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# Multi-Stakeholder Assessment of Alternative Forest Management Approaches: Summary and Synthesis

*Final Report of Meridian Institute and ESSA Technologies*

Prepared for Oregon Department of Forestry  
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Forestry

# **Multi-Stakeholder Assessment of Alternative Forest Management Approaches: Summary and Synthesis**

*Final Report of Meridian Institute and ESSA Technologies*

Prepared by:  
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# 1 Introduction

This synthesis report brings together high level findings from an extensive review of options for improving the sustainable management of Oregon State Forests. This review was initiated by the Board of Forestry (BOF), which concluded that the Northwest and Southwest Oregon Management State Forest Plans were not providing sufficient revenue to manage its forests. Driven partly in response to the recent economic downturn, the State Forests Division was directed to search for ways to improve its financial viability. In response, the Division reduced expenditures through staff reductions and other cost reduction measures, and also began a two stage process of soliciting input and expertise to improve its forest management plans and practices, with a goal of improving both economic and conservation outcomes while upholding the guiding principle of Greatest Permanent Value (GPV).

The first step taken by ODF was to seek the engagement of a small group of stakeholders to provide ideas for new or revised management principles. In a series of four working sessions which took place over a period of four months, the members of the Stakeholder Group created five high level management options that reflect diverse aspirations for the State's forests.

In ODF's second step, six experienced scientists and forestry practitioners were engaged to review the options created by the Stakeholder Group, and to provide a neutral, science-based assessment of the likelihood of each option to improve both economic and conservation outcomes, relative to the current Forest Management Plan (FMP).

This report summarizes the findings and discussions of the Stakeholder Group in Chapter 2. The two detailed reports from the Group are reproduced in Appendix A and Appendix B at the end of the report. Chapter 3 summarizes the findings of the Science Panel as expressed in the Executive Summary of its report, and includes the Panel's recommendations which are found in its main report. The Panel's main report is reproduced in Appendix C. Finally, Chapter 4 provides a synthesis of the lessons learned during the two phases of the exercise.

## 2 Summary of Stakeholder Group Findings

In Fall of 2013, ODF began the process of engaging a group of stakeholders in the exploration of alternative forest management plans, with the ultimate goal of redirecting management of the Oregon State Board of Forestry lands from what is currently an unsustainable management paradigm towards one that is within the budgetary means of ODF to implement and that will result in economic and environmental sustainability over the long-term. Over the course of approximately four months, the process engaged a diverse group of key stakeholders in helping to develop and assess a possible overall approach and specific alternative options for management of those lands, taking into account the full range of economic, environmental, and social benefits and costs, and the tradeoffs among them. Governor Kitzhaber convened the first meeting of the Stakeholder Group with a request to the Group members to seek as much agreement as possible.

Over the course of the process, various Stakeholder Group members developed a range of forest management alternatives that were then reviewed and evaluated by the full Group. The alternatives, which are listed below, are detailed in the *Findings* document (see *Appendix A: Alternative Forest Management Stakeholder Assessment Findings*) along with the Group's assessment of each alternative's pros and cons as viewed by different members.

- 70/30 Approach (Dave Ivanoff)
- Timber Harvest Optimization (Ray Jones)
- FMP2.1 (Barrett Brown and Ed Kamholz)
- Restoration, Recreation, and Department Stability Plan (Ian Fergusson and Bob Van Dyk)
- Land Sale Alternative (Ray Jones)

The Group did not reach agreement on a single forest management alternative; however, all members agreed that the status quo is not sustainable – environmentally, economically, or socially. To this end, they supported the goals set forth by the Board of Forestry Subcommittee of simultaneously achieving financial viability AND improving conservation outcomes, and they agreed on the following premises:

- Managing across district/county boundaries could result in enhanced timber harvest and conservation;
- Additional restoration activities being coupled with active management (*e.g.*, contribution of large wood in streams) could result in increased conservation benefits;
- Support for an increase in “high value conservation areas” and/or outcomes;
- Support for active management within conservation areas as long as those management activities are for the purpose of achieving conservation objectives;
- Recognition that the 15 trust counties receive a share of revenues. It should be taken into account that if timber harvest allocations among counties are adjusted, some counties may be adversely affected. Therefore, the Stakeholder Group recommends that the Board seek concurrence from all 15 counties for any proposed changes;
- The predictability of timber volume needs to be improved; and

- These lands represent some of the richest recreation resource potential in the world. The potential economic development benefits to the State and the counties have yet to be fully realized and should be thoroughly explored.

The Group also identified several elements from one or more of the forest management alternatives as either having some level of support from Group members, and/or meriting further exploration. The following elements received support from all members:

- Pursue adjustments to the county revenue distribution formula among the counties to allow more flexibility in how forest resources are managed.
- Assuming the county revenue distribution can be changed in an equitable manner, consider managing the Big 3 Districts as a contiguous parcel to optimize both harvest and conservation values.
- Examine the potential that may be derived by differentiating between the Big 3 and Little 3 Districts in how they are managed, as it relates to Structure Based Management.
- Increase the emphasis on research and monitoring to continue to test the effectiveness of forest management strategies.
- Seek improvements to the process of exchanging isolated parcels that cannot be managed efficiently and to help consolidate ownership, and does not compromise public timber supply.

Elements upon which there were varying views, but some level of agreement were:

1. Supplement ODF's timber harvest revenues with some of the more promising new alternative revenue sources, as described in the Alternative Revenue Sources Report. There is majority support within the Group for seeking some new alternative revenue sources. Divergent pros and cons as viewed by different members of the Group were:

**Pros:**

- Alternative revenue sources have the potential to help fill depleted ODF coffers, and to provide much needed resources to struggling counties.
- Recreation is a particularly promising area to explore, because it offers stability in funding directly commensurate to usage; it is also currently an increasing budget line-item expense.

**Cons:**

- Alternative revenue sources may not be as predictable as timber harvest.
- It does not seem appropriate to seek fees or general fund revenue when ODF has potential for an abundance of timber revenue. There could be push-back from users asked to pay fees when they realize State forests were not being managed to their full potential.

2. Use some of the revenues derived from incrementally increased timber harvest to establish a "conservation fund." While recognized as promising, the group was split in their support of the approach.

**Pros:**

- The conservation fund has the potential to enhance conservation values, possibly even beyond just ODF lands, improve certainty and predictability for conservation and restoration, result in

on-the-ground improvements, and serve as a possible “bridge-builder” that could incorporate multiple views.

**Cons:**

- Support for this concept from the conservation community declines as the amount of timber harvest to generate the fund revenues increases; *i.e.*, the conservation benefits are seen to be over-ruled by loss of conservation values that some believe would result from increased harvest. There would be greater support for this if this could be implemented above and beyond current conservation measures.
- Those opposing the fund believe conservation investments be made as up-front commitments; if funds are not implemented until after meeting the threshold, the commitment to conservation is diminished.
- This approach relies on a minimum increase in timber harvest, which will not be achieved by all proposed plans.

3. Pursue a “general fund” request of the legislature in support of recreation, restoration, and additional research and monitoring. In addition, protection of public safety and public goods should be supplemented by general fund revenues to mitigate the risk of catastrophic events (*i.e.*, fire, blow-down, *etc.*). There was a slight majority regarding this approach.

**Pros:**

- These are needs that, if unfunded, will be unmet. To the extent that ODF cannot manage these areas independently, a general fund request may be appropriate.

**Cons:**

- One legislative body cannot bind a future legislative body.
- Same concern as above - it does not seem appropriate to request general fund revenue when ODF has potential for an abundance of timber revenue.

4. For forest management concepts that likely produce increased habitat for federally listed species, seriously examine the potential of a Habitat Conservation Plan (HCP). The group was divided on their views regarding an HCP.

**Pros:**

- An HCP may increase the certainty that a plan will be implemented, because it can provide assurances for avoiding litigation under the Endangered Species Act.
- As part of a larger landscape approach, it is appropriate to involve federal partnerships.

**Cons:**

- Negotiations to develop an HCP would be time-intensive and cost prohibitive, and therefore considered a poor business decision.
- Certainty is not necessarily enhanced by an HCP. The specifics can always be revisited.
- There is no proof that an HCP will insulate ODF from litigation.
- The federal involvement necessitated by an HCP is not desirable. These issues should be managed at the state level.

On March 14, 2014, the Oregon Department of Forestry (ODF) State Forests Advisory Committee (SFAC) met to discuss the outcomes and implications of the work products from Alternative Forest Management Plan Stakeholder Group. The meeting consisted of an overview

of the Stakeholder Group process and outcomes, and a series of exercises conducted to meet the following objectives:

- Objectively consider, **from an implementation perspective**, how the Alternative Forest Management proposals contribute to the dual goals of increased revenue and conservation.
- Evaluate the timeliness of implementation and the certainty that the proposal will provide desired outcomes.
- Evaluate the *components* of each Alternative Forest Management proposal on their ability to meet the above considerations (increased revenue, increased conservation, timeliness of implementation, and certainty of outcomes).
- Accurately and thoroughly characterize SFAC input and dialogue for review by State Forester Doug Decker.

The SFAC meeting summary is reproduced in *Appendix B: Oregon Department of Forestry State Forests Advisory Committee Workshop Exercise Summary*.

### 3 Summary of Science Panel Findings

As part of its plan to revise the Northwest Forest Management Plan, the Oregon Department of Forestry (ODF) assembled a Stakeholder Group to suggest options for forest management. This group created 5 management alternatives: 70/30 Approach, Timber Harvest Optimization, Restoration & Recreation, FMP 2.1, and Land Sale; all of which are described in summary form in the Science Panel report (see *Appendix C: Assessment of Alternative Forest Management Approaches: Report of the Independent Science Panel*). As part of a commitment to using the best available science to manage its forests, ODF sought the assistance of a panel of experienced scientists, who were asked to advise the Department on the merits and drawbacks of each alternative. The Science Panel was comprised of one expert each in the Social Sciences and Economics domains, and four experts in the Ecological and Forest Management domains. Working alone, these scientists each spent time reading, researching and writing. They then gathered for five intensive days of discussion of each panelist's writing, critiquing and collaborating to develop refined analyses and collaborative syntheses in the following six topic areas: vegetation and plant communities, terrestrial wildlife, aquatic ecosystems, terrestrial abiotic environment, economic outcomes, and social outcomes.

The Science Panel struggled with the general nature of many of the proposals, which often made it difficult to discern clear differences among alternatives. To allow them to proceed, they created and documented a consistent set of assumptions for each alternative, and then considered how each alternative would perform in providing some aspect of GPV, the statement of principles which guides ODF's management policies and decisions. Specifically, the panelists considered how each proposal would help to improve both financial and conservation outcomes relative to the current FMP.

The Panelist's analyses are both qualitative and quantitative, recognizing that ODF and the Board of Forestry are faced with decisions and tradeoffs that cannot be calculated or optimized by some simple equation. Rather, the Board is faced with carrying out a careful and deliberate evaluation of the best science coupled with prudent decision-making, considering all the non-science factors relevant to forest management. As part of its report to ODF, the panelists have also included a set of high level recommendations that they believe will help the Board consider and prioritize additional actions that will help Oregon to remain a leader in forest management:

1. ODF to develop an explicit set of indicators for use in evaluating, and publicly reporting, on the extent to which forest management is meeting or addressing conservation and social goals.
2. ODF to engage in a collaborative initiative with other public landowners to evaluate and possibly establish a protected areas conservation network within the regions in-which they operate.

3. ODF to incorporate complex early seral forests as a stand type in their management planning.
4. Evaluate, through scenario planning, the value of flexibility regarding spatial conservation constraints in increasing timber yield while achieving the desired conservation values specific to ODF forest lands.
5. ODF to use a scenario building process to evaluate the timber flow benefits using both temporally and spatially explicit methodologies before deciding on adopting a specific approach.
6. ODF to have the flexibility to take better advantage of market fluctuations to sell more or less lumber, investigate niche markets such as long logs and plant materials, and increase use of recreation fees.
7. ODF to integrate practices, decision-making and assessment of lands to identify vulnerable areas or those near the likely threshold levels and consider appropriate mixed management strategies in these areas, including a monitoring and adaptive management component for adaptation to climate change.
8. BOF is encouraged to provide ODF with the mandate, resources (budget and staff) and time to utilize the spatially explicit technology in assessing potential FMP options in order to provide the BOF with the most appropriate Plan to meet ODF goals.
9. Sufficient funds to be directed at establishing and implementing a sustainable and robust monitoring and AM program relative to the achievement of the ODF forest management goals.
10. ODF to investigate interest by adjacent public landowners, research organizations and other interested parties to collaborate in implementation of a monitoring and adaptive management program involving common values across a landscape.
11. ODF to demonstrate and reward institutional learning.
12. ODF to refine, simplify and standardize the riparian buffer rules applied to ODF forest lands.

## 4 Synthesis

### 4.1 Stakeholder Group

#### *Process*

This process was conducted at warp-speed compared to many other collaborative efforts. The Stakeholder Group effectively had three and a half days of meeting time in which to develop, evaluate, and finalize their alternatives (given that the first half day was largely dedicated to opening remarks by the Governor and formal introductions). In contrast, a similar effort by a stakeholder group to develop alternative forest management strategies for young growth on the Tongass National Forest is anticipated to have nine meetings, each two and a half days long (*i.e.*, total of 22.5 meeting days). Another somewhat comparable process - in which a stakeholder group developed consensus recommendations for a state management plan for wolves – entailed seven two-day meetings (a total of 14 meeting days). In addition to having much more time to deliberate, both of those processes were designed with a lot of the informal interaction time (*e.g.*, over shared meals) that comes with meetings being conducted two or more days in a row – giving participants the opportunity to build relationships and trust that is so beneficial in this kind of process. There is of course a cost associated with more and/or longer meetings, and there is really no way of knowing if additional time would have resulted in a different, perhaps “better” outcome from this process.

The compressed timeframe was mitigated by a significant amount of work accomplished between meetings. Many of the members worked diligently on drafting alternatives to bring to the full group, and the facilitation team met and/or had calls with members between sessions to discuss progress while ODF was working overtime on providing analytical support. It is doubtful the Group could have produced the five alternatives without that level of effort.

The process also benefitted from the “side” discussions regarding county revenue sharing. Concepts from those discussions were integral to the Stakeholder Group deliberations and were ultimately incorporated into some of the alternatives. ODF’s work on alternative funding mechanisms also came into play – informing the development of alternatives. And, the Governor’s support and involvement provided a useful incentive as well as a sense of trust in his willingness to push for implementation assuming the Stakeholder Group achieved a tangible outcome.

Less useful perhaps was the graphic exercise conducted at the SFAC meeting to evaluate the various alternatives from an implementation perspective. The exercise involved members placing dots along a scale to indicate the extent to which they thought various alternative components contributed to revenue, conservation, timeliness, and certainty. The goal was to produce a visual representation of the distribution of opinions regarding evaluation of each

alternative. However the exercise was confusing, some members of the group echoed concerns regarding a vote around these topics and the potential implications of how it might be viewed, and the results were hard to interpret. The exercise did serve a useful function in generating good discussions, but the same end might have been accomplished with a different approach.

One additional observation regarding process is that it might have benefitted from some public vetting of the alternatives before they were finalized by the Stakeholder Group. Public feedback might have helped “ground-truth” some of the features that are likely to encounter resistance - before those features were incorporated into the alternatives. Some public engagement occurred in the form of community meetings conducted by ODF in the same timeframe, but those meeting were not explicitly linked to the Stakeholder Group process. Although there was not really time for other public engagement during the Stakeholder Group process, we believe it will be key to engage key constituencies as the Board moves towards a final decision – to garner understanding, support, and ownership of the eventual strategy.

In summary, the fact that the Stakeholder Group achieved as much as they did in such a short amount of time is a credit to the members and the process. The end result – whether ODF is financially viable and conservation outcomes are improved – is yet to be determined, but the idea of a range of alternatives being generated by a diversity of stakeholders, scientifically evaluated, and then scrutinized again seems at this juncture to have been a productive path.

### ***Member Selection***

Members of the Stakeholder Group were designated prior to Meridian Institute (Meridian) being selected as the facilitator for the process. The individuals who were chosen were for the most part highly knowledgeable about management of Oregon State forests. Most of them had a very long history of prior involvement with the Department, Board of Forestry Subcommittees, and/or previous processes related to State forest management. It was apparent from the first meeting that many were already deeply invested in particular management approaches, that some members had constituencies who would hold them accountable for sticking to the approaches they supported, and most had known one another for years (and in some cases carried past levels of distrust with one-another into the process).

The composition of the Stakeholder Group had a significant influence on the deliberations and the outcomes. One of the positive results was that they required very little time to “get up to speed” and were able to have very technical discussions about forest management options. However, in Meridian’s judgment, prior experience and baggage also significantly hindered some member’s ability to compromise, and consequently the ability of the Stakeholder Group as a whole to achieve consensus. Without a doubt, consensus would have been a high bar for any group given the stakes, inherent tension between/among interests at the table, the trade-offs required to establish common ground, and the reality that no single proposal is likely to have truly achieved all the GPV goals. However, in retrospect, a different, perhaps

larger, set of members MIGHT have produced a different result. It seems possible that the inclusion of more people relatively new to the forest management arena and with demonstrated past ability to effectively collaborate could have made a difference. A slightly bigger group may have resulted in more creativity, a broader range of views, less rehashing of old positions, and dilution of some of the strongly held attachment to previously conceived approaches.

Any speculation about whether a different and/or larger group would have achieved more consensus pales in light of the fact that the Stakeholder Group members were all deeply committed to the process did fabulous work, and gave generously of their time and wisdom. Many took considerable risk to go as far as they did in the quest for common ground.

### ***Range of Alternatives***

The stated goal for the Stakeholder Group was to develop one to three alternative management strategies for consideration by the Board of Forestry. They actually produced five. For the reasons noted above, and given the relatively short amount of time in which to accomplish their work, the notion of just one consensus alternative seems in retrospect to have been an unlikely stretch. More narrowing (e.g., from five to three alternatives) might have been feasible with more time. It would be interesting to hear from ODF and the Board whether in fact having a robust array of options rather than a single alternative (or even a smaller number of alternatives) was in fact advantageous. Does ODF perhaps have more flexibility with a wide range as compared to only a single option? Would it have been harder to propose something different if, for example, the science review had revealed flaws in a single alternative?

In addition to the development of the five alternatives, the Stakeholder Group documented pros and cons for each alternative (as viewed by different perspectives) and reached consensus agreement on a cores set of principles. They did not however produce as much specificity as the science reviewers would have liked – making it difficult to compare and analyze the alternatives. It felt from a facilitation perspective like there was a continuing push for specificity, but metrics were hard to come by – especially for the ecological attributes – leaving the science review team to focus more on qualitative measures.

### ***Information and Data Requests***

The Stakeholder Group, ODF, and Meridian Institute were all challenged at times by the information needs of the process. It is common in any diverse stakeholder group to have some members who rely heavily on information for any number of good reasons, and others who do not want or need as much. It became apparent early on that some members of the Stakeholder Group had an extremely large appetite for information (particularly for model runs to show potential harvest levels under different management scenarios). We had great support from ODF scientists and GIS specialists, and from Dr. Terry Droessler who provided analytical capacity on a contract basis. However, we (the contractor and ODF in consultation with the Meridian team) struggled with model assumptions; figuring out the best system for

obtaining ODF’s underlying data; reconciling apparently contradictory information; gaining the trust of some members who were skeptical about the model results and or perceived bias in the ODF scientists; and producing the runs in a timely way.

The Stakeholder Group spent a lot of time in debates about the model results, even though we repeatedly said that they should not interpret model outputs as reliable, precise predictors of harvest, but rather indicators on a relative basis of what different alternatives might produce compared to other alternatives. In addition, we frequently found ourselves “in the weeds” during deliberations as members poured over the minutiae, and occasionally got caught up in the “my science versus your science” phenomenon.

With hindsight, for this process we might have been well-served by more emphasis on developing management concepts and less time devoted to wrangling over the data, coupled with scaled-back expectations for technical/analytical support – easier said than done given the hunger there was for data to support various positions! The fact that alternatives developed by the Stakeholder Group were going to be subject to careful science review might have been another reason for possibly backing away from the analysis.

## 4.2 Science Panel

The synthesis of Science Panel findings is divided into two sections, reflecting lessons learned and recommendations about the organizational process which supported the work of the panel, and the lessons learned and recommendations about potential directions for forest management. Both kinds of learning enable ODF and the Board to progress institutionally as well as scientifically by remembering “what works.”

### *Process*

Selection of panelists was not simple and required iterative discussions within the ESSA team, consultation with ODF staff, and with potential panelists. In addition to questions from potential panelists about the content, delivery and scope of their work, it was critical to have excellent “team players” on the panel: scientists who, in addition to high competency in their own domains, were able to listen to one another and work as a healthy collaborative group. The skills of our “Oregon expert” (Dr. George Stankey), subcontracted to provide expert local knowledge, were extremely valuable in helping to select the best panel members.

The Science Panel wrestled with the challenges of working across the science-policy divide. Working in this domain requires scientists who are able to move from a “comfort zone” in which knowledge gained through the precise and narrower questions of classical empirical science becomes more fragmentary; where decision and value trade-offs become the norm, and an acceptance of weight-of-evidence and incorporation of social values more critical to decide upon strategic and policy directions. Our individual panelists had different levels of comfort with this tight rope, but all were willing to attempt to take a whole-system view. This kind of flexibility is extremely valuable.

We originally anticipated the creation of a six member panel consisting of two experts in each of three topic areas representing economic, ecological and social values. During the panel creation process it became clear that ecological values were much more diverse than economic and social values. Consequently, we opted for a single panelist for economic values, a single panelist for social values, and four panelists to represent the diversity of ecological and forest management values. The wisdom of this decision is reflected in the great diversity of issues and interactions which were considered by all the panelists.

We had originally anticipated that “abiotic components” might be a significant ecological issue in the comparison of the Stakeholder alternatives. During the analysis this topic area was found to be less important (*i.e.*, there were no great contrasts among the alternatives, compared to the current FMP policy and practices), and it was fortuitous that our abiotic expert also had lengthy experience in the forest management policy arena.

A *Terms of Reference* document was created for the panel, providing detailed information about the project background and context, the conceptual approach proposed by ESSA, and the detailed task-process which would create a credible, neutral, science-based analysis of the Stakeholder alternatives. Besides enumerating the issues that each panelist would study, the *Terms of Reference* also provided limits, describing answers and issues that were outside the scope of the project. The creation of this document was time consuming, but provided a very clear road map for an analysis that needed to consider how 5 alternatives and 6 topic areas would contribute to economic and conservation outcomes on state lands. The *Terms of Reference* also benefited from a final round of discussion with the panelists, and was not finalized until the panelists reached agreement on the approach and detailed content which each scientist was expected to provide.

### ***Evaluation of Stakeholder Alternatives***

In its analysis of the alternative management scenarios, the Science Panel clearly identified the important role of uncertainty and variability in understanding and managing Oregon’s state forests. This uncertainty takes on three main forms: incomplete scientific understanding of ecological responses; uncertainty of future market conditions, and uncertainty about response to climate change.<sup>1</sup>

Addressing the first kind of uncertainty, ongoing Adaptive Management and other research studies will reduce uncertainty regarding ecology and management actions, but will never reduce variability to zero. The Panel supports ODF’s commitment to practicing strong Adaptive Management to reduce uncertainty surrounding numerous management issues (*e.g.* riparian and stream management).

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<sup>1</sup> In the context of the work by the Stakeholder Group and Science Panel a fourth class of uncertainty, in the form of uncertainty about the detailed implementation of the alternative management scenarios was also considered.

Considering the second form of uncertainty, a retrospective analysis of five decades of economic indicators shows that there can be 50% variation in year-over-year revenues (Science Panel Report, Figure 3-3). Notwithstanding ODF's even-flow timber policy; much of this variation is beyond the Department's control. In the face of this kind of uncertainty, ODF is commended for its plan to improve its ability to forecast future stand and habitat conditions through spatial simulation. These technologies will provide it with tools to evaluate a wide variety of management options spanning all the values embodied by the Greatest Permanent Value rule, not just economic indicators.

The work of the Science Panel also highlights the importance of considering tradeoffs while seeking to benefit both conservation and economic outcomes. This can be difficult, and goes beyond simplistic arguments about incompatibilities between economic and conservation values. For example within the Terrestrial Ecology topic area (Science Panel Report, Table 4-6), tradeoffs can be found within both the recreation-focus management regime (R&R) and a management regime (THO) with a commercial emphasis. Shaded cells below show some examples in which terrestrial indicators are expected to move in opposite directions within each alternative management system.

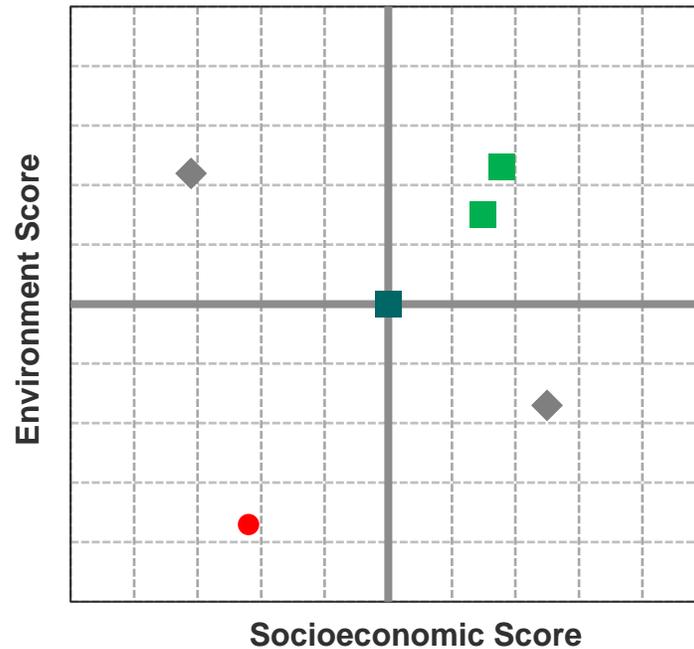
Component	Stakeholder Alternative				
	70/30	THO	R&R	FMP 2.1	Sale
<b>Stand level habitat</b>					
Snags	↓	⬇	=	=	⬇
Legacy trees	=	⬇	=	=	⬇
Downed wood	↓	⬇	=	=	⬇
Vegetation diversity	↓	↓	=	=	⬇
Herbicide use	↑	↑	=	=	⬆
<b>Landscape level habitat</b>					
% late-seral age classes	⬇	⬇	↑	⬇*	⬇
% complex early seral	↓	↓	↓	=	⬇
Degree of late-seral forest fragmentation	↑	⬆	↓	⬆*	⬆
Habitat amount for T&E species	↓	⬇	↑	=	⬇
% intensive plantation management	↑	↑	↓	↑*	⬆
% in representative protected areas	↑	⬇	↑	=	↑
Wildlife monitoring	↑	↑	⬇	=	⬇
Inventory of forest managed primarily for conservation purposes	↑	↑	⬇	=	↑

Tradeoffs in expected outcomes are found in most of the other topic areas examined by the Science Panel, leading the panel to conclude that no single alternative management is able to simultaneously improve conservation and economic outcomes, relative to the current FMP.

Spatial segregation of management activities is an element of many of the Stakeholder alternatives (e.g. the 70/30 plan, with conservation- and production-emphasis areas), and institutional support (staff and budget) for this planning mode within ODF will help to reduce or resolve some of tradeoffs just described. The incorporation of spatially explicit planning as a component of a revised FMP is seen by the Panel as providing positive benefits to all measures of forest planning – not just economic measures – and the Board is encouraged to provide budget and staff to allow ODF to incorporate this methodology.

The members of the Science Panel found that rigorous attention to the core values of the GPV rule will require finding better ways to measure its three key dimensions of economic, environmental and social values. The Panel struggled with developing and incorporating a methodology for scoring the 5 alternatives relative to the current FMP, attempting to measure

both socio-economic and environmental values. Ultimately they were not able to do this within the available time, given the pressing need to complete their assessment. If this had been accomplished, it would have provided a consistent way of identifying and quantifying the alternatives. A conceptual example of this kind of measurement is shown below in the following graph, which simplifies the comparison to only two dimensions.



In the hypothetical example, the two axes represent aggregate scores for environment (vertical) and socioeconomic (horizontal) values. The score of the current FMP occupies the center of the graph, where the two heavy lines intersect, and scores for five alternatives are shown, each differing from the *status quo* in some way. The dot in the bottom left quadrant represents an alternative that performs worse than the current FMP in terms of both the environmental and socioeconomic scores. The example diamond in the bottom right has an improved socioeconomic score but is worse in terms of the environment. Finally, the two squares in the upper right quadrant represent two scenarios that improve on the FMP in both environmental and socioeconomic scores.

A variety of methods can be used to quantify conservation. As already noted, the limitations of time and resources within the project did not permit development of a measurement framework. In the future, ODF could create a methodology for assessing environmental and social measures: a way to “add up” conservation measures, in order to provide a quantitative framework for measuring GPV and changes to GPV.



## Appendix A: Alternative Forest Management Stakeholder Assessment Findings

This 46 page report is not reproduced in this abbreviated document version. It can be accessed at the following link:

[http://www.oregon.gov/odf/BOARD/docs/BOF\\_Subc\\_Alt\\_FMP/Stakeholder/Final\\_Findings\\_Document.pdf](http://www.oregon.gov/odf/BOARD/docs/BOF_Subc_Alt_FMP/Stakeholder/Final_Findings_Document.pdf)



## Appendix B: Oregon Department of Forestry State Forests Advisory Committee Workshop Exercise Summary

This 30 page report is not reproduced in this abbreviated document version. It can be accessed at the following link:

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## Appendix C: Assessment of Alternative Forest Management Approaches: Report of the Independent Science Panel

This 107 page (+ appendices) report is not reproduced in this abbreviated document version. It can be accessed at the following link:

[http://www.oregon.gov/odf/BOARD/docs/BOF\\_Subc\\_Alt\\_FMP/2014\\_Sept/BOFMIN\\_20140904\\_ATTCH\\_02.pdf](http://www.oregon.gov/odf/BOARD/docs/BOF_Subc_Alt_FMP/2014_Sept/BOFMIN_20140904_ATTCH_02.pdf)

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