

Implementation of the Montreal Process: An Oregon Case Study

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Abstract—The state of Oregon has about 28 million acres of forestland. The west side of the state is dominated by Douglas-fir forests, and most of the east side forests are occupied by Ponderosa pines or mixed conifers. The Oregon Board of Forestry is charged with making policy for Oregon's forests. It has relied on quantitative assessments of forest conditions for many years, but the Board's recent focus has shifted toward the concepts of sustainability and examining a wide range of outputs. The Board has adopted the Montreal Process criteria and indicators as a framework to use to measure and communicate about sustainability. Many indicators have been adopted for use in monitoring forest conditions and evaluating policy changes. Organizing around the seven criteria of sustainability provides a consistent framework that allows us create a continuous improvement process. Planning, implementing, monitoring, and evaluating with the same framework has the advantage of aligning programs to work together and will allow us to learn and adjust our strategies more rapidly. We have found the Montreal Process to be a useful framework for developing forest policies and the necessary actions that contribute to social, environmental, and economic sustainability at any scale.

Introduction

The state of Oregon is located in the northwest corner of the United States. It is about 62 million acres in size, 28 million acres of which is forestland. The Cascade mountain range runs north to south bisecting the state into two major climatic zones. The west side of the state has a relatively moist Mediterranean climate while the east side is drier with forests only at the higher elevations. On the east side about 75 percent of all forestlands are capable of producing 20 to 84 cubic feet per acre per year. In western Oregon more than 85 percent of the forestlands are capable of producing 85 to 225 cubic feet per acre per year. About 64 percent of the forests in western Oregon are dominated by Douglas-fir. East of the Cascades, lower elevation forests are mostly ponderosa pine, while the forests at the higher elevations are a mix of conifer species. Oregon's forestland ownership is about 60 percent public, and 40 percent private.

Oregon's Forest Policy Makers

The Oregon Board of Forestry is a quasi-legislative body appointed by the Governor to make policy for Oregon's forests. The Oregon Board of Forestry has relied on assessments of forest conditions and outputs to make policy since 1911. Early assessments and policy documents were mostly concerned with economic

outputs, especially timber production. However, starting with the conflicts over endangered species in the 1990s, the Board's focus has shifted toward examining a wider range of outputs provided by the forest.

Recent polling shows that most people in Oregon want a balance of environmental, social, and economic goods and services produced from the forest, and natural resource decision-makers, like the Board of Forestry, are left with the task of reconciling the conflicts and explaining their decisions to the public. The Board needed to articulate a common theme that makes sense to the public and explains decisions on forest resources, and explains the trade-offs among values and resources that must be considered in decision-making.

Sustainability

Sustainability is emerging worldwide as a unifying concept in forest management. Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their needs. People understand the basic concept of sustainability: when we use wood and paper, we should not damage the forest's ability to grow trees in the future; we should not destroy the other, non-commodity values of the forest; and we should not consume wood and paper faster than trees can grow back. Due to the public's understanding and acceptance, there is power in the ideas and language of

sustainability. The concept is broad and inclusive, and using the ideas of sustainability can significantly reduce the dynamics of confrontation.

The challenge became what framework to use to measure and communicate about sustainability. The Oregon Department of Forestry (ODF) has adopted the criteria and indicators developed through the Montreal Process. The criteria provides a framework that describes the goals of sustainability. The pieces we want to sustain are biological diversity, the productive capacity of the forest, the health of the ecosystem, soil and water resources, global carbon cycles, and socioeconomic benefits. And, we need a legal, economic, and institutional framework capable of providing those values. Several different indicators are used to describe and measure each criterion.

The Oregon Department of Forestry's forest assessment process generally includes data collection, analysis, evaluation, and policy development. In 2000 ODF completed a "First Approximation Report" (www.odf.state.or.us/DIVISIONS/resource_policy/resource_planning/far/far/default.asp) using the criteria and indicators of the Montreal Process. This was the first step in the Assessment Process, completed with the goal of gathering the data currently available to measure the criteria and indicators, and identifying what additional data is needed to understand conditions in Oregon's forests. ODF has selected a subset of indicators from among the 67 of the Montreal Process to use as the primary tool to monitor and evaluate conditions and trends of Oregon's forests.

In 2001 the Oregon Board of Forestry co-sponsored a symposium with Oregon State University to learn about the state of knowledge pertaining to each of the seven criteria of sustainability. The symposium provided information developed during the analysis and evaluation phases of the assessment process. Information from the symposium and the First Approximation Report was used to inform decision makers about current conditions and potential barriers to sustaining forest outputs. After the symposium, the Board convened a workgroup of legislators, landowners, NGOs and other interested parties to begin discussing policy options about how to manage Oregon's forests. The Board used a series of follow-up public work sessions to complete the policy phase. The following sections illustrate the practicality, application, and utility of the Montreal Process.

Using the Indicators of Sustainability

The Oregon Department of Forestry has adopted a "core" set of indicators from the Montreal Process to use as a tool to monitor and evaluate the conditions and

trends on forestland in Oregon. The primary objective of the project is to collect data on a set of indicators that is large enough to provide the most important information described by the criteria from the Montreal Process, yet small enough to allow efficient assessment and tradeoff analysis to be completed in a timely fashion for policy analysis. We want to collect a mix of spatial and non-spatial data that can be used to display the condition of Oregon's forests at multiple scales (in other words, the ecoregion, county, or watershed scale) depending on the policy question. Examples of the data are included in the following sections.

Conservation of Biological Diversity

We are using a coarse filter approach to describe biological diversity. The available information includes a mixture of spatial data generated from satellite imagery and ground based sample data. The spatial data can provide locationally specific information to enhance watershed analysis capabilities, while the plot data provides an accurate way to monitor change over time.

Indicators used to describe biodiversity include:

- Forest types,
- Successional stages (forest size classes),
- Area by forest type in reserved area categories, and
- The status of rare, threatened, endangered species.

Other things being equal, maintaining a broad range of seral stages can enhance forest biodiversity. As shown in figure 1, even in the heavily harvested Douglas-fir forests of western Oregon, a broad range of size classes, and therefore seral stages, still exist. Over the past few decades Oregon has moved toward greater protection of water, wildlife, and other environmental resources in the management of its forests. The "reserve" strategy is employed on forestland when it is closed to commercial timber harvest by law, regulation, or forest plan requirement. The primary purpose of the reserve strategy is to set the land aside for other values than the economic value of wood production, namely, watershed protection, wildlife habitat, and scenic and aesthetic values. Trees are sometimes harvested in reserved forests, but only when this harvest is incidental to other activities and deemed to benefit the non-wood production values. About 31 percent of Oregon's forestland is managed under a reserve strategy. In addition to the reserves, a "multi-resource" strategy is employed on about 33 percent of Oregon's forestland. These management allocations are intended to yield a variety of resources including timber. However, it includes lands on which timber harvest is balanced with non-wood production values by means of state regulations, forest plan, agency policy, or owner objective. Multi-resource lands represent a wide range of

Area of Forest Type by Size Class In Western Oregon

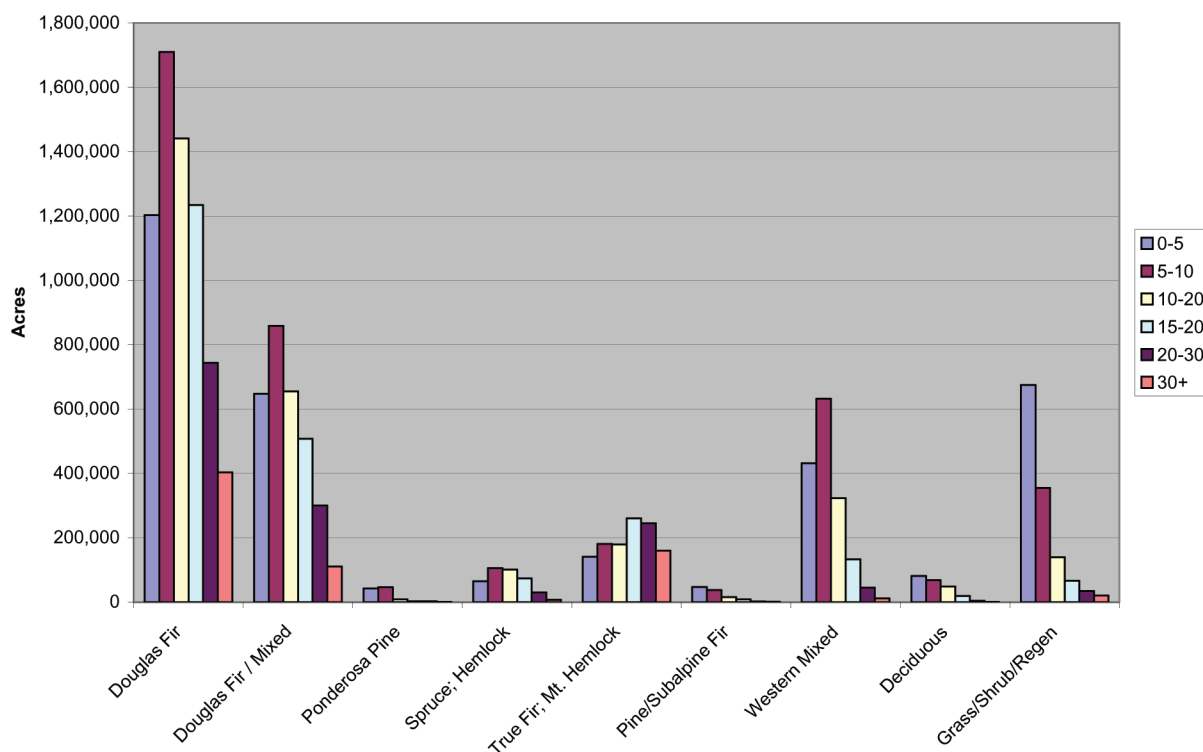


Figure 1. Area of Forest Type of Size Class.

management techniques and intensities, aimed at producing moderate to high levels of many social, economic, and environmental benefits. Modeling studies have shown that keeping these policy options in place will dramatically increase the amount of older forests over time.

Maintenance of Productive Capacity of Forest Ecosystems

Several sources of data are used to create estimates of whether the economic productive capacity is being maintained.

Indicators used to describe productive capacity include:

- Forest land available for timber production,
- Growing stock of merchantable and nonmerchantable species, and
- Annual timber harvest.

As the public land in reserves and multi-resource allocations has grown over time, the amount of timber that can be harvested sustainably from these forests has diminished. As shown in figure 2, the decline in both the sustainable harvest level and the actual timber harvest on public lands. Under the current land allocation rules, the

sustainable harvest has dropped to about 16 percent of the forest's biological potential and actual timber harvest from public forestlands has declined to about 8 percent of the biological potential.

A stable forestland base is needed to sustain all forest values. Between 1953 and the mid-1980s Oregon lost about 20 percent of its private timberland to development. The rapid development on rural lands caused policy makers to create Oregon's Land Use Planning laws and to restrict rural development on forestland. Tracking the change in forestland available for timber production has allowed evaluation of the effectiveness of changes in the

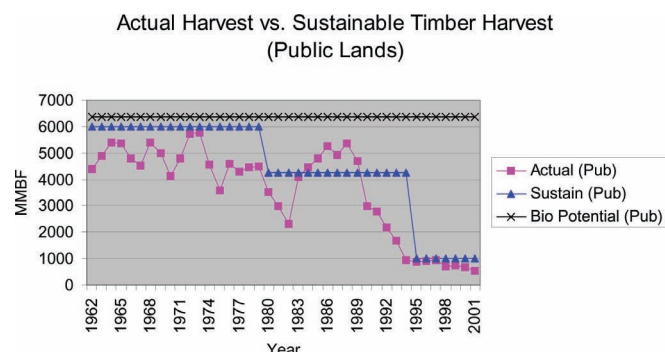


Figure 2. Timber Harvest on Public Forestland in Oregon.

policies designed to limit development. Each successive change has had a positive affect on maintaining forestland for commercial purposes, and the rate of forestland conversion has decreased. Unlike timber harvests on public lands, timber harvests from private lands have remained relatively stable, and harvest levels are close to both the sustainable level and the biological potential.

Maintenance and Enhancement of Long-Term Multiple Socio-Economic Benefits to Meet the Needs of Societies

Resources that have little or diminishing value to people will inevitably be converted to other uses. Therefore, in order to develop an overall measure of sustainable forest management, it is critical to understand the diversity of values that people find in forests, and also to understand how those values and priorities change over time. The indicators for socioeconomic benefits are designed to examine the total output of some of the most important items including wood products production, recreation, employment, and community well-being.

Indicators used to describe socio-economic benefits include:

- Value of wood products production, including value added through downstream processing,
- Area and percent of forestland managed for recreation and tourism,
- Employment in the forest sector, and
- Viability of forest dependent communities.

Oregon's economy has historically been built on natural resource industries, especially timber. The forest sector is very important to the state; it accounts for \$12.8 billion in total industrial output, which is 6.9 percent of the state total. The forest sector is even more important in most rural areas. In three counties the forest industry accounts for more than 80 percent of the traded sector, and in 15 counties it is greater than 50 percent (2001 data).

Oregon's forest sector employment declined rapidly during the recession of the 1980s and because of the reductions in federal timber supply in the early 1990s. Total forest sector employment dropped by about 19 percent between 1980 and 1995, but has been relatively stable since then.

Average earnings per job are another indicator of the importance of the forest sector to local communities. While wages in the state have increased over time, many of the timber dependent counties in Oregon have not recovered from economic down-turns in the 1980s and early 1990s.

Many of the timber dependent counties also have very high unemployment rates and other indications of economic and social distress.

Maintenance of Forest Ecosystem Health

The major forest health problem in Oregon is related to changes in the historic fire cycles. Since the early part of the 20th century, human use and management of forests have altered the historical relationship between fire and forest. Past timber harvesting practices and a century of aggressive suppression of fires have fundamentally changed the makeup and structure of some of Oregon's forests, particularly in parts of the drier forest types in southern Oregon and east of the Cascades. A buildup of fuels in the form of needles, branches, logs, and living trees is at the heart of the problem.

Indicators used to describe forest ecosystem health include:

- Area and Percent of Forest Affected by Processes or Agents Beyond the Range of Historic Variation.

Information on fire condition classes is currently available from the US Forest Service. The data is in a spatial format and can be combined with forest type and size class data sets to provide an estimate of the spatial extent of the forest health problems and the forest types that are most affected. Many of the land allocations designed to produce older forest conditions are at risk of uncharacteristically severe wildfire. More than 60 percent of the wilderness areas and late-successional reserves in Oregon are in areas with moderate or severely altered fire regimes. In 2002 more than 8 percent of the total area in reserves burned in large wildfires.

Policy Development

The Oregon Board of Forestry has adopted forest sustainability as their primary goal. Their mission is to "lead Oregon in implementing policies and programs that promote environmentally, economically, and socially sustainable management of Oregon's 28 million acres of public and private forests." Their vision for Oregon's forests includes:

1. Healthy forests providing a sustainable flow of environmental, economic, and social, outputs and benefits.
2. Public and private landowners willingly making investments to create healthy forests.
3. Coordinated statewide forest resource policies among Oregon's natural resource agencies.

4. A Board of Forestry recognized as an impartial deliberative body operating openly and in the public interest.
5. Citizens that understand, accept, and support sustainable forestry; and make informed decisions that contribute to achievement of the vision of 2003 Forestry Program for Oregon (<http://www.oregonforestry.org/fpfo/2003/>).
6. Adequate funding for the Department of Forestry to efficiently and cost-effectively accomplish the mission and strategies of the Board of Forestry and department personnel policies that encourage and recognize employees, allowing them to meet their full potential in providing excellent public service.

To accomplish this mission and vision the Board has adopted seven strategies developed from the criteria of the Montreal Process. Under each of these strategies they have articulated priorities and actions that if accomplished they feel will lead to the achievement of the strategy and ultimately to sustaining forest outputs and values.

In consultation with the Board and other policy makers, Oregon's forest cluster has developed a Natural Resources Strategy for Oregon's Prosperity. It is a 9-point Plan that builds on the concepts of sustainability and Oregon's strengths. The nine points are:

1. Build economic strategies on Oregon's environmental performance, for example,
 - The Oregon Plan for Salmon and Watersheds – improved with federal agency “buy-in”
 - Oregon Watershed Enhancement Board and Ballot Measure 66 funds
 - Oregon Sustainability Act of 2001
 - Oregon Conservation Incentives Act of 2001
 - Forestry Program for Oregon – Sustainability
 - National Fire Plan & 10-year Comprehensive Strategy
 - Statewide conservation strategies – to be developed
2. Renew investments in education, research, tech transfer for innovators, new knowledge-based resource businesses, continual improvement in existing businesses

3. Differentiate products for market advantage “Brand Oregon”
4. Pioneer Innovation – high-tech, information systems, biosciences, marketing applied through natural resource clusters
5. Increase public investments for private contributions of public resource services, for example, salmon habitats, natural heritage protection
6. Expand natural resources trade, exports to create wealth
7. Solve problems through proactive, state, local-led, collaboration for natural resources sustainability (En Libra)
8. Strengthen partnerships with, roles for federal land managers – active adaptive management of federal lands for conservation and sustainable economic prosperity
9. Exert bold leadership in Western Governor's Association

Ultimately, the Oregon Department of Forestry hopes that using and implementing the concepts of sustainability will allow us to maintain the “social license” needed to practice forest management. We believe there is power in communicating through the language of sustainability. The framework from the Montreal Process is very broad and inclusive and has allowed ODF to have a more structured public dialogue about the issues and goals that are important to Oregonians. We have also found the indicators of sustainability to be a useful tool to tell the “stories” of sustainability in a language that the public understands and to answer questions about how Oregon's forests are doing at producing the range of values important to the public.

Organizing around the seven criteria of sustainability provides a consistent framework that allows us to create a continuous improvement process. Planning, implementing, monitoring, and evaluating with the same framework has the advantage of aligning programs to work together and will allow us to learn and adjust our strategies more rapidly. We have found the Montreal Process to be a useful framework for developing forest policies and the necessary actions that contribute to social, environmental, and economic sustainability at any scale.