

***The Oregon Department of Forestry
Staff Analysis and Response
to Public Comments on the
Draft 2011 Elliott State Forest Management Plan***

September 22, 2011

Issues, Staff Analysis and Recommendations

Introduction

The document that follows addresses the issues and concerns raised during the ninety day public comment period on the revised *draft 2011 Elliott State Forest Management Plan (FMP)*, which included testimonies at two public hearings and State Land Board and Board of Forestry meetings. It does not attempt to respond to every specific comment or concern expressed in the written record. However, the issues as described here, strive to capture the majority of concerns raised, and address common themes that emerged. Staff provided analysis of each theme and included relevant references and recommendations where appropriate.

Prior to this rulemaking process, an earlier sixty day comment period was provided last fall/winter on the draft 2010 Elliott State Forest Management Plan. Many of the concerns raised during the current rulemaking process fall into topical areas similar to those raised previously. Where there is overlap, the Oregon Department of Forestry (ODF) references its previous report (*ODF Staff Analysis and Response to Public Comments on the Draft 2010 Elliott FMP, March 16, 2011*) of which excerpts are now provided in Appendix C.

Some public comments addressed finer scale issues which are beyond the framework of the FMP and are better addressed in the Implementation Plan, Annual Operation Plan or the Research and Monitoring Plan. Staff recommendations are summarized at the conclusion.

Public comments covered a broad range of interest and values focused on many of the social, economic and environmental benefits derived from the management of the Elliott State Forest. They expressed strong emotions both in support and against the new forest management plan. We grouped the comments in 12 overarching themes for staff responses:

1. Adaptive Management
2. Aquatic and Riparian Strategies
3. Carbon Sequestration
4. Common School Forest Lands and Economics
5. Disturbance Events
6. FMP Organization and Content
7. General Wildlife
8. Herbicide and Chemical Use
9. Implications of the Independent Multidisciplinary Science Team Report (IMST)
10. Administrative Planning
11. Recreation and Education
12. Threatened and Endangered Species

1. Adaptive Management

In general, the public comments on Adaptive Management repeat concerns expressed in the public comment period for the pre-rulemaking draft of the FMP, which supports and questions the adaptive management concept on the Elliott State Forest. Some comments questioned the success of past implementation of adaptive management on the Elliott State Forest and lack of a monitoring plan. All

comments question how adaptive management will be used to evaluate current and anticipated action without dedicated funding for a monitoring plan.

Staff Response

The Oregon Department of Forestry recognizes the concerns about implementing adaptive management on the Elliott State Forest with reduced budgets. The FMP provides the framework for adaptive approaches to management, in which the outcomes of management actions are measured and compared to stated objectives. Changes in management goals and activities can be made when necessary at the appropriate planning level, either the FMP, Implementation Plan or Annual Operation Plan. This approach requires a commitment to long-term information gathering and the incorporation of that information into the decision-making process. The state forests research and monitoring program was developed to ensure that the levels of research, monitoring, and technology transfer are adequate to meet the information needs required by this long-range management plan.

In spite of programmatic difficulties brought on by reduced budgets, the ODF is committed to adapting management practices based on best available science. The new plan is strongly supported by the accumulation of years of scientific information, as well as a 10+ year track record of applying similar practices on other state-owned lands. This science is well documented in this plan, as well as in the multiple other plans implemented by ODF across the state. The ODF plans to update the State Forests Research and Monitoring Plan in 2012 to incorporate the questions that accompany this new forest management plan, if it is adopted. Further investments may be called for given this new FMP.

The ODF will continue to apply the same effectiveness monitoring approach on the Elliott as has been done in the past. Currently, the ODF continues to support research cooperatives, such as the Hardwood Silviculture Cooperative, Vegetation Management Cooperative, etc., as well as provide support to the Trask Watershed Study and to RipStream. See also 2. Aquatic and Riparian Strategies on Page 4.

Staff Recommendation

Clarify in the FMP that a 10-year research and monitoring plan will be developed as a separate document, linked to the FMP and Implementation Plan. This plan will be developed collaboratively with interested parties including scientists, and will involve opportunities for public input, whether or not the draft FMP is adopted. In addition, ODF will consider the Independent Multidisciplinary Science Team (IMST) report and recommendations in the development of the research and monitoring plan. This plan will:

- Describe the general monitoring issues that are anticipated to be addressed;
- Provide the framework to aid in developing and prioritizing specific monitoring projects to assess the effectiveness of the management strategies;
- Guide development of annual operations plans to support monitoring projects; and
- Describe funding mechanisms and how available funding will be prioritized among projects.

2. Aquatic and Riparian Strategies

Overall the bulk of public comments on Aquatic and Riparian strategies re-state concerns registered in the public comment period for the pre-rulemaking draft of the FMP and express dissatisfaction with the ODF's

response. There is very little new information to bring to these topics so ODF staff analysis and response to public comment is still represented in that work (See Appendix C.) A summary of the issues, the ODF's responses, and any new information follows.

2.1 Take Avoidance for Fish

Comments raised concerns that the proposed FMP (Riparian, road, and slope stability approaches) would not provide for take avoidance of listed fish.

Staff Response

The State of Oregon has consistently relied on the federal services to administer the federal Endangered Species Act (ESA). Accordingly, in Oregon it is up to individual landowners to apply appropriate management practices in order to comply with the ESA, and any other Federal (as well as State) laws that are germane to their lands. Consistent with this, the ODF has described a set of strategies designed to maintain or improve aquatic and riparian areas to achieve functions that will support aquatic species. These strategies, which have been in place for over a decade on other state forestlands, are intended to meet or exceed all applicable Federal and State laws, including the ESA. The FMP describes our approach for protecting habitat that listed fish, in this case Coastal Coho, rely on.

State forest management strategies restrict activities in the aquatic and stream bank zone and are designed to result in no measurable risk of "take" of coastal coho, as well as other aquatic riparian T&E species.

- Management activities permitted in the aquatic zone are related to installing or upgrading stream crossings, and implementing stream restoration projects.
 - The forest roads manual describes road construction and maintenance strategies that minimize effects on aquatic resources.
 - All activities related to the road system will be consistent with this manual including goals to reduce hydrologic connectivity.
 - Instream restoration projects are designed to improve or restore aquatic habitat and are implemented in accordance with state and federal guidance and permits.
- The forest management strategies accomplish this by maintaining functions that support cool stream temperatures, large wood recruitment, and desirable hydrologic, sediment, and nutrient cycling regimes.

While the potential for "take" through management-related influences on riparian and landscape processes is difficult to quantify, the intent of these strategies is to ensure no measurable risk of "take" of coastal coho. The State of Oregon believes that these strategies will achieve this, and that they are supported by both the most current scientific information as well as the 10-plus years of success with these strategies on other state-owned forestlands.

Staff Recommendation

Continue to utilize the proposed aquatic and riparian strategies in the final FMP to meet or exceed all applicable state and federal laws, including the federal ESA.

2.2 Buffer Width

Comments called for both decreasing and increasing buffer widths and riparian requirements. Comments raised concerns that the buffers aren't adequate on small Type N streams particularly around perennial streams and the use of the 80% shade requirement above fish streams. The concerns for inadequacy were linked to IMST findings. Comments also expressed distrust that buffer widths would be adequate if left up to foresters' discretion.

Staff Response

Riparian buffers are designed to maintain riparian functions such as large wood recruitment, shade, stream temperature, and sediment routing. A summary of applicable and recent research was provided that supports the likelihood that the FMP buffers are of adequate width. Further response on riparian buffer widths in relation to several riparian functions is provided in Appendix C.

Many riparian areas on the Elliott State Forest are in a mature forest condition or in a condition that would not benefit from thinning. As a result, many of the riparian areas will not be actively managed. This is consistent with the FMP, but appears to have been overlooked by reviewers. The end result is large no-cut buffers along these streams.

As far as concerns regarding actual riparian buffer width decisions made during layout by foresters—we provide an estimate of no-cut buffer widths from the last three years. Results show average no-cut buffer widths for clearcut harvest units were 150 feet for Fish streams, 66 feet for perennial type N streams, and 39 feet for seasonal type N streams.

With regard to the IMST review, the ODF stands by our interpretation of the IMST review, which is that the review did not provide direction on changing Aquatic and Riparian Strategies. The ODF agrees that the IMST clearly questioned the Draft Environmental Impact Statement (DEIS) analyses on the adequacy of those strategies for meeting stated goals and as such has recommendations for future adaptive management studies. The ODF does not agree with a conclusion that because the IMST questioned the DEIS analysis, the strategies should be changed. In addition, the analysis techniques were developed jointly with the federal services and conducted by well qualified, third party scientists. It remains a relevant analysis that may have weaknesses, but also has strengths.

Staff Recommendations

An important monitoring topic remains with regard to small non-fish bearing streams and should be considered when the ODF prioritizes monitoring activities under the new Elliott Research and Monitoring Plan.

Add language to the FMP that better depicts limited to no harvest in Inner Zones of Type F streams, when mature forest conditions exist in riparian areas.

2.3 Stream Temperature

Most of the comments are linked to the IMST report and suggest the FMP strategies will not be effective at protecting stream temperature as claimed by the IMST analysis of the DEIS. Concerns are also expressed that harvest in headwater streams will have local and downstream impacts.

Staff Response

Fish Streams: The IMST report raised questions about the analysis techniques used for the DEIS of the Draft Elliott Habitat Conservation Plan (HCP). The report concluded that the analyses were flawed. Since the IMST completed its review, two manuscripts have been published in peer reviewed scientific journals (Groom et al. 2011a and Groom et al. 2011b). The papers describe findings from an experimental study of 33 small and medium fish bearing streams in the Oregon Coast Range, 15 of which were harvested using Aquatic and Riparian Strategies such as those described in the Elliott FMP. These papers establish that the Aquatic and Riparian Strategies are adequate for meeting the Department of Environmental Quality (DEQ) water quality standards for protecting cold water (Groom et al. 2011a) and that they prevent increases in stream temperature which can be associated with harvest (Groom et al. 2011b). These findings are applicable to small and medium fish bearings streams. A draft analysis of the same data set evaluates the DEQ numeric criteria and also suggests that harvesting with the Aquatic and Riparian Strategies maintains temperature at or below the numeric criteria. Other analyses underway include an evaluation of temperature downstream of the harvest units and stream temperature 5 years after harvest.

Non-fish streams: There is substantial debate regarding adequate widths to protect stream temperature on small non-fish streams. The ODF discussed this topic previously (Appendix C). A collaborative watershed scale research project on the influence of harvest on these small streams and potential transfer of effects to downstream reaches is taking place in the in the Trask Watershed Study. The Trask project is one of three watershed studies currently taking place in Oregon. Results from Hinkle Creek Watershed Study suggest no impacts of harvest on stream temperature on small non-fish streams harvested following the Forest Practices Act (Kibler 2007).

Staff Recommendation

No changes are recommended to the FMP for purposes of protecting stream temperature on fish streams. However, add language to FMP riparian strategies better depicting conditions under which inner zones will not be managed. Continue supporting paired watershed studies and consider prioritizing stream temperature on small non-fish streams in the new Elliott Research and Monitoring plan.

2.4 Large wood recruitment and Riparian Hardwoods

Several comments were reiterated from the previous public comment period regarding large wood recruitment. The concern is that because the IMST identified “scientific shortcomings” in the DEIS analysis, that the ODF should change riparian strategies. The comment states that “ODF used studies that were unpublished, not available, and not relevant to the Pacific Northwest.” There were also concerns registered that the ODF kills hardwoods.

Staff Response

The IMST report did find inadequacies with the DEIS analysis and as such the ODF decided to not pursue the revised HCP with the federal services. The IMST found shortcomings in the DEIS analysis, suggesting to the IMST that the DEIS conclusions about adequacy were overstated. However, the IMST also very clearly stated that its conclusions did not suggest that the strategies were inadequate.

In terms of large wood recruitment, our response to public comment (Appendix C) discussed large wood recruitment at length with a substantial number of references, all of which are relevant to the Pacific Northwest. The ODF agrees that questions remain on the potential negative effects of riparian thinning on large wood recruitment.

- The ODF is collaborating with scientists at the Pacific Northwest research station and OSU to model large wood recruitment from riparian areas managed under the FMP Aquatic and Riparian Strategies. The researchers are using data from the 15 State Forests sites from the same stream temperature study referenced above. Researchers are using Streamwood (Meleason et al. 2003, Meleason and Gregory 2004) to evaluate effects of harvest with the aquatic and riparian strategies and thinning in riparian areas on long-term trends in large wood recruitment.
- The first 100 feet of all fish bearing and large and medium non-fish bearing streams will be treated as no-harvest zones if those areas have mature forest conditions. This essentially eliminates risks to large wood recruitment on these sites. Also, riparian areas dominated by hardwoods are typically not entered; the ODF doesn't cut hardwood trees within 100 feet of type F stream, as a normal practice.

Staff Recommendation

Add language to the FMP to better describe conditions under which inner zones will not be managed. Support ongoing research to model effects of riparian thinning on large wood recruitment (e.g. apply Streamwood model to Ripstream data). Should findings suggest thinning has a negative effect, the ODF will consider changes to the riparian strategies.

2.5 Watershed Analysis

The public comment suggests that the Elliott Watershed Analysis is invalid because it did not undergo scientific peer review, a comment which is linked to a statement by the IMST.

Staff Response

The development and use of watershed analyses to make natural resources decisions has been in place since the 1980s-initially used primarily by the Forest Service. The Oregon Watershed Enhancement Board (OWEB) developed protocols for implementing watershed analyses and helped fund them throughout the 1990s. The Elliott Watershed Analysis adhered to the OWEB's protocol or exceeded it when the OWEB's protocol did not adequately address ODF's questions. While the Elliott Watershed Analysis employed scientific principles, processes, and analyses, the goal of the document was to guide management decisions and restoration priorities. We are not aware of an example of a complete Watershed Analysis undergoing a peer review process. The Elliott Watershed Analysis represents the best available information on stream, riparian and watershed conditions on the Elliott State Forest. That combined with aquatic inventories by the Oregon Department of Fish and Wildlife (ODFW) (Kavanaugh et al. 2005) provide an unparalleled level of information

about actual conditions on the Elliott.

Staff Recommendation

Continue to draw on data and information in the Elliott Watershed Analysis to make management decisions on the Elliott.

2.6 Road Impact on Streams

Some comments suggest there is a lack of data characterizing the impact roads have regarding sediment input and hydrologic function.

Staff Response

Decades of research and monitoring on the effects of forest roads and hauling on streams has informed the development of road best management practices that are implemented on the Elliott State Forest. Some of this research was highlighted in the March 2011 Response to public comment (Appendix C). The ODF is dedicated to improving fish passage, upgrading crossings to pass large peak flows, disconnecting roads from streams, and reducing the number of roads in critical locations (e.g. across unstable slopes, within 100 feet and parallel to streams). The Elliott State Forest has been among the most active state forests in this regard with 24 fish passage improvement projects and 68 road improvement projects over the last 15 years.

Staff Recommendation

No changes are recommended. Continue work to improve road condition, fish passage, and road locations.

2.7 Soils:

Comments referred to the IMST report concerns about ODF's use of adaptive management to inform the management of soils and slope stability.

Staff Response

See Appendix D for the letter from the ODF to the IMST regarding their comments on the ODF's use of adaptive management. The ODF acknowledges improvements can be made in the adaptive management process and has plans to refresh the Elliott research and monitoring plan to accompany the new FMP, if adopted. See also 1. Adaptive Management on Page 2.

Comments on soils and landslides did not change from the last public comment and there is no new information to bring to the topics. For the ODF's full response to those comments please see Appendix C. The March 2011 ODF response provided references of several studies on sediment from roads, landslides, and the potential for movement of sediment through buffers. In summary, the science suggests that Elliott FMP strategies have a high probability to maintain and restore functions related to filtering sediment from harvest units and roads before it gets to streams. Sediment from landslides is addressed with the ODF processes for identifying landslide prone terrain and the potential for those landslides to deliver to a fish stream. Studies have demonstrated that 30 foot buffers with minimal harvest and ground disturbance restrictions were effective at preventing chronic sediment delivery to streams and physical disturbance of

stream channels. The ODF agrees that questions remain around the effectiveness of leave tree requirements around small type N streams that might deliver a debris flow to fish bearing streams.

Staff Recommendation

Continue to support adaptive management projects such as Ripstream and the Trask, and those which evaluate strategies designed to minimize sediment delivery to streams. Consider prioritizing a project that evaluates the effectiveness of leave trees around debris flow channels that are likely to deliver to fish streams.

3. Carbon Sequestration

Comments express similar concerns as the comments on the draft 2010 FMP. Comments request that the new FMP describe the method the ODF will use to calculate carbon losses and gains from forest management, establish a carbon inventory of the Elliott State Forest and take advantage of the Elliott as a carbon sink to reduce greenhouse gases and to benefit from carbon markets.

Staff Response

Carbon sequestration and associated carbon offset credits from forest environments can be enhanced by increasing the net uptake of carbon into forests, decreasing carbon releases from forests, or preventing carbon emissions caused by the conversion of forests to other land uses. Broadly speaking, there are three general categories of forest management that are considered to improve carbon sequestration: afforestation/reforestation, avoided deforestation, and improved forest management. The draft FMP and the Oregon Forest Practices Act emphasize these three approaches to management and therefore endeavor to maximize carbon uptake and storage within the context of active forest management.

The ODF recognizes the increasing importance of greenhouse gases, including carbon, and their potential effects on climate and the environment. As responsible stewards of Oregon's forests, the ODF is actively engaged on multiple policy fronts continuing to explore and learn about greenhouse gas-related effects of forest management. Currently ODF does not have the funding or resources to conduct detailed analyses of all operations.

The U.S. Fish & Wildlife Service and Ecotrust, in cooperation with the ODF and the DSL, recently took a detailed look at carbon storage and carbon storage potential on the Elliott. The 2010 study of carbon storage on the Elliott State Forest estimated the carbon inventory to be about 24,500,450 metric tonnes of CO₂-equivalent (tCO₂e) (Davies, B. et al., 2011). The study conducted an analysis that estimated if left completely unharvested, by 2050 the Elliott could accumulate additional storage of the carbon dioxide equivalent equal to 68.5 percent of the annual emissions of greenhouse gasses for the entire state of Oregon in 2007. Applying the same calculations to what would occur under the draft FMP would result in additional storage of about 50% of those emissions. (Under the current HCP approximately 56% of those emissions would be stored, extrapolating from this study.) Under any of these scenarios the Elliott State Forest is, and will continue to be, a significant contributor towards carbon storage in Oregon. Carbon storage levels will increase over time under the draft FMP.

Staff Recommendation

Implement the draft FMP. As stated in the FMP, the ODF will maintain over time a current accounting of carbon stored on the Elliott State Forest, explore carbon credit market opportunities, and support the Oregon Global Warming Commission's "Interim Roadmap to 2020."

4. Common School Forest Lands and Economics

The comments suggested two themes in the area of economic outputs from the Elliott. Comments called for increasing the sustainable harvest from the forest as the most efficient means to meet the Constitutional mandate for Common School Lands, provide revenue for struggling communities and schools, and support jobs in rural Oregon through the supply of raw material. This theme also included the concern that Oregon has large amounts of federal land providing limited economic benefit and suggest Oregon's state lands should not follow the federal model. A second theme was that harvesting should be reduced, limited to thinning, or completely stopped to protect environmental values, and that timber harvest revenues are insignificant to justify harvest. Comments suggested exploring carbon markets, conservation acquisitions of critical Elliott lands; and exchanges of critical Elliott lands for nearby federal lands.

Staff Response

4.1 Common School Forest Lands

Common School Lands were established when Oregon was admitted as state in 1859. The federal policy at the time of admission was to grant sections 16 and 36 of every township to states for the use of schools. Congress defined the trust nature of Common School Lands – *they must be managed for the use of schools*. The obligations for these lands are spelled out in the Oregon Constitution and by the Admission Act of 1859.

The Oregon Constitution authorizes the State Land Board (Governor, Treasurer and Secretary of State) to manage Common School Lands. The Land Board implements its authority for forest lands through an agreement between the Land Board, Department of State Lands and the ODF, for the ODF to manage those lands. The Land Board is directed by the Constitution to "manage lands under its jurisdiction with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management". A 1992 Attorney General opinion by Charles S. Crookham states that the "greatest benefit for the people" standard requires the Land Board to use the lands for schools and the production of income for the Common School Fund. Consideration is given to the need to protect soils, water, fish and wildlife habitat, recreational opportunities, and other forest values as long as this need does not significantly detract from the generation of revenue in the long run.

Revenue from forest management activities goes to the Common School Fund and the ODF is reimbursed for management expenses. About 75 percent of Common School Land revenue is from forest lands with most of that being derived from the Elliott. In 2010, timber harvests from the Elliott State Forest generated \$7.7 million to the Common School Fund. Competitive bidding on timber sales from local markets continues to be high, briefly dipping in 2009.

The proposed plan is expected to increase the harvest level of the forest from an average of 25 million board feet (mmbf) per year over the last 15 years, to about 40 mmbf per year with an associated increase in revenue that will meet the State Land Board's goals. Modeling shows the 40 mmbf to be a sustainable harvest and the forest continues to grow more than is harvested. The proposed harvest level also ensures protection of a number of federally listed species that use the Elliott's habitat - northern spotted owls, marbled murrelets, and coho salmon. Revenues derived from harvest also provide direct investments back into restoration projects, maintenance of infrastructure and research and monitoring.

The FMP states that the ODF will explore carbon credit market opportunities. See also 3. Carbon Sequestration.

The Department of State Lands and the ODF will explore potential revenue options to meet both the trust obligations and conservation goals.

4.2 Harvest Levels

The State Land Board as trustee decides what level of income meets the constitutional mandate for Common School Lands. Before the northern spotted owl and marbled murrelet were listed, the Elliott's planned sustainable harvest level was about 50 million board feet (MMBF) per year. In 1990, the U.S. Fish and Wildlife Service listed the northern spotted owl as a threatened species. When the owl was listed, the ODF began surveying for owls on the Elliott and took steps to protect the owl habitat. Because no program had been established for the spotted owl, the ODF, in consultation with the ODFW, reduced the timber harvest to 19.6 MMBF per year in 1991 and 1992 as more information was learned about owls on the Elliott and about their needs. A temporary management plan known as the "Stewardship Approach" was implemented in 1993 and 1994 to regulate the timber sale program until approval of the 1994 FMP and 1995 HCP. The Stewardship Approach was based on consultation with the ODFW, and it created more certainty for the timber sale program by setting the timber harvest level at 15.7 MMBF per year for 1993 and 1994. Given the information available at that time, the 1995 HCP was approved which increased harvest levels to about 28 MMBF per year.

The State Land Board reviewed the various harvest model options for the draft 2011 FMP, which all met or exceeded the state and federal T&E regulations. The ODF's modeling shows that the Elliott State Forest harvest can be sustainable at about 40 MMBF per year, while protecting habitat for owls, murrelets, coho salmon and other native species. The take avoidance strategy in the draft 2011 FMP provides more opportunities to harvest timber across the Elliott than the 1995 HCP. Because the State Land Board has a constitutional mandate to maximize revenue to the Common School Fund, and the current forest conditions and strategies needed to meet state and federal law can allow for a 40 million board foot harvest level, moving forward with the draft 2011 Elliott State FMP is consistent with the Board's legal mandate.

4.3 Commercial Thinning

The ODF conducted an analysis to determine if commercially thinning all stands less than 50 years old on the Elliott would meet the Constitutional mandate to maximize revenue to the Common School Fund. , The ODF

estimates that about 2,400 acres could be thinned each year for 10 years before the inventory of young stands would end. Assuming that timber markets are relatively good so these sales would be attractive to purchasers, these thinnings would net about \$1,000,000 per year for the Common School Fund for ten years, then there would be no more revenue from harvesting and for the most part, the management organization would be disbanded. The total revenue for the ten years would be less than one year's worth of revenue under the draft 2011 FMP. After the ten years were up, there would still be on-going costs for road maintenance and fire protection that would need to be paid from the Common School Fund. In addition, many jobs for forest industry workers would be lost. The ODF estimates that each million board feet of timber harvested from the Elliott generates 11 jobs in southwest Oregon, averaging an annual wage of \$36,000. The draft FMP would sustainably harvest about 40 million board feet per year, while the suggested plan to thin young stands would harvest about 12 million board feet per year, then no further harvests after ten years. Limiting harvests to commercial thinning would not meet the mandates of the trust lands.

Staff Recommendation

No changes to the draft FMP in regard to these issues.

5. Disturbance Events

Comments urged the FMP describe a provision for rapid response to disturbance events to recover revenue and protect asset value, and to allow adjustment of management actions in response to catastrophic events. A comment expressed concern that harvests on steep slopes increased the risk of landslides. Another comment requested the FMP include a Fire Prevention and Management Plan.

Staff Response

In the event of a major catastrophic disturbance, the FMP specifies that prompt salvage operations will be conducted to prevent build-up of epidemic insect populations and to minimize economic loss. The FMP is a strategic document and provides the flexibility to adjust management actions in response to changed circumstances such as major disturbance events.

Generally, road-related landslides tend to be larger than other types of landslides, and therefore produce the most off-site effects. Reducing the number of landslides caused by roads is an important goal in the Elliott State Forest. The district's program of road design, construction, and maintenance practices has proved successful in achieving this goal. High landslide hazard locations are identified in the annual operations planning process, and the risk to downslope resources from land sliding is evaluated by the ODF's geotechnical specialists, prior to any road construction and harvest activities. Harvest practices in the Elliott State Forest are conducted with the intent of minimizing site disturbance, and providing a source of large wood in potential debris torrent tracks for aquatic habitat.

The FMP addresses fire prevention and management in the sections under resource management goals and strategies to integrate resource management.

Staff Recommendation

No changes to the draft FMP in regard to these issues.

6. FMP Organization and Content

Some comments prefer the older plan or something that the commenters would regard as being better than the draft FMP. Other comments consider the draft FMP is comprehensive and well done, and expressed support for the concept of integrating and balancing social, economic and environmental values.

Staff Response

The FMP lays out the strategic framework for managing and integrating all forest resources and does have a necessary level of complexity. Staff believes the ODF has the expertise to implement the plan efficiently. Harvest levels and conservation area maps and acres are included in the draft 2011 ten-year Implementation Plan, which completed a ninety day-public comment period August 29, 2011.

Staff Recommendation

Edit the FMP to improve readability and consistency of text.

7. General Wildlife

The comments suggest two themes in the area of general wildlife that were also raised in the comments on the draft 2010 FMP. A number of comments support protecting wildlife and fisheries by maintaining permanent reserves and limiting logging, especially older forests. A second theme supports discontinuing the HCP and using the ODF's integrated management strategies to grow and manage complex forest structures for diverse wildlife.

Staff Response

The FMP is expected to support a broad array of fish and wildlife populations. Over a third of the Elliott will be in conservation areas to provide wildlife habitat, which includes connectivity and relatively large habitat patch size provided by Marbled Murrelet Management Areas (MMMA's), owl circles, riparian management areas and lands that are steep, unique (such as old-growth stands) and visually sensitive. The Conservation Areas, although focused on threatened and endangered species, are also expected to provide benefits to many other species of wildlife. Overall, the FMP strategies are expected to provide quality habitat for native wildlife species that occur in the Elliott. A range of habitat types from early to late seral will result on the landscape through active management and retaining key structural components such as legacy trees, snags and down wood in harvest areas.

These are all methods for achieving the State Land Board's goals of conservation benefit and are supportive of the Coho Conservation Plan and the Oregon Conservation Strategy. Many species identified as "strategy species" in the Oregon Conservation Strategy are expected to benefit from these forest management

strategies. In addition to habitat maintained under ODF take-avoidance policies, it is expected that additional habitat will be present on the landscape over time as annual growth will exceed annual harvest.

Whether or not the degree of connectivity provided under this plan will improve, maintain, or reduce the quality of habitat overall cannot be quantified with any level of certainty. The intent of the connectivity that will occur under this plan is the continued maintenance or improvement of conditions for both the northern spotted owl and marbled murrelet. Monitoring over time will be an important element to evaluate the effectiveness of the FMP strategies.

While implementing the FMP increases annual clear-cut acres from 500 to 850 acres, more than 99% of the forest will remain 'untouched' every year. . Advanced structure is expected to be maintained at 30 to 50% of the forest in the long term. Harvest modeling of the FMP strategies indicate that Advanced Structure will be between 39 and 42 percent of the forest in the next ten years and will gradually increase to 50 percent over 50 years.

Most of the Elliott was burned in a 300,000-acre fire in 1868 thus very little old growth remains on the forest. Currently only scattered old-growth trees and a few remnant patches of old-growth are known to exist on the forest. Approximately 450 acres of old-growth stands exist on the Elliott with another 150 acres on scattered tracts outside the Elliott. Under the draft FMP these remnant old-growth stands will be protected as Conservation Areas. Scattered old-growth trees that occur in harvest areas will be retained as wildlife trees as operationally feasible. In the future, old-growth will likely occur on state forestlands in areas managed for special purposes, such as conservation areas or riparian areas.

Staff Recommendation

Change "Other Pests" to "Other Forest Health Issues" to describe animal damage (as per suggestion received directly from the ODFW), otherwise, no changes to the FMP.

8. Herbicide and Chemical Use

Comment expressed concern about herbicide spraying and potential effects on coho salmon.

Staff Response

On the Elliott State Forest, herbicides are only used where it makes economic sense to help establish new fast-growing stands of trees. All herbicide applications are in accordance with the Forest Practices Act (FPA) and the herbicide label requirements which are the requirements by law. In many cases the FPA requirements exceed federal label requirements because they are designed to prevent herbicides from contaminating both surface water as well as riparian vegetation, thus providing environmental protection. Staff suggests referring to the Oregon Department of Forestry: Aerial Pesticide Application Monitoring Final Report: Technical Report 7, March 2000.

<http://egov.oregon.gov/ODF/privateforests/docs/ChemAppFinal.pdf>. This study concluded that Oregon's Forest Practices Rules are effective at protecting water quality during aerial herbicide application.

Staff Recommendation

No changes to the draft FMP in regard to this issue.

9. Implications of the IMST Report

Comments mostly reiterated the same concerns registered in the pre-rulemaking public comment process of the 2010 Draft FMP and expressed dissatisfaction with the ODF's response. Comments expressed a sense of disbelief that the ODF did not make changes to strategies in response to the IMST review of the DEIS of the Habitat Conservation Plan. The logic train seems to be that because the IMST found the DEIS analysis to be inadequate, and the DEIS was evaluating the proposed HCP strategies, then the ODF strategies are inadequate. The comment asserts that the ODF should respond in detail to the IMST.

Staff Response

There is likely a misunderstanding and possibly a difference of opinion on the implications of the IMST review. The ODF's assessment of the IMST review is that it rendered the DEIS inadequate for the basis of an HCP. The ODF can understand the perception that the IMST work reflects poorly on the FMP strategies, but the ODF does not agree with that train of logic. While the ODF agrees with many of the IMST's concerns about the DEIS analysis, the ODF does not agree with all of them. Furthermore, two manuscripts were published after the IMST concluded its evaluation, both of which establish that the Aquatic and Riparian strategies are effective at meeting DEQ water quality standards and preventing changes in stream temperature (Groom et al. 2011a and Groom et al. 2011b). While the ODF appreciated the IMST review, the ODF does not agree that the IMST provides direction to change the aquatic and riparian strategies. The IMST review also made several broad recommendations for alternate methods to evaluate strategies. The ODF stands by our earlier statements that the IMST recommendations will be considered in the context of the adaptive management process. The ODF's response to these same public comments regarding the IMST are provided in Appendix C.

The ODF's official response to the IMST is provided in Appendix D. See also 2. Aquatic and Riparian Strategies on Page 4.

Staff Recommendation

Add language to the FMP that better depicts limited to no harvest in Inner Zones of Type F streams, when mature forest conditions exist in riparian areas. No other changes are recommended in the FMP. The IMST report and recommendations will be considered when embarking on future analyses of FMP strategies and with development of the Elliott monitoring plan.

10. Administrative Planning

Comments re-state concerns that the draft 2011 FMP would not provide the same protections as the 1995 HCP and that the mission of the Elliott State Forest has not and cannot be fulfilled with the HCP.

Staff Response

Though the draft 2011 FMP is different than the 1995 HCP, most of the Guiding Principles and Goals are the same or very similar. One of the guiding principles of developing the draft 2011 FMP is that the Elliott is a managed forest. The goal for managing Common School Forest Lands (91% of the Elliott) is to generate the greatest amount of revenue in the long run for the Common School Fund consistent with sound techniques of land and timber management. Consideration is given to the need to protect soils, water, fish and wildlife habitat, recreational opportunities, and other forest values as long as this need does not significantly detract from the generation of revenue in the long run. In addition, the Department of State Lands 2006 Asset Management Plan calls for Common School Forest Lands to be managed to provide a sustained, even flow of timber harvest. For Board of Forestry Lands (9% of the Elliott) Oregon Administrative Rules Chapter 629, Division 35 directs that BOF lands be actively managed, to secure the greatest permanent value to the citizens of Oregon by providing healthy, productive, and sustainable forest ecosystems, that over time and across the landscape provide a full range of social, economic, and environmental benefits to the people of Oregon. See also 4. Common School Forest Land and Economics on Page 10.

The draft 2011 FMP uses structure to define habitat instead of age as used in the 1995 HCP. Staff estimate that implementing the strategies of the draft 2011 FMP will result in 30-50% of the forest in Advanced Structure (oldest). The 1995 HCP predicted that long-term, 43% of the forest would be in 80-year or older timber (comparable to Advanced Structure). However, there will be more flexibility for harvest in the draft 2011 FMP and a resulting higher harvest level than the 1995 HCP, but with less certainty year to year as owls move and additional murrelet occupied stands are found. Over a third of the Elliott will be in conservation areas to provide wildlife habitat, which includes large patch sizes in the interior for murrelets and connectivity provided by owl circles, riparian management areas and lands that are steep, unique (old-growth stands) and visual. See also 7. General Wildlife.

The FMP was developed recognizing that sustainable economic, environmental and social values must be considered and that an appropriate balance of these values should be achieved over time. The FMP also recognizes that there will be trade-offs between revenue-producing activities and non-revenue-producing activities while meeting the mandate to maximize revenue to the Common School Fund. In addition, the Elliott must be managed to meet state and federal Endangered Species Acts and Oregon Forest Practices Act.

It is the goal of the ODF and the draft Elliott FMP, through the application of adaptive management techniques, to continually improve management policies and practices by learning from the outcomes of operational programs. See also 1. Adaptive Management on Page 2.

The Elliott FMP is implemented through the Coos District Implementation Plan that provides more specific information on harvest acres and volumes and other management activities expected for the first ten years. The public provided comments on the draft 2011 Implementation Plan and staff are considering those comments in finalizing the Implementation Plan.

Staff Recommendation

No changes to the draft FMP in regard to these issues.

11. Recreation and Education

Comments requested more emphasis on recreation in the FMP, specifically promoting hunting, educational opportunities, and low impact tourism. Some comments concerned the impact of clearcuts on recreational values and scenic views.

Staff Response

Stopping clearcut harvest activities would not meet the legal mandate to maximize revenue to the Common School Fund. The ODF has a long history of collaborating with the ODFW in timber harvest planning, habitat restoration activities, and wildlife management activities. There have been no direct recreation-generated returns from the Elliott to the Common School Fund. Dispersed, unimproved camping and recreation is allowed on the forest. Some of the more popular camping areas are classified as visually sensitive and receive special aesthetic consideration during timber sale planning.

Staff Recommendation

No changes to the draft FMP in regard to these issues

12. Threatened and Endangered Species

The comments reiterate the same two themes in the area of threatened and endangered species that were raised in the comments on the draft 2010 FMP. A number of comments support discontinuing the HCP and the use of a take-avoidance strategy to meet the requirements of the Endangered Species Act, which is used on other Oregon State Forests and private lands. A second set of themes supports keeping the HCP, questions the legality of terminating the HCP, requests an explanation of the take-avoidance strategy, and requests clarification of the ODF's implementation of the federal Recovery Plan for the Northern Spotted Owl.

12.1 Northern Spotted Owl HCP Withdrawal

The 1995 HCP, Incidental Take Permit and Implementation Agreement form a legally binding agreement, not a 'promise.' The State of Oregon meets or exceeds its obligations under the agreement by fully applying all minimization and mitigation measures under the HCP and fully complying with all other terms of the HCP,

Incidental Take Permit and Implementation Agreement. Management measures in the new plan are expected to increase the amount of Advanced Structure (i.e. older forest habitat) in the next 30+ years. The 1995 HCP Implementation Agreement allows either party (U.S. Fish and Wildlife Service or ODF) to terminate the HCP with 30 days notice. Once the HCP is terminated, the provisions of the HCP and the associated Incidental Take Permit no longer apply. The 1995 Implementation Agreement states:

“The parties agree that either party may terminate the HCP by providing 30 days written notice to the other party. The State shall provide a statement regarding the number and location of listed species taken under the permit up to the time of the termination, and a statement of the extent of mitigation accomplished to offset such take. The parties agree that, in the event of termination, mitigation in accordance with the requirements of the ESA will be provided for any take that has occurred.”

The 1995 HCP allowed incidental take of owls in exchange for certain mitigation and minimization measures being implemented on the forest. The draft 2011 FMP uses a “take-avoidance” approach so no “take” of federally listed species occurs. Both plans meet all state and federal legal mandates including the federal Endangered Species Act. However, the plans use different methods to comply with the mandates.

Staff Recommendation:

No changes.

12.2 Take Avoidance Strategies for Northern Spotted Owl and Marbled Murrelets

In response to comments on the draft 2010 FMP, the following text was added on page 4-9 as a summary of the ODF’s policies on take avoidance.

“ODF has policies in place to avoid incidental take of spotted owls and marbled murrelets. These policies describe steps ODF takes to avoid take of T&E species. These include 1) requiring surveys for spotted owls and marbled murrelets prior to operations, 2) maintaining adequate habitat around known spotted owl activity centers and occupied marbled murrelet sites, and 3) applying appropriate seasonal restrictions for operations near known activity centers or occupied marbled murrelet sites.”

The actual spotted owl and marbled murrelet policy are administrative documents that are revised and adapted frequently as new information becomes available (e.g. changes in survey protocols). They are available from the ODF upon request.

The ODF’s take avoidance strategies for the northern spotted owl and marbled murrelet have been shared with the U.S. Fish and Wildlife Service and continue to be shared any time revisions are made. As the spotted owl policy is revised to reflect a shift from the HCP to take avoidance on the Elliott, the policy will again be shared with the USFWS and any comments or concerns USFWS has will be considered.

Staff Recommendation:

The ODF will add the take avoidance policy reference to the FMP Appendix B. References.

12.3 Federal Recovery Plan for NSO

There were many comments indicating that the revised FMP should have directly addressed the

Recovery Plan (RP) for spotted owls (USFWS 2011). The RP is a non-regulatory document and indicates a suite of voluntary recovery actions, which if applied, will support recovery of spotted owls. The FMP for the Elliott State Forest will support many aspects of the RP. For example, it is anticipated that a significant amount of habitat will be maintained for spotted owls within Marbled Murrelet Management Areas and within spotted owl home range circles. In addition to habitat maintained under ODFs take-avoidance policies, additional habitat will be present on the landscape over time because of the quantity of existing habitat and the relatively low amount of annual harvest. The Elliott State Forest currently contains 43% advanced structure and the FMP indicates 30 to 50% of the forest is expected to occur in advanced forest structure in the long term. The ODF believes this habitat retention will directly contribute to Federal Recovery Actions 10 (maintenance of NSO Sites) and 32 (maintenance of high quality NSO Habitat).

Staff Recommendation

No changes regarding T&E wildlife.

12.4 Marbled Murrelet Management Areas.

Comments were received that question ODF policy for managing occupied marbled murrelet habitat. Concerns were expressed with the size of Marbled Murrelet Management Areas (MMMAs) and whether or not they were large enough to maintain interior habitat conditions. Concerns were also expressed on documentation of MMMA designation and decisions made by ODF staff.

Staff Response

Marbled Murrelet Management Areas (MMMAs) are designed to protect the habitat used by murrelets as determined through analysis of protocol survey data. Following each survey year, the data is analyzed and MMMAs are designated during the annual MMMA meeting with the staff wildlife biologist for State Forests, Southern Oregon Area wildlife biologist and district staff in accordance with the ODF's Marbled Murrelet Operational Policies. Oregon Department of Fish and Wildlife Biologists are also invited to attend these meetings. The primary focus of the year end meeting is to seek to protect the area of nesting activity. This is done by evaluating survey results and local conditions. Designations are then made consistent with ODF's policy. Buffers are appropriate in some situations but not in others and this is largely influenced by local conditions and results from surveys. Existing MMMAs vary in size, however most are large (> 90 acres in size). To date, over 11,000 acres have been designated in 55 MMMAs. It is anticipated that the acres in MMMAs will continue to increase as more of the district is surveyed. As additional surveys are conducted, occupied sites will be protected in MMMAs. Survey results may lead to creation of additional MMMAs or to increasing the size of existing MMMAs if adjacent habitat is determined to be occupied.

Regarding documentation of MMMA designation on the Elliott, the ODF maintained the original survey data and digital (GIS) records of where the MMMAs are designated on the landscape. MMMAs were designated according to ODF policy but because these areas were planned to be T&E Cores under the proposed HCP or existed well before current marbled murrelet policy was developed, no other documentation forms were completed. Regular documentation for new MMMAs will be completed under the proposed take avoidance FMP.

Staff Recommendation

Based on the public requests for this type of information, the ODF will summarize these biological discussions for new MMMA's and make them available to the public upon request. No change to the FMP.

Conclusion

Upon consideration of the comments, staff recommends the following:

- Clarify in the FMP that a 10-year research and monitoring plan will be developed as a separate document, linked to the FMP and Implementation Plan.
- Better describe in the FMP animal damage as "other forest health issues" rather than "other pests".
- Add the reference to the State Forests Division Operational Policies for Take Avoidance in the FMP, Appendix B References.
- Add language to the FMP that better depicts limited to no harvest in Inner Zones of Type F streams, when mature forest conditions exist in riparian areas.
- Produce a MMMA report that describes where MMMA are designated on the landscape.

Overall, staff recommends continuing on the timeline for an approved Elliott State Forest Management Plan, which involves review by the State Land Board and Board of Forestry in the fall of 2011.

Appendix A

Summary of Public Responses

A broad representation of organizations and individuals submitted written comments and testimonies during the comment period, which included State Land Board and Board of Forestry meetings and two public hearings. Below is an alphabetical listing of organizations and representatives that submitted comments. Individuals also submitted written comments, with the majority as form letters from several campaigns.

Organizations

1. Associated Oregon Loggers, Inc. (Rex Storm)
2. Audubon Society, Umpqua Chapter (Stan Vejtasa)
3. Bay Area Chamber of Commerce (Timm Slater)
4. Cascadia Forest Defenders
5. Cascadia Wildlands (Francis Eatherington and Josh Laughlin) on behalf of Center for Biological Diversity (Noah Greenwald), Oregon Wild (Doug Heiken, Audubon Society of Portland (Paul Engelmeyer), and Klamath Siskiyou Wildlands Center (George Sexton)
6. Center for Biological Diversity (Noah Greenwald)
7. Confederation of Oregon School Administrators (Chuck Bennett)
8. Coos County Board of Commissioners (Bob Main)
9. Coquille Indian Tribe (Tim Vredenburg)
10. D & H Logging and AOL Board Member (Brad Haga)
11. Douglas County Commissioner (Susan Morgan)
12. Douglas Timber Operators (Robert Ragon)
13. Eco Advocates NW (Shannon Wilson)
14. Ecotrust (Brent Davies)
15. Hampton Lumber (Dave Ivanoff)
16. Monett Logging (David Monett)
17. National Forest Products Corporation (Eric Farm)
18. Oregon Department of Fish and Wildlife (Rod Krahrmer)
19. Oregon Forest Industries Council (Chris Jarmer) on behalf of Douglas Timber Operators
20. Oregon Hunters Association (Fred Craig)
21. Oregon Society of American Foresters, Coos Chapter (Darren Mahr and James Nielsen)
22. Oregon State Senator, District 5 (Joanne Verger)
23. Pacific Rivers Council (Mary Scurlock)
24. Port of Umpqua (Steve Reese)
25. Portland State University Student Coalition (Jonathon Batcheler)
26. Rocky Mountain Elk Foundation (Bill Richardson)
27. Roseburg Forest Products (Scott Folk and Jim Dudley)
28. Roseburg Public Schools (Larry Parsons)
29. Seneca Sawmill Company (Scott Keep and Dale Riddle)
30. Swanson Group Manufacturing. (Steven Swanson, Don Hardwick)
31. The Sierra Club, Oregon Chapter (Josh Laughlin)
32. Wild Salmon Center (Bob Van Dyk)

Appendix B

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Appendix C

ODF Staff Analysis and Response to Public Comments on the Draft 2010 Elliott FMP, March 16, 2011.

12. Riparian Management

Comments suggest opposing arguments on the use of best available science for Riparian Management Area (RMA) widths and standards affecting stream temperature, large wood recruitment, affects of logging on water quality, and impacts of roads on streams.

12.1 Adequacy of Riparian Management Areas-Temperature, Shade, Sediment, and Large Wood

Staff Response

Riparian Management and the Range of Forest Conditions:

An important backdrop to the aquatic and riparian strategies is the intended FMP outcome to produce a range of forest structures over time and space. The range of forest structures will likely benefit aquatic and riparian processes and in turn aquatic species. This is particularly true for small non-fish bearing streams which may be more intimately connected to upland forest conditions than larger fish streams. The range of forest structure types are within an expected historic range of conditions. This suggests relationships between forest structure and aquatic functions would also be within the historic range. The resulting riparian functions (e.g. large wood recruitment, shade, sediment and nutrient routing, and hydrologic regimes) coupled with the aquatic and riparian strategies will contribute to habitat needs for amphibians and fish.

Temperature:

Managing riparian vegetation to maintain shade is an effective tool for reducing stream temperature heat flux (Johnson 2004). Historic forest management that did not require leave trees along streams resulted in dramatic reductions in shade and associated increases in stream temperature (Brown and Krygier 1970; Levno and Rothacher 1967). More recently, riparian buffers have been established along streams to maintain shade and stream temperature with varying effectiveness reported in the literature.

Small and Medium Fish Streams-- The most recently available information on the performance of FMP Aquatic and Riparian strategies suggests the Elliott FMP strategies are effective at meeting DEQ Water Quality stream temperature standards on small and medium fish bearing streams (Groom et al 2011).

Large Fish Streams-- In 2002, the joint DEQ ODF sufficiency analysis concluded that it is likely that DEQ water quality standards are being met on Large Type F streams managed using the FPA. The Elliott FMP includes riparian standards that exceed the FPA.

Non-fish Streams-- Studies have produced a range of results. Some recent studies on small headwater streams have found that harvesting without buffers increases stream temperature while buffers ranging from 30-90 feet wide appear to prevent increases in stream temperature (Moore et al. 2005, Wilkerson et al. 2006). Conversely, a study of 15 small headwater streams reported no change in stream temperature even without buffers (Jackson et al. 2001). Moore et al. 2005 conclude that temperature changes in headwater streams are unlikely to produce substantial changes in temperature of larger streams unless they comprise a

large proportion of the larger river. Research is underway in three Oregon watershed-scale studies to evaluate effects of contemporary forest management on small headwater streams and potential transfer to downstream reaches (Watershed Research Cooperative 2010) one of which is being conducted in the Trask Watershed- with State Forest, Weyerhaeuser, and Bureau of Land Management ownership. Stream temperature is one component being researched.

Staff Recommendation

No changes to the aquatic and riparian goals, concepts, strategies and standards in the Elliott FMP. These studies suggest that management under FMP strategies has a high probability to maintain and restore desired stream temperature patterns. An important monitoring topic remains with regard to small non-fish bearing streams.

Shade:

It is expected that there has been and will be a range of stream shade conditions across the landscape. Watershed analysis was completed on the Elliott (Biosystems et al 2003) and, in general, high shade levels were reported especially for narrower streams. Also, Kavanagh et al. 2005 summarized ODFW aquatic inventory data for watersheds in the Elliott and likewise report moderate to high shade levels (76-91%) which is considered at or above reference conditions.

Staff Recommendation

No changes are needed in the FMP. Information suggests that shade conditions are similar to reference conditions and Elliott FMP strategies have a high probability to maintain these levels over time.

Sediment:

Recent studies have looked at sediment movement to streams through buffers, from roads, and from landslides. The science suggests that Elliott FMP strategies have a high probability to maintain and restore functions related to filtering sediment from harvest units and roads before it gets to streams.

Roads:

Current road strategies minimize negative effects of roads on water quality and fish habitat by reducing the amount of chronic and episodic sediment delivery to streams. Studies conducted to evaluate the effectiveness of road construction and maintenance practices demonstrate that such Best Management Practices (BMP) regulatory programs for road construction, management, and restoration are effective at minimizing sediment delivery to streams and reducing the size and occurrence of road-related landslides (Bilby et al. 1989; Bilby 1985; Sullivan 1985; Robison et al. 1999; Mills et al. 2003).

Landslides:

Data from the 1996 landslide study (Robison et al. 1999) has helped shape ODFs guidelines for identifying landslide hazard. Important factors include stand age, slope steepness, and rainfall intensity. The probability that a debris flow will deliver to a Type F stream (Benda and Cundy 1990) was evaluated using the Robison data. Key drivers include channel steepness and junction angle. These factors are used today by ODF to identify landslide hazard locations and debris flow prone channels.

Buffers to “Filter” Sediment:

Studies have demonstrated that 30 foot buffers with minimal harvest and ground disturbance restrictions were effective at preventing chronic sediment delivery to streams and physical disturbance of stream channels (Rashin et al. 2006, NCASI 2000). In a Washington study, when sediment delivery to streams occurred, it was associated with stream crossings for the yarding system. Other factors included proximity of ground disturbance to the stream and the density of un-buffered non-fish streams. Findings suggest buffers are effective by keeping active erosion sites farther from the stream (Rashin et al. 2006).

Staff Recommendation

No changes to the aquatic and riparian goals, concepts, strategies and standards in the Elliott FMP. These studies suggest that management under the FMP strategies have a high probability to maintain and restore properly functioning sediment routing functions.

Large Wood Recruitment:

The most recently available information on the amount of large wood in streams comes from ODFW summaries of aquatic inventories and ODF Watershed analyses. This information consistently reports low levels of complex habitat- typically formed by multiple pieces of wood jammed up with and around large pieces (key) of wood. Changing this condition is best achieved through recruitment over time from near-stream and upstream sources.

The majority (70-99%) of large wood (key pieces) originates from within a distance of less than 100 feet from the stream (Robison and Beschta 1990, Van Sickle and Gregory 1990; McDade et al. 1990; Bilby and Bisson 1998; Murphy and Koski 1989). Among other stream restrictions, the Elliott FMP retains a 100-foot Inner Zone on Type F Streams that will be managed for mature forest condition. If a mature forest condition already exists, then no management will take place.

There is a potential to decrease near-stream sources of wood by thinning riparian areas. This happens if trees are removed that otherwise had the potential to fall into the stream. The risk associated with thinning in stands where trees are large enough to form pools eliminates suppression mortality, reducing the amount of large wood recruited to the stream for decades to centuries while the remaining trees grow. However, if the riparian area does not contain large enough conifers to form pools, the recruitment of pool-forming wood to streams occurs more quickly and in greater numbers when stands are managed (Beechie et al. 2000). Therefore, the decision to thin riparian areas has to balance the potential for a short-term loss of suppression mortality against the long-term benefit of having mature forest conditions in riparian areas sooner than if left unmanaged.

Source areas for potential inputs of large wood are not limited to stream-adjacent locations. In steep landscapes- such as those included in the Elliott State Forest- debris flows periodically move large wood from hill slopes or hollows downslope to fish-bearing streams where it can interact with the channel and contribute to fish habitat (May and Gresswell 2003 McGarry 1994; McDade et al. 1990; Benda and Sias 1998). Wood

storage in small headwater streams also influences the storage and routing of nutrients and sediment throughout a watershed. (Gomi et al. 2002).

The Elliott FMP riparian strategies require tree retention along these types of streams as well. Management near potential landslide locations and debris flow-prone channels influences *upslope* sources of large wood recruitment. The retention of trees in high landslide hazard locations that are located in areas likely to deliver to a stream will maintain a portion of this source of large wood recruitment to streams (Miller and Burnett 2008).

In summary, we expect a range of effects on large wood recruitment and loading in streams from the Elliott FMP. As riparian and aquatic strategies return riparian areas to mature forests, including the ability to recruit large-diameter wood to streams and large wood placement through restoration projects, there should be an improvement (restoration) of large wood recruitment and eventually wood loading in streams (which will take much longer). Where mature forest conditions exist, the aquatic and riparian strategies will likely maintain (no effect) current conditions. Research indicates that FMP RMA strategies are likely to provide 70 to 99 percent of streamside sources of wood. Removal of trees in the Inner Zones of RMAs that do not meet mature forest condition will improve diameter growth rates. However this could result in a short-term loss of wood recruitment (not necessarily large wood) on some streams. Elliott FMP strategies address landslide sources of large wood recruitment by leaving trees along debris flow-prone reaches, managing upslope areas for an array of forest structure types, and adjusting harvest boundaries to avoid high landslide hazards.

Staff Recommendation

No changes needed to the FMP. The Elliott FMP strategies have a high probability to maintain and improve wood recruitment functions over time. Consider a monitoring project to evaluate efficacy of debris flow prone buffers in providing large wood recruitment functions.

12.2 Applying Buffer Widths

There is concern that the FMP allows too much flexibility in applying buffer widths.

Staff Response

The Elliott FMP establishes 4 zones on all streams:

- Aquatic Zone: Stream channels and aquatic features
- Stream Bank Zone: 0-25 feet from aquatic
- Inner Zone: 25-100 feet from aquatic
- Outer Zone: 100-160 feet from aquatic

Buffer widths can be extended in areas to capture and support important riparian and stream functions such as: older conifer patches which otherwise would be outside established buffer widths, springs, seeps, and/or unstable slopes. Streams and their riparian areas vary over short stretches of stream reach-flexibility in riparian buffer layout accommodates this variability.

Staff Recommendation

No changes to the FMP. Consider effectiveness monitoring to determine if riparian buffers are adequate to provide intended riparian and aquatic functions.

12.3 Landslides

The comment registers a concern regarding steep slopes and landslides.

Staff Response

ODF acknowledges that steep slopes and landslide-prone terrain are ubiquitous throughout the Elliott State Forest. The comment correctly characterizes ODF findings that clearcutting can increase the frequency of shallow rapid landslides for a 10-year period. Several statements are made within the context of the Independent Multidisciplinary Science Team (IMST) report which are discussed in the sub- topic below.

Regarding the issue of landslides, ODF takes two approaches to landslides. First- when the issue is public safety (above highways or buildings) ODF: (1) has established no-harvest zones around well- traveled highways and roads (Steep Unique Visual Corridors). (2) All harvest plans are evaluated to determine the risk to public safety. If it is determined that a high landslide hazard location is upslope of buildings, wide no-harvest buffers are placed around the location.

Second- when the issue is aquatic resource protection ODF: Leaves trees along small non-fish bearing streams when it is determined that those streams (a) have a high landslide hazard location in the upper reaches and (b) if a debris flow occurs it will deliver to a fish stream. These strategies are not intended to prevent landslides but rather to (a) avoid harvest-related interactions with landslide processes when the issue is public safety and to (b) manage the landscape so that when landslides do occur they will be beneficial for aquatic resources. Descriptions of how these are implemented is provided in ODF Technical Notes Numbers 2 and 6 (ODF 2003a and 2003b) This approach is consistent with contemporary science establishing that landslides are an important process for delivering wood and gravels to streams (Reeves et al. 1995).

Staff Recommendation

No changes to the FMP are required.

12.4 Implications of the IMST Report

Staff Response

Several public comments were linked with a recent review by IMST of the Draft Environmental Impact Statement (DEIS) of the Habitat Conservation Plan. An important distinction to make is that the IMST was evaluating the methods used in the DEIS and associated conclusions, not the actual HCP/FMP aquatic and riparian strategies. Several public comments characterized the IMST criticisms as commentary on HCP aquatic and riparian strategies. It is true that the IMST evaluation found several inadequacies with the evaluation methods in the DEIS. However, nearly all the statements quoted in the public comment were actually IMST criticisms of the DEIS analyses not the strategies themselves.

Staff Recommendation

No changes necessary in the FMP. The IMST report and recommendations will be considered when embarking

on future analyses of FMP strategies.

Appendix D

ODF Response to the IMST Report, July 1, 2011

From: CAFFERATA Mike J

Sent: Friday, July 01, 2011 3:14 PM

To: Nancy Molina

Cc: HIRSCH Nancy; CAFFERATA Mike J; Carl Schreck; PAUL Jim

Subject: IMST Elliott State Forest work.

Nancy:

ODF appreciated the IMST work on the Elliott HCP and DEIS. Your work had direct application in the State's decisions regarding pursuit of an HCP.

Your review appropriately took a close look at the Draft Environmental Impact Statement, prepared for the USFW Service and the NMFS by the contractor Jones and Stokes, that evaluated the Habitat Conservation Plan drafted by ODF. The DEIS was complete and had gone through a public comment period.

As you know, the DEIS, found very little difference between the "proposed action" and "Alternative 1" the current forest management plan. Public comments questioned these findings and based on these findings the federal services, especially NMFS, developed substantive issues.

We sought your review as an independent source of information. From your review, we heard a number of points, a few of which I have repeated below:

- At times, the effects discussion for the Proposed Action assumes, without sufficient supporting analysis, that small increments of change will have insignificant impacts. Depending on where and when they occur, small changes in stream temperature or landslide risk are not necessarily trivial.
- The documents reviewed lack sufficient discussion of uncertainty of conclusions, possible alternative outcomes, and variability in data and modeling results. Without this discussion, there is undue confidence in the conclusions of the analyses.
- Additional relevant research has been published since the draft HCP and DEIS were written.
- A Need for Multi-scale Analysis instead of the analysis chosen for the HCP.

Following delivery of your report, ODF and DSL met with the National Marine Fisheries Service. At that meeting NMFS added a point that even if ODF were to continue pursuit of the HCP, the IMST analysis would make it difficult to rely on the DEIS as part of that application.

In my view, the IMST review established a record of high uncertainty that was beyond the threshold for an HCP/Incidental Take application.

Based on these factors, ODF has ceased pursuit of the HCP. We considered trying to get the DEIS revised or further clarified to address your points, but in the end decided the issues were too extensive. It did not appear likely that an analysis would reach a place that we could have consensus about certainty regarding effects or lack of effects. It is apparent that we will be unable to reach agreement on strategies that meet both the Common School Fund mandate and also meet the federal issuance criteria for an Incidental Take Permit. We are no longer relying on the DEIS as a sound analytical basis to support our incidental take application.

A new Forest Management Plan has been drafted that retains many of the same strategies as the draft that accompanied the HCP, however the requirement for an HCP has been removed. The new plan relies on "Take Avoidance" for compliance with the Endangered Species Act. We will apply the same take avoidance strategies that we are currently utilizing on the Elliott for marbled murrelets and add the strategies we use for spotted owls in other landscapes. This new forest management plan is now out for public review and may be adopted by the State Land Board this fall.

It is possible that a new effort could be started to build a new forest management plan and an accompanying HCP application. HCPs are not in any way precluded by the current direction from the State Land Board.

Regarding adaptive management, we are preparing to develop the monitoring plan that will accompany the new forest management plan, should it be adopted. Your previous comments about adaptive management will be a component of that monitoring plan development, and we may turn to you for more advice in crafting an effective plan. The time frame for this work is still uncertain; however it is very likely within the next year. Whether or not the new plan is adopted, it is time to refresh our research and monitoring plans.

Finally, between the work done by IMST and from the work we had done by the Institute for Natural Resources, we recognized the need to find a way to better link management and the scientific community. We plan to explore opportunities for a science advisory panel or other method to strengthen these links. We are also interested in collaborative science papers, hopefully following and Systematic Evidence Review framework, that develop shared understanding of the range of scientific opinion.

The work done by the INR is on their website and you can view our response on the Board of Forestry website under the July 28th meeting agenda.

Further Contributions from IMST:

You mentioned IMST might want to provide comments during the public comment period on the Elliott Forest Management Plan or on the Implementation Plan. Based on your expertise and experience looking at different plans, we could benefit from your thoughts about adaptive management. In particular two things:

- Examples of adaptive management frameworks and models that ODF could consider for adoption on the Elliott. If possible, these examples should recognize the size and scale of the Elliott State Forest and recognize that the revenue from the Elliott must support the adaptive management framework, the actual monitoring and research, and also provide returns to the Common School Fund.
- Based on your understanding of the Forest Management Plan strategies, areas you think are particularly important to focus on in an adaptive management framework.

Thanks for your contributions,
Mike Cafferata

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