Board of Forestry Issue Paper:

Adapting the Northwest and Southwest Oregon Forest Management Plans

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I. SUMMARY

This issue paper explores key issues raised throughout recent Board of Forestry discussions on the Northwest and Southwest Oregon Forest Management Plans (FMPs). The intent of this issue paper process is ultimately for the Board to either confirm the continuation of current policy direction, or consider alternative policy direction in the context of better assurances towards meeting GPV.

Over the course of the last decade--since the drafting of the current FMPs was initiated--there have been significant developments that have a bearing on the implementation of, and possibly the principles within, the FMPs. Some of these developments include:

- Completion of the Harvest and Habitat Model Project in March 2006
- Significant progress on State Forests Stand Level Inventory (SLI) data collection;
- NOAA Fisheries determination not to list the Coho salmon under the Federal ESA;
- Ongoing research and monitoring projects dealing with forest health (SNC), structure development, habitat development and use, and young stand management;
- Forestry Program for Oregon adopted in 2003; and
- Board of Forestry Dynamic Ecosystems Work Plan initiated in 2005.

Do any of these developments warrant a re-examination of the FMPs? Is there new information that might compel a modification in how the FMPs are designed to achieve "Greatest Permanent Value" (GPV)? These are the types of questions that are to be considered by the Board in this FMP review process, with the ultimate goal of ensuring the achievement of GPV.

Ideally, the FMPs should result in a forest management approach that is successful in every respect and demonstrates *and/and* solutions that integrate multiple values (environmental; economic; social) over *either/or* solutions. Rather than viewing the task of integrating these values as a 'zero-sum' exercise, there should be a thorough examination of the most current information that can provide management approaches resulting in positive outcomes for multiple values.

The issue paper concludes with a description of a general process and timeline for determining what, if any, changes are to be made to the FMPs. Upon review of this issue paper and a more thorough discussion of the issues therein, the Board will provide the Department direction on a specific pathway for moving forward with the FMP review process.

II. DEFINE THE ISSUE

The Oregon Department of Forestry (Department) manages 658,000 acres of Board of Forestry lands and 124,000 acres of Common School Forest Lands (CSFL). CSFLs are trust lands that were granted by the United States to the State of Oregon upon admission to the union for the use of schools. The Oregon Constitution, Article VIII, Section 5, outlines the State Land Board's powers and duties for managing CSFLs. Section 5. (2) states, "The board shall 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." Revenues from these lands are dedicated to the State's Common School Fund (CSF).

The overriding policy direction for Board of Forestry lands is provided by Oregon Revised Statute 530.050: "Under the authority and direction of the State Board of Forestry except as otherwise provided for the sale of forest products, the State Forester shall manage the lands acquired pursuant to ORS 530.010 to 530.040 so as to secure the greatest permanent value of those lands to the state . . ."

The Board of Forestry (Board) adopted the Northwest and Southwest Oregon Forest Management Plans (FMPs) and several intent statements in January of 2001 to achieve GPV consistent with OAR 629-035-0020 (see Appendix A). Following the adoption of these management plans, a strategic plan for monitoring was adopted along with the Implementation Plans (IPs) in March of 2003.

As part of the adoption of the FMPs in 2001, the Board directed the Department to continue negotiations for a habitat conservation plan (HCP) with the federal agencies (U. S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration) that administer the Endangered Species Act (ESA). The resulting negotiated draft HCP strategies were anticipated to "allow for full implementation of the forest management plans, and result in a net benefit to the state and counties over a plan with a 'take avoidance' strategy for listed species." (Board direction, 2001) Once drafted, the Board would determine whether the proposed draft HCP offers a better business approach for compliance with the ESA, versus applying take avoidance strategies.

When the Board adopted the FMPs in 2001 the 'working hypothesis' was that the Structure-based Management (SBM) approach would produce economic outputs that were reasonably comparable to what would be produced under a 'rotation age management' approach. Results from the Harvest and Habitat Model Project (H&H) have shown that it is likely the estimate of economic outputs (i.e. sustainable harvest volumes) that could be realized under the current FMPs was substantially overly optimistic, as judged against the comparative modeling done when the FMP was approved. In order to try and generate sustainable harvest volumes closer to that presumption, while continuing to operate within the current FMPs, the State Forester provided direction to review the current implementation plans for possible revisions.

The options currently being considered related to possible revisions include the following:

- Moving from 50% complex structure to 40%. The H&H model suggests that this could produce 194 MMBF, but this output needs to be reviewed by field foresters;
- Modifying the pace (take longer) to achieve complex structure; or
- Departing from a strict even flow of volume. The H&H model indicated that harvesting in the first decade could be increased 15% without falling below baseline levels. The outputs from this approach needs to be verified by field foresters as well.

Additionally, the H&H model suggests that if an HCP is not pursued right away, substantial endangered species constraints may not be realized for several decades. This suggestion is generally based on the notion that it will likely take a number of decades before substantial acres of habitat develop that would result in significant increases in the endangered species on State Forest lands.

Since adoption of the FMPs in 2001, the districts have been implementing both 'Take Avoidance' strategies and draft HCP strategies under a presumption that an HCP would be adopted fairly quickly. In order to provide more flexibility to decision-making than what is currently practicable under this dual constraint, part of the current implementation plan review includes exploring potential strategies for 'species of concern' as an alternative to the current strategies within the draft HCP. Specific details on the 'species of concern', take avoidance, and HCP issues are discussed within this issue paper. The Department is currently exploring possible alternatives, consistent with the principles of the current FMPs, which could be implemented if the Board were to decide not to continue pursuing an HCP.

Over the course of the last decade--since the drafting of the current FMPs was initiated--there have been significant developments that have a bearing on the implementation of, and possibly the principles within, the FMPs. Some of these developments include:

- Completion of the Harvest and Habitat Model Project in March 2006
- Significant progress on State Forests Stand Level Inventory (SLI) data collection;
- NOAA Fisheries determination not to list the Coho salmon under the Federal ESA;
- Ongoing research and monitoring projects dealing with forest health (SNC), structure development, habitat development and use, and young stand management;
- Forestry Program for Oregon adopted in 2003; and
- Board of Forestry Dynamic Ecosystems Work Plan initiated in 2005.

Do any of these developments warrant a re-examination of the FMPs? Is there new information that might compel a modification in how the FMPs are designed to achieve GPV? These are the types of questions that are to be considered by the Board in this FMP review process, with the ultimate goal of ensuring the achievement of GPV.

The *Forestry Program for Oregon* (FPFO), adopted in 2003, is the strategic plan established by the Oregon Board of Forestry. It sets forth the Board's mission and vision for Oregon's forests and the values and strategies that will guide the Board's decisions through 2011, and is therefore a logical place to start in terms of how to approach this FMP review.

Strategy "A" under the FPFO discusses one of the key challenges facing the Board in fulfilling the vision of the FPFO:

> "One of the greatest challenges facing the Board in defining sustainable forest management for Oregon is the conflict over active management of forests, both public and private. This conflict has become a polarized debate, with most Oregonians, as well as more moderate elements from the environmental and forest industry organizations, caught in the middle. Oregonians view this conflict as a major problem. Polling results show the public is frustrated with the stubborn posturing and endless bickering on both sides and wants better-integrated, politically sustainable solutions...This conflict raises a fundamental question: Is it possible to develop "win/win" solutions in the forest policy arena? We believe the Board is positioning itself correctly to bring interested parties to the table to strengthen what is developing as a powerful new "center." We would point to successes such as watershed councils, the Oregon Plan for Salmon and Watersheds, and other grassroots efforts in which participants favor ***and/and*** solutions (meeting environmental ***and*** economic ***and*** social goals) over ***either/or*** solutions." (FPFO, pp.19–20)

Ideally, the FMPs should result in a forest management approach that is successful in every respect and demonstrates *and/and* solutions that integrate multiple values (environmental; economic; social) over *either/or* solutions. Rather than viewing the task of integrating these values as a 'zero-sum' exercise, there should be a thorough examination of the most current information that can provide management approaches resulting in positive outcomes for multiple values. An example of multiple outcomes includes recent efforts to thin forest stands throughout the West, which creates forestry jobs in rural communities, improves forest health by reducing overcrowding and stressed tress that have poor diameter growth and small crowns, reduces the threat of catastrophic large-scale wildfires, improves wildlife habitat by stimulating the growth of nutritious forbs and shrubs, and informs citizenry in urban-wildland interfaces about responsible land management. These types of and/and perspectives towards solutions to difficult policy debates around active management and sustainable forest management is showing great promise by finding effective solutions with economic, environmental, *and* social benefits, and holds the potential to be a key to moving beyond polarized debates of the past.

This issue paper will explore key issues raised throughout recent Board discussions on the FMPs, and examine both explicit and implicit policy direction within the FMPs. The intent of this issue paper process is ultimately for the Board to either confirm the continuation of current policy direction, or consider alternative policy direction in the context of better assurances towards meeting GPV. The issue paper will include a description of a general process and timeline for determining what, if any, changes are to be made to the FMPs. Upon review of this issue paper and a more thorough discussion of the issues therein, the Board will provide the Department direction on a specific pathway for moving forward with the FMP review process.

III. BACKGROUND

Greatest Permanent Value (GPV)

In the early 1990s, several key events combined to influence the subsequent direction of state forests planning, and the resulting legal framework constructed to govern the processes and the eventual approval of plans. One of these events most notably influenced the development of the GPV rule. Concurrent with early timber sale planning processes, some individual citizens and interest groups began to shift their focus from federal timber sales and plans, to state forest activities. A group in Clackamas County, which came to be known as "Friends of Abiqua," (Friends) raised questions and eventually filed suit protesting a proposed clear-cut in close proximity to a scenic waterfall known as Abiqua Falls. The "Friends" claimed the Department's decision to harvest the unit could not be substantiated against written policy or guidance, and was therefore arbitrary under Oregon's Administrative Procedures Act. The case went to trial, and the Department, on advice of the Attorney General, elected to settle the case through mediation with the plaintiffs. A condition of that settlement was an agreement to develop administrative rules to define the term "Greatest Permanent Value." The Board formed a "task force" in 1996 to work with Oregon counties and other interests to define "Greatest Permanent Value." The policy statement work evolved into a proposal for administrative rules, on the advice of Oregon's attorney general. A sub-committee of three Board members was designated to work with the Department and interest group representatives to develop the draft rules.

This rule development process resulted in the Board defining "greatest permanent value" within the Oregon Administrative Rules to mean "healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide the full range of social, economic, and environmental benefits to the people of Oregon."(OAR 629-035-0020). This rule further defines these benefits as including, but not limited to, the following:

- Sustainable and predictable production of forest products that generate revenues for the benefit of the state, counties, and local taxing districts;
- Properly functioning aquatic habitats for salmonids, and other native fish and aquatic life;
- Habitats for native wildlife;
- Productive soil, and clean air and water;
- Protection against floods and erosion; and
- Recreation.

Although not articulated in GPV, communities adjacent to state forestlands ultimately benefit from GPV outputs in economic, environmental, and social ways.

To secure the GPV of these lands to the state consistent with this definition, Oregon Administrative Rules direct the State Forester to actively manage them "in a sound environmental manner to provide sustainable timber harvest and revenues to the state, counties, and local taxing districts."

The management of these lands must achieve the following outcomes:

- Result in a high probability of maintaining and restoring properly functioning aquatic habitats for salmonids, and other native fish and aquatic life;
- Protect, maintain, and enhance native wildlife habitats;
- Protect soil, air, and water; and
- Provide outdoor recreation opportunities.

Oregon Administrative Rule 629-035-0020 also articulates that the achievement of these outcomes will come about through management practices that do the following:

- Pursue compatibility of forest uses over time;
- Integrate and achieve a variety of forest resource management goals;
- Achieve, over time, site-specific goals for forest resources, using the process as set forth in OAR 629-035-0030 through 629-035-0070;
- Consider the landscape context;
- Be based on the best science available; and
- Incorporate an adaptive management approach that applies new management practices and techniques as new scientific information and results of monitoring become available.

The Board adopted the Northwest and Southwest FMPs in 2001 to secure the GPV of these lands to the state. Concurrent with the adoption of the plan, the Board adopted a set of "findings" that the plan met the elements of the GPV rule (Appendix B). A strategic plan for monitoring was adopted along with the implementation plans (IPs) in March 2003. Since the approval of the FMPs, the program has continued to build the systems and processes needed to conduct periodic reviews of the plans. Research and monitoring activities have continued to provide the program with needed information, although more are yet to be developed. This information is integrated into daily management activities or at the appropriate planning levels as it becomes available as described in the adaptive management strategy (NW FMP pages 5–22, 5–34).

Since 2006, the Board has been working through the process of determining if changes to the FMPs are necessary and appropriate. During this time the Board has had numerous policy-related discussions on whether the FMPs sufficiently achieve GPV and, if not, what adjustments might need to be made to these plans. New information and data such as the 2006 public opinion survey, 2nd party assessment, and results from research and monitoring projects have been used as tools to help inform these discussions.

H&H Model Project (H&H)

The Harvest and Habitat model project was designed to assist in making decisions about whether to make changes in the NW and SW FMPs, whether to pursue an HCP, and setting harvest levels for Annual Operation Plans (AOPs). The H&H model began in April 2003, shortly after approval of the District Implementation Plans (IPs). A condition of approving the IPs was a work plan that included the creation of a new timber harvest and habitat model based on the goals and strategies in the Forest Management Plans (FMPs).

Models for four alternatives were created. Two alternatives were modeled for each of seven districts: Astoria, Tillamook, Forest Grove, North Cascade, West Oregon, Western Lane, and Southwest Oregon. Both simulated the FMP: One used HCP strategies, the other used 'take avoidance' strategies for threatened and endangered species. Two other alternatives that fell outside the goals and objectives of the FMP were also modeled for three north coast districts: Astoria, Tillamook, and Forest Grove. The wood emphasis alternative simulated short rotations and intensive harvesting with Forest Practices Act (FPA) levels of protection for streams and special resource sites. The reserve-based alternative identified approximately 60% of the landscape that had no harvesting or restricted harvesting in areas that included stream buffers and habitat for threatened and endangered (T&E) species.

The H&H model's final report was presented to the Board in March 2006. Significant findings on the take avoidance and HCP alternatives for all seven districts include:

- Across all seven districts, FMP with take avoidance (FMP~TA) produces more harvest volume (15%) in the first decade, and remained higher for the first 30 years, because fewer acres are impacted from northern spotted owls and marbled murrelets. But FMP~TA produces less volume (14%) over 150 years because of the additional owl and murrelet habitat found over time.
- The impact on harvest volume of FMP with the draft Habitat Conservation Plan (FMP~HCP) versus FMP~TA is not the same on all districts. The southern districts have a reduction in harvest volume of 3mmbf/yr. In the first decade using take avoidance strategies, and the three north coast districts had an increase of 36 mmbf/yr.
- Both FMP~HCP and FMP~TA achieve 50% complex structure, but FMP~TA will overachieve 50% in the long-term because 40% of each new owl circle has no harvesting and will develop into complex structure.
- FMP~HCP develops complex structure at an accelerated rate due to more acres being actively managed.
- Cash flow has a similar relationship between FMP~HCP and FMP~TA as harvest volume. However, cash flow is negatively affected during the first 5 decades due to road construction costs, especially in Tillamook.
- Net Present Value (NPV) for FMP~TA is higher (12% higher) than FMP~HCP because of the higher cash flow in the first 25 years.
- When comparing FMP~HCP and FMP~TA for all seven districts, habitat levels appear to be similar for 90% of the species analyzed.

- Model results show an apparent difference in the amount of Old Forest Structure-based habitat for some species. These differences may be overestimated, due to the challenge of predicting the future distribution of structural components (i.e. snags) across the landscape – in all stand types – and the uncertainty of complex structure development for the FMP~TA model.

The Board requested a scientific review of the H&H model as part of the 2005 issues scan. The objectives of the review were to:

- Assess the strengths and weaknesses of the models, including the level of confidence in model results;
- Determine what kinds of decisions can, and cannot, be made credibly using the models;
- Help the Department determine the most appropriate application of the models in the decision-making process; and
- Improve future modeling efforts.

The H&H model peer review included, but was not limited to: Initial scoping of available models and their strengths and weaknesses for the anticipated use; the specific questions that the Department wanted to answer with the model; pros and cons of the final models; development; relevance and quality of model inputs; quality and interpretation of model outputs; and appropriate uses of the models.

The following are some of the strengths and weaknesses of the H&H model project highlighted in the review:

Strengths

- Many of the model components (spatial reality, roading and stand level treatments) are cutting-edge
- Optimization model
- Credible output for harvest
- Strong inventory (will be getting better)
- No 'fatal flaws' in the model, underlying data / assumptions, or its application

Weaknesses

- Strata-based inventory data are insufficient (will be getting better)
- Accuracy and precision require a measure of variation, which is lacking
- Lack of confidence limits on output
- Less credible output for habitat (structure classes vs. habitat attributes)

The review panel concluded that the H&H model was credible and able to address decision issues for which it was intended (the 'harvest output' more so than the 'habitat output'). Outputs from this type of model can be used to assist in making management decisions, to guide policy and provide strategic direction, as a feedback tool in adaptively refining the FMPs, and to display uncertainty to managers (after variation has been incorporated). Appropriate discussions about the outputs should include a greater examination of variability and uncertainty, and improving documentation and communication.

Some additional questions posed by the Board relative to the H&H model and the peer review are as follows:

- What data sets are used in the modeling process? (Does the model incorporate soils productivity, elevation changes, aspect and slope—factors that may contribute to growth and productive capability)
- What additional H&H runs/analyses are needed to work through the issues discussion (between now and January 2007)?
    - Need to get a sense of how FMP policies might play out, using H&H as a tool.
    - Need to understand the implementation of policy on the ground so we can roll back up to the Board policy level
- How do we explain the differences between the 2000 and 2006 models?

The most important differences between the 2000 and 2006 models are the district involvement, beginning inventory, the projected growth rates, ORGANON versus FVS growth and yield model, 32' versus 40' log scale, 3-district combined versus 3 individual district models, harvest volume goal of departure versus even flow, SNC growth reduction, operational harvest units, inclusion of road system limitations, silvicultural prescriptions, and structure definition. The 2006 models are much more elaborate and complicated and had district involvement in every stage of their construction.

Modeling the maximum growth potential of these forests was not a specific goal of the H&H model. Most of the prescriptions in the models were intended to create complex structure as soon as possible, not maximize growth rates. Some prescriptions were created to simulate industrial forestry (one or two early thinnings), but no effort was made to maximize the growth rate.

The Department is currently using the H&H model to work on responses to a series of questions posed by the Board. A subset will be presented at the November 3, 2006 workshop. Additional answers will be presented at the January 2007 Board of Forestry meeting.

Systematic Evidence Review (SER)

In June 2004, former Governor John Kitzhaber presented written and verbal testimony to the Board on a number of forest policy issues. One component of his testimony focused on what he viewed as a lack of a credible base of scientific evidence on which to base forest management decisions. Because of this, stakeholders may engage in "dueling science." He suggested examining a process known in the health care field as "systematic evidence review" (SER), the most rigorous form of evaluating a large body of medical evidence.

At the December 2004 Board workshop, and in subsequent discussions at the March 2005 Board meeting, the Board further discussed these ideas, and inserted the exploration of "systematic evidence review" into the State Forests program work plan. The Department subsequently contracted with the Institute of Natural Resources (INR) at Oregon State University (OSU) to develop a background report on SER, and provided some options and ideas for how the concept could be applied to natural resource decision making. The report was shared with the Board in January of 2006, and the Board requested additional follow up work, including the development of a small pilot project.

In April 2006, the Department presented some ideas (via a consent agenda item) for a pilot project and proposed some Board and Department work products associated with SER. Department staff from the State Forests, Private Forests, and Resources Planning programs identified SER's strongest link to the *Forestry Program for Oregon* is via "Key Action" A.3: "The Board will promote active, adaptive forest management and the outreach, monitoring, assessments, research, and evaluations that support it as a continuous learning and improving process for all seven strategies." With this in mind, the following Board and Department SER work products were identified:

- The Board will advise the Department on principles that will guide the development of a general but consistent agency process for synthesizing "best available science" that comes before the Board.
- The Board and Department can act as a catalyst and proponent of developing SER-like approaches for natural resources.

The Department and INR are working on a pilot project focusing on the effectiveness of specific stream restoration practices. INR will have a final report to the Department in June 2007, and the Department will report to the Board in September 2007. The pilot project will contribute to both of the work products noted above.

The concept of "Systematic Evidence Review" (SER) will be incorporated into the existing adaptive management framework. The process would allow the Department to develop a set of guiding principles and criteria for review of scientific information to: (1) allow the Board to have more confidence in the information they use to make decisions; and (2) ensure the public has confidence in the quality of information used by decision makers.

Dynamic Ecosystems

A 2003 Oregon Department of Forestry White Paper titled *Forest Practices Protection on Forestlands in the context of Dynamic Ecosystems* was drafted as a result of direction from the Board following discussions on how to better provide resource protection under the Oregon Forest Practices Act (FPA). With recent advances in our understanding that forest ecosystems are inherently dynamic, the purpose was to promote discussion and consider possible policy framework for addressing resource protection within a dynamic ecosystems context.

Given recent advances in scientific understanding of forest ecosystem dynamics and in light of static rules or land allocations, uncertainty in predicting disturbances, and protections having unintended consequences, the meaning of sustaining or protecting desired conditions has changed. We have discovered that some of our most successful "protections" have created conditions that drive disturbances with intensities that we believe are greater than what occurred in the past and are negatively impacting desired processes and sustainability. On this basis, the White Paper suggested the Board begin discussions on the meaning of forest protection and how should protection be accomplished in dynamic forested landscapes with various ownerships and purposes.

Objective Three of the Board's "Dynamic Ecosystems" work plan is to "integrate adaptive management processes within the *Forestry Program for Oregon* in order to develop and promote adaptive policy options that lead to sustainable outcomes within a dynamic ecosystem paradigm." Upon completion of this objective, and the dynamic ecosystems work plan as a whole, the Department will ensure that the FMP adaptive management process is informed by the outcomes of that work plan.

Forest Management Plan Implementation Plans (IPs)

The State Forests Program is evaluating the current implementation plans (IPs) for possible revisions that include streamlining, simplification, and restructuring to be more responsive to new information and future policy direction. This process is anticipated to provide information relative to the following questions, based on recent Board discussions:

- What level of harvest outputs can be achieved within the bounds of the current FMPs?
- Can the IP and AOP processes be modified to better to respond an adaptive management framework?

In addition to these Board questions, the State Forester directed the program to review the current implementation plans and assess the possibilities and associated economic, environmental, and social trade-offs of the following:

- Moving from 50% complex structure to 40% (the existing implementation plans use a 50% complex structure target goal). The H&H model suggests that this could produce 194 MMBF, but this output needs to be reviewed by field foresters;
- Modifying the pace (take longer) to achieve complex structure; or
- Departing from a strict even flow of volume. The H&H model indicated that harvesting in the first decade could be increased 15% without falling below baseline levels. The outputs from this approach needs to be verified by field foresters as well.

To provide this information to the Board and the State Forester in an efficient and effective manner, the State Forests Program has organized this project into three phases:

Phase I – Additional model runs of the FMP with an HCP alternative to explore the potential changes in environmental, social, and economic values by examining model runs described above. The results of this initial exploration phase will be provided to the State Forester by October 2006.

Phase II – Includes six tasks to be completed in preparation for Phase III. The objectives of these tasks are:

1. Draft Program Guidance on Implementation Plans: streamlines the process; establishes better links to the AOP and the FMP, and allow for improved responsiveness to new information and policies;
2. Develop alternatives for "Species of Concern" strategy that provide a favorable biological result that could serve as the basis for revising the FMP should the decision be made to not pursue a HCP;
3. Review draft HCP strategies to determine whether the strategies remain appropriate (if the decision is made to continue to pursue a HCP);
4. Forest Inventory activities that transition stand level inventory (SLI) from a strata-based system (unmeasured stands are represented by the average of the measured stands in that stratum) to a stand-based system (unmeasured stands are represented by a single similar measured stand); improve quality by moving to a stand based system
5. Revise Desired Future Condition (DFC) maps based on learning from H&H model and using updated SLI; and
6. Update the H&H model and runs for the FMP with HCP and FMP with take avoidance and species of concern strategies.

The results of this phase will be provided to the State Forester in late spring 2007.

Phase III – Implementation Plan Revision - After completion of Phase II, the State Forester may direct the State Forests Program to revise district IPs based on the results of the Phase II model runs, and any new direction provided by the Board relative to the FMPs. The process and structure for the revised IPs will follow the guidance developed in Phase II. It is anticipated that the changes to the IPs are likely to be extensive enough that it will be appropriate to schedule a formal public comment period. It is anticipated that the revised IPs will be ready for the State Forester's signature in late 2007.

Some additional questions posed by the Board relative to the Implementation Planning process are as follows:

- Where does the Board fit in the "create the new IPs" process? The Board is responsible for adoption of the forest management plans. The State Forester approves the implementation plans, and district foresters approve the annual operating plans.

- Where does the "consistency" standard fit, particularly as it relates to "consistency" between IPs and the FMP?

- Since IPs are the bridge between the FMP and the AOPs, do we need to look at what the impact on changing the IP process has on the entire planning process starting with the FPFO and the FMP and moving to the on-the-ground AOPs?

- How does the IP change impact the species of concern vs. HCP vs. take avoidance process and analysis?

Adaptive Management

Adaptive Management is a cornerstone of the current FMPs, and is an overarching issue within this issues paper and the FMP review process the Board is currently engaged in. Some questions posed by the Board relative to adaptive management are as follows:

Key Issues

- What does the FMP provide in terms of adaptive management?
- What is or should be the appropriate adaptive management framework/structure?

The current FMPs provide a detailed description of the adaptive management process, as well as strategies for implementing adaptive management under the FMPs. The FMPs also describe how the adaptive management process will be used to effect change at the various planning levels in the Department. Adaptive management can be described as a system of making, implementing, and evaluating decisions that recognizes that ecosystems and society are always changing. This can entail a systematic, rigorous approach for learning from our actions, improving management, and accommodating change. This type of adaptive management is a formal approach to management where activities are treated as opportunities for generating information about the system being managed.

IV. ISSUE IDENTIFICATION

Structure-based Management (SBM)

The landscape management concepts and strategies within the FMPs are based on an approach called structure-based management (SBM), the application of silvicultural tools designed to attain a desired landscape condition, which will meet the land management objectives of the FMPs. SBM is designed to produce and maintain an array of forest stand structures across the landscape in a functional arrangement that provides for the social, economic, and environmental benefits called for in the management direction for these lands. These benefits include a productive level of sustainable timber and revenue, diverse habitats for indigenous species, a landscape-level contribution to properly functioning aquatic systems, and a forest that provides for diverse recreational opportunities.

The following four key concepts are the foundation for structure-based landscape management:

1. Active management for a diverse array of forest stand types.
2. Landscapes design to provide for a functional arrangement of the stand types in terms of habitat values.
3. Active management to provide for key structural components within stands and on the landscape (snags, down wood, legacy trees, etc.).
4. Active management for social and economic benefits.

Structure-based management is designed to emulate many aspects of natural stand development patterns and to produce structural components found in naturally developing stands, but in fewer years. By anticipating future patterns of forest development, foresters predict the potential for individual stands to produce specific characteristics such as a multi-layered canopy. Foresters can then develop appropriate silvicultural prescriptions to accelerate the rates of stand development and the types of structures, products, and habitats that forest stands will produce over the long term. The anticipated result will be a forest landscape that more closely emulates historic variability and diversity in a much shorter time frame than if these existing stands were left to develop through natural influences.

Individual stand management can vary greatly under SBM. Some stands are managed along pathways that focus on timber production, with habitat structures such as snags and downed wood incorporated. Others are managed to produce stands that emulate habitat conditions normally associated with older forests. These stands are also expected to produce high volumes of timber. In the long term, many stands will move through all of the stand types, and return to a regeneration type through a final harvest. Thus, when the desired future condition is achieved, much of the landscape will be a dynamic mosaic of slowly shifting stand types, but with relatively stable quantities of each. Embedded within the mosaic will be a network of areas which develop into older forest conditions and then persist for some time in a relatively unmanaged state. Many of these stands will eventually become 'true old-growth stands' as that condition is commonly defined.

Stand densities are actively managed to accelerate stand development through periodic thinning and partial cutting. These techniques can be used to produce a variety of results. Some

prescriptions will result in fast-growing, well-stocked stands with minimal understories. Other prescriptions will develop more complex stand structures, with rapid tree diameter growth, enough sunlight on the forest floor to maintain understory plants, and a complex forest canopy. Thinning and partial cutting can also be used to create or maintain other important structural components, such as snags, downed wood, gaps in the canopy, and multiple canopy layers.

A diversity of stand structures produced through SBM is anticipated to provide for a broad range of ecosystem and wildlife values, which will contribute to maintenance and restoration of biodiversity. The structural components associated with the range of stand structures will benefit long-term forest productivity by maintaining the key linkages for nutrient cycling and soil structure.

Key Issues

The State Forests Program began implementing structure-based management a few years ago. Through the Board's work on their State Forests' work plan, and five years into FMP implementation, a number of questions have been raised relating to both the adequacy and effectiveness of SBM as implemented within the current FMPs. The following is a summary of those questions/issues, based on recent Board discussions:

Structure-based Management Efficiency

- Is SBM providing what the previous Board expected in terms of balancing GPV, and in balancing GPV efficiently?
    - Is SBM as adaptive as anticipated?
    - Is it a workable silvicultural model?
- What is the efficiency of SBM, both in terms of habitat creation and in producing quality timber?
- Are we cutting productivity in other areas to manage for SBM long-term?
    - Are we losing growth potential over the long-term through SBM (through less-than full stocking)?
- Compared to rotation-based management, is SBM preferable given the common age of our stands?

No specific protocol has been developed to address the general question of productivity; however, it is noteworthy to reiterate some results from the 2005 Oregon Timber Harvest Report relative to timber volume outputs, (the board feet per acre on state forestlands was achieved using SBM):

- *Private Industrial – 2,671 MMBF on 12 million acres = 223 bf per acre*
- *Private Non-Industrial – 486 MMBF on 2 million acres = 243 bf per acre*
- *State (under SBM) – 341 MMBF on .789 million acres = 431 bf per acre*
- *Federal – 396 MMBF on 15 million acres = 26 bf per acre*

Structure-based Management Effectiveness

- Can SBM 'deliver it all'– is that working out? (Harvest volumes are lower than expected; what other tradeoffs are being made—e.g. between wildlife species?)
    - 'If we build it (habitat), will they come (wildlife species)?'
- Do all forests have to be managed the same?
- Does complex structure have to be the same across all districts?
- Starting with the biological baseline and incrementally adding parameters may provide a better idea of the ramifications of different policy choices.
- Trying to get to the answer of whether the site productivity was less than anticipated in prior years or whether the plan is less productive than anticipated.
    - Interested in knowing whether the change in volume outputs is due to the land not being as productive as originally thought (maybe not, especially in the near-term with SNC) or whether the FMP is limiting it in ways we don't clearly understand.

Federal Endangered Species Act Compliance

Securing the "Greatest Permanent Value" (GPV) through the adoption of the FMPs includes managing "...forest conditions to result in a high probability of protecting, maintaining, and enhancing native wildlife habitats..." (OAR 629-035-0030 (3)(b)(B). To address this aspect of GPV, two wildlife goals were identified during the FMP planning process:

- In a regional context, provide habitats that contribute to maintaining or enhancing wildlife populations at self-sustaining levels, and contribute to properly functioning aquatic habitats for salmonids and other native fish and aquatic life; and
- Meet the requirements of the federal and state Endangered Species Acts.

During the development of the FMPs, it was recognized relying on a 'take avoidance' strategy to meet the requirements of the federal and ESA could be problematic. An ever-shifting landscape of listed species sites could make planning and operations more difficult to coordinate, and money spent on species surveys might be better spent on other efforts to more efficiently and effectively implement the FMPs. Specifically, the continuing development of layered and older forest structure stand types on the landscape also might result in an increase in populations of listed species believed to favor complex habitats. As a result, the Department started negotiations for a federal HCP, believing it offered a tool that was more likely to provide greater operational certainty and overall species protection as compared to the 'take avoidance' approach.

The Steering Committee and Public Interest Committee (PIC) explored a draft HCP using the FMP set of "integrated forest management" strategies as the foundation for the "minimization and mitigation" measures. Following conversations with the Forest Trust Land Advisory Committee (FTLAC) and Board of Forestry (Board), the Department initiated negotiations with the U.S. Fish and Wildlife Service (USFWS) in 1996.

At the time of FMP adoption in 2001, the draft HCP was "considered a key tool for fully implementing the strategies described in this forest management plan over the long term" (NW FMP, p.4-3; SW FMP p. 4-2). Additionally, at the time of adoption, the Board emphasized through intent statements that the FMP defines "a pathway...that will provide a full range of economic, social and ecological values," which includes "habitats for native wildlife." Other

Board intent statements contemplated that "the Department should continue pursuing" the Western Oregon HCP, and the importance of understanding "the economies of an HCP, to allow the re-valuing of state forests with and without an HCP.

The approved FMP describes the above two wildlife goals and a set of short-term, species-specific strategies, referred to as species of concern strategies. The FMP integrated forest management strategies and the associated proposed draft HCP "contain a set of species-specific strategies intended to protect existing key habitat areas and/or sites considered critical to the short-term survival of individuals or populations. The concept of 'anchor habitats' is fundamental to these strategies" (NW FMP, p 4-81). The program did not define the specifics of this strategy, but instead focused its efforts on negotiating a draft "minimization and mitigation" package for the proposed Western Oregon HCP. These draft HCP strategies contained the 'anchor habitat' element of and additional concepts from the FMP species of concern strategy.

Currently, the Department manages the forest using take avoidance strategies for northern spotted owls and marbled murrelets, the two federally listed bird species affecting management on state forestlands. The draft HCP strategies for northern spotted owls are also implemented. These strategies are referred to as 'owl clusters', and comprise four spotted owl clusters in the North Coast Range, totaling 10s of thousands of acres. Oregon Department of Forestry, in consultation with Oregon Department of Fish and Wildlife, identified cluster boundaries believed to provide habitat sufficient to support a core population of spotted owls until additional, actively used habitat can develop on the NW and SW FMP landscape over the next two to five decades. These clusters include northern spotted owl sites that have shown the best history of persistence and productivity in the North Coast Range. Implementation of the draft HCP northern spotted owl strategies concurrently with take avoidance strategies has been done for the purpose of maintaining the integrity of the HCP minimization and mitigation package negotiated for all Western Oregon state forestlands while the Board and Department continued it decision-making process.

In June 2006, State Forester Marvin Brown directed the State Forests Program to explore two aspects of the species of concern strategy. The first aspect was to "explore alternative strategies for 'species of concern' that produce a favorable biological result on the ground." These strategies would be considered from a programmatic perspective, and be used for possible modification of the FMP should the decision be made not to pursue an HCP[1]. The second aspect was to review the current draft HCP strategies. This review of the draft HCP strategies would consider current operational and biological information, including knowledge of owl locations on state forest lands in the Northwest. A workgroup consisting of Salem area and Department biologists and Salem and district staff was formed to perform this species of concern strategy review, with the goal of proposing alternative strategies by January 2007. Meetings with the federal services have been scheduled to resume in late fall of 2006. The species of concern strategy alternatives would be modeled with the take avoidance strategies, and any changes in the negotiated draft HCP strategies would also be modeled in early 2007.

[1] The FMP states that if "the HCP is not adopted; the FMP will be expanded to include further detail on managing habitat for specific species or populations" (NW FMP, p S-15).

At the same time, the program was asked to share information with the Board and Department executives about the various compliance options available to non-federal parties under the federal ESA. The appropriateness of a compliance option depends on the current situation and future needs of the non-federal party. A discussion of these requirements and options follows.

Section 9 – is not an option but a requirement of non-federal landowners for compliance with the federal ESA. This Section declares it illegal to "take" (i.e. "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct") listed species. This has been interpreted under the "harm" and "harass" provisions to include habitat modification where such modification impairs essential life functions of the species to the point that it kills or injures the wildlife. In most cases, there is too little information on the relationship between an action that modifies habitat (e.g. timber harvest) and the degree of impairment that an individual of the species might experience as a result (e.g. disrupted breeding patterns). This has led to a situation where there is some discretion for non-federal parties to develop programmatic policies for avoiding take. For example, federal take avoidance guidelines for Spotted Owls, Marbled Murrelets, and salmonid species listed as threatened or endangered have not been issued, leaving it up to the individual landowner to determine what is necessary to comply with the ESA. Accordingly, there is a range of take avoidance strategies implemented across the Pacific Northwest that various forest landowners have chosen to implement.

It is in this context that State Forests program take avoidance strategies have been developed and are implemented in order to achieve compliance with the federal Endangered Species Act. Full compliance with the spirit of Section 9 requires continual vigilance prior to implementing activities that have the potential to modify that habitat. The basis for the State Forests Program take avoidance policies to-date includes:

1) Surveying for listed species in suitable habitat;
2) Updating the status and locations of the individuals found (birds in this case); and
3) Assessing the potential impacts of the proposed habitat modification on those individuals.

Current policies provide a high degree of assurance that the program is avoiding take. Yet the take avoidance policies can not relieve uncertainty in the planning and implementation of forest management activities due to new individual species sites being found, moving, or changing status.

Section 4(d) – Allows for specific protective rules for threatened species to be developed. These rules may be promulgated directly by the Secretary of Interior or Commerce, or may be adopted to varying extent by states, where the state has a cooperative agreement under Section 6(c). Such rules generally represent a statewide, programmatic approach to species management that applies to all non-federal entities. Currently, there are no 4(d) rules in Oregon for northern spotted owls or marbled murrelets. The State Forests Program has not pursued this approach to species management because it only has administrative authority over the specific lands it manages.

Section 6(c)(2) – endangered and threatened species take can be exempted through a Conservation Agreement with a State. These agreements are usually negotiated through State agencies that already have authority and jurisdiction over the management of native wildlife or habitats – Oregon Department of Fish and Wildlife (ODFW) in Oregon. Oregon qualifies in part for these funds through the state ESA, pursuant to ORS 496.171-.192. A state must establish and maintain an "adequate and active" program for the conservation of listed species. The Services determine if the State program fulfills this requirement through several criteria. The criteria are used to evaluate the authority and ability of the State agency to manage and monitor the species, the conservation programs the agency has established for listed species, the agency is authorized to conduct investigations to determine the status and requirements for survival of resident species ff fish and wildlife, and whether the public is allowed to participate in State designations of species as threatened or endangered.

Currently, ODFW holds a conservation agreement with the Services. Through this agreement, the state is able to apply for federal Section 6 program funds that can be used for working on federal Endangered Species Act (ESA) issues. These funds are available through four grant programs under the *Cooperative Endangered Species Conservation Fund*, including *Conservation Grants, Habitat Conservation Planning Assistance Grants, HCP Land Acquisition Grants, and Recovery Land Acquisition Grants.* Oregon Department of Forestry has obtained funds under the Conservation and Habitat Conservation Planning Assistance Grants under ODFW and Department of State Lands (DSL) cooperative agreements, respectively. DSL has an agreement because of its management of fill and removal permits associated with in-water work, and the potential effects of such activities on fish species that may be listed.

Section 10 –Offers several mechanisms that allow incidental take, and useful tools for non-federal entities depending on the specific situation:

Candidate Conservation Agreements include voluntary conservation measures agreed to by a landowner and the federal services that must significantly contribute to elimination of the need to list the target species. The permit would allow participants to take individuals or modify habitat such that population levels and habitat conditions are returned to those agreed upon and specified in the agreement, provided that the take is at a level consistent with the overall goal of precluding the need to list. The landowner is given assurances that, should the species be listed, the federal services will not assert additional restrictions or require additional actions above those voluntarily committed to in the Agreement. The effective date of the "enhancement of survival permit," issued under section 10(a)(1)(A) of the ESA, would be tied to the date any covered species becomes listed. Before entering into a Candidate Conservation Agreement and providing regulatory assurances, the Service must reasonably expect and make a written finding that the species included in the agreement will receive a sufficient conservation benefit from the activities conducted under the agreement. These agreements apply only to species that are not yet listed, and are not a mechanism for allowing incidental take of currently listed species.

Safe Harbor Agreements promote voluntary management for listed species on non-federal property while giving assurances to participating landowners that no additional future regulatory restrictions will be imposed. The FWS will issue an "enhancement of survival" permit under section 10(a)(1)(A) of the ESA. The permit would allow participants to take individual listed animals or modify habitat to return population levels and habitat conditions to those agreed upon as baseline. These assurances operate with the enrolled lands and are valid for as long as the participant is complying with the Agreement and associated permit during their defined terms. The FWS must make a finding that the covered endangered or threatened species will receive a "net conservation benefit" from the management actions prior to entering into an agreement. These agreements may be renewed for as long as the landowner wishes, and follows its terms. The "enhancement of survival" permit may be revoked if the federal services determine continuation of permitted activities is likely to result in jeopardy to the species covered. Safe Harbor Agreements are not intended as a mechanism for allowing take that may occur as a result of otherwise legal activities—there must be a net conservation benefit to the species.

Habitat Conservation Plans (HCPs) accompany an application for an incidental take permit under section 10(a)(1)(B) of the Federal ESA. The purpose of the habitat conservation planning process associated with the permit is to ensure there is adequate minimizing and mitigation of the effects of the authorized incidental take associated with lawful activities, such as forest management, not to authorize the activities that result in take. HCPs are required to minimize and mitigate incidental take to "the maximum extent practicable." Preferably, such minimization and mitigation can be done in a manner that complements species recovery, but complementing recovery is not a requirement in and of itself. Non-federal landowners receiving permits are provided assurances through the section 10(a)(1)(B) process, referred to as "no surprises." Essentially, non-Federal landowners are assured that if "unforeseen circumstances" arise, the federal services will not require the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed to in the HCP without the consent of the permittee. The government will honor these assurances as long as a permittee is implementing the terms and conditions of the HCP, permit, and other associated documents in good faith. Permit issuance is conditional upon the federal services finding, via an internal consultation under section 7 of the ESA that the HCP will not "jeopardize" the species by precluding its survival and recovery in the wild, or adversely modify their critical habitat.

Key Issues

Through the Board's work on their State Forests' work plan, and five years into FMP implementation, a number of questions have been raised concerning the issue of ESA compliance. The following is a summary of those questions/issues, based on recent Board discussions:

- What are the advantages and disadvantages of an HCP, take avoidance, or other mechanisms available for ESA compliance?
- What are the risks of a "take" with the take avoidance strategy, or some other ESA compliance strategy, vs. an HCP strategy?
- What are the advantages and disadvantages of slowing the HCP process?
    - If the choice is made to slow down the HCP process, is it desirable to continue to practice both HCP and take avoidance strategies simultaneously?
- Is it possible to pursue an HCP on one portion of the State forest lands, while practicing more intensive management on the other portion?
- What is the possible cash flow with take avoidance?

Forest Health

Forest health considerations are articulated at a variety of levels – within the *Forestry Program for Oregon,* the GPV rule, the FMP, and district IPs. The State Forests Program also has a "*Strategic Plan for Managing State Forests NW Oregon Affected by Swiss needle cast"* (SNC) – which outlines basic directions and strategies for SNC management and is updated as new information becomes available. Site-specific decisions on managing forest health are made within district AOPS and on individual timber sale units. The higher order plans provide broad policy direction and guidance and provide flexibility for new information to be incorporated into site specific plans and decisions.

Strategy F of the FPFO is to: protect, maintain and enhance the health of Oregon's forest ecosystems, watersheds, and airsheds within the context of natural disturbance and active management. A key Board action is to "promote forest landscape conditions that are resilient to natural disturbances, reducing the environmental impacts and losses of forest resources to wildfire, insects, diseases and other agents in a cost-effective, environmentally and socially acceptable manner." The GPV rule notes that forest health will be provided through integrated management and the management of forest genetics resources. A primary guiding concept in the FMP is to actively manage for a diverse and healthy forest ecosystem that is resilient to biotic and abiotic factors. Resiliency can be increased by managing for a variety of age classes, species composition, and structural compositions. It is also noted that strategies must integrate management objectives and must be tailored to the desired future condition, individual stand conditions, and landscape contexts.

The "*Strategic Plan for Managing State Forests in NW Oregon Affected by Swiss needle cast*" was originally developed in 2000 and was updated in 2003 to incorporate new information from The SNC research cooperative and the Department-funded study on commercial thinning and SNC. A longer term strategy embedded in this plan is to actively manage stands in areas with SNC damage to reduce the amount and proportion of Douglas-fir and increase the amount of

native species not affected by SNC. The resulting stands will better reflect species composition appropriate to the ecological zone. The strategic plan notes that the disease will be managed within the context of managing risks. There is a risk of being too aggressive and being unable to take advantage of changing conditions and new information on alternative treatments. Also, rapid conversion of the landscape may compromise other management objectives. Additionally, there are ecological and economic risks associated with rapid, large-scale conversion of Douglas-fir stands to western hemlock and other species. Conversely, there are also ecological and economic risks in not taking aggressive enough action to address the forest health problem. Currently, these risks are balanced by giving stands with the greatest disease severity the highest priority for conversion to mixed species—this is in line with the Board intent statement to "aggressively treat" SNC. Most stands are considered "moderately affected"—these stands exhibit a wide variety of conditions. Moderately affected stands are assessed, and treatment decisions are based upon stand condition, the desired future condition of the stand, and other management objectives surrounding the stand and the landscape. Moderately affected stands that demonstrate good growth rates, healthy live crown ratios, respectable height to diameter ratios and other attributes of acceptable stand conditions may be thinned, or regenerated—depending on the management objectives surrounding the stand and the landscape. Moderately affected stands without acceptable stand conditions are targeted for regeneration harvest.

When SNC stands are regenerated and replaced, the planting of genetically improved seedlings during reforestation is one tool towards mitigating the effects of Swiss needle cast on reduced tree growth. In recent years, all Douglas-fir trees planted in the Northwest Oregon Area have been genetically improved. These seedlings were produced from first-generation seed orchards that contain trees selected for fast growth. Research by the Swiss Needle Cast Cooperative and others has shown that the boost in growth rate that occurs in the absence of Swiss needle cast is maintained in the presence of Swiss needle cast. In other words, the fastest genotypes in uninfected stands tend to be the fastest growing in infected stands. Importantly, the genetically improved seedlings *continue to be infected by Swiss needle cast* at about the same rate as unimproved seedlings; they are not ***resistant*** to the disease but rather display some increased ***tolerance*** with respect to growth rate.

Overall, site specific decisions are being made within the context of the higher level policy statements and guidance, and are considering, and adapting to, new information as it becomes available. The various policy statements and plans on forest health do not generally call for eradicating a disease (except in the case of something like Sudden Oak Death)—they call for managing the disease using principles of active management, creating diversity, and building resilience. There is a "balancing of risks" inherent in managing forest health.

Key Issues

Forest health is currently a major issue that may influence much of the Board's work related to State Forests, and this is likely to continue to be the case for the foreseeable future. Recent Board discussions related to this issue include the concern about existing flexibility within the management plans to adequately deal with forest health issues, including with Swiss Needle Cast (SNC), and include the following questions:

- Do the current management plans allow for the appropriate site-specific prescription for the treatment of Swiss Needle Cast?
- Do the management plans ensure that forest health issues are addressed in an adequate manner so that it is not a limiting factor to achieving the full range of objectives anticipated by the plans?

FMP Strategies and Forest Practices Act Requirements

There are a number of strategies within the plans that result in management prescriptions that go beyond what is required under the Forest Practices Act (FPA). These generally fall with the broader Aquatic and Riparian strategies and "anchor habitat" categories:

Aquatic and Riparian Strategies— The FMPs use a "blended approach" that applies the concepts of landscape ecology to manage riparian and aquatic habitats at both the landscape level and through site specific prescription. This two-tiered approach was cited by the IMST (1999) as a way to achieve a high likelihood of restoring and maintaining properly functioning aquatic systems. When the strategies were being developed, many reviews of existing approaches and concepts for new approaches for management that would benefit fish were ongoing. The strategies consider and incorporate feedback from the Independent Multidisciplinary Science Team (IMST, 1999), the Oregon Department of Forestry (ODF), Oregon Department of Environmental Quality (DEQ) Sufficiency Analysis for Forest Practices (ODF and DEQ, 2002), and the Forest Practices Advisory Committee (FPAC, 2000). The Forest Practices rules and the State Forests strategies are based on the same body of scientific knowledge, and that information is applied to the different frameworks of the Forest Practices Act and Greatest Permanent Value statutes. The scientific body of knowledge provides information of the relative risks of different management approaches for aquatic systems, and in-turn provides informs policy-making process.

Under the Aquatic and Riparian strategies, riparian management areas (RMAs) are established immediately adjacent to waterways for the purpose of complying with the FPA and providing additional protection for aquatic and riparian resources. Given that compliance with the Clean Water Act will continue to be achieved though ensuring compliance with the FPA, the additional increment of riparian protection provided by these strategies is aimed primarily at contributing towards the overall goal of achieving GPV[2]. Riparian management area widths vary by the type and classification of the water

[2] Greatest Permanent Value (GPV) is defined as "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". One of the expected "benefits" is described in OAR 629-035-0020 (1) (b) as "properly functioning aquatic and riparian habitat for salmonids and other native fish and aquatic life." The GPV rule further instructs the State Forester to secure greatest permanent value by

body. These widths were developed by considering the functions and processes to be achieved or maintained by management activities, and are intended to be average widths applied over the length of a management site. The actual extent of a specific RMA can be varied to tailor vegetation retention to site-specific conditions, or to address special resource considerations. Variations in RMA design are intended to be completed in a manner consistent with the management objectives for the specific aquatic or riparian area. A summary of FPA and FMP riparian protections is attached (Appendix C).

Anchor Habitats (Species of Concern)-- Through the development of the FMPs and the proposed draft HCP, the concept of "anchor habitats" has become a key element of the strategies for specific species of concern (e.g. northern spotted owl and marbled murrelet). The northern spotted owl "cluster" strategy is an example of this approach. The "anchor habitat" strategy is designed with the intent of protecting the best existing habitat and most critical populations of owls on State Forest land, until we have achieved the goal of more diverse, suitable habitats across the landscape. The goal is to ensure that owl clusters will be subject to "lower risk" management measures for a period of time, while the broader landscape is more actively managed using management measures that will be tested over time. A similar set of areas has been identified for marbled murrelets, also with "lower risk" management measures being applied for an interim period. Following the adoption of the management plans, the issue of "anchor habitat" areas for salmonid species of concern was also raised Salmon Anchor Habitats (SAHs) were developed as a result, and are being implemented with the intent of providing an additional level of protection in areas of high salmonid production. The SAHs are expected to act as refuges for salmon until the historically more important spawning areas can return to productivity.

Key Issues

The following are some of the questions/issues related to FMP Strategies and FPA Requirements, based on these recent Board discussions:

- What are the implicit policy directions within the Aquatic and Riparian Strategies and Anchor Habitat approaches?
- What is the cost of implementing the Salmon Anchor Habitat strategies?

The decision to pursue an HCP was an important factor in terms of understanding the context in which these strategies were developed, and the implicit policy direction therein. During the late 1990s the Coho salmon were either proposed for listing, or listed under the Federal ESA. The Northern Spotted Owl and Marbled Murrelets were listed as well. The idea of an HCP was considered a viable approach to managing for threatened and endangered species, and a way to avoid the risk of State forest lands being increasingly encumbered by uncertain Federal take avoidance requirements.

"actively managing [these lands] in a sound environmental manner to provide sustainable timber harvest and revenues to the state, counties and local taxing district." This management focus must be pursued within a broader management context that (among other things), "results in a high probability of maintaining and restoring properly functioning aquatic habitats for salmonids and other native fish and aquatic life."

In terms of the second key issue related to FMP Strategies and FPA Requirements (listed above), some information is provided by the recent H&H model. This project specifically analyzed, among many other issues, the cost of the Salmon Anchor Habitat (SAH) strategies over the ten years it is to be implemented. This analysis concluded that the "ten-year SAH strategies resulted in less than a 0.5% decrease in harvest volume and net revenues compared with no SAH strategies." (Harvest & Habitat Model Project, p.2) This analysis considered a ten-year time horizon due to the fact that the strategies expire after the first ten years of the plan.

Performance Measures

The development of State Forest's performance measures (PM) has the potential to provide a tool to assist the Board in evaluating over time whether or not GPV is being achieved. By adopting a range of measures that span the breadth of what is to be provided under GPV, these can inform the Board on a periodic basis of what environmental, social, and economic outputs are occurring on State forest lands, and whether or not that suite of outputs is judged by the Board to achieve the Greatest Permanent Value. Performance measures, however, are not intended to answer the 'cause-and-effect' question of why certain outputs are or are not being achieved, but what they can do is serve as a way for the Board to determine when it is appropriate to initiate a closer examination to answer that question.

Over the past year, the State Forests Program has been engaging with the Board and stakeholders in the development of draft performance measures that will provide the Board, the counties, the Legislature, and the general public a continual opportunity to assess the delivery of economic, social and environmental benefits on state forest lands.

The development and implementation of performance measures are intended to evaluate achievements; communicate outcomes, challenges and progress; develop awareness, understanding and support; focus resources; ensure alignment with the *Forestry Program for Oregon*, the Board's work plan, and the FMPs; and demonstrate whether or not the FMPs are achieving GPV.

The process that has been used to develop draft measures to-date includes the following:

1. Conduct an opportunity scan to research and review other organizations/agencies that manage lands for multiple uses and document any existing criteria and indicators used.
2. Involve stakeholders including the Forest Trust Lands Advisory Committee (FTLAC) and the State Forests Advisory Committee (SFAC) in a discussion about potential draft measures.
3. Incorporate concerns and values of Board members and stakeholders in the development of draft measures using a set of criteria:
    - Relevant
    - Understandable
    - Practical and feasible
    - Measurable
    - Sufficient to the purpose
    - Sensitive to change
    - Scale appropriate
    - Compatible
    - Scientific merit
    - Linkable to environmental, economic, and social models, forecasting, and information systems
4. Generate options for both multi-year and annual performance measures for Board review and discussion. Multi-year performance measures are associated with numerous landscape targets articulated in the northwest and southwest Oregon forest management plans.

Appendix D includes a range of possible performance measures for the Board to consider. This collection of measures includes some originating from the process that has been used to develop draft measures to-date, as well as those proposed in recent Board discussions. They are intended to be a starting point in the discussion of what performance measures the Board might ultimately choose to adopt.

Key Issues

The following is a summary of questions/issues related to performance measure, based on recent Board discussions:

Performance Measures Process:

- Performance measures can inform whether or not we're achieving GPV.
- We need to be able to evaluate the trade-offs of different alternatives in terms of performance measures/metrics that in turn relate to GPV.
- What is the outcome we want for performance measures?
- Direct connection between performance measures and outcomes desired is needed.
- We need to get the performance measures/metrics nailed down, and they should relate to GPV.
- Capture the concepts that are derivatives of: ORS; OAR (GPV); Montreal Criterion; FPFO; and FMP.
- Do we need to establish a context and gain consensus and understanding about the role of Performance Measures and how they will be applied:
    - Long term
    - Short term
    - Factoring in dynamic ecosystem
    - Factoring in sustainability
    - How will these be used? i.e. evaluation of how plan is working in attaining GPV? Perhaps even a component of board and state forester evaluation would include how well we are attaining GPV.
- Use the adaptive management process to evaluate the questions being addressed by the performance measures, our progress toward the performance metric, what additional information is needed to assess attainment of the metric, interpretation of attaining/not attaining the metric.
- What are the roles of the Board and the Department in the performance measures process?
    - Policy
    - Management
    - Assessment and Evaluation Mechanism: (1) of the policy; (2) of the management
    - Analytical Process (the "Are We Achieving GPV? Process")
    - How and when to use Performance Measures?
        - Gauge Plans; Gauge Department Management/Implementation
        - Annually; Decadal anniversaries

Performance Measures Specifics (metrics):

- What occurs through the Department's planning processes to ensure as much of what you do is captured by local communities?
    - *Public involvement is a major piece of the development and adoption of the forest management plan and implementation plans. Ongoing meetings with FTLAC and SFAC, as well as public input processes during the annual operating plans will continue to in order to ensure involvement by interested stakeholders. New economic research studies initiated by Oregon Department of Forestry in Tillamook, John Day, Coos Bay and other locations will also help the program understand the importance of state forestland to local communities, and help identify economic and social benefits to these communities.*

- There is a difference between revenue being generated for counties and the responsibility and connection to communities that benefit from our forests.
    - Are we measuring the trends for people that get income from forests?
        - *A research study has been initiated with OSU to begin to better understand non-market economic effects of state forestlands on local communities. The outcomes of that study are anticipated to provide the Board with additional information on this topic.*
    - A set of indicators will tell us if we're achieving the economic goals in communities adjacent to forests.
- Important to look at a longer-term trend on harvest contribution over time …past and present (for example, how much different are the modeling projections from what was harvested over the past 10 years?)
- Where is the tipping point in terms of how far can we push timber harvest without doing long-term harm to environmental and social values?
- What do we know about the performance of the FMP relative to maintaining and restoring habitat (review of data collected since plan adoption vs. review of assumptions)?
- Harvest levels – meeting expectations vs. combined sustainability of economic, environmental, and social values.
- Can the Board construct a model that can ultimately affect federal management?
- Are we thinking broadly enough about the social measures given the very high level of passion many have for these other forest values?
- Are the economic indicators the right place to house the community benefit measures? Community benefits manifest themselves a number of ways—economically, environmentally, and socially. Ideally, it is possible to develop community benefit performance measures in each of these categories.

V. NEXT STEPS

This issue paper has explored key issues that have been raised throughout the recent Board discussions on the FMPs. The ultimate goal of the process initiated by this issue paper is for the Board to either confirm the continuation of current policy direction, or consider alternative policy direction in the context of better assurances towards meeting GPV. With this in mind, the proposed next steps include the following:

Step 1: Board of Forestry discussion, clarification, and consensus on the "Key Issues" of each major issue identified. Included in this discussion is the identification of any other issues that may not have been included within this issue paper.

Step 2: Board of Forestry clarification and decision on draft Performance Measures, ensuring that performance measures are developed that encompass all the key issues ultimately identified in Step 1.

Step 3: A feasibility analysis of the draft Performance Measures by the Department, and subsequent review by the Board. The Board will then finalize the Performance Measures based on information from this analysis.

Step 4: Report on the adopted Performance Measures, and an evaluation by the Board to determine adequacy in meeting GPV. Possible outcomes include:

- Outcome #1: Some or all performance measures can currently be reported on, and the Board determines GPV is being met.
- Outcome #2: Some or all performance measures can currently be reported on, and the Board determines GPV is *not* being met.
- Outcome #3: Some or all performance measures cannot currently be reported on, and the Board determines that an evaluation of whether or not GPV is being met cannot be made until additional information is available.

Outcome #1 would result in the continuation of the implementation of the current FMPs.

Outcome #2 may not immediately lead to an FMP amendment process, depending on which Performance Measure(s) is the basis of the determination that GPV is not being met. What it would lead to is an examination of the cause-and-effects behind the relevant Performance Measure(s) to determine possible remedies (implementation issues, FMP amendments, additional monitoring or research needed, etc.).

Outcome #3 would result in continued efforts by the Department to implement the methodologies and/or the collection of data necessary to adequately report on the Performance Measures.

Once the Performance Measures are put into place, regardless of which outcome occurs, the measures would continue to be reported on to the Board at regular intervals in the future to allow for a predictable and systematic method for ensuring the evaluation and achievement of GPV on State forestlands.

VI. CLOSURE

The following timeline is proposed for bringing this issue paper process to closure, and the adoption and implementation of Board Performance Measures for State Forest lands:

November 2006, Board Workshop:

- Completion of Step #1 described above: Board discussion, clarification, and consensus on the "Key Issues" of each major issue identified. Included in this discussion is the identification of any other issues that may not have been included within this issue paper.
- Partial completion of Step #2 described above: Board clarification and decision on draft Performance Measures, ensuring that performance measures are developed that encompass all the key issues ultimately identified in Step 1.

January 2007, Board Meeting:

- Completion of Step #2.
- Department to initiate Step #3, in preparation and support of the Board finalizing Performance Measures.

March 2007, Board Meeting:

- Completion of Step #3: A feasibility analysis of the draft Performance Measures will be presented by the Department, and reviewed by the Board. The Board will then finalize the Performance Measures based on information from the feasibility analysis.
- Department to initiate Step #4, in preparation and support of the Board evaluation of the first report on the finalized Performance Measures.

June 2007, BOF Meeting:

- Completion of Step #4.
- Report on the adopted Performance Measures and an evaluation by the Board to determine adequacy in meeting GPV.
- Depending on the outcome of this evaluation, the Department will then begin follow-up work necessary (see summary of Step #4 under "V. Next Steps" above).

APPENDIX A

BOARD OF FORESTRY INTENT STATEMENT

ON ADOPTING THE

NORTHWEST AND SOUTHWEST FOREST MANAGEMENT PLANS

Purposes of the Board of Forestry Intent Statement:

- To provide a historic context for the Board of Forestry (BOF) decision about the Northwest (NW) and Southwest (SW) Forest Management Plans (FMPs).

- To provide the public, media, interest groups and the counties with an understanding about the intent and expectations of the Board as they adopt these FMPs.

- To provide future policy makers with information that will help them understand the rationale and intent of the current BOF in adopting the NW and SW FMPs.

- To express a set of expectations about what benefits these FMPs will achieve over time and BOF expectations about the processes that will be utilized by the Oregon Department of Forestry (ODF).

The Oregon Board of Forestry Intends that:

1. In adopting these FMPs, the Board is defining a pathway toward a desired future condition that will provide a full range of economic, social and ecological values. In this context, the Board retains options for future policy makers and for the citizens of Oregon, in the event that they decide to adjust the policy direction for state forests. The Board intends that future Boards will, within this historical context, continue to retain policy options.

2. Ecosystem restoration and watershed health are important components of achieving "healthy, productive and sustainable forest ecosystems that produce a full range of social, economic and ecological benefits".

    - A full range of social, economic and ecological benefits include:

        - Sustainable and predictable timber and revenues for the benefit of the local governments and schools;
        - Properly functioning aquatic habitats for salmonids, and other native fish and aquatic life;
        - Habitats for native wildlife;
        - Productive soil, and clean air and water;
        - Protection against floods and erosion; and
        - Recreation

3. Integrated forest management and Structure- based Management, through active management, as described in the FMPs, are pathways to achieve greatest permanent value across the landscape and over time.

    - Under the NW FMP, initially 15-20% of the planning area will be classified as special stewardship. This means integrated forest management of all forest resources is precluded on these lands, and they are committed to a specific use, and management activities are limited to those that are compatible with the specific use.

4. Timber harvests will be conducted across a range of forest conditions and forest age classes, consistent with achieving desired future condition as described in the FMPs. Until the desired future condition of stand types in a district is achieved, existing older forest structure stands will not be removed in areas that are designated as OFS in desired future condition in District Implementation Plans.

5. The adopted FMPs will provide a high level of social values that include family wage jobs and benefits, and diverse recreational opportunities.

6. The District Implementation Plans will reflect the principles and assumptions contained in OSU model run 1C-2, and will aggressively treat Swiss Needle Cast (SNC), consistent with the SNC Strategic Plan.

7. ODF will clearly identify on-the-ground constraints and fully evaluate how to minimize these operability constraints using consultants or through consultations with forest landowners, or both, in order to improve the efficiency and effectiveness of the FMP. ODF will expedite as quickly as possible, on-the-ground applications of the

adopted FMPs, district implementation plans and land management classification system.

8. ODF should continue pursuing the Western Oregon Habitat Conservation Plan (HCP)with the following guidance:

   - Clearly understand the economics of an HCP, to allow a re-valuing of state forests with and without an HCP.
   - The HCP will allow for full implementation of the FMPs and result in a net benefit to the State and counties over a plan with a "take avoidance" strategy for listed species.
   - If adopted, the HCP will be re-evaluated during each ten-year comprehensive review. This will include (a) an evaluation of the State's ability to fully implement the FMPs under the HCP, and (b) an assessment of the short-term and long-term economic costs and benefits of the HCP strategies, including any proposed amendments, in comparison to alternative ESA compliance mechanisms available to the State at that time. Based on the outcome of the re-evaluation, the Board will consider whether it is in the State's and counties' best interests to continue with the HCP.
   - Mitigate legal issues through the development of a comprehensive Implementing Agreement that provides for an "out" clause and excludes current and short-term planned operations from the HCP.
   - Continue to have a rigorous level of operational review of HCP strategies to ensure against major surprises during implementation. This includes ground-truthing key strategies and results from modeling efforts.
   - As ODF negotiates an HCP with the U. S. Fish and Wildlife Service, and the National Marine Fisheries Service, the Department will remain principle centered, be honest and open, and work towards high trust working relationships which will carry forward into the implementation process.
   - Include adaptive management strategies in the HCP, and be clear about how they will be utilized and the responsibilities of each party.
   - Increase the effort at the federal policy level to ensure policy commitment to the proposed HCP currently being developed at the technical level.

9. Prior to completion and approval of a HCP and issuance of an Incidental Take Permit for covered species, the Department will continue to apply "take avoidance" strategies for listed species as the FMPs are implemented, to assure compliance with state and federal ESAs.

10. Consistent with OAR 629-35-0020, which requires a ten year review of FMPs "...in light of current social, economic, scientific, and silvicultural considerations..." the Board will make appropriate adjustments in the policy direction for Board lands

within the planning areas. At the completion of the initial ten-year implementation period, and every ten years thereafter, ODF should compile a ten-year Implementation and Monitoring Report for the BOF and the public. This report should summarize the management activities that have occurred over the period, the results of monitoring and research efforts during that time, and any proposed changes to the FMP strategies to better meet the goals.

11. For purposes of long range and intermediate planning, the Department should use the desired future conditions (stand structure array) described in the FMP and express them as working hypotheses. The allocation of layered (LYR) and older forest structure (OFS) stands should be rotated over time and across the landscape within the planning area. Before reaching 30% (combined LYR and OFS) in total across the landscape, and as part of a ten-year review, ODF will analyze and evaluate the scientific basis for the desired future condition to determine if FMP goals are being achieved. Examples of the types of issues that will be evaluated include:

    - What was learned about species responses to specific activities, and to the stand structures, and the implications of this information to the FMP.
    - The status of developing habitat and the extent to which species are colonizing and using that habitat.
    - The ability of ODF to meet the range of resource goals described in the FMP.
    - The ability of ODF to produce "Sustainable and predictable production of forest products that generate revenues for the benefit of the state, counties, and local taxing districts…"

    Based on these results, the Board will decide what, if any, adjustments need to be made to the desired future condition (stand structure array) in order to achieve FMP goals.

12. Watershed assessment and analysis as defined in the FMPs are part of the adaptive Management program, and ODF should pursue legislative funding in order to more rapidly complete watershed assessment. However, absent additional legislative funding, ODF will invest in watershed assessment and analysis at a pace consistent with available funding. During the time watershed assessment and analysis are being completed, ODF will use existing FMP strategies and any alternative management strategies, e.g., anchor habitat strategies, under an approved HCP, as the basis for management activities. Therefore activities including timber harvests that are planned or on-going will not be delayed while watershed assessment and analysis are underway.

13. Watershed assessment and analysis are adaptive management tools to work towards achieving Greatest Permanent Value (GPV) on BOF lands as defined by the State Forest Management Policy and Planning Administrative Rules. Implementation of the FMPs will be adjusted and improved based on the results of watershed assessments. Adjustments will be made at the appropriate operational or policy level, depending on significance and scope.

14. ODF will continue to have public involvement and participation opportunities as the FMP is implemented. ODF will develop a Citizens Participation Plan so that the public and interests can better understand how they can become involved. The Department will continue to provide information to the public as the two FMPs are implemented.

15. ODF will collaborate with other agencies as appropriate to conduct the necessary level of monitoring, watershed assessments and analysis and research to validate key assumptions and to address key monitoring questions. Sufficient revenues should be available to re-invest in monitoring and research activities on the lands to achieve the goals of the FMPs. FMPs are documents that promote modifications and refinements of key strategies over time as new information is available.

16. ODF will manage state forests in a cost efficient, effective, and sustainable manner.

17. State forests will contribute to ecological goals at the landscape level to the extent that such contributions are compatible with administrative rules defining greatest permanent value.

18. ODF will establish a baseline and periodically estimate total carbon stores in above and below ground carbon pools on state forestlands. The purpose is to measure how the implementation of the forest management plan increases carbon sequestration by state forests beyond what would occur in the absence of NW and SW FMP adoption. ODF will also pursue available compensatory mechanisms, such as carbon dioxide emission offset credits, which may provide direct benefit to the State and the beneficiaries for increases in carbon storage that result from plan implementation.

APPENDIX B

As Adopted by the Board of Forestry, January 3, 2001

Board of Forestry Findings
Northwest and Southwest Oregon Forest Management Plans

The Oregon Administrative Rules on State Forest Management Policy and Planning (OAR 629-035-000 through 629-035-0110), also known as the Greatest Permanent Value (GPV) Rule, defines greatest permanent value and prescribes the key components of forest management plans. The OAR on Forest Management Planning (629-035-030(5)) notes that "The Board's approval of the plan represents its determination that activities carried out or allowed by the State Forester under subsection (6) of this section meet the obligation to secure greatest permanent value to the state as defined in OAR 629-035-0020." Subsection (6) noted that "Once the management plan is approved by the Board as provided for in subsection (5) of this section: (a) The Board shall adopt the plan as an administrative rule and (b) The State Forester shall implement the plan through more specific, small scale and time limited plans that are consistent with the Forest Management Plan."

The purpose of these findings is to document the Board's determination that the Northwest (NW) and Southwest (SW) Forest Management Plans (FMPs), as adopted, meet the obligation to secure greatest permanent value to the state as defined in OAR 629-035-0020.

These findings include three parts. Part 1 relates to a set of standards that are referenced in OAR 629-035-0030 (regarding forest management planning). Part 2 concerns the definition and elements of achieving greatest permanent value (OAR 629-035-0020). Part 3 relates to public involvement and consultation with the Forest Trust Land Advisory Committee.

PART 1 – STANDARDS FOR FOREST MANAGEMENT PLANNING (OAR 629-035-0030)

The Board of Forestry finds that the NW and SW FMPs:

1. **Were developed based on the best available science and represent a general management framework for the NW and SW planning areas. These plans were developed with a high level of participation and cooperation from the Oregon Department of Fish and Wildlife, and through technical consultation and peer review by numerous scientists.**

2. **Contain the following elements:**
   a. A set of guiding principles, including legal mandates and Board of Forestry policy that have provided appropriate guidance for the development of these plans.
   b. A valid description and assessment of the resources on state forest lands in these planning areas and consideration of the surrounding ownership in order to provide a landscape context.

c. Appropriate statements about what the State Forester intends to achieve for each forest resource, expressed as forest management goals;
d. Appropriate descriptions of management strategies which describe how the State Forester will manage the forest resources in the planning area to achieve the forest resource management goals.
e. General guidelines for asset management which provide overall direction on investments, marketing, and expenses.
f. General guidelines that provide adequate direction for implementing the NW and SW FMPs, and for monitoring, research, and adaptive management, including the approach and process for testing key assumptions and to determine whether strategies are meeting the goals.

3. Have been guided by a set of stewardship principles in the development and implementation of the NW and SW FMPs.

a. The plans include a set of active management strategies that:
   i. Contribute to biological diversity at the landscape level and over time.
   ii. Manage forest conditions in a manner that results in a high probability of maintaining and restoring properly functioning aquatic habitat for salmonids and other native fish and aquatic life.
   iii. Protect, maintain, and enhance native wildlife habitat, in a context of a dynamic forest environment.
   iv. Provide for healthy forests.
   v. Maintain and enhance long term forest soil productivity.
   vi. Comply with federal and state laws pertaining to state and federally listed threatened and endangered species.
b. The plans include strategies that through implementation will produce sustainable levels of timber harvest, consistent with protecting, maintaining, and enhancing other forest resources.
c. The plans include strategies that describe the application of management practices to enhance timber yield and value while contributing to the development of a diversity of habitats for maintaining salmonids, and other native fish and wildlife species.
d. The plans include strategies that utilize the best scientific information available to guide forest resource management actions and decisions by:
   i. Using monitoring and research to generate and utilize new information as it becomes available.
   ii. Employing an adaptive management approach to ensure that the best available knowledge is acquired and used effectively in forest management plans.

PART 2 – ACHIEVING GREATEST PERMANENT VALUE (OAR 629-035-0020)

1. The Board of Forestry finds that the NW and SW FMPs provide for:

a. Maintaining these lands as forest lands.
b. The appropriate management focus that promotes actively managing these lands in a sound environmental manner to provide sustainable timber harvest and revenue to the state, counties, and local taxing districts. This management focus is not exclusive and will be pursued in a broader management context that will:
   i. Result in a high probability of maintaining and restoring properly functioning aquatic habitats for salmonids and other native fish and aquatic life.
   ii. Protect, maintain, and enhance native wildlife habitat.
   iii. Protect soil, air, and water.
   iv. Provide for outdoor recreation opportunities.

2. **Further, the Board of Forestry finds that the management practices that flow from the implementation of the NW and SW FMPs will:**
   a. Pursue compatibility of forest uses over time.
   b. Integrate and achieve a variety of forest resource management goals.
   c. Achieve site-specific goals for resource resources.
   d. Appropriately consider the landscape context.
   e. Incorporate an adaptive management approach.

PART 3 – PUBLIC INVOLVEMENT AND CONSULTATION WITH THE FOREST TRUST LAND ADVISORY COMMITTEE (OAR 629-035-0080 and 629-035-0090)

1. **The Board finds that the State Forester has successfully implemented an outstanding public involvement effort that successfully fulfilled the goals for public involvement that are described in OAR 629-035-0080.**

2. **The Board also finds that the State Forester has appropriately involved the counties in the development of these FMPs and has fully met the obligations to consult with the Forest Trust Land Advisory Committee as described in OAR 629-035-0090.**

SUMMARY STATEMENT

The Board finds that the State Forester has appropriately utilized a comprehensive scientific process which has included numerous and ongoing technical consultations with scientists, involvement of ODFW biologists, informal peer review, and an independent scientific review, coordinated by OSU, to develop the NW and SW FMPs. The Board acknowledges that scientific input was wide-ranging and there was lack of complete agreement on all components of the FMPs among peer review scientists. However, the Board finds that the State Forester has reached appropriate and defensible conclusions from the comprehensive scientific input that has been incorporated into the FMPs.

The Board finds that the State Forester has involved the public and the Forest Trust Land counties in a manner that has allowed for meaningful input, which has improved the overall quality of the FMPs. This effort with the public and the counties has included two advisory committees, numerous public meetings, and field trips for the public, involvement of county representatives on advisory committees and Steering Committee, and significant opportunities for the public, interest groups, and the counties to testify at Board of Forestry meetings and provide written comments.

The Department has appropriately utilized scientific information, public input, and advice from the counties to revise and improve draft plans over time. In addition, the Department has provided the Board with analytical information, such as the OSU economic analysis, issue papers, and an analysis of how well the FMPs achieve greatest permanent value in order to help frame and clarify the policy choices for the Board.

The Board finds that implementation of the strategies in the forest management plans will result in longer average stand rotation ages than under previous forest management plans, and that these older stands will effectively increase stored carbon levels beyond what would have occurred under previous management plans. This will occur because of increases in standing forest inventory and biomass on these lands as the forests are managed towards the desired future condition.

Based on the comprehensive scientific, public and analytical processes that were utilized to develop these plans, the Board finds that the NW and SW FMPs:

1. Contain the appropriate components as prescribed in OAR 629-035-0030.

2. Meet the policy standards that are described in OAR 629-035-0020, 629-035-0080, and 629-035-0090.

3. Will achieve greatest permanent value (OAR 629-035-0020) by providing for 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.

APPENDIX C

Summary of Riparian Protections: Oregon Forest Practices Act rules and the NW and SW Forest Management Plans

Stream Type	Stream bank Zone: 0-25 feet	Inner RMA: 25-100 feet	Outer RMA: 100-170 feet
FMPs: F-Type Streams	No Harvest	Manage for Mature Forest Condition* (MFC)	Retain 10-45 Trees (15-70 trees/1000') <10% ground disturbance
FMPs: Small, Medium, and Large streams	Less than 10% vegetative disturbance No ground based equipment, full suspension	No Management where MFC* already exists 15-year mgmt entry interval Restrictions on operations	Retain all snags and down wood present prior to operation
FPA standards	No Harvest 0-20 feet	Large stream: 100-ft RMA; 230 ft^2 basal area/1000 ft Medium stream: 70-ft RMA; 120 ft^2 basal area /1000 ft Small stream: 50 ft RMA; 40 ft^2 basal area/1000 ft	No retention required beyond 50, 70, or 100 feet.
FMPs: N-Type Streams	No Harvest	Manage for MFC*	At least 10 conifers/acre (15 trees/1000 ft)
FMPs: Large and Medium N-Type	Less than 10% vegetative disturbance No ground based equipment, full suspension	No Management where MFC* already exists 15-year mgmt entry interval Restrictions on operations	Retain all Snags and down wood present prior to operation
FPA standards	No Harvest 0-20 feet	Large stream: 70-ft RMA; 90 ft^2 basal area /1000 ft Medium stream: 50-ft RMA; 50 ft^2 basal area /1000 ft	No retention required beyond 70, or 100 feet.

*MFC = Mature Forest condition defined as consisting of a stand dominated by large conifer trees, or where hardwood-dominated conditions are expected to be the natural plant community, a mature hardwood/shrub community. For conifer stands, this equates to a basal area of 220 square feet ore more per acre, inclusive of all conifers over 11 inches DBH. At a mature age (80-100 years or greater), this equals 40-45 conifer trees 32 inches in DBH per acre.

Stream Type	Stream bank Zone: 0-25 feet	Inner RMA: 25-100 feet	Outer RMA: 100-170 feet
N-Type Streams (continued)			
FMPS: Perennial	No Harvest, No ground based equipment	Retain 15-25 trees/acre; 25-40 trees/1000 ft, all snags and down wood	0-10 trees/acre; 0-15 trees/1000feet
FMPs: Seasonal High Energy	No Harvest, No ground based equipment	15-25 Conifers; 25-40 trees/1000 feet, all snags and down wood	0-10 trees/acre; 0-15 trees/1000feet
FMPs: Seasonal Potential Debris Torrents	No Harvest, No ground based equipment	10 Conifers; 15 trees/1000 feet, all snags and down wood	Retain trees and snags sufficient to meet landscape management strategy targets.
FMPs: Other	Maintain stream channel integrity; No ground based equipment	10 Conifers; 16 trees/1000 feet, all snags and down wood	Retain trees and snags sufficient to meet landscape management strategy targets.
FPA standards	No disturbance of bed and banks; minimize inputs of slash to the stream.		

APPENDIX D

Draft FMP Performance Measures

SOCIAL

VALUE	TARGET	INDICATOR	MEASUREMENT
Community Benefits	Provide a wide range of benefits that meet community needs and expectations	Areas managed for recreational purposes in state forests	Acres
		Indirect employment effect in local communities	Multiplier effect
		Social services in local communities provided by State Forests revenues	$ or # people
		Annual visitation to the Tillamook Forest Center	Number
		Number of people attending formal education programs at the Tillamook Forest Center	Number
		Contributions to programs by volunteer and community participants	Hours
		Indirect employment effect in local communities	Multiplier effect
		Oregonians rating State Forests Program as competent and effective in management	%
		Opportunities for input into process and decisions and actual participation given those opportunities	Number
		Maintenance of existing campsites and the number of developed and maintained campsites described in annual operations plans	Number
		Maintenance of existing motorized and non-motorized trail network, and miles of non-motorized and motorized trails developed and maintained as described in annual operations plans	Miles

ENVIRONMENTAL

VALUE	TARGET	INDICATOR	MEASUREMENT
	Maintenance of ecosystem health and vitality	Forests affected by invasive species, pests and disease (moderate to severe damage)	Acres
		Area of forests burned by uncharacteristic wildfire	Acres
	Conservation and maintenance of soil and water resources	Road mileage surveyed with hydrologic connection to streams	%
		Known fish stream crossings (Type F streams) with barriers to adult and juvenile migration.	%
	Maintain and enhance native fish and wildlife habitats	Residual live tree retention and downed wood that falls within the range permitted for regeneration harvest in the forest management plans	Cubic feet per acre in regeneration harvest units
		Number of snags retained or created during harvest activities across the landscape	Number
		Standing volume by structure type	MMBF per structure type
		Habitat use/effectiveness of several forest wildlife species (need to select indicator spp., guilds, etc.)(Project plan being developed)	Use by species
		Population trends of rare, endangered or vulnerable plant and animal species in state forests	Number

ECONOMIC

VALUE	TARGET	INDICATOR	MEASUREMENT
Return		Return on asset value[3]	% (range)
		Asset value of roads	$
		Asset value of facilities (buildings, recreation sites, etc.)	$
Productivity	Sustainability	Special forest product permits issued	$ or #
		Forest available for timber production	Acres
		Forest revenues generated for the counties with Oregon state forestlands and the Common School Fund	Dollars
		Relationship of forest biomass growth to forest biomass harvested	mmbf
		Forest-related personal income tax revenues to state and local governments from timber sale operations on state forestlands	$
		Employment/unemployment rates in timber dependent communities	%
		% of SF harvest flowing to timber dependent communities in OR with high unemployment	%
Revenue		Contributions to local economies from non-timber related uses (fishing, recreation, etc.)	Dollars
Log flow		Forest related returns to schools, local, county, state governments	Harvest tax; Property taxes on mills, forest lands; corporate income tax from forest related industries
Living wage		Logs from SF to various destinations by harvest type	% or volume
		Forest sector employment wages relative to the cost of living in the community or other wage earning sectors	$
		Forest work captured by local people (i.e., not the mobile workforce)	%

[3] Return on asset value (ROAV) would currently be based on economic value related to timber production, but has the potential in the future to be based on any commodity off of State Forest lands that generated revenues. See Appendix E for more information on current methods for calculating ROAV.

APPENDIX E

Draft Performance Measure Example: Return on Asset Value – State Forestlands

Background

RETURN ON ASSET VALUE (ROAV)
ROAV is the most common financial performance indicator when complete data is available, including information on current market appraisal values, annual expenditures, and annual revenues generated. ROAV measures return compared to land value. It allows for comparisons with similar business returns and financial instruments. Oregon Department of State Land's Asset Management Plan establishes an ROAV target of 3–5% for the overall real estate portfolio, which includes both forest and non-forestlands. This target is based on partial data and will need to be adjusted as more data is compiled. The Department considers the 3–5% target to be a reasonable goal for the planning period. The ROAV target will be recalculated at least every five years.
(Source: Oregon Department of State Lands Draft 2006 Asset Management Plan)

Between 1994 and 1996, 10 western states generated a combined average of $5.56 for every $1 spent managing trust lands, whereas the Forest Service lost 70 cents and the BLM lost 6 cents on every dollar spent managing the national forests and BLM lands. (Source: Fretwell, Holly Lippke. 1998. *Public Lands: The Price We Pay*. Bozeman, MT: Political Economy Research Center, August).

Federal lands and state trust lands

	Acres (Millions)	Annual Revenue ($ millions)	Returns to state ($ millions)
Forest Service	192	1,000	465
BLM	270	187	142
Park Service	80	97	1
Fish & Wildlife Service	90	8	5
State Trusts	*135*	*4,500*	*3,500*

(Source: Souder and Fairfax, 1996.)

Calculating return on asset value – numerous ways to calculate
Bruce Lippke – University of Washington
Estimate several ROA's and sort out which ones will be most stable over time, inflation being one of the more important complications. Also of great importance will be what asset value you associate with regulatory or policy constraints. Log export constraints, buffers, and other set asides all have the impact of reducing the market value of the asset yet a Board should understand the impact of those constraints, not just the impact on the non-constrained land.

Montana administrative rule
15-44-103. Legislative intent -- value of forest lands -- valuation zones.

..." the Department shall determine the productive capacity value of all forest lands in each forest valuation zone using the formula V = I/R, where:

(a) V is the per-acre forest productivity value of the forest land;

(b) I is the per-acre net income of forest lands in each valuation zone and is determined by the Department using the formula I = (M x SV) + AI - C, where:

(i) I is the per-acre net income;

(ii) M is the mean annual net wood production;

(iii) SV is the stumpage value;

(iv) AI is the per-acre agriculture-related income; and

(v) C is the per-unit cost of the forest product and agricultural product produced, if any; and

(c) R is the capitalization rate determined by the Department as provided in subsection (6).

ROAV - Montana, Idaho, Minnesota, Washington, and Oregon

Montana – state forestlands – (goal is to "manage the State of Montana's Trust Land resources to produce revenues for the Trust beneficiaries while considering environmental factors and protecting the future income-generating capacity of the land.")
Return on Asset Value (ROAV)

- 2000 – 5.7%
- 2001 – 4.8%
- 2002 – 2.96%
- 2005 – 4.9%

Idaho state forestlands - (goal is to "provide maximum long-term financial return" to school and beneficiary institutions). The policy decision on the appropriate interest rate is critical to the ROAV calculation. For example, using a 4% discount rate, Idaho's land expectation value is $1 billion, ROA is 5.7%; and using a 5% discount rate, the land expectation value is $700 million, ROA is 8.5%. The following were calculated using a 4% discount rate:

- 1999 – 6.2%
- 2000 – 6.2%
- 2001 – 4.2%

Minnesota – 2.5 million acres (1.5 million acres is classified as commercial forest) – trust is defined by state statute – goal is to "secure the maximum long-term economic return from school trust lands, consistent with the fiduciary responsibilities imposed by the trust relationship established in the Minnesota Constitution, with sound natural resource conservation and management principles . . ."

- From 1983–1992, forest management costs exceeded revenues earned from the land. Since 1992, revenues have exceeded costs.
- Return on asset value <1% in recent years.

How can return on asset value be improved?

1. Reduce the timber cutting age
2. Use the target rate of return as a guide
3. Invest in thinning, fertilization, and planting
4. Use different land classifications – not all acres are expected to meet the maximum long-term financial return mandate because other values such as scenic viewsheds, wetlands, or recreation areas/interpretive facilities may be more important.

Oregon – DSL's asset management plan – "manage forestlands primarily to produce a sustainable, even-flow harvest of timber, subject to economic, environmental and regulatory considerations, according to specific plans developed by forest managers. These plans will be prepared by the land manager (e.g., ODOF for certified Forest lands; the Department for de-certified Forest lands) and approved by the Land Board. Secondary uses (for example, communication sites, grazing, pipeline easements, and public recreation or road rights-of-way) are allowed as long as they do not substantially interfere with the primary use."

- Performance measure – 3-5% ROA

Washington – does not yet assess ROAV – is conducting a study called the Washington Forest Futures: Economic Contribution Study

University of Washington staff will assess the current role of the primary and value-added wood industries in the Washington economy and their relative contributions over time, based on the state's sector level data, and project their likely contribution in the near future using input from the Timber Supply and Forest Structure Study. They will link investment potential to future economic contributions and their impact on value-added wood industries and classes of forest landowners. While changes in definitions have compounded the problem of developing statewide economic models, the available data sets provide insights into the changing structure of the forest sector, its disparate owners, and the state's economy. They anticipate outputs as follows:

- Description of the role of the forestry and forest products sector and its various ownerships in the economy of Washington.
- Analysis of the economic contribution of the forest products industry on a regional basis (including timber-dependent regions and communities relative to urban areas).
- Description of changes over time in key drivers at both the state and county level, using urban and rural distinctions.
- Projection of the contribution of forestry and logging, primary manufacturing, and secondary manufacturing into the near future.
- Analysis of regional economic and productivity trends such as wage costs and productivity across stages of processing.
- Economic impact analysis table (gross product, income, direct and indirect jobs, and taxes) related to forest sector activity levels.
- Business-as-usual projection for the Washington forest products sector, identifying those factors and policies that constrain investment within the industry.