Agenda Item No.:	8
Work Plan:	State Forests Work Plan
Topic:	State Forests Management
Presentation Title:	Western Oregon State Forests Draft Forest Management Plan
Date of Presentation:	June 6, 2024
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CONTEXT

Forest Management Plans provide the overarching management direction for State Forests. These plans are developed pursuant to Oregon Administrative Rule and are adopted by the Board of Forestry to codify the Board's finding that management direction meets Greatest Permanent Value (OAR 629-035-0030).

The draft FMP under consideration by the Board is implemented under an adaptive management framework in which the monitoring of outcomes enables learning and improvement of management strategies. To this end, an Adaptive Management Plan (AMP) will accompany the FMP as stated in the implementation guidelines in the FMP (Attachment 1).

The draft AMP and the accompanying performance measures were presented to the Board at the September 2023 meeting as part of the Forest Management Plan update (Attachment 2).

Draft Adaptive Management Plan and Performance Measures

As written in the draft FMP guidelines, the draft AMP offers direction and administration for (1) facilitating decision analysis and adaptive management; (2) designing monitoring; (3) reporting monitoring results, analyses, and decisions; and (4) identifying and integrating information and decision needs within state forest lands. The need for an AMP comes from the expanded scope of this FMP that includes adaptive management as a key tenet of its management approach, a companion HCP with extensive monitoring requirements, and a commitment to accountability to the Board and all Oregonians. Monitoring, reporting, and decision-making support will be continuously updated in the AMP and reported in a more nimble and integrative manner that enables timely management responses to new information.

A new set of performance measures will also accompany the FMP (Attachment 3). Performance measures are a select set of metrics that the Board will use to evaluate management outcomes with respect to the objectives and intent expressed through the FMP guiding principles, management approach, and goals. The ten performance measures listed below have component metrics that will be monitored and reported under the process described in the AMP. While performance measures do not encompass all aspects of the Division's monitoring and reporting, their purpose is to provide an up-to-date

dashboard for the Board and others to track management outcomes and commitments readily across a broad range of ecosystem services provided by State Forests.

Quantifiable targets and acceptable ranges designated by the Board for performance measures' components can indicate whether FMP strategies are working as intended to provide Greatest Permanent Value (GPV). Targets are intended to inform the Board, the Division, and others of potential over- and under-performance but are not considered as hard constraints on management activities in isolation. The Division is tasked with considering all the goals and strategies, addressing trade-offs, and meeting GPV when implementing the FMP and responding to performance measures.

<u>Performance Measures</u> (arranged alphabetically)
- Adaptive Capacity of Forests
- Aquatic Habitat
- Carbon Storage
- Community Engagement and Public Support
- Cultural Resources (new from September version)
- Division Finances
- Economic Opportunities
- Financial Support for Counties
- Harvest and Inventory
- Recreation, Education, and Interpretation Opportunities
- Terrestrial Habitat

RECOMMENDATION

Information only.

NEXT STEPS

Over the next several months, the Division will:

1. Take feedback received from the Board and Forest Trust Lands Advisory Committee (FTLAC) at the June 6th, 2024, meeting and return with revised final performance measures for Board Approval.
2. Work with the Board and FTLAC through facilitated work sessions to generate scenarios for FMP implementation that Division staff can model to generate a range of potential performance measure outcomes.
3. Work with the State Forests Advisory Committee and public to gather feedback on the draft scenarios.
4. Obtain approval from the Board on the final scenarios and move forward with modeling the range of scenarios.
5. Work with the Board and FTLAC through facilitated work sessions to review and discuss tradeoffs associated with draft performance measure outcomes from the modeled scenarios.
6. Obtain final performance measure targets or thresholds from the Board to guide development of initial Implementation Plans for the new FMP.

ATTACHMENTS

1. Draft Western Oregon State Forests Management Plan Implementation Guidelines
2. September 2023 Forest Management Staff Report to the Board of Forestry
3. Draft Performance Measures

Guidelines

This chapter describes the processes for implementation and revision of the Western Oregon State Forests Management Plan (FMP).

4.1
Asset Management Guidelines

Assets,[1] as they are discussed in this section, are the tangible resources and infrastructure (e.g., parcels of land, forest products, forest roads and related improvements, trails, campground facilities) on state forest lands. Maintaining or enhancing value of assets described in this plan is fundamental to long-term sustainability of resources described in the greatest permanent value (GPV) rule (Oregon Administrative Rule [OAR] 629-035-0020) such as timber, revenue, aquatic and wildlife habitat, and recreation. The asset management guidelines discussed in this section align with the Oregon Revised Statutes (ORS), OAR, and Oregon Department of Forestry (ODF) policy.

Implementation of the FMP will be consistent with these guidelines to ensure that the asset value of the forest is maintained or enhanced. The guidelines are influenced by the following implementation priorities under which the State Forests Division (Division) is operating.

- Conserve forest lands by maintaining the state forest land base.

- Maintain a land exchange and acquisition program to consolidate state forest lands for management efficiencies, economic values, or enhanced stewardship.

- Implement marketing strategies that increase the value of forest products.

- Prioritize and invest in stand management activities that increase quality and quantity of timber and enhance other ecosystem services.

- Maintain, develop, and protect investments in infrastructure such as roads, bridges, and facilities, while recognizing that in some cases investments may need to be moved, removed, or decommissioned.

- Maintain existing assets that support recreation, education, and interpretation activities, while recognizing that in some cases investments may need to be moved, removed, or decommissioned.

- Maintain investments in forest inventory, geographic information system (GIS) technologies, and timber harvest-tracking technologies that support planning and implementation processes and contribute to adaptive management.

- Prioritize and undertake investments in research and monitoring consistent with Section 4.3, *Decision-Making, Adaptive Management, Monitoring, and Research Guidelines*.

- Maintain a budgeting and financial management system that tracks revenues and expenses and aids in financial decision-making.

- Implement and maintain accountability strategies and systems that ensure the state and other beneficiaries receive anticipated financial and other benefits from the forest.

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[1]	Terms underlined in this document are defined in the Glossary. Defined terms are underlined at the first instance in each chapter.

4.1.1
Implementation Priorities

Funding levels for plan implementation vary with cyclical economic trends. FMP implementation is primarily funded through timber harvest revenues. There may be periods where revenues limit funding.

Annual budget instructions for developing fiscal budgets reflect the Forest Development Fund (FDF) balance and the projected FDF balance. The highest level of implementation and investment occurs when the FDF balance exceeds 12 months of operating expenses, and the balance is forecast to be relatively steady or increasing. The lowest level occurs when the FDF balance is less than 6 months of operating expenses, and the balance is forecast to decrease (**Table 4-1**). To avoid service level decreases, ODF may seek external federal, state, and non-governmental organization (NGO) funding sources, such as grants or legislative funding through policy option packages or legislative concepts. **Table 4-1** shows the forest management investment levels based on the revenue forecast and FDF balance. External funding sources should be considered at investment level 2 and pursued if the investment level is projected to be at level 3 or level 4.

4.2
Implementation Guidelines

The FMP, approved by the Board of Forestry (BOF), identifies the resource management goals and strategies that are intended to achieve an appropriate blend of resources. GPV is achieved through integration of forest management activities through ecologically sustainable management and using an adaptive framework across western Oregon state forests. The FMP does not focus on a single objective, but considers several key social, environmental, and economic goals at different scales. Land managers are tasked with considering all of the goals and strategies, identifying and addressing trade-offs, and meeting GPV when implementing the FMP. The process for implementing the FMP relies on the following set of tools and processes presented in **Figure 4-1.**

TABLE 4-1

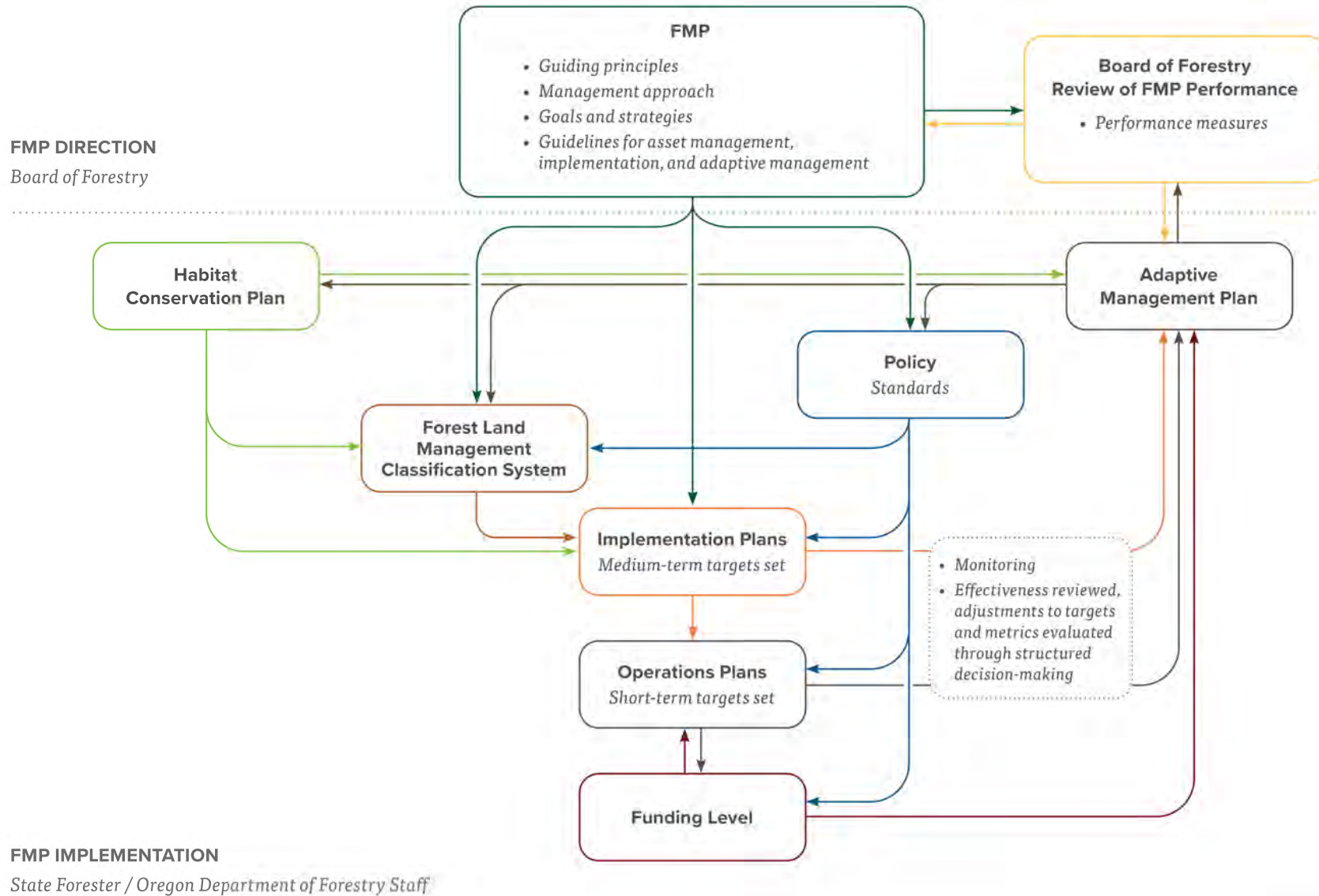Forest Management Investment-Level Guidance Based on Revenue Forecast and FDF Balance

	Increasing 3-year Revenue Forecast	Decreasing 3-year Revenue Forecast
FDF Contains Greater than 12 Months of Operating Expenses	Level 1: Maintain or expand existing investments and fund new strategic investments	Level 2: Maintain or expand existing investments and explore additional strategic investments
FDF Contains 6 to 12 Months of Operating Expenses	Level 2: Maintain or expand existing investments and explore additional strategic investments	Level 3: Invest in deferred maintenance and maintain select strategic investments
FDF Contains Less than 6 Months of Operating Expenses	Level 3: Invest in deferred maintenance and maintain select strategic investments	Level 4: Maintain core business and meet legal obligations; no new investments

Note
Level 1 is the highest level of investment, while level 4 is the lowest.

FIGURE 4-1

Links among the FMP and Other Plans and Policy Guidance

FMP

- Guiding principles
- Management approach
- Goals and strategies
- Guidelines for asset management, implementation, and adaptive management

Board of Forestry Review of FMP Performance

- Performance measures

FMP DIRECTION

Board of Forestry

Habitat Conservation Plan

Adaptive Management Plan

Policy
Standards

Forest Land Management Classification System

Implementation Plans
Medium-term targets set

- Monitoring
- Effectiveness reviewed, adjustments to targets and metrics evaluated through structured decision-making

Operations Plans
Short-term targets set

Funding Level

FMP IMPLEMENTATION

State Forester / Oregon Department of Forestry Staff

FMP implementation is supported by the following elements.

- **Western Oregon State Forests Habitat Conservation Plan (HCP)**. The HCP enables ODF to comply with the federal Endangered Species Act (ESA) for certain covered species while conducting land management activities on state forest lands west of the Cascade crest. During the development of the HCP, land managers, and partners identified and provided feedback on trade-offs. The HCP biological goals and objectives document these decisions, which are implemented through Implementation Plans (IPs) and Operations Plans (OPs).

- **Performance measures**. Performance measures and their targets are developed with direct input from the BOF. Performance measures are monitored and enable the BOF and others to track progress toward FMP goals and to maintain accountability for management commitments.

- **Operational policies**. While the FMP sets certain management standards, primarily associated with resource protection, there are many instances where different management options may achieve FMP goals and IP objectives. Operational policies guide decisions within this range of options by defining specific procedures and best management practices that allow for management flexibility, while ensuring sound management and resource protection. Operational standards describe quantitative measures tied to laws and regulations and FMP and HCP goals and strategies, such as minimum leave trees. These policies and standards enable forest managers to develop IPs and OPs and to evaluate trade-offs. Operational policies are developed within the Division at the direction of the State Forests Division Chief.

- **Modeling**. Modeling is used as a decision-support tool to evaluate trade-offs and objective levels at various spatial and temporal scales, and the costs and outputs associated with each scenario. Modeling aids forest managers in evaluating potential effects and making decisions about allocation of resources across uses.

- **Implementation Plans**. IPs quantify shorter time periods (for example 8–12 years) associated with objectives for each resource at the district or multiple district-level. IPs describe the management approaches and activities designed to achieve the FMP goals and the HCP goals and objectives. IPs provide linkages among the FMP, HCP, operational policies, and on-the-ground activities that are described in OPs. Trade-offs are assessed and considered at the landscape level and are then incorporated into the IPs.

- **Forest Land Management Classification System (FLMCS)**. As codified in OAR 629-035-0050, the FLMCS is a method of describing the management emphasis of parcels of state forest lands. The FLMCS is recorded as a GIS layer. The management emphasis identifies the extent to which a parcel of land can be managed for a variety of forest resources. It also identifies when a particular forest resource may need a more focused approach in its management, or possibly an exclusive priority as designated by this FMP, the HCP, and other laws or commitments. This information is used in the development of IPs and during operational planning.

- **Operations Plans**. OPs describe individual projects for achieving expected FMP and HCP outcomes, over the near term (for example 1 to 2 years), that align with fiscal budgets and IPs. OPs prioritize activities and investments in the forests (e.g., inventory, young stand management, recreation development) on the basis of implementation levels as described in Section 4.1, *Asset Management Guidelines*.

- **Adaptive Management Plan (AMP)**. The AMP describes the adaptive management process used to monitor outcomes, evaluate trade-offs, determine if the strategies are meeting the goals of the FMP and HCP, determine if assumptions used in developing the strategies need to be updated, and inform management decisions.

4.2.1
Implementation Responsibilities

The State Forests Division Chief and Area Directors provide guidance for implementing the FMP and HCP through IPs and OPs. They review IPs, which are approved and signed by the State Forester. District Foresters implement the FMP and HCP within their districts through the oversight of OPs. The tasks and responsibilities for IP and OP development are described in **Table 4-2**.

TABLE 4-2

Roles and Responsibilities of Decision-Makers in the Implementation, Operations, and Revision Approval Process

Task	Responsible Party
Approves IPs and major revisions	State Forester
Approves OPs	District Forester
Implements IPs and OPs	District Forester

4.3
Decision-Making, Adaptive Management, Monitoring, and Research Guidelines

Meeting the goals of the FMP in a changing environment requires adaptive management within a decision-making framework. Adaptive management is "the process of implementing plans in a scientifically based, systematically

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ADAPTIVE MANAGEMENT Adaptive management is "the process of implementing plans in a scientifically based, systematically structured approach that tests and monitors assumptions and predictions in management plans and uses the resulting information to improve the plans or management practices used to implement them." (OAR 629-035-0000(2))

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structured approach that tests and monitors assumptions and predictions in management plans and uses the resulting information to improve the plans or management practices used to implement them (OAR 629-035-0000(2))."

These guidelines describe how adaptive management informs decisions, determines whether strategies are meeting FMP goals, and tests if the assumptions used in the development of the strategies need updating.

The land manager's dedication to learning from management, applying new findings, and acknowledging uncertainty is key to maintaining the social, economic, and environmental benefits of forests (Bormann et al. 2017). While the language of adaptive management is widespread in natural resource man–agement, it is often difficult in practice to change course or evaluate whether an alternative will improve management. More monitoring or greater scientific understanding may not translate into improved management—the uncertainty of outcomes and diversity of values and objectives hinder decision-makers (Gregory et al. 2012). Adaptive management needs to be tailored to the agen-cy's mandate and the social decision-making processes within the institution (Minkova and Arnold 2020). Adaptive management, which includes monitoring and research, supports a decision-making framework that guides the use of new information within the agency.

The guidelines for decision-making, adaptive management, monitoring, and research are presented in this section. They are followed by an outline of the accompanying AMP, which describes how ODF integrates new informa-tion, designs monitoring projects, reports on metrics, and facilitates deci-sion-making. The AMP may be changed as we learn how to improve the process to work more effectively.
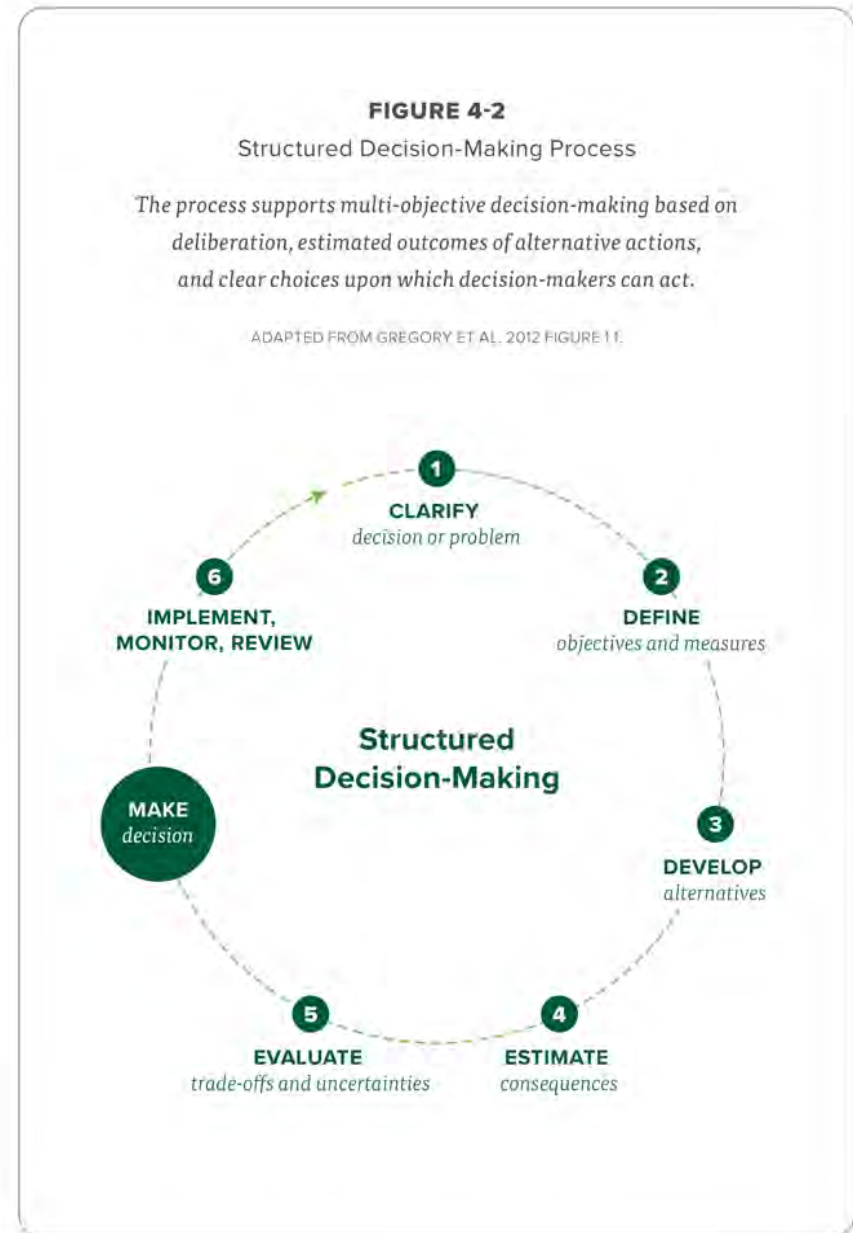
4.3.1
Decision-Making Framework

ODF will improve its management by applying decision analysis, a process used to simplify decisions by breaking them down into key parts to work through in sequence (Hemming et al. 2022). The PrOACT acronym (Problem, Objectives, Alternatives, Consequences, and Trade-offs) is a popular ordering of the components that go into making a decision (Hammond et al. 2002). These steps for decision analysis have been adapted to many disciplines, and

structured decision-making (SDM) is the predominant process in natural resource management for making complex, multi-objective decisions that emphasize deliberation, estimating outcomes of alternative actions, and clarifying choices upon which the decision-maker can act (**Figure 4-2**) (Gregory et al. 2012). One benefit of SDM is that it scales to the decision's complexity, proving useful for a single person or small group brainstorming management alternatives, for a facilitated process with public input at the level of an IP, or for the BOF evaluating the FMP success through performance measures.

The decision-making framework assesses management questions and trade-offs across multiple objectives for different forest resources; addresses adaptive management needs described in the FMP, HCP, and other policy documents; and updates the learning process following advances in forest management and decision science.

The SDM process (**Figure 4-2**), whether conducted with ODF staff or external interested parties, has six steps. Previous steps can be revisited during the process to make refinements as needed.

- **Step 1**. Clarify the decision by determining its scope, the relevant management objectives, and the decision-makers.

- **Step 2**. Define the objectives (i.e., "what matters") and the measures that will be assessed if the objectives are met.

- **Step 3**. Develop meaningful management alternatives that approach the problem from different angles that may prioritize different objectives.

- **Step 4**. Estimate the potential consequences, including the uncertainty, of each alternative using technical analysis or expert judgment.

- **Step 5**. Evaluate the trade-offs across multiple objectives and select the preferred alternatives, which may differ among participants, to present to the decision-maker.

- **Step 6**. Monitor the outcomes after the decision is implemented to inform the next iteration of the decision-making process.

FIGURE 4-2
Structured Decision-Making Process

The process supports multi-objective decision-making based on deliberation, estimated outcomes of alternative actions, and clear choices upon which decision-makers can act.

ADAPTED FROM GREGORY ET AL. 2012 FIGURE 1.1.

Engagement in the SDM process depends on the scope and impact of the decision, with greater public outreach for more significant decisions. Public and Tribal participation provides feedback to the technical working group on objectives, alternatives, consequences and trade-offs.

Adaptive Management

Adaptive management is most relevant to decision-making when management has a high impact on the resource objective, the consequences of management alternatives are uncertain, and resolution of uncertainty affects management decisions (Williams et al. 2009). In this case, the time dedicated to learning from different management treatments reaps benefits that outweigh the potential delay in meeting the resource objective. In a situation where the uncertainty about the effects of management is low or has little effect on decision-making, adaptive management is not as useful. Assessing the potential costs and benefits of engaging in adaptive management can be part of the SDM process. In other words, SDM addresses a wider variety of decision-making situations than adaptive management (Gregory et al. 2012).

Adaptive management can vary in effort and experimental design, but the key component is learning from alternative management treatments (Williams et al. 2009). Generally, active adaptive management is for cases with high uncertainty and a need for learning about the cause-and-effect relationship of management on the resource objective. Active adaptive management uses a statistically robust experimental design to evaluate alternative management approaches. In passive adaptive management, monitoring data are collected to evaluate the effects of management on a resource. The experiment may not include controls, replicates, or randomized application of management prescriptions, so it is more difficult to establish cause and effect (Williams 2011).
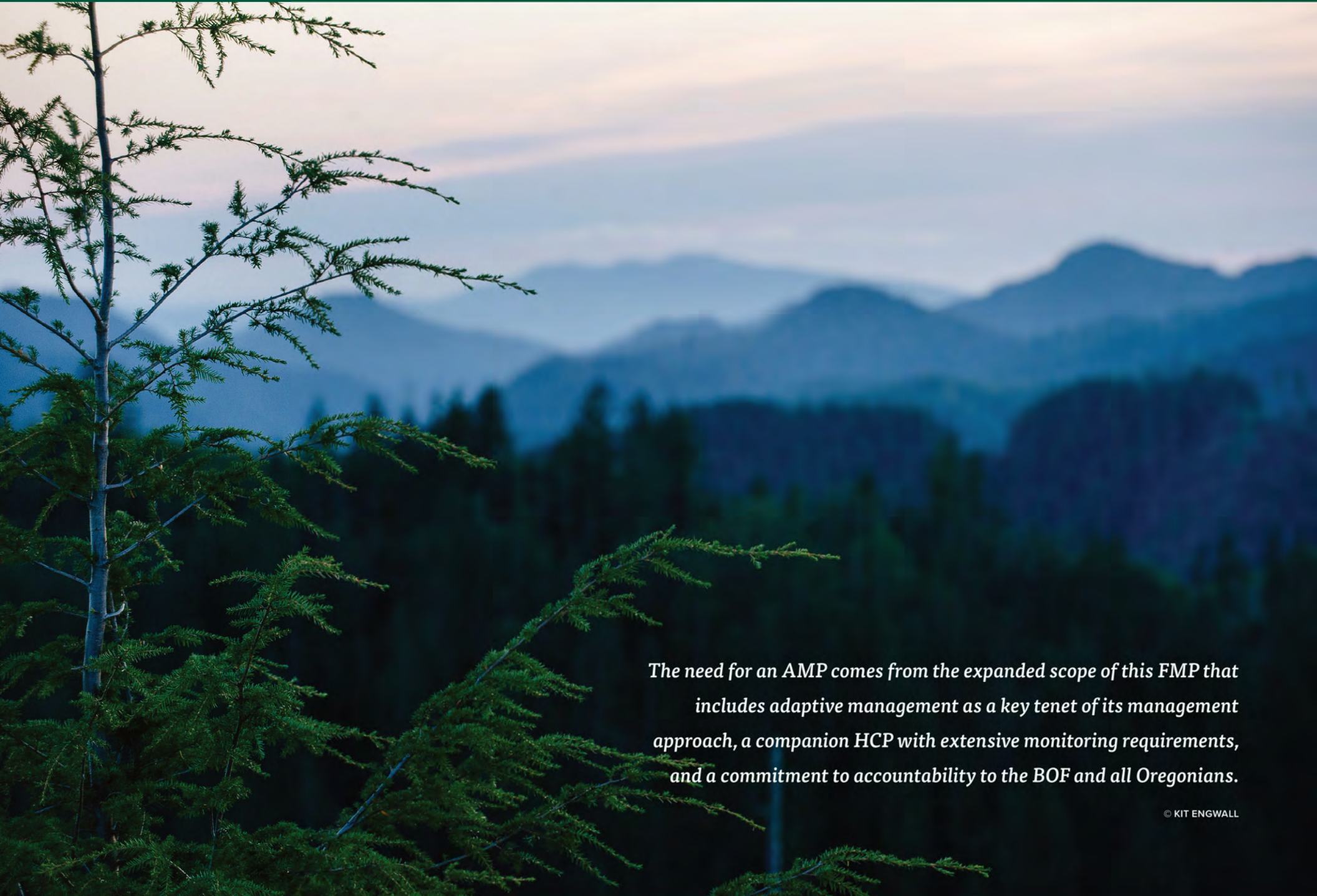
Monitoring

There are a variety of monitoring approaches the Division uses depending on the objectives. Compliance monitoring (i.e., implementation monitoring) involves gathering information to determine whether rules, regulations, or requirements are being followed. Effectiveness monitoring assesses whether the implementation of management actions has the intended outcomes, such as tracking whether forest treatments increase occupied habitat of a species of concern. Effectiveness monitoring may require status monitoring or trend monitoring to judge management success. Status monitoring involves determining the state of a resource (e.g., spotted owl occupancy, snag density) at a point in time. Trend monitoring is an extension of status monitoring, where the change in status over time is examined. Trend monitoring can be used to assess whether management thresholds are being breached (e.g., spread of invasive weeds increased beyond a target density) or whether there appears to be a pattern of change across time (e.g., habitat quality is increasing) (Hilton et al. 2022).

Decision-making processes such as SDM may include a monitoring component to evaluate the effects of the decision and the state of the resource. The outcomes of monitoring inform the next iteration of decision-making. The ideal monitoring approach may change with time. As resource objectives, monitoring technology, and the understanding of the system change over time, the accompanying monitoring efforts also need to adjust to continue providing reliable and relevant information. Adaptive monitoring is a framework that reassesses monitoring questions and protocols in light of these changes while maintaining the integrity of long-term records (Lindenmayer and Likens 2009).

As an example of how new monitoring may be planned, a snapshot estimate (status monitoring) of a resource is compared with the desired state of the resource to determine if a problem exists (Nichols and Williams 2006). Before monitoring begins, hypotheses are developed about how the larger system affects the resource. The differences among the hypotheses capture the range of possibilities about how the system functions. The hypotheses can also affect where and how frequently data are collected. This thoughtful approach helps ensure that the monitoring provides useful information—both an estimate of the resource condition and a test of which hypothesis is best supported. The resource estimate allows the condition of the resource to be evaluated in the absence of temporal data demonstrating a trend, thereby helping to determine whether a management intervention or more targeted monitoring is needed.

The need for an AMP comes from the expanded scope of this FMP that includes adaptive management as a key tenet of its management approach, a companion HCP with extensive monitoring requirements, and a commitment to accountability to the BOF and all Oregonians.

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Research

Research in the context of the FMP is intended to generate reliable scientific information to guide management actions. New research performed by the agency would be designed within a decision framework. The agency supports and relies on several research cooperative partnerships to advance scientific understanding in strategic areas important for achieving management objectives. ODF offers planning support and special use permitting for research performed on state forest lands by scientists outside of the agency.

The decision-making framework describes the process for incorporating new information to ensure that the FMP is using the best available science. Peer-reviewed, published research may change the credibility or applicability of the assumptions that were used to develop the FMP strategies. New information fits into the SDM cycle when assessing the management alternatives, consequences, trade-offs, and uncertainty. Revisiting prior steps in the decision-making cycle is expected when new information is incorporated.

4.3.2
Adaptive Management Plan

The AMP offers direction and administration for (1) facilitating decision analysis and adaptive management; (2) designing monitoring; (3) reporting monitoring results, analyses, and decisions; and (4) identifying and integrating information and decision needs within state forest lands.

The AMP is a separate document from the FMP that provides a current roadmap for monitoring that supports the implementation of the FMP and improves management over time *(see box at right)*. The need for an AMP comes from the expanded scope of this FMP that includes adaptive management as a key tenet of its management approach, a companion HCP with extensive monitoring requirements, and a commitment to accountability to the BOF and all Oregonians. Monitoring, reporting, and decision-making support will be continuously updated in the AMP and reported in a more nimble and integrative manner that enables timely management responses to new information.

Vision for the
Adaptive Management Plan

✅ **Transparent**. Interested parties and ODF staff can easily access current work plans and planning documents for decision-making processes and anticipated timelines for delivering results.

✅ **Understood**. Interested parties and ODF staff know about the AMP and understand its mission and purpose, and the AMP is written in plain language.

✅ **Effective**. State Forests manages its lands to achieve Greatest Permanent Value and can make changes to management practices based on new information.

✅ **Inclusive**. The AMP integrates interested and affected parties and ODF staff into its processes and incorporates their feedback.

✅ **Efficient and timely**. The AMP focuses on informing planning and management via developing monitoring efforts that deliver usable results as quickly as possible.

✅ **Responsive**. When State Forests detects issues through monitoring, it works to address management problems creatively, transparently, and effectively.

✅ **Valued**. Interested parties and State Forests recognize the social and technical benefit that AMP products provide to State Forests and all Oregonians.

✅ **Reliable**. Decision analysis and monitoring design use the best available science to produce reliable metrics.

Workflows for Decision Analysis, Monitoring, and Assessment of Information Needs

The AMP serves as a hub for information gathering and decision support across other policies and plans that incorporate adaptive management in their objectives. With support from the AMP, decisions are made by individuals or groups at the relevant planning level. For example, if monitoring shows the need for a fundamental change in FMP strategies, the decision would be made by the BOF after a formal public involvement process and codified through OARs. A smaller change, for instance in operational policy or management standards, could be made by the State Forests Division Chief after engaging interested parties through the decision-making process, which may suggest monitoring or adaptive management be included.

In the examples shown in the workflow diagram (**Figure 4-3**), a need for decision support may be identified by State Forests, interested parties, or metrics falling outside a range of acceptable targets identified in the HCP or performance measures adopted by the BOF. The AMP guides the SDM process (**Figure 4-2**) to develop recommendations for the decision-maker to consider. As shown by the dashed lines in **Figure 4-2**, SDM may include designing new monitoring and reporting results as needed for decision support. Decisions may affect IPs and OPs through the process described in Section 4.2, *Implementation Guidelines*.

FIGURE 4-3
Adaptive Management Plan Workflow

This workflow shows key AMP roles and how they can affect FMP implementation through decision support, monitoring, and reporting.
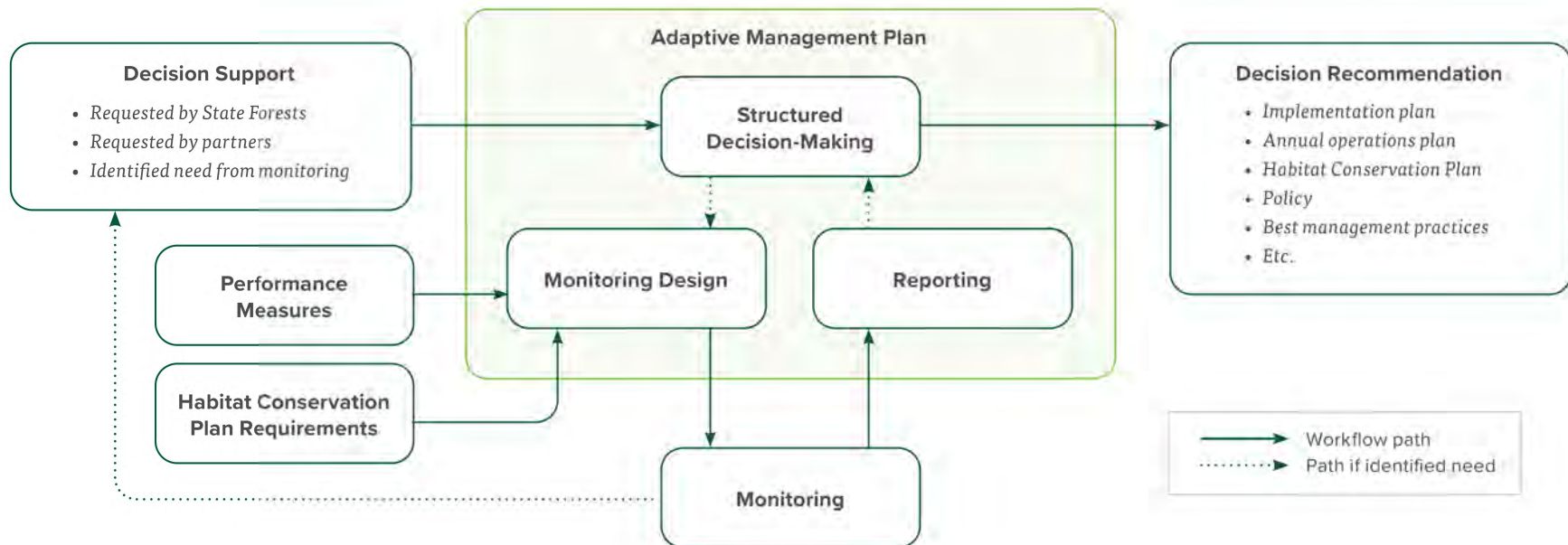
Key Monitoring Needs

The AMP designs monitoring, provides reporting, and responds to needs for additional decision support. Monitoring will include HCP compliance and effectiveness monitoring, BOF performance measures, monitoring of FMP strategies, and adaptive management monitoring recommended through potential SDM processes. These measures are called reporting metrics in the AMP, which describes the strategy for developing new metrics and tracks how data are collected, analyzed, and reported for each metric. Many reporting metrics will have quantifiable targets and acceptable ranges designated to assess whether management is meeting the desired outcomes that were monitored (i.e., lagging indicators) or that are predicted from modeling (i.e., leading indicators). Monitoring and reporting for the HCP and BOF-adopted performance measures are two major commitments addressed in the AMP (**Figure 4-3**).

Implementation of the HCP requires a detailed program of monitoring and adaptive management to ensure compliance and verify progress toward achieving the biological goals and objectives (HCP Chapter 6, *Monitoring and Adaptive Management*). The AMP serves as the structure for the adaptive management program required by the HCP to assess data gaps and scientific uncertainty that could affect how species are managed and monitored over time. The HCP Administrator at ODF serves as the key coordinator to initiate the process when triggers for action are identified from either over- or under-accomplishment of biological goals and objectives, or when alternative conservation practices are available. The HCP adaptive management process fits well within the decision-making framework described in Section 4.3.1, *Decision-Making Framework*, with additional regulatory considerations and involvement with the federal permitting agencies.

The performance measures assess the impact state forest lands have on social, economic, and environmental wellbeing. Performance measures adopted by the BOF will include targets and acceptable ranges that will increase the likelihood of progress toward FMP goals. Some performance measures may be supported through new or existing monitoring programs, which will be organized through the AMP. The AMP develops reporting dashboards to track performance measures for the BOF and public and Tribal engagement.

Project Prioritization and Timeline

The AMP contains a broad suite of monitoring and reporting needs to implement, which may be dependent on the Division's resources. Multiple sources (public and Tribal engagement, the Division's business needs, the HCP, and the BOF) identify needs for decision analysis, adaptive management, or monitoring that will be integrated and prioritized for efficiency.

The AMP sets priorities to develop workplans based on the following criteria comparing potential projects.

+ Regulatory requirements, such as HCP compliance monitoring.

+ Potential impact on GPV.

+ Likelihood of influencing future management decisions.

+ Degree of uncertainty or knowledge gap.

+ Capacity or feasibility of getting answers in reasonable time and at a reasonable cost.

• Efficient integration with ongoing or planned monitoring.

• Potential for research partnerships.

The timeline for reporting decision analysis products and monitoring results aims to complement IP revisions and comprehensive reviews of HCP implementation. The IP is the key opportunity for the decision-making process, public and Tribal engagement, and adaptive management changes based on monitoring. The AMP workflow focuses on IP information needs in the 2 years leading up to planned IP revisions. New information needs will occur outside of the IP and HCP cycles; the AMP is responsive to opportunities to integrate decision analysis into other Division needs.

4.3.3
Performance Measures

Performance measures are a select set of metrics that the BOF will use to evaluate management outcomes with respect to the objectives and intent

Performance Measures

(listed alphabetically)

- Adaptive Capacity of Forests
- Aquatic Habitat
- Carbon Storage
- Community Engagement and Public Support
- Division Finances
- Economic Opportunities

- Financial Support for Counties
- Harvest and Inventory
- Recreation, Education, and Interpretation Opportunities
- Terrestrial Habitat

expressed through the FMP guiding principles, management approach, and goals (**Figure 4-1**). The ten performance measures listed below (*see box*) have specific components that will be monitored and reported under the process described in the AMP. Quantifiable targets and acceptable ranges designated by the BOF for performance measures' components will indicate whether FMP strategies are working as intended to provide GPV. While performance measures do not encompass all aspects of ODF monitoring and reporting, their purpose is to provide an up-to-date dashboard for the BOF and the public to track management outcomes readily across a broad range of key ecosystem services provided by State Forests.

4.4
Revision Guidelines

As the environment changes, revisions to plans and processes may be necessary to implement adaptive management and to incorporate new information.

4.4.1
Forest Management Plan

The BOF reviews the management focus of the FMP no less than every 10 years in light of current social, economic, scientific, and silvicultural considerations (OAR 629-035-0020). It may require 10 years or more for monitoring to establish trends. As new information becomes available, it is evaluated in the context of the guiding principles, goals, and strategies of the FMP. If implementation of the FMP is not achieving desired results, as indicated by the performance measures, the Division will revise operational policies.

If poor performance cannot be corrected through revised operational policies, or if research or monitoring shows the need for a fundamental change in FMP strategies, the BOF and the State Forester will weigh the scientific, operational, Tribal, and public input in a transparent and formal public process to determine if changes are needed to the FMP. Any changes will then be codified through OARs.

4.4.2
Habitat Conservation Plan

The HCP modification process is described in HCP Chapter 8, *Implementation*. HCP or permit modifications are expected to be rare and informed by the adaptive management process as outlined in HCP Chapter 6, *Monitoring and Adaptive Management*. The U.S. Fish and Wildlife Service and National Oceanic Atmospheric Administration Fisheries are key decision-makers in the modification process.

4.4.3
Operational Policy

Changes to operational policy occur as needed, in response to information from the adaptive management process, changing laws or conditions, new technology, improved management strategies, or new direction from the BOF or ODF leadership. Key decision-makers depend on the policy.

4.4.4
Implementation Plan

As new information becomes available, the IP may be revised in response to changing conditions or development of new or better implementation strategies identified through adaptive management. Revisions made at the IP level may include the types or amounts of management opportunities and their spatial arrangement. Key decision-makers are outlined in **Table 4-2**.

4.4.5
Forest Land Management Classification System

Revisions may be needed to the FLMCS when there is a change to the management emphasis on a parcel of land. Examples of such changes include the development of a new campground, a new wild and scenic river designation, or the removal of a research area after completion of a project. Definitions of minor and major revisions can be found in OAR 629-035-0060.

4.5
Engagement Guidelines

The goals for public involvement in forest land planning are outlined in OAR 629-035-080 and include providing information, seeking insight, building understanding, and providing public comment opportunities. The goals for Tribal engagement are outlined in Chapter 3, *Forest Resource, Goals, and Strategies.*

The purpose of engagement is to create a relationship that provides meaningful opportunities to contribute to planning decisions. Engagement is most beneficial during the IP process, when input can have the most influence on the levels and types of planned management activities. Input may contribute to setting priorities and identifying general locations of management activities. Input provided at the Operations Plan level would focus on small changes, refinements, or clarification of the plan. **Table 4-3** shows the engagement opportunities by plan level.

TABLE 4-3
Engagement Opportunities and Examples

Engagement Areas	Topic	Example Comment
AMP		
• Feedback and participation in the SDM process with regard to objectives, alternatives, consequences, and trade-offs • Performance measures adopted for the BOF to assess the FMP	• SDM public engagement	• Our user group would like XYZ objectives included in the decision analysis, and this is how the impact of management alternatives on our user group could be measured.
	• BOF public meeting	• The BOF should request an evaluation of the trend in the XYZ Performance Measure reported on the public dashboard because objectives for XYZ resource are not being met and management may need to change. • The BOF should promote the development and implementation of Tribal engagement policies to ensure ongoing consultation and coordination regarding potential impacts from forest management activities at every level.
	• Monitoring prioritization	• Recreational surveys should be prioritized during this IP to gather information that may be used to reduce conflict between user groups. • Integrate Tribal Partners' priorities and practices to ensure protection and proliferation of cultural and natural resources.

Table continues on following page

TABLE 4-3 (CONTINUED)

Engagement Areas	Topic	Example Comment
IP		
• Harvest levels, harvest types, priorities, and general locations • Recreation, education, and interpretation development/ activity levels, types, priorities, and general locations • Stream enhancement levels, types, priorities, and general locations • Road project levels, types, priorities, and general locations • Monitoring and adaptive management priorities	• Management activity type and location	• I would like more mountain biking trails, preferably built inside HCAs to reduce potential conflicts with harvesting. • Work with Tribal Partners to integrate culturally important plant and animal species (such as bear grass, camas, and spruce root). • Work with Tribal Partners to encourage access and co-management opportunities, including cultivation techniques that promote culturally significant attributes, and sharing native seed sources and native seedlings. • Coordinate with Tribal Partners to identify sales that may affect ancestral lands, level significance, and potential measures that may be needed to protect culturally significant resources.
	• Stream enhancement/ road project priority and location	• I propose the "generic" watershed as a high priority for stream enhancement and road improvement projects to align with work being done by the "Generic" Watershed Council in the next 5 years to replace non-fish-passable culverts and enhance 5 miles of the "generic" stream. • Engage Tribal Partners in prioritizing and identifying partnership opportunities to protect culturally significant aquatic species, such as salmonids and lamprey.
OP		
• Ensured consistency with the IP and/or FMP • Improved efficiency or effectiveness • Clarified description of planned operations • Additional information or correction of an error • Solution-oriented comments to increase the probability of achieving GPV goals and objectives	• Efficiency/ effectiveness	• The boundary of XYZ sale could be extended to the southwest where the terrain flattens out. Extending the boundary would eliminate the need to work through young stands while harvesting the timber during future sales. • The XYZ sale includes a culturally significant site that requires coordination with XYZ Tribes to implement XYZ protection measures.
	• Clarification	• I don't understand the terminology being used in this plan. Can you include definitions for BA, shelterwood and MBF in the document? • XYZ Tribe did not have awareness of this sale and has potential concerns and would like more information.
	• Solutions-oriented	• The XYZ sale area will affect approximately one mile of the existing trail. I realize that the forest is a working forest and ask for the following considerations: Limit the timing so the harvest operation is not active during prime horse riding season (July–Sept). If this is not possible then: Fall trees away from the trail whenever possible. Have all slash removed from the trail so the trail is in equal or better shape than pre-harvest conditions. Have trails open for use on weekends if possible.

Agenda Item No.:	7
Work Plan:	State Forests Work Plan
Topic:	State Forests Management
Presentation Title:	Western Oregon State Forests Draft Forest Management Plan
Date of Presentation:	September 6, 2023
Contact Information:	Ron Zilli, Deputy State Forests Division Chief (503) 741-1098 Ron.F.Zilli@odf.oregon.gov
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CONTEXT

Forest Management Plans provide the overarching management direction for State Forests. These plans are developed pursuant to Oregon Administrative Rule and are adopted by the Board of Forestry to codify the Board's finding that management direction meets Greatest Permanent Value (OAR 629-035-0030).

FMP Development
In October 2020, the Board of Forestry (Board) directed the Division to develop a draft Western Oregon State Forests Management Plan (FMP) that would use the draft Western Oregon State Forests Habitat Conservation Plan (HCP) as its mechanism for compliance with the federal Endangered Species Act (ESA). The FMP (Attachment 1) provides an overall high-level forest management approach and goals and strategies for a broad spectrum of forest resources. The HCP provides biological goals and objectives specifically for covered species to ensure compliance with the federal Endangered Species Act. The HCP establishes long-term (70-year) commitments to conservation and provides long-term assurances that forest management will continue under a set of agreed upon conservation measures throughout the life of the HCP. The draft FMP is needed to articulate the complete integrated forest management approach for state forest lands in western Oregon. Together, the FMP, HCP, and other policies guide Implementation Plans, which specify management activity targets to be accomplished over a planning horizon of approximately 10 years.

The Division presented the draft FMP goals and strategies for Board consideration in November 2021 and March 2022 respectively.

Process
Activities since the March 2022 Board meeting:
- Goals and strategies revised according to public and other interested party feedback, including the Board.
- Goals and strategies streamlined by staff resource specialists.
- Project Leadership Group alignment on management approach to clarify how the FMP, HCP, and other operational policies work together to deliver Greatest Permanent Value.

- Internal reviews and revision based on District field staff review.
- Science review and revision of all FMP chapters, with special attention to climate resilience and mitigation, and diversity, equity, and inclusion.

Engagement

FMP engagement activities since the last Board meeting on March 9, 2022, are summarized in the FMP Appendix A. They include:

- State Agency Meetings – approximately monthly through August 2023
- Meetings Open to the Public – 2 meetings
- Forest Trust Land Advisory Committee – 3 meetings
- State Forests Advisory Committee – 4 meetings

Tribal Sovereign Nations Coordination

Oregon Department of Forestry (ODF) recognizes that the Tribes have applied their management practices across the landscape that ODF currently manages since time immemorial. ODF values this rich traditional ecological knowledge and seeks to incorporate Tribal perspectives and management practices into the stewardship of State Forests. To date, the State Forests Division has hosted six Tribal workgroup meetings, open to the nine federally recognized Tribes of Oregon, to develop the Cultural Resources Goals and Strategies for the FMP. Collaboration is ongoing and the Division will continue working with Tribal Partners in the Government-to-Government forum to integrate their interests in ODF's planning and implementation processes at every level.

Draft Adaptive Management Plan and Performance Measures

The draft FMP under consideration by the Board is implemented under an adaptive management framework in which the monitoring of outcomes enables learning and improvement of management strategies. To this end, an Adaptive Management Plan (AMP) will accompany the FMP as stated in the implementation guidelines in the FMP.

The draft AMP (Attachment 2) offers direction and administration for (1) facilitating decision analysis and adaptive management; (2) designing monitoring; (3) reporting monitoring results, analyses, and decisions; and (4) identifying and integrating information and decision needs within state forest lands. The need for an AMP comes from the expanded scope of this FMP that includes adaptive management as a key tenet of its management approach, a companion HCP with extensive monitoring requirements, and a commitment to accountability to the Board and all Oregonians. Monitoring, reporting, and decision-making support will be continuously updated in the AMP and reported in a more nimble and integrative manner that enables timely management responses to new information.

A new set of performance measures will also accompany the FMP (Attachment 3). Performance measures are a select set of metrics that the Board will use to evaluate management outcomes with respect to the objectives and intent expressed through the FMP guiding principles, management approach, and goals. The ten performance measures listed below have component metrics that will be monitored and reported under the process described in the AMP. While performance measures do not encompass all aspects of the Division's monitoring and reporting, their purpose is to provide an up-to-date

dashboard for the Board and others to track management outcomes and commitments readily across a broad range of ecosystem services provided by State Forests.

Quantifiable targets and acceptable ranges designated by the Board for performance measures' components can indicate whether FMP strategies are working as intended to provide Greatest Permanent Value (GPV). Targets are intended to inform the Board, the Division, and others of potential over- and under-performance but are not considered as hard constraints on management activities in isolation. The Division is tasked with considering all the goals and strategies, addressing trade-offs, and meeting GPV when implementing the FMP and responding to performance measures.

Performance Measures (arranged alphabetically)

- Adaptive Capacity of Forests
- Aquatic Habitat
- Carbon Storage
- Community Engagement and Public Support
- Division Finances
- Economic Opportunities
- Financial Support for Counties
- Harvest and Inventory
- Recreation, Education, and Interpretation Opportunities
- Terrestrial Habitat

RECOMMENDATION

Information only.

NEXT STEPS

Over the next several months, the Division will:
1. Continue working with the Board to revise the FMP per Board direction.
2. Continue working on modeling a range of temporal and spatial timber harvest scenarios that could be achieved by implementing the FMP. Timber volume and value, carbon storage, and other outcomes from this modeling will be presented to the Board in late fall 2023, with a more detailed socioeconomic analysis of those scenario outcomes to follow.
3. Revise the draft AMP and performance measures in response to feedback and to maintain alignment with the draft FMP and draft HCP. It is anticipated that modeled outcomes of FMP scenarios presented to the Board will include relative comparisons of these performance measures to aid in their decision-making.

Provided that the HCP policy work is on schedule, the FMP will be brought back to the Board to begin the process of adopting the FMP in early 2024.

ATTACHMENTS

1. Draft FMP (link to document, available online at
    https://www.oregon.gov/odf/board/documents/fmp-hcp/western-oregon-state-forests-management-plan-draft-july2023.pdf)
2. Draft Adaptive Management Plan
3. Draft Performance Measures

Appendix 3: Performance Measures for the Board of Forestry

Summary

Performance measures are a select set of metrics that the Board of Forestry (Board) will use to evaluate management outcomes with respect to the objectives and intent expressed through the draft Western Oregon State Forests Management Plan (FMP) guiding principles, management approach, and goals. The ten performance measures listed below have component metrics that will be monitored and reported biennially to the Board under the process described in the Adaptive Management Plan. A background description, method of data collection, component metrics and targets, and related State Forests monitoring are provided for each performance measure. Targets or ranges of acceptable values would be set in the future as part of the FMP modeled outcomes and the draft Habitat Conservation Plan (HCP) commitments presented to the Board.

Adaptive Capacity of Forests

Background

Adaptive capacity is one of the key tenets of the FMP management approach so that State Forests maintain ecological function and productivity in response to stressors like climate change or drought and disturbance events such as fires, insect damage, or extreme weather. The proposed components to measure adaptive capacity will include forest attributes that increase forest diversity and complexity at stand and landscape scales.[1] Management influences adaptive capacity through harvest and thinning prescriptions, reforestation, retention of biological legacies, and landscape design. Management to increase adaptive capacity will vary by forest land management class (i.e., emphasis areas) to meet different objectives.

Methods

Data for this measure will be gathered through the Enhanced Forest Inventory (EFI), with updates every five years. The EFI uses a densified network of USFS Forest Inventory and Analysis (FIA) systematic monitoring as its field-based data. Estimates from FIA data can be summarized at larger spatial extents, such as by district or emphasis area class. Finer-scale estimates (e.g., stands or watershed) can be modeled by lidar-based products in the EFI.

Metrics and Targets

Four components (tree size distribution, tree species composition, stand structure, and tree growth rates) are proposed for two emphasis areas: general stewardship and habitat conservation areas (HCAs) (Table 1). Potential targets will be presented with modeled FMP outcomes to the Board.

Related Monitoring

- The Forest Health Unit in the ODF Forest Resources Division provides updates to the Board and State Forests on invasive species, disturbances by insect and disease, and climate change vulnerability (e.g., western redcedar mortality).
- Wildfire risk on State Forests will be assessed in partnership with the ODF Fire Protection Division to provide an all-lands approach to strategic planning and monitoring.
- Retention of biological legacies (leave trees, snags, and downed wood) will be reported for the HCP and as a component of the Terrestrial Habitat performance measure.
- Management to improve or restore stands is reported in Operation Plans and for the HCP (e.g., harvests and replanting to reduce Swiss needle cast impacts).

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[1] D'Amato, A. W., & Palik, B. J. (2021). Building on the last "new" thing: exploring the compatibility of ecological and adaptation silviculture. Canadian Journal of Forest Research, 51(2), 172-180.

Table 1: Adaptive Capacity of Forests performance measure component metrics and targets

Component	General stewardship		Habitat Conservation Area		Data source	Notes
	Metrics	Targets	Metrics	Targets		
Size class distribution	Frequency across size classes	TBD: evenness across sizes desired	Frequency across size classes	TBD: evenness not necessarily desired	EFI: lidar-derived tree height classes	Alternative: age classes, but height is more accurate for uneven-age stands
Composition	Proportional basal area by tree species & stocking species proportions	Current & desired condition vary by district, report trends	Proportional basal area by tree species, stocking species proportions	Current & desired condition vary by HCA, report trends	FIA, EFI, and stocking surveys	Alternative: diversity indices
Stand structure	Canopy stratification (foliar height diversity)	TBD: tradeoff of stand complexity versus fire risk & other objectives	Canopy stratification (foliar height diversity)	TBD: increasing trend desired for HCP covered species habitat	EFI: lidar derived height diversity by stand	Alternative: heterogeneity indices
Growth rates to gauge species responses to climate change (i.e., drought & temperature stress)	Periodic annual increment for tree species	Stable or increasing trends desired	Periodic annual increment for tree species	Stable or increasing trends desired	Rolling mean of FIA tree size remeasurements summarized by species and region[2]	Lagging indicator, could consider ways to incorporate species responses to future climate conditions

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[2] Stanke, H., Finley, A. O., Domke, G. M., Weed, A. S., & MacFarlane, D. W. (2021). Over half of western United States' most abundant tree species in decline. Nature Communications, 12(1), 451.

Aquatic Habitat

Background

For aquatic species covered in the HCP, the primary conservation action for achieving the biological goals of population persistence and resilience is expanding riparian management areas along streams. Passive management of these Riparian Conservation Areas (RCAs) will allow forests to mature over time to address limiting factors for covered species, including wood and gravel recruitment, stream shading, stream temperature, nutrient input, and streambank integrity. Implementing stream enhancement projects, including the promotion of natural beaver colonization, is another HCP conservation action targeting habitat improvement for covered species. Monitoring commitments in the HCP will track trends of aquatic habitat conditions for covered species based on field data to measure the effectiveness of these actions.

Conservation actions and associated monitoring in the HCP also focus on the impact of the transportation network on water quality and fish passage. Roads management can reduce hydrological connectivity by following best-management practices for design, construction, and maintenance to disconnect roads from stream systems. Barriers to fish passage can be reduced through culvert repair and are often prioritized based on fish presence and the miles of habitat upstream that are reconnected for access.

Methods

HCP compliance and effectiveness monitoring would provide most of the data summarized in this performance measure. State Forests, in collaboration with ODFW, the research community, and federal services, will design HCP sampling efforts to select key watersheds to detect changes in aquatic habitat conditions for covered species. State Forests would conduct assessments of the transportation network to prioritize improvements according to HCP commitments.

Metrics and Targets

Five components (physical habitat, riparian forest shading of streams, water temperature, transportation assessment, and beaver colonization) derived from HCP monitoring commitments are proposed (Table 2). Targets would be established in the future once baseline conditions are assessed in the initial years of the HCP.

Related Monitoring

- State Forests has implemented stream enhancement projects with timber sales since the adoption of the Oregon Plan for Salmon and Watersheds. Restoration activities are reported annually to the Oregon Watershed Enhancement Board.

Table 2: Aquatic Habitat performance measure component metrics and targets

Component	Metrics	Targets	Data Source	Notes
Aquatic habitat conditions for covered species	Physical attributes in streams (channel complexity, wood, substrates)	Report trends from HCP effectiveness monitoring	Collaboration with ODFW Aquatic Inventories Project (AIP)	Attributes may be synthesized via a salmonid habitat limiting factors model.[3]
Channel shading from riparian forests	Modeled annual sun exposure	Report trends from HCP effectiveness monitoring	EFI models of shade from lidar surveys	
Water temperature	Average annual temperature within HCP permit area	Report trends from HCP effectiveness monitoring	Collaboration with ODFW statewide water temperature monitoring	A 3.5°F increase during the HCP permit term would be an unforeseen circumstance.
Transportation assessment in HCP permit area	Hydrological connectivity and fish passage barriers	Complete initial analysis so that improvements can be prioritized	HCP monitoring commitments	Roads and OHV trails would be included.
Beaver effects on aquatic habitat	Species occurrence and dam abundance	Report trends from HCP effectiveness monitoring	Collaboration with ODFW AIP to include beaver monitoring in key watersheds	

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[3] Nickelson, T. E., & Lawson, P. W. (1998). Population viability of coho salmon, Oncorhynchus kisutch, in Oregon coastal basins: application of a habitat-based life cycle model. Canadian Journal of Fisheries and Aquatic Sciences, 55(11), 2383-2392.

Carbon Storage

Background

Carbon sequestration and storage in forests are key climate change mitigation strategies in Oregon.[4] The FMP carbon resource goal is to contribute to carbon storage on state forest lands and in harvested wood products. State Forests management impacts carbon sequestration and storage in the forest through timber harvest rotation age, no-harvest buffers, retention of biological legacies (i.e., large live trees, snags, and downed wood), and reforestation. Carbon storage in harvested wood products depends on the product type and timber harvest volume. Other sources of emissions, such as those required for operations and manufacturing, and the impact of substituting wood products for nonrenewable products are often included in full lifecycle carbon accounting but are beyond the means of our current data collection.

Methods

Data for carbon pools within the forest will be gathered through the Enhanced Forest Inventory (EFI), with updates every five years. The EFI uses a densified network of USFS Forest Inventory and Analysis (FIA) systematic monitoring as its field-based data. Estimates from FIA data can be summarized at larger spatial extents, such as by district and emphasis area class. Carbon in harvested wood products will use models of long-term storage and decomposition by different product types.[5]

Metrics and Targets

Three components (aboveground live tree carbon, carbon in harvested wood products, and carbon in other forest pools) are proposed for two emphasis areas: general stewardship and habitat conservation areas (HCAs) (Table 3). Targets will be determined in the process of modeling the outcomes of different FMP scenarios presented to the Board.

Related Monitoring

- Statewide and regional carbon monitoring programs by other agencies also use FIA data to report on carbon trends over time by different pools. While these efforts report on different forest ownerships, they have not separated ODF-managed lands from the State/Local ownership category.

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[4] Oregon Global Warming Commission. 2021. Natural & Working Lands Proposal. https://www.keeporegoncool.org/natural-working-lands

[5] Morgan, T.A. et al. (2020). Oregon Harvested Wood Products Carbon Inventory 190-2018. Report prepared for USA Forest Service and Oregon Department of Forestry. www.oregon.gov/odf/forestbenefits/Documents/oregon-harvested-wood-products-carbon-inventory-report.pdf

Table 3: Carbon Storage performance measure component metrics and targets

Component	General stewardship		Habitat Conservation Area		Data source	Notes
	Metrics	Targets	Metrics	Targets		
Live tree carbon storage	Aboveground carbon per acre	TBD	Aboveground carbon per acre	TBD	FIA field data summarized by emphasis area	
Harvested wood product carbon storage	Carbon stored in products minus carbon released via decomposition	TBD	Carbon stored in products minus carbon released via decomposition	TBD	Storage modeled from annual cutout volume by district and emphasis area	
Other carbon pools (soil, dead wood)	Carbon per acre by pool	TBD	Carbon per acre by pool	TBD	FIA field data summarized by emphasis area	

Community Engagement and Public Support

Background

State Forests attained meaningful engagement and feedback with many groups while developing the FMP, including with the nine federally recognized Tribes of Oregon through the Government-to-Government framework (FMP Appendix A). This performance measure aims to continue this engagement to hear whether the public and Tribes believe we are meeting our FMP goals and providing GPV. The process to do so effectively and specifically for State Forests is under development.

The Board has gauged public values surrounding forest management through representative surveys of Oregonians and plans to continue this work through their update to the Forestry Plan for Oregon. At this time, State Forests will rely on the Board's survey efforts to listen to public values and support for forest management. Future investments in surveys may aim for repeatable analyses to demonstrate trends over time, but recently performed surveys provide an adequate baseline for current public views on forest management.[6]

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[6] Oregon Values and Beliefs Center. 2022. State Forest Management. https://oregonvbc.org/state-forest-management/

Division Finances

Background

Funding levels for FMP implementation vary with cyclical economic trends because State Forests is primarily funded through timber harvest revenues. There may be periods where revenues limit funding. Annual budget instructions for developing fiscal budgets reflect the Forest Development Fund (FDF) balance and the projected balance based on a 3-year revenue forecast (FMP, 4.1.1 Implementation Priorities).

Methods

The Asset Management Unit reports fiscal metrics quarterly and forecasts State Forests revenue, expenses, and FDF balance with a range of projections annually.

Metrics and Targets

The FDF balance in terms of the months of operating expenses will be the reported metric. The proposed target is to maintain a prudent FDF balance of 6-12 months of operating expenditures, which considers the cyclical nature of the timber markets and permits State Forests to adjust their services to maintain financial viability.

Economic Opportunities

Background

The FMP recognizes the importance of the economic benefits of forests to local communities through the Timber Production and Special Forest Products goals. Historically State Forests has tracked timber harvest volume as a surrogate measure of economic support for local communities, without modeling different components such as direct effects of jobs and wages from harvests, indirect effects from supporting industries, and induced effects from wages being spent. A socioeconomic outcomes analysis of modeled FMP scenarios will be presented to the Board that includes these components of timber harvest income and employment, as well as non-timber income and employment (e.g., recreation, hunting, special forest products, and other uses).

Methods

To measure the benefits of State Forests to economic opportunities, economic impact models will be developed. For timber jobs, projected harvest levels would be used to estimate direct employment and income and the secondary effects that would be supported by the initial harvests. For non-timber jobs, the economic impact is less readily quantifiable and would rely on a literature assessment to estimate relative differences in FMP outcomes.

Metrics and Targets

The socioeconomic outcomes analysis will provide a baseline understanding of the direct and indirect employment and income supported by State Forests. Appropriate targets will be set based on the Board's decision on the FMP.

Related Monitoring

- Statewide reports on the timber industry with State Forests grouped together with the State/Local ownership category. [7]

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[7] Oregon Forest Resources Institute. (2019). The 2019 Forest Report. https://theforestreport.org/wp-content/uploads/2019/07/OFRI-2019-Forest-Sector-Economic-Report-Web.pdf

Financial Support for Counties

Background

This performance measure tracks the financial support provided by State Forests to counties through revenue sharing. There is volatility in annual revenue due to log prices and harvest timing by operators. While schools and local taxing districts also are recipients of these funds, distributions are administered by the counties and not easily tracked by State Forests.

Methods

The Asset Management Unit reports revenue transferred from State Forests to counties annually and provides forecasts for expected transfers. These are reported in annual reports for the Council of Forest Trust Land Counties.

Metrics and Targets

Revenues depend on the harvest planning decisions set during Implementation Planning rather than a Board decision. State Forests management is based on sustainable harvest targets rather than revenue targets. An even flow of timber volume may not translate to an even flow of annual revenue for counties. Trends or a range of acceptable values, averaged over several years due to inherent volatility, may be set from the FMP modeling outcomes.

Harvest and Inventory

Background

This performance measure is based on the FMP timber production goal to provide a sustainable and predictable supply of timber for economic opportunity, jobs, and availability of forest products. Harvest levels are the primary source of revenue for State Forests and will impact our ability to meet other integrated resource goals. The intent of this performance measure is to demonstrate how the planned harvest volume targets, cutout volume, and inventory growth accumulate over the course of decadal-scale Implementation Plans. Over time inventory growth should meet or exceed harvest volume. Management choices such as rotation age, harvest method, thinning, and stand improvement investments impact harvest volumes and inventory growth.

Methods

Data sources include annual district reports based on Operations Plans for harvests and the EFI for inventory growth. Inventory changes and forecasts are generally modeled for Implementation Plans or FMP outcomes. Harvests and inventory changes will be reported both by emphasis area (i.e., general ground and HCAs) and in total for the plan area.

Metrics and Targets

Harvest volume is reported annually, with a comparison to even-flow targets set by the Implementation Plans. Harvest levels targets are not set by the Board but developed through Implementation Plans approved by the State Forester. Inventory does not have a current target, but potential targets will be presented with FMP modeled outcomes to the Board.

Recreation, Education, and Interpretation Opportunities

Background

The FMP goal for the Recreation, Education, and Interpretation (REI) program is to create meaningful and enjoyable experiences that foster appreciation and understanding of state forest lands and contribute to community health, sustainable working forests, and economic wellbeing. The program has traditionally relied on visitor counts to track annual use and will continue to report these metrics for the performance measure. However, this metric does not fully capture the diversity of users and activities on State Forests as reflected in the FMP strategy to conduct new visitor use research and monitoring when strategic funding is obtained. New approaches to monitoring would offer more granular location and demographic data than annual counts that could be used to tailor REI resource allocations to visitors' interests.

Methods

Data sources comes from the REI program's annual reporting. New visitor use monitoring would be developed with the consultation of social scientists and subject matter experts when strategic investments are made.

Metrics and Targets

Annual visitor counts at campgrounds and at the Tillamook Forest Center (TFC) will be reported to show trends over time. The intent of a target is not necessarily that the annual number of visitors is increasing, but that the REI program resources are well-spent toward meaningful programs and targeted towards visitors' interests.

Related Monitoring

- Visitor use surveys, community science observations, and trail counters were used to assess the Black Rock Mountain Biking Area for a year as a pilot study for a popular recreation site on State Forests.[8]

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[8] D'Antonio, A., Winder, S., Wood, S., & White, E.M. (2023). Characterizing Visitor Use at Oregon Department of Forestry Recreation Sites: A Pilot Case Study at Black Rock Mountain Biking Area. Report prepared for ODF.

Terrestrial Habitat

Background

The FMP wildlife goal has strategies to promote a diversity of forest types, functional landscapes, structural complexity of stands, and habitat for endangered species and species of concern. The intent of this performance measure is to illustrate trends in forest structure and landscape connectivity that would benefit many wildlife species across forest seral stages (i.e., structure-based biodiversity indicators[9]) even as species distributions shift with climate change.

The commitments in the HCP would differ by emphasis area with the expectation that wildlife strategies would be met across the landscape. For example, timber harvests with retention of trees, snags, and downed wood and RCAs would increase structural complexity in early seral stands. Active and passive management in HCAs would produce higher quality habitat for covered species with greater connectivity between late seral patches as forests within RCAs and HCAs mature over time.

Methods

Data for this measure will be gathered through the EFI, with updates every five years. The EFI uses a densified network of FIA monitoring plots as a systematic sample of various forest metrics across the plan area. Trends over time would be based on rolling means of FIA plot metrics summarized by emphasis area. Landscape metrics or finer-scale estimates (i.e., large trees) are provided by lidar-based model predictions for the point in time of lidar data collection.

Metrics and Targets

Four components (large trees, dead wood, hardwood trees and understory diversity, late seral forest connectivity, and habitat development for covered species) are proposed for two emphasis areas: general stewardship and HCAs (Table 4). Targets will be set to align with HCP commitments.

Related Monitoring

- Compliance and effectiveness monitoring in the HCP provides more detailed information about habitat for covered species.
- Other wildlife monitoring would be included in district Implementation Plans and the Adaptive Management Plan.

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[9] Lindenmayer, D. B., Margules, C. R., & Botkin, D. B. (2000). Indicators of biodiversity for ecologically sustainable forest management. *Conservation biology*, *14*(4), 941-950.

Table 4: Terrestrial Habitat performance measure component metrics and targets

Component	General stewardship		Habitat Conservation Area		Data source	Notes
	Metrics	Targets	Metrics	Targets		
Large trees	Occurrence of >30" DBH trees at multiple spatial scales	TBD: expected to increase over time with HCP leave tree prescriptions	Occurrence of >30" DBH trees at multiple spatial scales	TBD: expected to increase over time as restored stands mature	EFI: lidar-derived large tree presence	Trees of this size and larger are components of habitat models for covered species.
Dead wood (large downed wood and snags)	Basal area of snags and volume of downed wood	HCP compliance, expected that retention would be greater than before HCP.	Basal area of snags and volume of downed wood	TBD: increasing trend desired in management for diverse habitat	FIA and HCP compliance monitoring	Trends from FIA across plan area, estimates of change with HCP compliance monitoring
Hardwood trees and understory diversity	Proportional basal area of hardwoods and percent cover of native understory plants	TBD: expected to be maintained through retention and RCAs within harvest units	Proportional basal area of hardwoods and percent cover by native understory plants	TBD: increasing trend desired through HCA management for diverse habitat	FIA for tree basal area and understory species cover.	Elk nutritional models would be a potential synthetic metric for plants monitored by FIA
Connectivity between late seral forest patches	Northern Spotted Owl dispersal habitat by sub-geographic area	HCP compliance, 40% in each area measured at 5-year intervals	Habitat patch sizes by suitability category	Increasing proportion of larger habitat patches within HCAs	EFI: lidar-derived landscape map of late seral forests and dispersal habitat	Landscape resistance to Northern Spotted Owl movement would be a potential synthetic metric
Covered species habitat meets stay-ahead provision in HCP	Acres of habitat harvested versus ingrowth of habitat over time	Set in HCP	Acres of habitat harvested versus ingrowth of habitat over time	Set in HCP	HCP 5- and 10-year monitoring reports, habitat models based on EFI lidar-derived maps	