation by BLM staff. This was followed by a question and answer session. Because of limited time available, we guided participants to provide feedback on a preprinted form asking five questions.

Based on comments and questions during the meeting, as well as from the written comments, the overriding concern was **wildfire**. Concerns that the WOPR did not adequately address this topic came from both industry representatives as well as environmentalists. Other concerns were raised under the topics of forest management, jobs and economy, wildlife and water quality. Copies of all written comments from the meeting are attached in Appendix C.

Developing Recommendations

Incorporating many of the comments from the workshop described above, the Core group met for a third and final time on October 1, 2007 to develop a set of statements/recommendations for each of the five key areas. While members had very different perspectives, representing very different points of view, they worked diligently advocating their different values and beliefs while accommodating and respecting those of other committee members. After the recommendations were developed, subsequent to the meeting, members reviewed them for accuracy. **All members confirmed the necessary changes and final list. This diverse group has agreed, by consensus, to the recommendations below.** A short summary of the concepts discussed precedes each set of recommendations.

CORE GROUP RECOMMENDATIONS

Wildfire

The group expressed deep concern that wildfire was not modeled in the analysis for the alternatives. This is especially important in the Medford District where the threat of wildfire is extremely high. This omission is a serious flaw since the results of the analysis could be very different from what is described in the DEIS, particularly for harvest levels. Neither the extent nor location of fire can be predicted, however historical fire data can and should be incorporated.



Since wildfire has the potential to seriously affect harvest levels as well as other values, it was agreed that harvest should be linked to fuels reduction for economic, forest health, and forest resiliency throughout the district. This should take into account the different forest types in the Medford District.

- **The management plan should reflect the fact that there is more fire risk in the Medford District than elsewhere in the planning area.**
- **The analysis should account for the likelihood of wildfire and its effects on future harvest levels and other values.**
- **The management plan should focus to a greater extent on linking timber harvest to the reduction of fire risk with the goal of improving the fire resiliency of the forest and maintaining or improving forest health.**
- **The plan should describe possible prescriptions, management schemes and methods to reduce fire risk and increase forest and stand resiliency for the typical forest types in the Medford District.**

Timber Management

The group generally agreed that the Medford district has forest types that don't fit the alternatives and should be managed differently than forests in other parts of the planning area. This area has more mixed stands and uneven aged forests that don't fit the one-size-fits-all approach. Forest types should be identified where partial harvest, thinning and regeneration harvests would be appropriate. Therefore, the management of special forest types should be based on a unique management prescription that would determine the harvest type and how to meet objectives such as fire resiliency. The group recognized that this might reduce the Allowable Sale Quantity (ASQ). However, other recommendations from the group would increase the ASQ, although it is unknown to what degree this would occur.

Emphasizing management for objectives would allow a larger portion of the landscape to be managed for timber production while maintaining habitat and/or non-timber values. More volume could be cut in reserves while managing for forest health and fire resiliency.

- **The management plan should recognize the distinct forest types and ecology of the Medford District as compared to other parts of the western Oregon planning area. The management plan for the Medford District should rely more on thinning and partial cuts.**
- **Where regeneration harvests are appropriate, there should be retention of snags, woody debris and live trees, including hardwoods and representative species.**
- **More volume could be cut in reserves with prescriptions that emphasize forest and ecosystem health and fire resiliency.**



- **Emphasize management for objectives allowing broader integrated management. This would allow a larger portion of the landscape – and individual areas within the landscape – to be managed for timber production while maintaining habitat and/or other non-timber values.**

Socio-Economics

There was considerable debate on this topic. It was noted that much more biomass is being grown than proposed to be cut in Alternative 2, and that the cut should be significantly increased. One member suggested that the BLM should consider how much is merchantable and accessible without destroying the ecological base. Another favored looking at site specific characteristics and managing it for habitat, resiliency, or stocking, and letting the ASQ fall out as a result while maximizing economic return. The group generally favored site-specific prescriptions versus a one-size-fits-all approach.

It was also noted that merchantable small diameter could help pay the way, and the DEIS should do more to address small diameter and biomass. The committee agreed that BLM must generate revenue from forests, provide jobs, and do it in an ecologically sound manner. One member suggested BLM should be more aggressive in the reserves. It was suggested that some areas within the Late Successional Management Areas (LSMAs) could be treated while preserving ecological health.

- **More attention should be given to site-specific management and making sales economically viable while providing jobs.**
- **A sustainable, predictable BLM timber harvest is important for job creation, county revenues and continued private sector investment in mill infrastructure. The ASQ can be increased from present levels with sustained yield while still meeting other objectives such as fire resiliency and forest health.**
- **The management plan should promote the supply and utilization of small diameter trees and biomass with the goal of economic viability. The plan should address the importance of collaboration and incorporate language that enables and encourages the districts to participate in such collaboratives.**

Wildlife

One member expressed concern about the amount of closed canopy in some alternatives. An open canopy has varied understory and supports a wide variety of species. More open canopy would help restore under-represented habitat. There was discussion about the need for legacy trees and snags for wildlife, as well as the need to maintain adequate representation of all structural seral stages, including open and closed canopy old growth, especially at low elevation since there is poor representation of old growth. The group agreed that habitat fragmentation was of concern, and should be linked to timber management solutions.



The concern was raised over the issue of managing species to prevent new listings and additional set asides, with the obvious potential to impact future ASQ. Conifer associated Agency Special-Status Species Programs (SSSP) species will need some sort of protection to prevent future ESA listings.

- **The management plan must recognize the importance of legacy trees/green trees (including both conifer and hardwoods), snags and coarse woody debris.**
- **There should be adequate representation of forest seral stages, including open and closed canopy old growth at lower elevations.**
- **There should be an analysis on the effects of habitat fragmentation that the alternatives would create, especially as a result of reduced riparian reserves and lack of green tree retention in some alternatives.**
- **Sensitive species should be managed on a landscape scale to prevent new ESA listings and additional set asides, and should include a safety net for conifer-associated rare species based on reliable data.**

Water

The committee expressed concern about setting uniform buffer distances from streams in all areas, rather than looking at site-specific characteristics to determine the distance that would be protective of the stream. These characteristics would include topography, width of canyon, vegetation, soils, slope, and aspect. Setting uniform setback distances has the potential to remove some land from the timber harvest base that would not create an impact if it were included within the setback, while not including areas outside the setback could cause an impact if the area were logged. While many members felt buffers should be set by experts based on site characteristics on a case-by-case basis, they also acknowledged it may not be practical. In any case, predetermined criteria should be established.

While it was agreed that there should be no significant impairment of water quality, including a reduction of shade and increased warming of the water, one member noted that he isn't too concerned about impacts to water quality using the example of the logging that took place at Big Butte. In general, the group noted the importance of clean water, abundant fish and wildlife, coupled with the need to manage for jobs and timber harvest.

One member felt that buffers should be protective not just of established fish bearing streams, but streams that have the potential for fish presence even though fish have not been observed. If stream conditions could be altered that would allow fish in the future, such as replacing a culvert, it was agreed that those streams should receive equal protection.



The impacts of roads on water quality, the need for better road design, addressing deferred maintenance, and restoring/mitigating existing roads to reduce impacts on sedimentation, were also mentioned as concerns.

- **Riparian buffers should be determined by specialists on a site-specific basis when necessary, based on predetermined criteria for proper functioning conditions. The resulting buffers should be sufficient to avoid significant impacts to water quality or fish habitat, including increases in temperature and sediment, or reductions in large wood recruitment and current and future shade.**
- **Streams with the potential for fish (salmonid) presence should be afforded equal protection to similar streams with fish presence.**
- **Potential impacts from new and existing roads should be minimized. BMPs should be deployed and monitored and deferred maintenance made a high priority.**

FINAL REMARKS

All members of the Core Group stayed at the table throughout the process. This does not mean that every member attended every meeting, however, every member reviewed and agreed to the final recommendations.

The group determined that none of the alternatives were acceptable as written and a new alternative should be developed that incorporates the above recommendations. The management plan for the Medford District must take into account the high fire risk and different forest types in this area. The group supported maximizing harvest levels to support jobs and the economy while managing for fire resiliency, forest health, and ecological values.

The members were appreciative of the BLM staff that made themselves available for presentations and questions throughout the process.



APPENDIX A

Jackson County WOPR Core Group

Ed Kupillas (*NRAC, Society of Professional Foresters*)

Craig Harper (*NRAC, RVCOG*)

Paul Kangas (*NRAC, Society of Professional Foresters*)

Kathleen Donham (*NRAC, League of Women Voters*)

Frank Lang (*NRAC, biologist*)

Ron Fox (*SORED*)

Darren Borgias (*The Nature Conservancy*)

Max Bennett (*OSU Extension forester*)

Brett Fillis (*Rogue Valley Fire Chiefs Assoc., J. C. Fire Plan Executive Com.*)

Jude Wait (*Lomakatsi*)

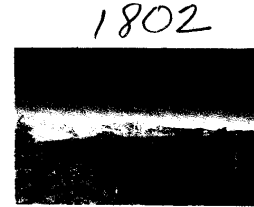
George McKinley (*Jefferson Sustainable Development Initiative*)

Bob Jones (*Medford Water Commission*)



KLAMATH COUNTY
Home of Crater Lake
Klamath County Commissioners

305 Main Street, Klamath Falls, Oregon 97601
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Al Switzer, Commissioner
Position One

John Elliott, Commissioner
Position Two

Bill Brown, Commissioner
Position Three

January 4, 2008

RECEIVED

JAN 09 2008

Mr. Edward W. Shepard, State Director
USDI Bureau of Land Management
Western Oregon Plan Revisions
PO Box 2965
Portland, OR 97208

Dear Mr. Shepard:

The Klamath County Board of Commissioners provided comment on your Western Oregon Plan Revisions on October 30, 2007. Since that date we have become aware of the possible implications of the United States Supreme Court's decision in "National Association of Homebuilders v. Defenders of Wildlife" of June 25, 2007. This decision states that Section 7 of the Endangered Species Act's "...no jeopardy duty covers only discretionary agency actions and does not attach to actions that an agency is required by statute to undertake once certain specific triggering events have occurred..."

In our October 30 comment we encouraged a larger allocation of acres to timber production than the 48 percent your Alternative Two indicated while generally supporting your selection of Alternative Two as your Preferred Alternative. The recent Supreme Court decision now reinforces the requirements of the original O&C Act to manage the O&C lands primarily for timber production for economic benefit of the counties in which the O&C lands lie.

We continue to encourage timber management and production on a far larger acreage than suggested in your Alternative Two and perhaps a larger acreage than the 66 percent indicated in your Alternative Three. We maintain that land may be managed under the rotation age regime (90/140 years) you suggest in such a manner that essential habitat for listed and other species is protected, if not enhanced, while a large volume of valuable forest products is produced. The ten-year allowable sale quantity indicated in Alternative Two, 7,270 MMBF, could be safely exceeded if more acres were available for wood harvest, keeping growth and cut in balance over the span of the decadal planning period.




Page 2 – DEIS letter

As always, it's essential that all resources and species be considered as land management plans are written and executed. We believe it is entirely possible to engage in careful, long-rotation timber management on the largest land-base possible that protects and enhances all resources without excluding commercial use from large portions of public land.


We are very interested in your response to our comments and others that consider the effects of the Supreme Court's decision. We encourage the production of a new Preferred Alternative that takes this decision into consideration and includes far more economic timber production in Oregon's timber-dependent counties.

We very much appreciate this opportunity to comment on your Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts.

Very truly yours,


Al Switzer, Chairman


Bill Brown, Commissioner


John Elliott, Commissioner



Tillamook County



Land of Cheese, Trees and Ocean Breeze

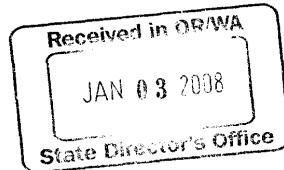
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Tillamook County Commissioners
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January 2, 2008

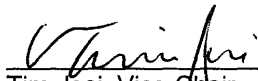
Ed Shepard, State Director OR/WA
Bureau of Land Management
P.O. Box 2965
Portland, Oregon 97207

Re: Western Oregon Plan Revision draft EIS

Dear Mr. Shepard:

We have reviewed the Association of O&C Counties' December 20, 2007 letter to the Bureau of Land Management (BLM) and the comments made therein on the draft EIS in BLM's Western Oregon Plan Revision process. We agree with the comments provided within that letter and fully support the position of the Association of O&C Counties in this regard.


Charles J. Hurliman, Chair


Tim Josi, Vice-Chair


Mark Labhart, Commissioner

AN EQUAL OPPORTUNITY EMPLOYER



ASSOCIATION OF O & C COUNTIES 1512

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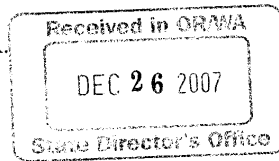
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December 20, 2007

Ed Shepard, State Director OR/WA
Bureau of Land Management
P.O. Box 2965
Portland, Oregon 97208



Re: Western Oregon Plan Revision EIS comments

Mr. Shepard:

The Association of O&C Counties represents the interests of Counties in Western Oregon within which lie the BLM managed O&C lands and Coos Bay Wagon Road ("CWBR") lands, including the 16 Counties which are formal cooperating agencies in the BLM's Western Oregon Plan Revision ("WOPR") process. This Association has represented County interests in the management of these lands for over 80 years. We have reviewed the WOPR draft EIS and provide the following comments:

BACKGROUND:

The O&C Act requires that O&C Lands "which have heretofore or may hereafter been classified as timberlands, and power site lands valuable for timber, shall be managed . . . for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal of sustained yield . . ." 43 USC §1181a. The Act identifies two mandatory actions over which the BLM has no discretion: (1) If it is timberland, it must be included in the "timber base"; and (2) if it is in the timber base, it must be managed for sustained yield timber production. There remains, of course, at least some discretion in how the BLM implements the second of these requirements - - - there are a variety of ways to satisfy the requirement for sustained yield timber production.

When the WOPR process began, it was presumed that the Endangered Species Act ("ESA") "trumped" the O&C Act in some respects. Specifically, it was presumed that the O&C Act mandate to manage all timberlands for sustained yield had to stand aside if such management was inconsistent with the ESA's section 7(a)(2) requirement that "each Federal Agency shall, in consultation with . . . [the Secretary of Interior or Commerce] insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or



Association of O&C Counties
December 20, 2007
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threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical . . .” 16 USC §1536(a)(2). It was presumed that the creation of reserves from which timber was not harvested, otherwise impermissible under the O&C Act, was permitted if necessary to avoid jeopardy to a listed species. The corollary presumption was that O&C lands, if designated as critical habitat under the ESA, could be withdrawn from timber production and placed in reserves for the benefit of listed wildlife species. All of these presumptions were wrong.

In June 2007, the United States Supreme Court reversed the 9th Circuit Court of Appeals in a case that limits the scope of the ESA. The case did not involve the O&C Act, but its holding directly affects the extent to which the BLM may respond to the “no jeopardy” and “no adverse modification” requirements of the ESA. The key holding in the case is as follows:

“§7(a)(2)’s no-jeopardy duty covers only discretionary agency actions and does not attach to actions . . . that an agency is required by statute to undertake once certain specific triggering events have occurred. This reading not only is reasonable, inasmuch as it gives effect to the ESA’s provision, but also comports with the canon against implied repeals [of other, earlier, conflicting legislation] because it stays §7(a)(2)’s mandate where it would override otherwise mandatory statutory duties.” Natl. Ass. of Homebuilders v. Defenders of Wildlife, No. 06-340 (June 25, 2007). (Emphasis in original.)

This holding specifically controls the scope of the ESA’s “no jeopardy” requirement, but it should also be read to control the scope of the “no adverse modification” requirement, since both requirements are in the same sentence of ESA §7(a)(2).

This new Supreme Court decision alters the legal framework for the development and selection of alternatives in WOPR. Since the O&C Act says all timberlands must be managed for sustained yield timber production, the BLM may not create reserves on O&C or CBWR lands to avoid jeopardizing a listed species, or to avoid adversely modifying critical habitat, since section 7(a)(2) of the ESA does not impliedly repeal the O&C Act’s nondiscretionary mandate to implement sustained yield forestry on all timberlands. What remains subject to §7(a)(2)’s “no jeopardy/no adverse modification” requirement is the BLM’s exercise of discretion in choosing the particulars of the sustained yield timber management it will employ. The BLM can and must seek to avoid jeopardy and adverse modification, but its effort in that regard must be consistent with the discretion allowed it under the O&C Act. This occasion is also a useful reminder that the BLM may only use its discretionary authority in contributing to the recovery of listed species pursuant to §7(a)(1) of the ESA. Thus, the limitations on the BLM are the same



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for both contributing to recovery and avoiding jeopardy under the ESA---the scope of discretion under the O&C Act limits and defines the BLM's obligations under the ESA.

The 9th Circuit Court of Appeals decision in Headwaters v. BLM, 914 F.2d 1174 (9th Cir. 1990) is the controlling interpretation of the O&C Act and the BLM must follow it. The opinion in that case identifies the purposes and goals of the O&C Act, which are the guideposts for identifying the extent of the BLM's management discretion. The opinion in that case at pages 1183-84 provides as follows:

1. The term "forest production" in the O&C Act means "timber production." Timber production is the "dominant use" for O&C lands.
2. "Exempting certain timber resources from harvesting to serve as wildlife habitat is inconsistent with the principle of sustained yield." (Emphasis added.)
3. "The purposes of the O&C Act were two-fold. First, the O&C Act was intended to provide the counties with the stream of revenue which had been promised but not delivered . . . Second, the O&C Act intended to halt previous practices of clear-cutting without reforestation, which was leading to a depletion of forest resources." * * * "Nowhere does the legislative history suggest that wildlife habitat conservation or conservation of old growth forest is a goal on a par with timber production, or indeed that it is a goal of the O&C Act at all." (Emphasis added.)

The O&C Act says that timber on the O&C lands shall be managed with the timber thereon sold, cut and removed on a sustained yield basis "for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilities." The Headwaters decision makes clear, through reference to the legislative history, that protecting watersheds, regulating stream flows, and providing recreation facilities were the expected outcomes from sustained yield timber management rather than separate goals that could compete with sustained yield timber management. Nevertheless, these projected outcomes are clues to the kind of management that BLM was expected to undertake to implement the sustained yield mandate of the O&C Act.

The limits of BLM's discretion are ascertained by reference to the terms of the O&C Act, on its face and as interpreted in the Headwaters decision, as well as by historic interpretations given the O&C Act by the BLM itself. For example, in a 1939 press release, less than two years after the O&C Act became the management mandate, the BLM's predecessor agency had a Chief O&C Forester, the equivalent of the BLM State Director, who described the newly adopted sustained yield forestry program in these words:



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“This assures the continuous production of timber for the employment of Oregon industries without the danger of exhausting the timber supply and without the danger of destroying the tax base of the counties.” Press Release, March 31, 1939, W. H. Horning, O&C Chief Forester.

In 1940 the O&C Chief Forester elaborated, saying that “[a]ll the lands best suited for the growing of timber will be retained in public ownership and kept at work producing crops of timber. Continuous production of timber of commercial quality in the largest possible amount is the goal.” W. H. Horning, The O&C Lands and their Management, an Important Advance in Forest Conservation (1940).

All of these indications suggest that the BLM’s discretion when implementing sustained yield is narrowly bounded. The limited discretion under the O&C Act was preserved by Congress as recently as 1976, when Congress passed the Federal Land Policy and Management Act (“FLPMA”), which redefined the management direction for nearly all lands in the United States under the jurisdiction of the BLM, with the telling exception of lands managed under the O&C Act. FLPMA, P.L. 94-579, is a multiple use statute under which all uses for the land are given equal consideration, and the BLM has broad discretion to choosing the mix of uses it will adopt for lands managed under FLPMA. But Congress specifically preserved the dominance of timber production on the O&C lands by adopting section 701(b) of FLPMA, which says that “[n]otwithstanding any provision of this Act [FLPMA], in the event of conflict with or inconsistency between this Act and the . . . [O&C Act and Coos Bay Wagon Road Acts], insofar as they relate to management of timber resources, and the disposition of revenues from lands and resources, the latter Acts shall prevail.”

In 1986 the Interior Solicitor was asked if the BLM had authority to implement a plan for the protection of spotted owls. The legal opinion differentiated between lands managed by the BLM pursuant to FLPMA, and lands managed pursuant to the O&C Act. The Solicitor’s opinion describes the difference as follows:

“The freedom conferred on the Secretary under FLPMA is limited in one important way on certain federally-owned timberlands in western Oregon. There, any decision about managing northern spotted owls must be measured against the dominant use of timber production. * * * In deciding whether to establish a program for managing northern spotted owls on O&C timberlands, the Secretary, then, must decide if it is possible to do so without creating a conflict with the dominant use there—timber production. If the Secretary can manage northern spotted owls and still produce timber on a sustained yield basis in the O&C timberlands, the O&C Act in no way will preclude him from making that choice. * * * The converse, of course, also obtains. If a program for managing northern spotted owls conflicts with producing timber on a sustained yield basis in O&C



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timberlands, the O&C Act will preclude the program's application to that realty." Gale Norton and Constance Harriman, Associate Solicitors, Memorandum to James Cason, Deputy Assistant Secretary for Land and Minerals Management (October 28, 1986).

The Association of O&C Counties does not, in these comments, offer a convenient description of the exact range of discretion we believe is consistent with the O&C Act, now that the constraints of the ESA cannot be viewed as a separate, modifying source of management authority by the BLM. It is clear that creation of reserves in which sustained yield timber production is not practiced is not allowed, but otherwise the boundary lines defining the BLM's discretion are not brightly drawn. Our comments below are guided by the purposes and goals of the O&C Act, as they are described in the paragraphs above. The BLM's discretion is defined by these same purposes and goals.

Minimum Harvest Levels

There is a continuing debate about whether the O&C Act specifies a minimum harvest level, and if so, what the minimum harvest level is. The O&C Act, 43 U.S.C. §1181a says the following:

"The annual productive capacity for such lands shall be determined and declared as promptly as possible after August 28, 1937, but until such determination and declaration are made the average annual cut therefrom shall not exceed one-half billion feet board measure: *Provided*, That timber from said lands in an amount not less than one-half billion feet board measure, or not less than the annual sustained yield capacity when the same has been determined and declared, shall be sold annually, or so much thereof as can be sold at reasonable prices on a normal market." (Italics in original, underlining added.)

This language equates the "sustained yield" with the "annual productive capacity"---the two terms refer to the same thing. This strongly suggests that "sustained yield" is not something that is administratively determined by application of policy decisions from a wide range of discretionary options. Rather, it appears that that "sustained yield"---the annual productive capacity---is determined primarily by reference to biological factors associated with tree growth and mortality.

In Portland Audubon v. Babbitt, 998 F.2d 705 (9th Cir. 1993), one question presented was whether an injunction on timber sales pending compliance with NEPA was appropriate. The BLM argued that an injunction would prevent it from achieving a harvest level of 500 mmbf, which it argued was compelled by statute. The 9th Circuit said that the O&C Act "has not deprived the BLM of all discretion with regard to either the volume requirements of the Act or the management of the lands entrusted to its care." The Court rejected the BLM's argument that NEPA did not apply, based on the Court's



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understanding that NEPA “applies to all government actions having significant environmental impacts, even though the actions may be authorized by other legislation.” Id. at 709. This interpretation of NEPA is no longer correct with regard to nondiscretionary actions. See Dept. of Transportation v. Public Citizen, 541 U.S. 752 (2004). Moreover, the 9th Circuit’s statement in Portland Audubon about the BLM having at least some discretion under the O&C Act does not answer the question about how much discretion exists, nor does it definitively answer the question about minimum harvest levels that the BLM must attempt to achieve under the Act.

The 2003 Settlement

In August, 2003, a settlement agreement was reached in American Forest Resource Council v. Clarke that requires the BLM to revise six resource management plans in Western Oregon that are associated with the Northwest Forest Plan. The settlement agreement requires that at least one alternative be considered for each plan that does not utilize any reserves except as required to avoid jeopardy under the ESA. In addition, all new plans must be consistent with the O&C Act as interpreted by the 9th Circuit of Appeals in the Headwaters decision. The U.S. Supreme Court’s Homebuilders decision establishing that section 7(a)(2) of the ESA does not modify or amend other, nondiscretionary statutory mandates, supercedes the settlement agreement in certain respects. To the extent that the settlement agreement can be read as suggesting that reserves are permissible on O&C lands to avoid jeopardizing listed species under the ESA, the settlement agreement is no longer consistent with applicable law. The second requirement of the settlement---that all plan revisions be consistent with the O&C Act as interpreted in the Headwaters decision---remains effective as a matter of contract, as well as a matter of statutory law.

EIS GENERAL COMMENTS:

None of the alternatives as presently written in the draft EIS meet the statutory requirements of the O&C Act. Management that would occur in LSMAs under Alternatives 1 and 2, and in LSRs in the No Action Alternative, would not provide timber production on a sustained yield basis. Instead, significant amounts of O&C and CBWR land would be set aside and reserved for the conservation and recovery of species listed under the ESA. Alternative 3 contains no wildlife reserves, but is designed to maintain and promote a mature and structurally complex forest on BLM lands across the landscape. The rotation ages proposed under Alternative 3 were selected, not by reference to the goals and purposes of the O&C Act, but for the purpose of benefiting wildlife, which is not a goal of the O&C Act at all. Under Alternative 3, timber production on a sustained yield basis would be significantly limited to achieve the overall goal of an old growth forest. While extended rotation ages might be permissible on some parcels, their widespread application under Alternative 3 is out of compliance with the



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purposes of the O&C Act. Viewing the landscape as a whole, one cannot say that timber production would be the “dominant use” under Alternative 3.

We believe that deficiencies in the alternatives and the draft EIS can be corrected in the final RMP/EIS without doing a supplemental EIS. This can be achieved by modifying Alternative 2 to incorporate the U.S. Supreme Court’s limitations on the reach of the ESA, and correcting certain other existing inconsistencies with the O&C Act. All information and data necessary for final EIS analysis is currently available in the draft EIS. The following are suggested changes for Alternative 2:

1. Maintain existing LSMA allocation boundaries identified in Alternative 2, but do not withdraw or reserve these lands from sustained timber production. Instead, develop long term rotation age strategies within the LSMA boundaries that would contribute to the conservation and recovery of federally listed species, while also providing for regeneration harvesting on a sustained yield basis. We suggest using the long rotation ages contained in Alternative 3 within the areas currently identified as LSMAs, and using landscape targets for regeneration harvest within LSMA boundaries similar to requirements in Alternative 3.
2. Develop timber management objectives within LSMA boundaries that maintain and promote the development of suitable habitat for federally listed ESA species. Examples include thinnings and partial harvests that would hasten development of structurally complex forests within the LSMA boundaries. All timber harvested within the LSMAs is in the timber harvest base and the volume should be included in ASQ calculations.
3. The Secretary, apart from the WOPR process, should eliminate critical habitat designations on O&C and CBWR lands. The BLM cannot participate in a system of reserves on O&C and CBWR lands. USF&W, at the direction of the Secretary, should revise its proposed critical habitat designation to account for the BLM’s non-discretionary mandates under the O&C Act.
4. Allow for green tree retention (legacy) trees within LSMA boundaries.
5. Establish continuous field survey and monitoring systems within LSMAs for all federally listed species. Determine whether a location is “actually occupied” based on confirmation of the physical presence of species using the site for nesting, roosting, or foraging (owls) or nesting (murrelets), but excluding locations where there are sightings of transient, dispersing birds.
6. Protect all sites (inside and outside of LSMAs) that are actually occupied by listed species by delaying regeneration harvest of sites for so long as sites are actually occupied. See definition of “actually occupied” in comment 5.



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7. Allow salvaging in LSMAs for economic purposes with retention of legacy trees.
8. In areas south of Grants Pass and in the Klamath Falls resource area of the Lakeview District, apply uneven aged timber management principles where feasible to all BLM lands. This practice would reduce fire hazard and the acres of high severity fire when wildfires occur in these areas. It could also benefit suitable habitat conditions for ESA listed species.
9. Include in the sustained yield timber management base all Congressionally designated Wild and Scenic Rivers that have a scenic or recreation classification. Exclude only those rivers with a Congressional wild classification from the timber base. Include in the timber management base all rivers that have not been Congressionally designated. Any protections for riparian areas along Wild and Scenic rivers included within the timber base would be those riparian protections generally applicable for the land use allocation of the surrounding lands.
10. Withdraw O&C and CBWR lands located in the National Landscape System from sustained yield timber management only if they have a Congressional designation requiring protection.
11. Include all lands adjacent to the Coquille Tribal Forest in the sustained yield timber management base.
12. Maintain all other features for Alternative 2
13. Develop a sub-alternative for Alternative 2 that eliminates LSMA boundaries and establishes the maximum harvest that can be maintained in these areas without exceeding the amount of new growth.

SPECIFIC DRAFT EIS COMMENTS:

SUMMARY:

1. P. XLIV---Add a footnote regarding the Homebuilders decision by the U.S. Supreme Court, and explain that the ESA's requirements under section 7(a)(2) are not applicable to agency actions over which the BLM has no discretion under the O&C Act.
2. P. XLVI---Rewrite Alternative 2 summary consistent with the recommendations described above in these comments under the heading EIS General Comments.



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3. P. XLIX---Rewrite Figure 1 and Table 1 as they apply to Alternative 2, so that they reflect the revisions to Alternative 2 recommended above.
4. PP. L-LXVI---The summary of environmental consequences should be rewritten to reflect changes recommended for Alternative 2. In addition, the Marbled Murrelet section (p. LVIII) should be totally rewritten based on detailed comments presented below for Chapters 3 and 4.
5. P. LIII---Reconsider whether environmental justice considerations should be more extensively discussed. For example, Douglas County experiences very high levels of impacts depending on which alternative is selected by the BLM. At the same time, Douglas County has high levels of poverty, so that impacts from the BLM decisions will be experienced disproportionately by low income populations. While the median income in Douglas County rose 4.5 percent in 2006, the number of people living in poverty in Douglas County also rose at the same time, from 11.8 percent to 16 percent of the total population. There was a corresponding increase in the number of children living in poverty, so that currently more than 25 percent of all children in Douglas live in poverty, a shocking and disturbing statistic that might be sufficient to require a fuller environmental justice analysis.

CHAPTER 1---PURPOSE AND NEED

1. PP. 3-6---The purpose and need for the plan revisions should be revised to accurately reflect the law following the Supreme Court's Homebuilders decision. For example, on page 6, the current text states: "The statutory requirements of the O&C Act are limited by other statutes providing for the need to conserve listed species and the habitat they depend on, not jeopardizing listed species and not adversely modifying critical habitat . . ." This is no longer an accurate statement of the law and must be revised. Other, similar statements should be modified as well.
2. P. 10---The last sentence of the 4th full paragraph states as follows with regard to the O&C Act: "Nor does it establish a minimum level of harvest or a minimum level of receipts." We agree that the O&C Act does not mandate a minimum level of receipts, but it does mandate a minimum harvest level. We request that you quote in full the second full paragraph of 43 U.S.C. §1181a. We recognize that the decision in Portland Audubon v. Babbitt, 998 F.2d 705 (9th Cir. 1993) states that the BLM does not completely lack discretion with regard to harvest levels, and that therefore an injunction to compel compliance with a procedural statute was not precluded by the O&C Act. But that is a limited holding (see discussion above) that cannot be said to eliminate the minimum harvest level requirements stated in the Act as they are applicable to the BLM.



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2. P. 11---The section describing the ESA must be corrected to reflect the Supreme Court's ruling in the Homebuilder's case. It is no longer true that section 7(a)(2) requires the BLM to take actions that are inconsistent with the O&C Act's nondiscretionary mandates. As with obligations under section 7(a)(1), the BLM may only respond to section 7(a)(2) in ways that are consistent with the requirements of the O&C Act.
3. P. 23---The section titled "Endangered Species Act Section 7 Consultation" must be rewritten to reflect the Supreme Court decision distinguishing between discretionary and non-discretionary actions proposed by an action agency.

CHAPTER 2---ALTERNATIVES:

1. PP. 43-44---National Landscape Conservation System section should be rewritten to include only those management actions that are consistent with the O&C Act or specific Congressional designation. For example, on Congressionally designated Wild and Scenic rivers with a scenic or recreation classification, timber harvest is allowed, and lands with such classifications should be a part of the timber base for sustained yield calculations. Only sections of rivers with Congressional wild classifications are properly withdrawn from timber harvest. The BLM lacks authority to withdraw O&C and CBWR lands from timber production on an interim basis while Congress is considering eligibility of candidate areas for inclusion in Wild and Scenic system.
2. P. 45---Management actions associated with the Mt. Hood Corridor need to be re-examined for consistency with the O&C Act. Unless Congressionally designated, timber harvest should not be excluded.
3. PP. 46-47---Management objectives and management actions associated with federal and state listed plant species should be rewritten to reflect the Supreme Court decision regarding Section 7 of the ESA. The BLM should consider strategically placed green tree retention as a means of protecting localized plant populations in harvest units.
4. PP. 60-61---Management objectives and management actions associated with listed wildlife species must be rewritten to reflect the limitation on the ESA in light of the Homebuilders decision.
5. PP. 65-75---The discussion regarding the No Action Alternative and Alternative 1 should make clear that excluding the LSRs from sustained yield timber production can no longer be justified as being necessary to comply with the ESA.



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6. PP. 76-89---Alternative 2 discussion needs to be modified and rewritten to incorporate the Supreme Court's ruling in the Homebuilders case. The discussion must distinguish between the Agency's non-discretionary and discretionary actions. (See the 13 specific suggestions discussed above for Alternative 2 in the section labeled "EIS General Comments.")

CHAPTER 3---MARBLED MURRELET, AFFECTED ENVIRONMENT, PAGES 297-308

1. Table 90 identifies 890,000 habitat capable acres of BLM land within the planning area that could potentially become nesting habitat for Marbled Murrelets. Additionally, 373,000 acres are identified as nesting habitat available today. Table 90 fails to accurately portray the effected environment from a landscape perspective within the planning area for the species and should be modified to include the following information:
 - a. Add a column that identifies total federal and state habitat capable acres within the planning area that could potentially become nesting habitat for the species. Show percentage of total habitat under BLM administration.
 - b. Add columns that break down total federal and state capable acres by zone 1 and zone 2, and show percentage of acres under BLM.
 - c. Add columns that break down total available habitat by ownership within the planning area by zone, distinguishing between mature and structurally complex forest, and showing percentage of BLM acres in each.
2. All BLM forest acres capable of growing trees within zone 1 and 2 are included as habitat capable acres for Marbled Murrelets. No other factors were included for determining suitable habitat for nesting other than growing a mature and structurally complex forest on BLM lands in proximity to a marine environment. The EIS fails to adequately describe the many other factors that must be considered in determining the capability of O&C lands to support nesting by the species. The effected environment section for Marbled Murrelets needs to be rewritten to include the following information:
 - a. The Marbled Murrelet recovery plan and proposed critical habitat rule have identified that the species requires large contiguous blocks of mature and structurally complex forest habitat with low amounts of edge and fragmentation and located far from human activity for successful nesting and fledging of young. BLM's checkerboard and fragmented land ownership is a significant constraint on the ability of BLM lands to contribute to the recovery of the species by providing nesting habitat



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meeting these criteria. Large patches of structurally complex forest habitat with low amounts of edge do not exist on these lands.

- b. O&C and CBWR lands are located across the landscape in a checkerboard pattern with mostly private industrial lands in zones 1 and 2. Most mature and structurally complex forest habitat has been eliminated on private lands. In addition, regenerated forests on most private lands are planned for timber harvest prior to obtaining the forest characteristics of an older forest. Suitable habitat loss on private lands must, therefore, be considered permanent.
 - c. Large contiguous blocks of forests within zone 1 and 2 are located on the National Forest lands and on the Tillamook and Elliott State Forests
 - d. Marbled Murrelets are very sensitive to fragmentation and reproductive success is adversely affected by fragmentation. Large amounts of edge and fragmentation also result in increased populations of nest predators; increased visibility and vulnerability of flying or nesting adults to potential predators; and changes in microclimate regimes that stress the species.
 - e. The EIS (page 302) states that Marbled Murrelets nest in landscapes with large stands with less edge and farther from logged areas. It further states that patches of suitable nesting trees of only a few acres with only a few nesting trees are thought to be capable of supporting Marbled Murrelet nesting which is contrary to the large contiguous block requirement stated above. Is this a conclusion based on scientific evidence or is it just an opinion based on little to no evidence? The EIS should provide support for this statement.
3. The EIS does not adequately describe occupancy and actual use by the species on BLM lands in zones 1 and 2. Occupancy is determined by survey protocol that is based on the behavior of the species, but there is no discussion about actual use. Questions need to be answered about what nesting activities have actually been confirmed on the BLM lands. A source of information on this subject can be found on page 52 in the Marbled Murrelet recovery plan. For areas of known occupancy and use, the EIS should provide a detailed description of suitable habitat that includes size of stand, amounts of fragmentation, stand and nest tree characteristics and the occupied parcel's relationship to these criteria. Also, the EIS should describe whether nesting and fledging of young was successful or, if not, what caused failure. As an example, the recovery plan identified the "Valley of the Giants" (BLM) as an active but failed nesting area. This is an old growth parcel laying in a fragmented checkerboard ownership that contains some of the



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oldest Douglas Fir trees in the Coast Range. Nest failure occurred because of egg predation.

4. In areas determined to be occupied by survey, what protocol was used for making a determination? Provide information in the form of a table and narrative showing occupied acres determined by different protocols. For example, the Coos Bay district had identified 19,775 acres as occupied by original protocol used until 2003. 1,447 acres have subsequently been added with a new protocol through 2006. Are acres identified under the old protocol still valid? If so, why? In addition, what documented follow-up studies based on field examination have been conducted on occupied lands that confirm that these areas are actually being used for nesting or have stand and nest tree characteristics that allows the parcel to be suitable for nesting.

CHAPTER 3--- EFFECTED ENVIRONMENT (Miscellaneous Comments)

1. P. 262---Neither Bureau Sensitive Species, Bureau Assessment Species nor federal candidate species on O&C and CBWR lands can receive management protections that are inconsistent with sustained yield timber management..
2. P. 317---Bureau Sensitive Species on O&C and CBWR must be managed consistent with sustained yield timber production under the O&C Act.
3. PP. 422-424---The section concerning the National Landscape Conservation System should be revised to make clear that management within these lands will include sustained yield timber production under the O&C Act unless specific areas have received a Congressional designation that precludes such timber management.
4. Add a discussion of environmental justice for rural counties. The discussion should focus on levels of poverty and economic impacts on those at or near the poverty line that would result from each of the alternatives.

CHAPTER 4--ENVIRONMENTAL CONSEQUENCES, PAGES 473-793

All sections in this chapter need to be revised to disclose environmental consequences resulting from addressing the Homebuilders decision by the Supreme Court as described above and other recommended changes identified above for Chapters 1 through 3. Significant modifications need to occur in sections on Socio-economics, Timber, Botany, Wildlife, Fire and Fuels, and the National Landscape Conservation System. The section on Environmental Justice should be updated with statistics more current than the 2000 census data used in the draft EIS. There should be additional discussion of how those living at or near the poverty line are affected by the employment



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prospects associated with each alternative, and how those populations are affected by the level of county services that would be available or not, depending on the shared timber receipts associated with each alternative.

CHAPTER 4--MARBLED MURRELET PAGES, PAGES 674-682

The environmental consequences analysis is deficient and its conclusions are not supported by existing scientific data that can be found in the recovery plan or the critical habitat rule. The results described in the draft EIS are based on the growing of trees into mature and structurally complex forests on 891,000 acres of BLM lands within zones 1 and 2. Suitable nesting habitat, quality and quantity, cannot be based solely on this one factor. This analysis needs to be rewritten to reflect a more accurate depiction of the BLM lands' physical and biological capabilities to provide suitable nesting habitat for the species. (See comments above for Chapter 3, Marbled Murrelets.) The analysis in the EIS must address the affects of each of the nesting habitat issues listed below. Analysis of these issues must examine effects from a landscape perspective, as well as from the more limited BLM ownership perspective:

1. BLM's checkerboard ownership pattern and its ability to provide large contiguous blocks of mature and structurally complex forest habitat for nesting is limited. Use as a foundation data described on pages 13, 17, 68 and 183-191 of the draft EIS. For example, page 189 states that BLM's ability to influence resource outcomes often depends upon the amount and location of its land ownership in relation to a particular resource. In addition, page 191 states that most of the BLM lands comprise less than one-third of a 5th field watershed. By contrast, most of the lands managed by the Forest Service are in large contiguous blocks.
2. The BLM's ability to provide habitat with low amounts of edge and fragmentation, far away from human activity that has suitable nesting characteristics is limited.
3. Marbled Murrelets are very sensitive to fragmentation and reproductive success is adversely affected by fragmentation. Given BLM's scattered ownership in zones 1 and 2, how does this affect BLM's ability contribute to conservation and recovery of the species? Conversely, given the large contiguous blocks managed by the Forest Service, how does this affect its contribution to recovery?
4. Environmental consequences associated with reserving occupied sites based solely on survey needs to be addressed. Are these occupied sites being actually used for nesting or does the area really offer potential based on the above factors and requirements for suitable nesting habitat?



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5. Increases/decreases in Marbled Murrelet nesting habitat for any alternative must be based on the habitat requirements of the species and not just on the capability of growing trees overtime. Tables for zone 1 and 2 should be developed to show suitable nesting habitat (quality and quantity) overtime by ownership at the landscape level.

VOLUME 3

1. PP. A930-A932---Add a complete discussion of the Homebuilders decision by the U.S. Supreme Court and how it affects nondiscretionary actions by the BLM.
2. PP. A933-A934--- Add a discussion of the savings provision in FLPMA preserving the dominance of the O&C Act with regard to management of timber resources.
3. P. A931---The discussion of Portland Audubon includes the following statement: "The Court also found that the O&C Act did not establish a minimum volume that must be offered every year notwithstanding any other law." What the court actually said was the O&C Act "has not deprived the BLM of all discretion with regard to either the volume requirements of the Act or the management of the lands entrusted to its care."

Thank you for considering our comments.

THE ASSOCIATION OF O&C COUNTIES

By: Kevin Q. Davis
Kevin Q. Davis, Attorney for the Association

cc: Dick Prather



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Martha Schrader
Chair

Lynn Peterson
Commissioner

Bill Kennemer
Commissioner

BOARD OF COUNTY COMMISSIONERS

PUBLIC SERVICES BUILDING

2051 KAEN ROAD | OREGON CITY, OR 97045

December 20, 2007

Edward Shepard
OR/WA State Director
Western Oregon Plan Revisions
Bureau of Land Management
P.O. Box 2965
Portland, OR 97208

Re: Western Oregon Plan Revisions

Dear OR/WA State Director Shepard:

We, the Clackamas County Commissioners, have reviewed the Draft Environmental Impact Statement (DEIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts. We appreciate the work that has gone into the WOPR process over the past few years, including scoping, development of alternatives, and the detailed analysis of effects described in the DEIS. The workshops, open houses, and web site information available since the release of the DEIS and the extended comment period are evidence of your commitment to informing the public and cooperating agencies while giving adequate time for thoughtful commentary.

After review and consideration of anticipated effects of each proposed alternative, we would like to lend our support to Alternative 2. Of the proposed alternatives, we believe that Alternative 2 best meets the intent of the O&C Lands Act of 1937 for these lands to be managed in permanent forest production under the principles of sustained yield providing economic benefit to local communities. We believe that Alternative 2 proposes a management scheme that will grow and produce forest products in a sustainable manner while protecting other resource values such as wildlife, fish, and clean water. The income to Clackamas County via payments from timber receipts is important for providing some local county services in our county as well as the other O&C counties. We have adopted a resolution in support of Alternative 2, a copy of which is included and which has been transmitted to the Association of O&C Counties.

While we support the selection of Alternative 2, we would like to point out some particular concerns we have identified through discussion with County staff and citizens.

Concern 1: Identification of revenue replacement for the Secure Rural Schools and Community Self Determination Act safety net payments is important.

Clackamas County is supportive of identifying revenues to replace the anticipated loss of Secure Rural Schools funding, but it is also important that projects be implemented in a way sustainable to both the timber harvest and the other resources the forest provides. We would ask the BLM to encourage all of the O&C counties to continue to look at other potential sources of revenue including revenue generated through tourism and recreation.

Concern 2: Revenues from the timber harvest on BLM land could be processed under "Stewardship Contracts" and would not be returned to the Counties.



While we recognize that stewardship contracting is a good tool in the right situation, we are concerned that it would reduce the revenue generated from timber harvest and thus reduce the portion of revenue returned to the Counties. If stewardship contracting is used to implement some resource management projects, the Counties should still receive an equal amount of revenue as they would have with a traditional timber sale.

Concern 3: Protection of endangered species habitat and improving forest health is critical.

Clackamas County supports harvesting of timber when it is balanced with science-based protection of endangered species. Managing of public forests should be conducted in a sustainable and ecologically sound manner. We strongly support and encourage focusing on thinning of plantation stands, which would help to address fuel reduction concerns in fire-prone and over-stocked plantation areas.

Concern 4: Adequate riparian buffer areas are important for protection of fish, water, wildlife, and soil resources.

While we support Alternative 2, we are concerned that the minimum riparian widths may be applied to all projects. Each forest management project should be reviewed on an individual basis so that the appropriate riparian corridor width is applied to each site. We have particular concern in areas of unstable slopes and soils. It is important that the minimum protection width is not relied upon as the standard, but instead the appropriate protection be applied on a site-by-site basis.

Concern 5: Timber harvest on properties adjacent to small private landowners can be controversial.

Some of the BLM-managed lands in Clackamas County are in smaller tracts scattered in the western foothills of the Cascades. Many of these tracts border properties owned by private, rural landowners. As you know, these neighbors can be very sensitive to management activities, especially timber harvest. An article in the August 16, 2007 Clackamas County Weekly section of *The Oregonian* titled "Living – for now – in paradise" described some of the issues arising from management of small BLM parcels in the rural landscape of eastern Clackamas County. Our Clackamas County Forest Program has made it a point to contact and work with neighboring landowners when proposing timber harvest on our county-owned forest lands. This has been a successful strategy for several years. We suggest that Salem District planners employ this strategy when proposing timber harvest on BLM-managed lands adjacent to smaller, private landowners. We would be happy to provide contact information for those adjacent landowners in Clackamas County to Salem District planners.

Thank you for extending the public comment period and giving us the opportunity to comment on the DEIS. We look forward to finalization of the western Oregon resource management plan revisions and subsequent implementation of the selected alternative.

Sincerely,

A handwritten signature in black ink, appearing to read "Martha Schrader". The signature is fluid and cursive, written over a light grey horizontal line.

Martha Schrader, Chair
Clackamas County Board of Commissioners



**BEFORE THE BOARD OF COUNTY COMMISSIONERS
OF CLACKAMAS COUNTY, STATE OF OREGON**

1520.2

In re: New BLM Resource Management
Plans for O&C and Related Lands
in Western Oregon



Resolution No.: 2007-622
Page 1 of 3

WHEREAS, The BLM is revising its land management plans for western Oregon, updating plans for an area that comprises about 10 percent of the area covered by the Northwest Forest Plan, and

WHEREAS, most of the planning area is governed by the O&C Act of 1937, which requires the BLM to manage for permanent forest production to provide economic benefit to local communities, while protecting watersheds, regulating streamflows, and providing recreation facilities. The draft plan analyzes the potential impacts of three management alternatives, and

WHEREAS, the BLM's Alternative 2 would produce about 727 million board feet of harvest annually, in perpetuity. Receipts from sales of this timber would replace about 94 percent of the revenue that will be lost when the current Secure Rural Schools and Community Self Determination Act safety net payments terminate in the near future, and

WHEREAS, the O&C lands were once in private ownership, but were taken back by the federal government, and thus removed from county tax rolls. To compensate, fifty percent of timber receipts go directly to the 18 western Oregon Counties, to be used as discretionary funds for services such as libraries, law enforcement, corrections, public health services, and recreation. O&C revenues provide a substantial and irreplaceable part of the discretionary budget for this County, and

WHEREAS, the BLM's proposed plans are the result of the most detailed and comprehensive analysis ever completed on federal lands in western Oregon. The analysis is supported by the latest biological studies, updated resource data, and new modeling tools, and

WHEREAS, the BLM and U.S. Fish and Wildlife Service have ensured that the BLM's draft plans, the Northern Spotted Owl Recovery Plan, and the draft Critical Habitat Rule are consistent. At least 46 percent of the forested BLM lands would be reserved to perpetuate forests with old growth characteristics, and the remaining 54 percent would provide substantial additional acreage of mature and structurally complex forest, while being managed with care to insure no more is harvested than is replaced by new growth. Alternative 2 meets all the requirements of the Endangered Species Act to protect and help recover all listed species of fish and wildlife, as well as complying with all other environmental laws such as the Clean Water Act and Clean Air Act, and protecting recreational opportunities and facilities.

WHEREAS, Clackamas County has asked the BLM to consider and address the following concerns during the course of finalization of the western Oregon resource management plans.



**BEFORE THE BOARD OF COUNTY COMMISSIONERS
OF CLACKAMAS COUNTY, STATE OF OREGON**

In re: New BLM Resource Management
Plans for O&C and Related Lands
in Western Oregon



Resolution No.: 2007-622
Page 2 of 3

- Concern 1:** Identification of revenue replacement for the Secure Rural Schools and Community Self Determination Act safety net payments is important. Clackamas County is supportive of identifying revenues to replace the anticipated loss of Secure Rural Schools funding, but it is also important that projects be implemented in a way sustainable to both the timber harvest and the other resources the forest provides. We would ask the BLM to encourage all of the O&C counties to continue to look at other potential sources of revenue including revenue generated through tourism and recreation.
- Concern 2:** Revenues from the timber harvest on BLM land could be processed under "Stewardship Contracts" and would not be returned to the Counties. While we recognize that stewardship contracting is a good tool in the right situation, we are concerned that it would reduce the revenue generated from timber harvest and thus reduce the portion of revenue returned to the Counties. If stewardship contracting is used to implement some resource management projects, the Counties should still receive an equal amount of revenue as they would have with a traditional timber sale.
- Concern 3:** Protection of endangered species habitat and improving forest health is critical. Clackamas County supports harvesting of timber when it is balanced with science-based protection of endangered species. Managing of public forests should be conducted in a sustainable and ecologically sound manner. We strongly support and encourage focusing on thinning of plantation stands, which would help to address fuel reduction concerns in fire-prone and over-stocked plantation areas.
- Concern 4:** Adequate riparian buffer areas are important for protection of fish, water, wildlife, and soil resources. While we support Alternative 2, we are concerned that the minimum riparian widths may be applied to all projects. Each forest management project should be reviewed on an individual basis so that the appropriate riparian corridor width is applied to each site. We have particular concern in areas of unstable slopes and soils. It is important that the minimum protection width is not relied upon as the standard, but instead the appropriate protection be applied on a site-by-site basis.
- Concern 5:** Timber harvest on properties adjacent to small private landowners can be controversial. Some of the BLM-managed lands in Clackamas County are in smaller tracts scattered in the western foothills of the Cascades. Many of these tracts border properties owned by private, rural landowners. As you know, these neighbors can be very sensitive to management activities, especially timber harvest. An article in the August 16, 2007 Clackamas County Weekly section of *The Oregonian* titled



**BEFORE THE BOARD OF COUNTY COMMISSIONERS
OF CLACKAMAS COUNTY, STATE OF OREGON**

In re: New BLM Resource Management
Plans for O&C and Related Lands
in Western Oregon



Resolution No.: 2007-622
Page 3 of 3


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NOW, THEREFORE, be it resolved that:

Clackamas County supports Alternative 2 in the BLM's draft plans, and urges the BLM to select Alternative 2 as the BLM's final plan, and to proceed as expeditiously as possible in the completion and implementation of its plan revisions. A copy of this Resolution shall be transmitted to the Association of O&C Counties for submission to the BLM.

ADOPTED this 20th day of December, 2007.

CLACKAMAS COUNTY BOARD OF COMMISSIONERS


Chair


Recording Secretary



KLAMATH COUNTY
Home of Crater Lake
Klamath County Commissioners

305 Main Street, Klamath Falls, Oregon 97601
Phone: 541.883-5100 Fax: 541.883-5163
Email: boce@co.klamath.or.us



881

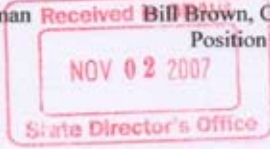
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Al Switzer, Commissioner
Position One

John Elliott, Chairman
Position Two

Received Bill Brown, Commissioner
Position Three

October 30, 2007



RECEIVED

NOV 05 2007

Mr. Edward W. Shepard, State Director
USDI Bureau of Land Management
Western Oregon Plan Revisions
PO Box 2965
Portland, OR 97208

Dear Mr. Shepard:

The Klamath County Board of Commissioners strongly supports your selection of Alternative Two from the array of four alternatives presented in your Draft Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts.

We appreciate your extensive social-economic analysis and wish to comment on the economic impact of federal forest management decisions.

Historically, the western Oregon counties, including the O&C Counties, derived a large percentage of their economic well being from the wood products industry. That is what we do here. The temperate forests of Oregon are among the most productive in the world and still have the potential to provide large volumes of commercial wood to meet local, regional and world wood needs. At present, federal forests support nearly half of the nation's standing softwood inventory but supply less than two percent of the nation's wood needs. The "wood famine" predicted at the end of the 19th and beginning of the 20th centuries has not occurred, nor is it likely to. Globally, there is plenty of wood. The United States has found it easy to satisfy its wood needs from non-federal domestic forests and, increasingly, from foreign sources. About a third of our softwood use is now sourced from outside the country.

Your proposed alternative would be a small but very positive step in a return to U.S. wood self-sufficiency while at the same time securing economic stability for the large part of rural Oregon that is uniquely situated to produce high value wood products.



BLM DEIS Response-page 2

The BLM manages 16% of the saw timber in western Oregon and as recently as the 1970s supplied a similar fraction of the area's timber harvest. That harvest has now fallen to just over three percent of the total harvest

from the western Oregon planning area, with predictable effects on local economies. The Secure Rural Schools Act funded the timber-dependant counties on an interim basis but the rest of the nation hasn't, nor should it have, the patience to continue to fund rural western counties within whose boundaries exists the huge wealth of the federal forests, including the O&C lands.

We strongly support a resumption of intelligent, productive timber management and production on all of the federal forestlands and certainly on those administered by the BLM in western Oregon. We also encourage wood production on a far larger portion than the 48% land use allocation under Alternative Two. Regeneration cutting should be prescribed only on those forest types that require such management and a more diameter-diverse regime prescribed elsewhere, and outside the 48% allocated to timber management, to maintain visual values, habitat for the largest number of native species and to produce the most fire resistant landscape possible.

We appreciate that the BLM has not used nor has it proposed artificial diameter-limit cutting and can remove trees of all values across the diameter spectrum to meet the needs of the forest and economic realities as well. It's time to do much more of that.

We believe that the American people, and Oregonians in particular, would be displeased if they were fully aware of the asset value of the federal forests and the actual economic return they provide the taxpayers. Currently, the economic return from the federal lands is negative. Costs exceed returns while the counties in which the federal lands lie curtail or eliminate services to their citizens while the huge value of potential federal timber production and sale remains generally untapped. It didn't use to be this way and doesn't need to be now or in the future. We are approaching a time when the rest of the planet will tire of the U.S. sitting on its timber wealth while other nations supply our needs.

Absent a sustained and productive timber management and sale program on the O&C and other western Oregon BLM lands, we strongly encourage sale of at least half of the O&C lands to the private sector as described in the proposed National Forest and Schools Stabilization Act written by the boards of commissioners of the Oregon O&C counties and published on December 8, 2006 (copy attached).

We appreciate this opportunity to comment on the DEIS and request that our remarks be included in your comment record.

Very truly yours,


John Elliott, Chairman


Al Switzer, Commissioner


Bill Brown, Commissioner



881.2

NATIONAL FOREST COUNTIES AND SCHOOLS STABILIZATION ACT

A Proposed Safety Net Solution

December 8, 2006

The expiration of the county and schools safety net, PL 106-393, is a source of grave and growing concern among counties and school districts not only in Oregon, but in 39 other states representing 780 counties and over 4,000 school districts. There has been considerable bi-partisan effort over the last two years to find an acceptable budget offset for an extension of PL 106-393, but no solution has been found, and there appears to be none on the horizon. Counties and school districts nationwide are beginning to implement budget cuts that will eliminate thousands of jobs and reduce services and classrooms dramatically.

Conventional thinking has proven inadequate. It is clearly time for creativity and leadership to identify a bold but reasonable solution to this problem on a long-term basis. The Association of Oregon and California Railroad Land Grant (O&C) Counties Board of Directors offers this proposal for your consideration. Not only is there a pending crisis for schools and counties, but there is also a new effort to recover the spotted owl and the marbled murrelet. Timing is extremely important for all efforts of this kind, and our proposal takes these events and circumstances into account.

The proposal must be viewed in the unique historical context of the O&C lands. The revested O&C Railroad grant lands and related BLM lands in Oregon contain approximately 2.4 million acres, and approximately 80 billion board feet of standing timber. The revested O&C Railroad grant lands were originally all in private ownership for many years, having been conveyed to the O&C Railroad Company in exchange for construction of a railroad. But the lands were not re-sold by the Railroad Company to actual settlers as Congress intended, so after decades of ownership by the Railroad they were taken back ("revested") into federal ownership, with the intent the federal government would sell the lands in small parcels so that they could again be returned to the private sector. That resale program was eventually converted to a retention and management program, but unlike national forest lands, Congress mandated that the O&C lands be managed for timber production on a sustained yield basis for the benefit of local communities.

While solutions are scarce, the problems are easy to state: Counties and schools nationwide need a permanent source of funding to replace decades of reliance on shared timber receipts. Oregon's schools, in particular, need funding assistance. Oregon Counties in the region of the O&C lands are in a particularly dire situation, as they have depended on shared timber receipts from national forest lands for road funds, and separately they have relied on shared receipts from the O&C lands to support general county services of all kinds. Over the last 15 years these historic programs have been



undercut by drastically declining timber receipts, while battles continue to rage over the associated environmental issues and proposals to insure permanent protection for forested wildlife habitats. The proposal offered by the O&C Board addresses each of these problems, including solutions to problems on both a local and a national scale.

The proposal is to permanently protect approximately 1.2 million acres of O&C and related lands as wildlife habitat, and to sell the remaining O&C lands to generate funds for the creation of four permanent trust funds. Approximately 1.2 million acres would be permanently set aside and managed for recovery of the spotted owl and marbled murrelet and other environmentally sensitive species, far in excess of the amount of O&C land currently designated as late successional reserves under the Northwest Forest Plan. This would create one of the largest single additions to protected lands status within the Untied States in the last 30 years. These protected lands would remain under the jurisdiction of the BLM and a trust fund would be established to ensure resources for management of these protected lands.

The remaining O&C lands would be sold into the private sector in an orderly fashion over a period of time. There are approximately 80 billion board feet of timber on the 2.4 million acres. In rough terms, one-half of that volume (40 billion board feet) at \$300 per thousand board feet (which is a very conservative estimate of value) would produce approximately \$12.0 billion. The lands returning to private ownership would retain public access for hunting, fishing, and other recreational pursuits, and would remain in a permanent timber production status.

The revenues from the sale of O&C land and timber would be used to create a trust fund (Fund A) of approximately \$4.0 billion for a permanent extension of a safety net similar to PL 106-393, benefiting all states, counties and school districts that have national forests within their boundaries. Payments to counties based on historic shared receipts from the O&C lands would be removed from the safety net and treated separately. The investment earnings of Fund A combined with ongoing Forest Service receipts would produce about the same amount of revenues for national forest schools and counties as have been provided in recent years by PL 106-393. A separate trust fund (Fund B) of approximately \$4.0 billion would be created to provide on-going revenues for the general funds of the O&C counties, with investment earnings generating annual payments approximately equal to amounts currently being provided by PL 106-393 to the O&C Counties. In addition, a third trust fund (Fund C) of approximately \$3.0 billion would be created and specifically dedicated to education in the state of Oregon to be managed and administered by the state legislature and Governor. A fourth trust fund (Fund D) would produce investment income for the BLM's continued management of the 1.2 million acres of preservation lands. Fund D would be funded with the balance of the land sale proceeds in excess of the amounts necessary for Funds A, B and C. Fund D would likely be capitalized with not less than \$1.0 billion.

This proposal is not the first of its kind. The BLM has sold many parcels into the private sector over the years. Indeed, most of the western two-thirds of the country that is in private ownership is land that was once owned by the federal government. In fact---as



described above, these very lands proposed for sale were themselves once in private ownership and would have remained that way but for unique twists of history. Currently, there are two separate but similar proposals in congress (S 3772, and S 3636/HR5769) that are the inspiration and model for this proposal, albeit on a smaller scale. The pending bills would result in BLM land sales in Utah and Nevada and expansion of wilderness areas in both states. The Washington County Utah Growth and Conservation Act of 2006, HR 5769 and S 3636, and the White Pine County Nevada Conservation, Recreation and Development Act of 2006, S 3772, are just two examples in along history of federal land sales and consolidation of federal ownerships to achieve preservation goals.

This proposal, if implemented, would produce several very desirable results. First, of course, it would produce the resources to capitalize the trust funds. This would create stability for schools and counties in our resource dependent communities all across the country, with particular emphasis on support for schools in Oregon. It would also lead to a predictable source of timber for a healthy, viable industry in western Oregon. Job growth in the industry in Oregon would be substantial. And although it would make use of only one-half of the current O&C land base, at least those lands would fulfill the intent of the O&C Act. At the same time, the endless battle over management of the O&C lands would end, with substantially more acres in a permanently protected status than are currently protected as late successional reserves. Funding would be readily available to insure that the BLM's ongoing management of the preserved O&C lands could accomplish the recovery of threatened and endangered species as rapidly as science, technology and nature would permit.

To restate the proposal in simplified form:

THE PROSPOSAL

1.2 million BLM acres in the O&C region placed into a reserve and managed by BLM under FLPMA excluding Sec. 701(b), the O&C Act savings provision. The O&C Act would be repealed.

1.2 million BLM acres in the O&C region sold to the private sector for permanent timber production with public access retained at the current level.

The 1.2 million acres retained by the federal government would provide recovery for the spotted owl and its habitat as required, as well as protecting other high value environmentally sensitive areas including stands of old growth timber.

The 1.2 million acres sold to the private sector for permanent timber production would capitalize four trust funds.

Trust Fund A equal to 33.3% of the total sale of the 1.2 million acres returned to the private sector would go to an irreducible Secure Rural Schools and Communities Self-Determination Act (National Forest counties and schools) trust fund.



Trust Fund B equal to 33.3% of the total sale of the 1.2 million acres returned to the private sector would go to an irreducible O&C Land Grant Counties trust fund.

Trust Fund C equal to 25% of the total sale of the 1.2 million acres returned to the private sector would go to an irreducible Oregon school trust fund managed by the legislature and Governor.

Trust Fund D equal to 8.4 % of the total sale of the 1.2 million acres returned to the private sector would go to an irreducible trust fund in favor of BLM to manage the 1.2 million acres of lands retained in a federal reserve for the benefit of the spotted owl and high value areas including old growth.

A commission or council similar to the Congressional authorized "Forest Counties Payment Committee" or the "Military Base Closure Commission" would be created to identify the O&C RR grant lands to be sold and returned to private ownership within one year of authorization, with the recommendations implemented by congressional action.



1761

PUBLIC WORKS FIELD OFFICE

1410 20th Street SE, Bldg #2 • Salem, OR 97302-1200 • (503) 588-6063 • Fax (503) 588-6480

January 8, 2008

RECEIVED

JAN 09 2008

Western Oregon Plan Revisions

P.O. Box 2965

Portland, OR 97208

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)

U.S. Department of the Interior Bureau of Land Management:

This letter shall serve as the City of Salem's formal comment on the U.S. Department of the Interior Bureau of Land Management's (BLM) Draft Environmental Impact Statement (EIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts.

The City of Salem provides drinking water to over 180,000 customers and relies on the predictable high quality source water from the North Santiam River as its primary source. Therefore, the City's primary concern with any management plan affecting land within the North Santiam River watershed is the resulting impact on downstream water quality. The City has generally been in support of the current Northwest Forest Plan management techniques and believes that the work being conducted by BLM staff in the Cascade Resource Region follows the guidelines and meets the goals of the current plan. However, the City is concerned that the Draft EIS for the revised Resource Management Plan deviates from previous water quality protection goals of the Northwest Forest Plan. The United States Department of Agriculture Forest Service (USFS) has published the "First-Decade Results of the Northwest Forest Plan"¹, which found that watershed conditions overall did improve slightly in this short period by adhering to the current plan.

Research published in the Draft EIS suggests that if there is more than 25-100 feet of filtering strip between unprotected soil surfaces, there is usually not a risk of transporting sediment to streams². The City believes a greater stream buffer width is needed to ensure that sediment is trapped in the forest floor duff and vegetation. Belt et. al. (1992) reported that filter strips on

¹ First-Decade Results of the Northwest Forest Plan. www.fs.fed.us/pnw/publications/gtr720/pnw-gtr720.pdf

² Oregon State Office, 2007. Draft Environmental Impact Statement for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts. Volume 1. Pg 373.

❖ ADA Accommodations Will Be Provided Upon Request ❖



Western Oregon Plan Revisions

1/8/08 – Page 2

the order of 200-300 feet are generally effective in controlling sediment that is not channelized³. In addition, the City is concerned about the potential impact on sediment load on watershed streams by increasing the number of acres of regeneration harvest. The No Action Alternative would continue regeneration harvest at 60,500 acres, where Alternative 2 increases regeneration harvest to 143,400 acres. A portion of these cuts would disturb previously protected stream filter strips and potentially adversely affect stream water quality. Stream bank erosion has been shown to increase 250% over pre-harvest levels after clear-cutting, but only 32% over pre-harvest levels where buffer strips were utilized (Belt et.al., 1992).

The City of Salem is concerned that this revised plan proposal reduces the protection of water quality in the North Santiam River watershed. The City believes the revised plan fails to adequately protect water quality for Salem's drinking water source by reducing stream buffer widths and increasing regeneration harvesting volumes. The City would prefer that BLM continue to use current stream filter strips similar to the distances in the No Action Alternative. The findings in the USFS Northwest Forest Plan report are encouraging, but it will take BLM's current forest management and more time for the forest to gain complex structure to see the full potential of benefits to water quality and habitat.

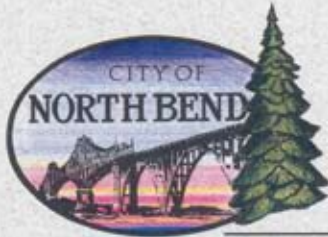
Sincerely,

Sophia Hobet

Water Services Manager

KMD/SCM:G:\FILES\CHRONO\2008\SH 010808 Comments on Draft Environmental Impact Statement.docx

³ Belt, G., O'Laughlin, and Merrill, T., 1992. Design of Forest Riparian Buffer Strips for the Protection of Water Quality: Analysis of Scientific Literature. University of Idaho. www.uidaho.edu/cfwr/pag/pagr8.html



1094

NOV 21 2007

City of North Bend

Post Office Box B • North Bend, OR 97459-0014 • Phone: (541) 756-8500 • FAX: (541) 756-8527

November 13, 2007

Edward W. Shepard, State Director—BLM
P.O. Box 2965
Portland, OR 97208

RE: DEIS Western Oregon Resource Management Plan Revisions

Dear Mr. Shepard:

The North Bend City Council met in regular session on November 13, 2007 to formally discuss the Draft Environmental Impact Statement (DEIS) for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management Districts. We are writing at this time to express our support of Alternative 2 which is described in the DEIS. City of North Bend representatives have taken the opportunity to review the DEIS summary, attend local forums and tour BLM lands. It is our understanding that The DEIS provides for four management options ranging from "no action" to three specific alternatives. It is clear that Alternative 2 would have the most favorable impact on the local economy and would result in revenues equal to approximately 94% of the lost O & C revenues to counties. Alternative 2 provides for protection of fish, wildlife and the environment while allowing for restoration of our timber economy. Cutting timber reduces the need for federal subsidies and Alternative 2, simply put, makes sense.

For decades, timber has been the backbone of our economy and growing trees is one of the things Oregon does best. This is one of the most important issues facing our communities today and we urge the adoption of Alternative 2. We appreciate all that has been done to present this information to our community so that we remain informed. Thank you for the opportunity to comment.

Sincerely,

Rick Wetherell, Mayor
City of North Bend

cc: Senator Gordon Smith
Senator Ron Wyden
Congressman Peter DeFazio
Senator Joanne Verger
Representative Arnie Roblan



207 ✓

RECEIVED

SEP 06 2007

August 30, 2007

OFFICE OF THE MAYOR

Department of the Interior
Bureau of Land Management
P.O. Box 2965
Portland, OR 97208

The City of Central Point, Oregon supports active forest management that returns at least 90 to 95% of receipts to Jackson County Government for the following reasons and supports Alternative 2 of the EIS four alternatives:

- Central Point is directly and indirectly affected by whether the county can maintain a level of services that provide public safety, libraries and critical human services. In Jackson County, without a safety net or adequate timber harvest, our County Sheriff's Deputies will be reduced, our libraries remain closed and critical health services reduced or eliminated.
- Alternative 2 proposes to harvest only 60% of the annual growth of about half of the land, yet will provide 94% of the revenue needed which is about \$16.9 million each year.
- I consider myself to be an environmentalist and am concerned about livability in Jackson County because many of our businesses depend on tourism. Option 2 still has full protections of the Endangered Species Act, the Clean Water Act, the Clean Air Act and the National Environmental Policy Act. Only 48% of the 2.5 million acres of O & C lands have active management and the rest is restricted management or environmentally protected. It also provides for restoration of forests after catastrophic events.
- Alternative 2 restores numerous wood products industry jobs which pay good wages and help the economy in small rural towns, like Central Point.
- It is for these reasons that the City of Central Point supports the Alternative that restores at least 90% of funding for the counties and protects the environment and that appears to Alternative 2.

Sincerely,

Hank Williams, Mayor of Central Point, Oregon

A
New Map of
TEXAS OREGON
AND
CALIFORNIA

WITH THE REGIONS ADJOINING
CORRECTED
FROM THE MOST RECENT AUTHORITIES.
PHILADELPHIA
Published by S. Augustus Mitchell
N.E. CORNER OF MARKET & SEVENTH STREETS.
1846

United States Department of the Interior
Bureau of Land Management
Oregon State Office
333 S.W. 1st Avenue
Portland, Oregon 97204

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300



BLM/OR/WA/PL-08/096+1792

PRIORITY MAIL
POSTAGE AND FEES PAID
Bureau of Land Management
Permit No. G-76

The background of the page is a light gray topographic map. It shows contour lines, a grid, and various geographical features. The map is oriented vertically, matching the text layout. The text is centered horizontally on the page.

Final Environmental Impact Statement

for the Revision of the Resource Management Plans of the Western Oregon Bureau of Land Management - Salem, Eugene, Roseburg, Coos Bay, and Medford Districts, and the Klamath Falls Resource Area of the Lakeview District

Vol. IV

SPINE TEXT