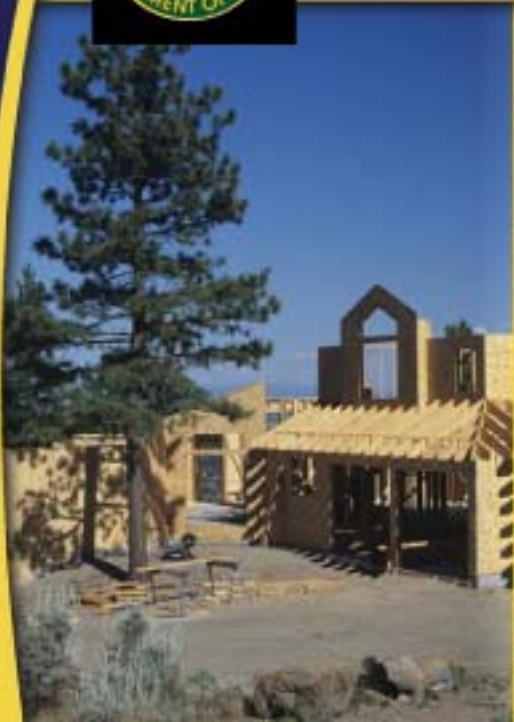
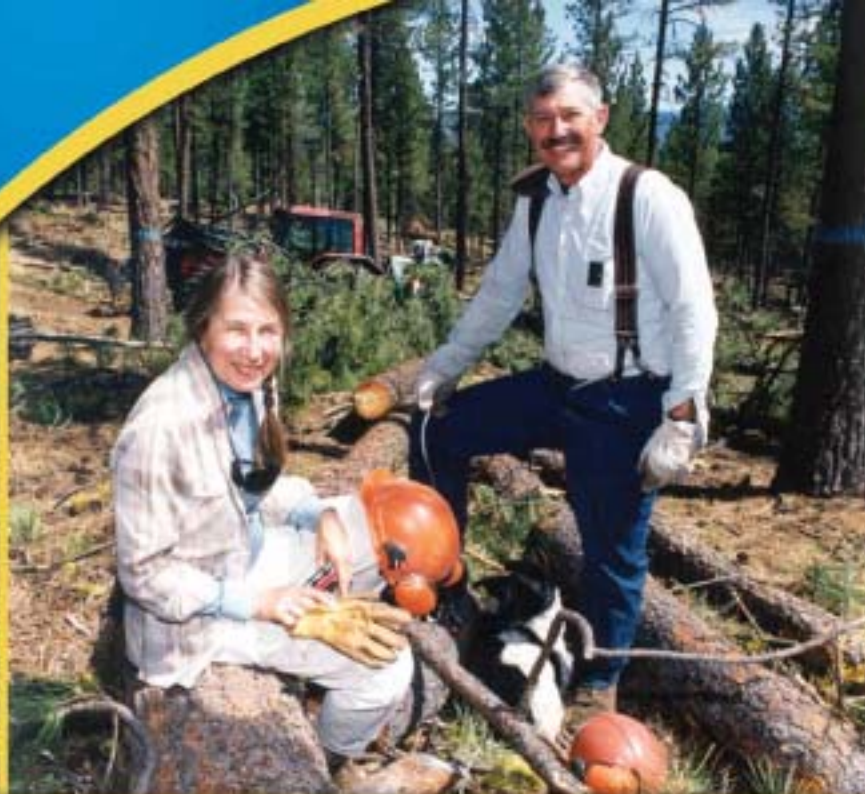


2007-2009

# Oregon Forests Report



INTRODUCING OREGON'S INDICATORS OF SUSTAINABLE FOREST MANAGEMENT





***Board of Forestry Mission:***  
*To lead Oregon in implementing policies and programs that promote environmentally, economically, and socially sustainable management of Oregon's public and private forests.*



***Above: Many "working" Oregon forests - including these forestlands in western Oregon - provide environmental, economic and social benefits to all Oregonians.***



*Photo by Mike McMurray*

***Left: Millions of acres of forestland in Oregon are currently managed under reserve status, and are closed to commercial timber harvest and managed to promote natural and cultural values.***



***Left: The Tillamook State Forest is managed for a variety of benefits, including recreation and timber.***

# 2007-2009 Oregon Forests Report

## Table of Contents

Welcome to the 2007-2009 Oregon Forests Report _____	1
Indicators of Sustainable Forest Management _____	2
7 Strategies to Ensure Sustainable Forest Management _____	3
Strategy A: Laws, policies, research _____	4
Strategy B: Social and economic benefits _____	6
Strategy C: Productive capacity _____	8
Strategy D: Soil and water _____	10
Strategy E: Native forest plants and animals _____	12
Strategy F: Forest health _____	14
Strategy G: Carbon storage _____	16
Conclusion _____	18
Appendix _____	19
Information on state-owned forests _____	22

---

*“If environmental values are not protected, forest health and productivity will suffer. If economic values are not honored, society cannot afford to protect the environment or provide social benefits from forests. If social values are not accommodated, the license to manage forests for any purpose will be lost.”*

- State Forester Marvin Brown



Marvin Brown





---

# Welcome to the 2007-2009 Oregon Forests Report

## From State Forester Marvin Brown

Exactly twenty years ago the United Nations Commission on Environment and Development published *Our Common Future*, the collective thinking of an international group of policy-makers headed by Gro Harlem Brundtland, a former Prime Minister of Norway and eventual Director General of the World Health Organization.

The product of 900 days of deliberation, this document - also called the "*Brundtland Report*" - provided the international community a definition of sustainable development that has framed every discussion on this topic since.

That definition says that sustainable development must meet the needs of the present generation without compromising the needs of future generations. It goes on to say that doing so requires the integration of social, environmental, and economic values.

Oregonians can find this definition reflected in our own state statutes, *ORS 184.421*: "*Sustainability*" means using, *developing and protecting resources*

*in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic and community objectives.*

Oregonians interested in forests can find it further reflected in the Board of Forestry's *Forestry Program for Oregon*, approved in 2003. As the Board's strategic plan, it states that our discussion about the welfare of Oregon's forests will be based on the concept of **sustainable forest management**, and the Board defines that to mean "*forest resources across the landscape are used, developed, and protected at a rate and in a manner that enables people to meet their current environmental, economic, and social needs, and also provides that future generations can meet their needs.*"

To have this discussion about whether Oregon's forests are sustainably managed we need to point to different factors that would indicate sustainability. In creating this list of "strategies and indicators" of forest sustainability, we drew once again from the international policy arena.

Following the Brundtland Report were a series of international policy negotiations, culminating in the *Rio De Janeiro Earth Summit of 1992* where forest principles were agreed to by 108 countries in attendance. A few years later, in 1995, the Montreal Process Santiago Declaration was signed by the United States and 11 other nations that collectively represent 90 percent of the world's temperate and boreal forests and 35 percent of the world's population.

The Santiago Declaration established seven criteria and 67 indicators for the conservation and sustainable management of forests in these countries. The indicators were updated in 2006 and are intended to provide a way to measure and assess at national and international scales whether the seven criteria for sustainable forest management are being met.

In 2000, Oregon became the first U.S. state to test the use of the Montreal Process indicators at a state-scale. In 2005, the Oregon Board of Forestry asked a distinguished group of experts in

Oregon to use the Montreal Process as a guide for developing meaningful Oregon Indicators of Sustainable Forest Management.

And it is a pleasure as State Forester to now encourage Oregonians to have the important discussions about how you think our forests are managed.

How do you think our forests are doing? Do they meet the needs of the present without compromising the needs of the future? Do we see a mutually supportive set of economic, environmental, and social values being delivered from our forests? Does our organization of information around strategies and indicators give you an informed picture to answer these questions?

I hope this report causes you to read, think, and ultimately talk about how our forests are doing...and from that springs the actions to ensure this important resource is truly being sustained.

# “Indicators” of Sustainable Forest Management:

## A measuring stick for evaluating Oregon’s forests

**F**orest sustainability - a worldwide, unifying concept in forest management that resonates with the public - is an idea that the Oregon Board of Forestry and the Oregon Department of Forestry (ODF) have embraced for many years.

ODF’s earliest laws and policies sought to create sustainability, initially in protecting Oregon’s forests from the devastating effects of wildfire, and later, by acquiring cut- and burned-over forestlands that are today’s sustainably managed state forests. Oregon’s original Forest Practices Act of 1971 was the first state law in the nation to mandate sustainable forest management principles. Through the years, sustainability notions and principles have evolved and matured, as has the work of the Department and the Board, and our vision for Oregon’s forestlands.

Reflecting this evolution, the seven strategies of the Oregon Board of Forestry’s 2003 strategic plan - the *Forestry Program for Oregon* - form a framework around which forest

sustainability issues can be organized and discussed, and also identify statewide outcomes the Board wishes to achieve.

The *Forestry Program for Oregon* recommended that Oregonians achieve consensus on a set of “indicators” as useful tools to measure progress towards the goal of sustainably managed forest resources. Indicators can inform the Board, other policy-makers, and the public about the environmental, economic, and social conditions of Oregon’s public and private forests,



photo by Tom Mickel, ODF

*A Dark-Eyed Junco (Junco hyemalis) perches atop a tree stump in Lane County’s coast range. These forest visitors are seen year-round in Oregon.*

and are a cost-effective way to consistently collect important data needed to monitor changes in these conditions over time.

are intended to address all of the state’s public and private forestlands. They also provide valuable linkages to other sustainability conversations and forest resource assessments at community, regional, national, and international scales.

This report introduces the 19 indicators of sustainable forest management that the Board endorsed in January 2007. State, federal, tribal, and local governments, and private partners in Oregon can use these indicators in ongoing monitoring, policy development, and communications efforts.

Also included in this report are the desired *trends* for each indicator, *questions* the data will be designed to answer, and statements by the Board of Forestry that further describe their vision.

***Are Oregon’s 28 million acres of forests being sustainably managed? And how will we know?***

Many of these indicators address questions Oregonians have been asking for many years. Work to collect the data needed

### ***What are indicators, and how can they help us talk about sustainability?***

Indicators can be viewed as measuring sticks. They are a way to make Oregon’s forest conditions and trends measurable and understandable. They can tell us what the current conditions are, and track how those conditions change over time.

Oregon’s indicators of sustainable forest management

***“These indicators are a huge accomplishment. This work begins to build the foundation for a new way of talking about our forests.”***  
*- State Forester Marvin Brown*

to answer the questions raised by these indicators will be ongoing over the next several years. Much of this work can only be done by collaborating with partners - other natural resource agencies, and national, state, and local organizations.

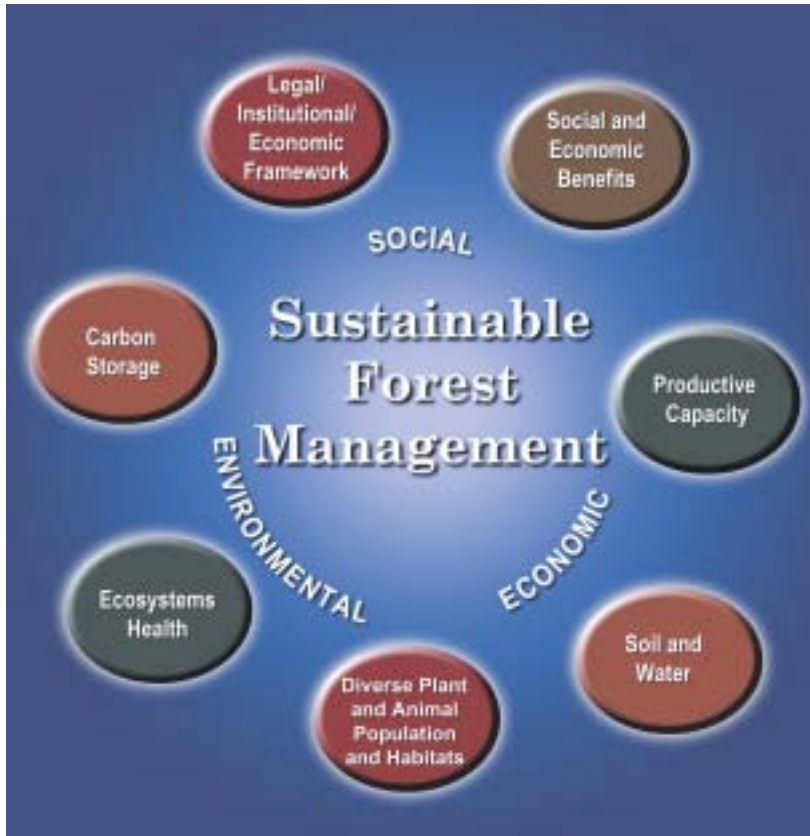
Ultimately, these indicators will feed into the information being collected for a comprehensive assessment of

Oregon's forests. In 2010, this assessment will be used during a Board of Forestry symposium on the state of Oregon's forestlands that will be held to kick off the next strategic planning process for the future of Oregon's forests.

It has been said that sustainability is a journey, not a destination. With these indicators in place, we will be able to see where we have been

and begin to foresee where we are going. We will know what our successes have been and where we need to focus our efforts. We can lead and plan for the future of Oregon's forests - achieving the Board's vision to provide a sustainable flow of environmental, economic, and social benefits from Oregon's forests for all Oregonians.

For more information on the *Forestry Program for Oregon* and Oregon Indicators of Sustainable Forest Management, visit the Oregon Board of Forestry website at [www.oregonforestry.org](http://www.oregonforestry.org)



*The 7 strategies of sustainable forest management in the Forestry Program for Oregon.*

## 7 STRATEGIES TO ENSURE SUSTAINABLE FOREST MANAGEMENT

- a) Promote a sound legal system, effective and adequately funded government, leading-edge research, and sound economic policies.
- b) Ensure that Oregon's forests provide diverse social and economic outputs and benefits valued by the public in a fair, balanced, and efficient manner.
- c) Maintain and enhance the productive capacity of Oregon's forests to improve the economic wellbeing of Oregon's communities.
- d) Protect, maintain, and enhance the soil and water resources of Oregon's forests.
- e) Contribute to the conservation of diverse native plant and animal populations and their habitats in Oregon's forests.
- f) Protect, maintain, and enhance the health of Oregon's forest ecosystems, watersheds, and airsheds within a context of natural disturbance and active management.
- g) Enhance carbon storage in Oregon's forests and forest products.

The indicators on the following pages are grouped with the applicable strategy.



# Strategy A. Laws, policies, education, funding, and research that support Oregon's forests.

## Indicators

- Ability to measure and report on all other Oregon sustainable forest management indicators.

Q: Does Oregon have the research and government capacity to provide current, complete, and reliable information for the other 18 sustainable forest management indicators?



**Desired trend:** Increasingly current, complete and reliable data for all Oregon indicators.

- Development and maintenance of sustainable forest management knowledge

Q: Do knowledgeable natural resource professionals manage Oregon's forests? Do Oregonians have access to information about sustainable forest management - especially students and family forest landowners?

**Desired trend:** Oregon student and family forest landowner participation in forest education programs is increasing; forest resource research funding, higher education forest resource instruction, natural resource professional society membership, and forestry extension staffing are maintained or increasing..



photo by ODF monitoring staff

Using special software and "before" and "after" photos, hemispherical photography, above, is used by ODF staff in streamside monitoring projects to calculate shade.



● **Compliance with forestry regulations**

**Q:** Are private forest landowners reforesting their lands after timber harvests and complying with other provisions of the Oregon Forest Practices Act?

**Q:** What's the economic cost to private forest landowners of Forest Practices Act compliance?

**Q:** Are federal land managers in Oregon fully implementing approved management plans?

**Desired trend:** High compliance with management plan standards and guidelines on Oregon federal forestlands. High voluntary compliance with Oregon Forest Practices Act requirements for reforestation and other activities on private lands. Clear public policy expectations for private forest landowners' contributions to the protection and maintenance of public forest resource values.

**Background**

These three indicators cross a wide spectrum and serve as an institutional foundation for measuring the sustainable management of Oregon's forests.



photo by Cynthia Orlando, ODF

*Oregon Department of Forestry stewardship foresters help forestland owners comply with the Oregon Forest Practices Act.*

**The Oregon Board of Forestry \***



Barbara Craig



Cal Mukumoto



Steve Hobbs



Jennifer Phillippi



Larry Giustina



Peter Hayes



Bill Hutchison

\* State Forester Marvin Brown serves as Board secretary.

# Strategy B. Social and economic benefits of Oregon's forests.

## Indicators

- **Forest-related revenues supporting state and local government public services**

**Q:** What are the trends in forest-related revenue sources that support Oregon public services?

**Desired trend:** Forest-related revenues are a significant and predictable funding source for state and local government services dependent on those revenues.

- **Forest-related employment and wages**

**Q:** How are employment and wages for forest-related jobs changing throughout Oregon?

**Desired trend:** Stable or increasing forest-related Oregon employment and compensation.

- **Forest ecosystem services contributions to society**

**Q:** What are recreation, scenic beauty, carbon storage, and other non-commodity forest values worth?

**Desired trend:** Oregon forest ecosystem services are stable or increasing and are sustainable.



*This attractive oak flooring is the byproduct of a private landowner sustainably managing a multi-age, species-diverse forest west of Salem.*

photo by Cynthia Orlando, ODF



● **Forest products sector vitality**

**Q:** How important is the forest products sector to the Oregon economy? Is the forest products sector globally competitive?

**Desired trend:** Wood and paper products and other forest benefits are stable or increasing.

*“Conservation is a foresighted utilization, preservation and/or renewal of forest, waters, lands and minerals, for the greatest good of the greatest number for the longest time.”*

*Gifford Pinchot, First Chief of the U.S. Forest Service*

**Background**

These indicators will measure the social and economic benefits that Oregon’s forests provide for all Oregonians, including the health of the forest products industry in Oregon’s economy, and the global marketplace and increasingly important “ecosystem services.” These “ecosystem services” values - such as clean water, fish

habitat, and scenery - are often taken for granted because they are not part of the traditional economic markets and, as such, have no price and are provided for “free.” However, these assets are invaluable and would cost millions, if not billions, to replace. These and other associated values also help attract desirable business, industry, and skilled workers to Oregon, contributing even further to Oregon’s overall economy and the health of all of Oregon’s communities.

We need to fully understand the health and sustainability of this sector - so critical to our economy - and its prospects for the future. This includes understanding long-term trends in sales and forest industry and our ability for this industry to compete in the world’s markets.

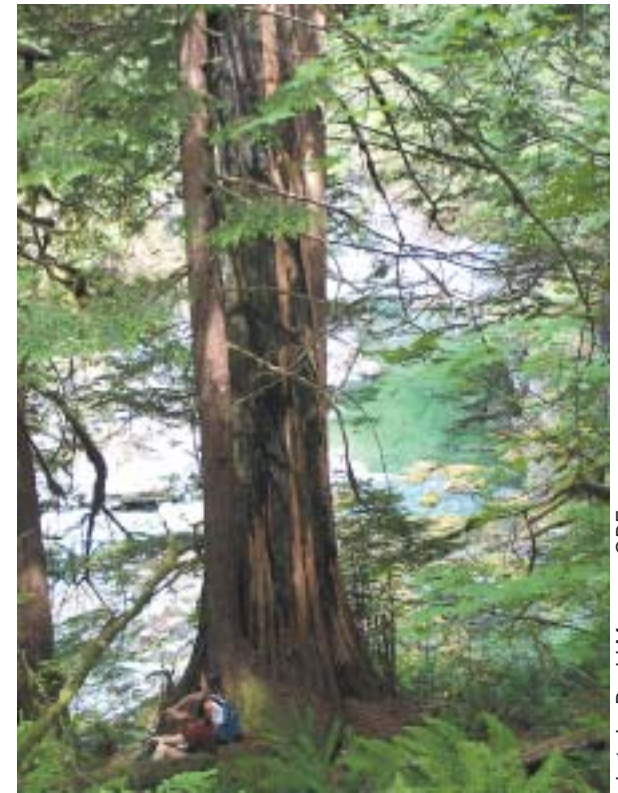


photo by David Morman, ODF

*Some forest values are hard to measure but still important; values such as habitat for plants and animals, solitude, scenic beauty, and a place for spiritual renewal.*



photo courtesy AOL

*Feller bunchers like this one provide a “softer” logging technique, and can operate in smaller, more widely dispersed logging areas and in partial cutting situations.*



# Strategy C. The productive capacity of Oregon's forests.

## Indicators

- **Area of non-federal forestland and development trends**

**Q:** How much, and where is, Oregon forestland being developed for other uses, and what areas of Oregon forestland are likely to be developed next?

**Target:** In 2010 the area of Oregon's non-federal wildland forest is 97.4 percent of 1974 levels.

- **Timber harvest trends compared to planned and projected harvest level and the potential to grow timber**

**Q:** How does the rate of timber harvest on public and private forestlands compare to historic levels, plans and projections, and the potential of Oregon forests to grow timber?

**Target:** Oregon timber harvest levels are 90 to 110 percent of planned and projected levels.



Photo by Jeff Peck, ODF

*Note: Targets are specific socially-preferred outcomes or results for the indicators. At this time, targets have been established only for Indicators under strategy C, since the Oregon Progress Board has already established Oregon Benchmarks for these two topics.*

*Logging by helicopter on the Tillamook State Forest. How does the rate of timber harvest on public and private forestlands compare to historic levels, and the potential of Oregon's forests to grow timber?*



## Background

These indicators relate to two major concerns: forestland continuing to provide the environmental, economic, and social benefits of working forests; and the potential impacts of the loss of these benefits to all Oregonians.

Forestlands provide a range of goods, values, and services, including clean water, biological diversity, and carbon sequestration.

*“Trees outstrip most people in the extent and depth of their work for the public good.”*

*- Sara Ebenreck*

The economic, environmental, and social benefits that Oregonians want from their forests are directly affected by forestland being converted to other uses.

Nationally, between 1982 and 1997, the amount of land deforested was equal in size to all

of the forests in the state of Washington. More than 50 million acres of forestlands are planned for development over the next 50 years, and the population in the Pacific Northwest (and subsequently, development) is expected to grow faster than the national average.

Forestland converted to development also complicates wildland firefighting in wildland-urban fire interface areas. Large fires that threaten dwellings are 48 percent more expensive to fight, and the likelihood of human-caused fires exponentially increases with the

addition of each new home.

For fish and wildlife, loss of forestland habitat to developed uses is generally permanent, with additional fragmentation that threatens species’



Photo by Cynthia Orlando, ODF

migrations and movement, spreads exotic pests and invasive species, and conflicts with the number of infrastructure that accompanies developed land.

The loss of forestlands also means lost future opportunities such as carbon storage and possible renewable energy sources – biomass, electrical generation or biofuels – which would help Oregon reduce its dependence on fossil fuels.

Maintaining timber harvest levels while also meeting other environmental, economic, and social needs, is critically important to Oregon - and Oregonians. Comparing trends in projected and actual timber harvest levels for both public and private lands, as well as information on the potential of Oregon’s forests to grow timber, is valuable because of the economic importance of maintaining a viable primary forest processing industry in our state and our local communities.



photo by Steve Vaught, ODF

*These young, healthy Willamette Valley pine trees on private land in western Oregon represent a promise for future generations. The promise is that of continued environmental, economic and social benefits that "working forests" provide Oregonians.*



# Strategy D. Soil and water in Oregon's forests.

## Indicators

- **Water quality in forest streams**

**Q:** How are the physical, chemical, and biological properties of Oregon forest streams changing?

**Desired trend:** Water quality index values in forested Oregon watersheds are stable or improving.

- **Biological integrity of forest streams**

**Q:** How are populations of fish, aquatic insects, and aquatic amphibians in Oregon forest streams changing?

**Desired trend:** Indices of biotic integrity values in forested Oregon watersheds are stable or improving.

- **Forest road risks to soil and water resources**

**Q:** How are Oregon forest roads affecting water quality and fish passage in streams? To what extent has the construction of roads converted forestland to non-forest conditions?

**Desired trend:** Increasing proportion of sampled Oregon forest roads pose a low risk to soil and water resources.



photo courtesy ODF monitoring staff

*The Department is currently undertaking two Board of Forestry-led monitoring efforts. The "high aquatic potential project" is investigating ways to increase the presence of large wood in streams. Large wood helps create fish habitat similar to that associated with mature streamside stands. Here, M.J. Briya, ODF, uses an engineer's level to measure stream gradient.*





photo by George W Hartwell

**Photo left: Oregon checkermallow (*Sidalcea oregana*), listed as endangered, grows in Oregon's meadows, stream margins, wet places, and at low-to-high elevations in ponderosa pine forests and sagebrush.**

**Background**

Soil and water are the foundations that enable Oregon's forests to thrive. High-quality water for aquatic life and human uses is very important to Oregonians, and forestlands

produce Oregon's highest quality water. More than half of Oregonians depend on forests for their drinking water. Industry, agriculture, fisheries and recreation users also need high-quality water. It can be an important factor that a business considers when choosing Oregon as a place to grow and expand.

*“Land, then, is not merely soil; it is a fountain of energy flowing through a circuit of soils, plants, and animals.”*  
- Aldo Leopold

Forest wetlands, streams, rivers, and lakes are also critical for aquatic life. Fish, amphibians, insects, and other organisms need the clean water that Oregon's forests can provide – for habitat, reproduction, and to preserve the health and survival of their species.

Roads provide many benefits throughout Oregon's forests – access for property owners, the public and their many recreation activities, wildfire

management, forest management and improvements, and transporting wood products. However, roads do alter the natural landscape, and can impact soil and water resources. Assessing the risks of forest roads

related to altering streams, lakes, or wetlands, or to stream blockages, landslides, and surface erosion, is critical to understanding the health of Oregon's forestlands.



photo by Bruce Newhouse

**Above: Vernal pools are a unique type of wetland that fill and dry out each year. Many are lost to urban and rural residential development and agriculture, but their unique wet-dry cycles attract some 33 different wildlife species in California and southern Oregon. Oregon Department of Fish and Wildlife conservation and restoration efforts are ongoing.**



# Strategy E. Native forest plants and animals and their habitat.

## Indicators

- **Composition, diversity, and structure of forest vegetation**

**Q:** What is the condition of the diverse mix of trees and other vegetation in Oregon's forests, and how have these conditions changed over time?

**Desired trend:** Following establishment of a statewide plant and animal conservation policy, the composition, diversity, and structure of Oregon forest vegetation are within, or growing towards, desired future condition ranges.

- **Extent of area by forest cover type in protected area categories**

**Q:** To what types of protection categories are Oregon forestlands allocated, and what major forest cover types are included? Who manages the lands in these categories?

**Desired trend:** Following establishment of a statewide plant and animal conservation policy, allocations of Oregon forest cover types to protected area categories are consistent with desired future conditions.

- **Forest plant and animal species at risk**



Photo by Mike McMurray

*This marbled murrelet swimming off the Oregon coast near Depoe Bay is a good reminder of the importance of Strategy E. Listed as threatened, these birds feed offshore and nest inland on branches of old-growth conifers.*

**Q:** How many Oregon native forest plant and animal species are considered threatened or endangered? What is the historic and current distribution of these species?

**Desired trend:** A decreasing number of Oregon native forest plant and animal species are at risk (extinction, extirpation, endangered, threatened, or potentially endangered or threatened).

## Background

Maintaining healthy populations of native species and habitat is essential for forests. The trees and plants of Oregon's forests are the primary source of timber production and habitat for Oregon's native



*... everything on the earth has a purpose, every disease an herb to cure it, and every person a mission. That is the Indian theory of existence."*

*- Mourning Dove  
(Christine Quintasket,  
Salish) (1888-1936)*

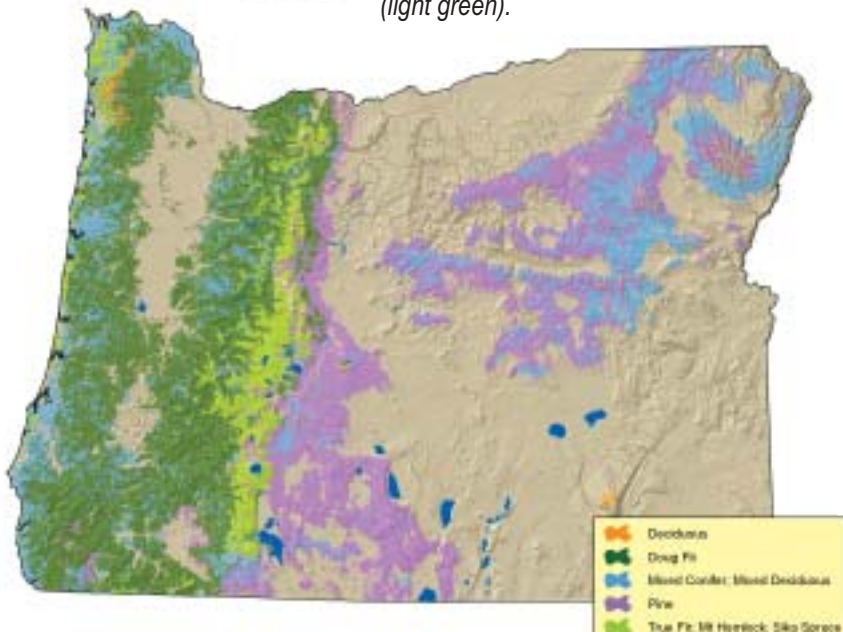
species. Any changes in the amounts or types of this vegetation are of particular importance, and could also serve as an indicator of ecosystem change. Without understanding these conditions and how they change over time, we lose our ability to understand species and habitat change, and to react to that change.

Oregon's forests are managed for a variety of uses – multi-use, resource protection, wood production, urban. By tracking the

amount of forests that are dedicated to different resource protection

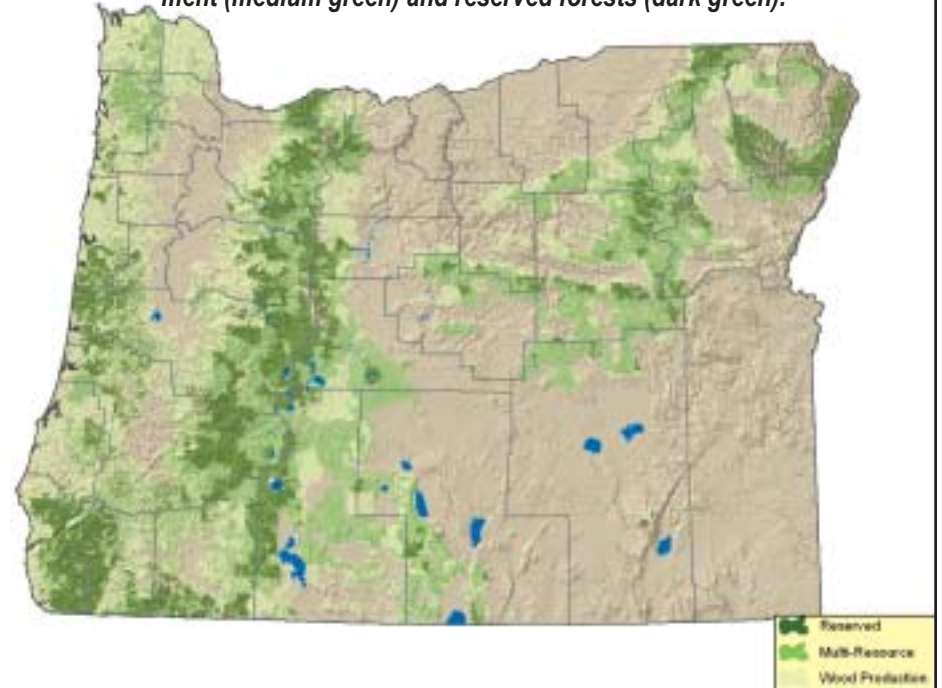
### Forest Types

Oregon forest types include Douglas-fir (dark green); mixed conifer/deciduous (blue); pine (purple) and true fir; hemlock, and Sitka Spruce (light green).



### Forest Management

Oregon's many forests are managed for different objectives, including wood production (light green), multi-resource management (medium green) and reserved forests (dark green).



strategies – and the ownership of these forests – choices can be made about how all of Oregon's forestlands can be managed for the future.

The federal Endangered Species Act and other federal and state requirements mandate certain actions to protect threatened and endangered animals and plants. Oregon's forests provide some of these species' native habitat. Understanding historical, current, and projected future status of native forest plant and animal species can help Oregonians understand, and possibly prevent, an increase in the number of species at risk over time. This information will also help implement the 2006 Oregon Wildlife Conservation Strategy on Oregon's forestlands – a partnership with the Oregon Department of Fish and Wildlife to which the Oregon Department of Forestry has committed its participation.

# Strategy F. The health of Oregon's forests

## Indicators

- **Tree death from insects, diseases, and other damaging agents**

**Q:** How many acres of Oregon forestland have dead and dying trees as result of insects, diseases, or other factors? How much wood volume is contained in these dead and dying trees?

**Desired trend:** Stable or decreasing long-term levels of Oregon forest tree mortality.

- **Invasive species trends on forestlands**

**Q:** How many acres of Oregon forestland are affected by non-native insects and diseases and invasive plants and animals?

Is Oregon successful in excluding or containing the worst invasive species threats to the state's forests?

**Desired trend:** No invasive species on Oregon's 100 Most Dangerous list are uncontained in the state's forests, and a stable or decreasing amount of forest acreage is affected by invasive species.



photo by Rob Flowers, ODF

**In 2006, mountain pine beetle infestations increased by 97,000 acres to 356,000 acres statewide. Outbreaks usually occur in older, overly-dense pine stands, and current outbreaks - which began in 2001 - are concentrated on federal lands from Mt. Hood to the Fremont National Forest. These outbreaks can create tree death across the landscape, fuel ins major wildfires.**

- **Forest fuel conditions and trends related to wildfire risks**

**Q:** How many acres of Oregon forestland have fuel conditions under which wildfires could be unnaturally intense and/or result in killing most or all of the large standing trees?

How many acres of Oregon forestland have been treated to reduce this hazard?



**Desired trend:** Increasing rates of effective forest fuel treatments to improve resiliency to wildfire and an increasing area of Oregon forestland resilient to wildfire.

### Background

Oregonians value forests that provide the full range of goods, services and ecosystem benefits healthy forests should provide. While fire, native

*“Nature is always hinting at us. It hints over and over again. And suddenly we take the hint.”*  
~ Robert Frost

insects, and plant diseases are natural components of healthy forest ecosystems, insects and diseases, invasive species, exotic pests, and dangerous fuel conditions need to be monitored so that action can be considered to address threats to the health of the forests that we value.

Invasive species – such as Scotch broom, Himalayan blackberry, false brome, and others – are a major threat to the native species found in Oregon’s forests, adversely affecting diversity, habitat, and populations. Exotic pests can also have significant economic impacts through crop damage and the loss of markets through quarantines. Monitoring the status of these invasive pests can provide an early warning about their threat to Oregon’s native and urban forests.

Wildfires are a historic, natural occurrence in Oregon’s forests. However, in some areas of the state, unnatural fuel buildups have increased the risk of uncharacteristically intense wildfire. In other places – such as throughout Oregon’s wildland-urban interfaces – even historically normal fires may have become economically and socially unacceptable. We need to monitor the fire conditions across Oregon’s forestlands. The indicators will tell us the scale of the forest fuel problem and the rate of fuels treatments in areas of particular risk to social and economic values.

*Right: Butterfly bush (Buddleja davidii) can grow into a dense thicket and has become invasive in several parts of the state, especially reforestation sites on productive forestlands in southwest Oregon. Butterfly bush appears with greater frequency on auto and railroad rights-of-way, in industrial yards and streamside areas throughout western Oregon. Recently (2001), plants were identified in forested areas of the Willamette National Forest and in commercial timberland (2003) on Oregon's south coast.*



Photo by Brad Knotts, ODF

*False brome (Brachypodium sylvaticum), a weedy-looking perennial grass, is an invasive plant that threatens natural areas in Oregon. It grows in a wide variety of habitats and can quickly become the dominant plant species under the forest canopy.*



photo courtesy Glenn Miller, ODA



# Strategy G. Carbon storage in Oregon's forests and forest products.

## Indicators

### Carbon stocks on forestlands and in forest products

**Q:** How much carbon is stored in Oregon's forests, and in wood products produced from Oregon's forests? How is the amount and rate of carbon storage in Oregon's forests changing?

**Desired trend:** Rates of storage of carbon in Oregon's forests and Oregon forest products are stable or increasing.

### Background

Global climate change is occurring, and our world is getting warmer. This change will have significant impacts in much of our lives, from increased wildfire risk, size, and intensity, to decreasing rainfall, snowpacks, and glaciers - water resources that we and all species need to survive. Oregon's forests may have many important roles to play in the future relating to this significant change in our climate. One of the most important will be in carbon storage, affecting the carbon cycle by "holding" carbon from release into the atmosphere - carbon that "warms" the world.



Photo by Rod Nichols, ODF

*With regard to climate change, significant opportunities exist to learn more about ways to increase carbon storage in our native forests.*



Significant opportunities exist in both our rural and urban forests to increase this carbon storage. These opportunities include tree planting - both in our native forestlands and urban areas - encouraging longer harvest rotations, reducing wildfire fuels, using and encouraging the use of wood products (which emit less carbon dioxide during manufacture than do steel or cement), and

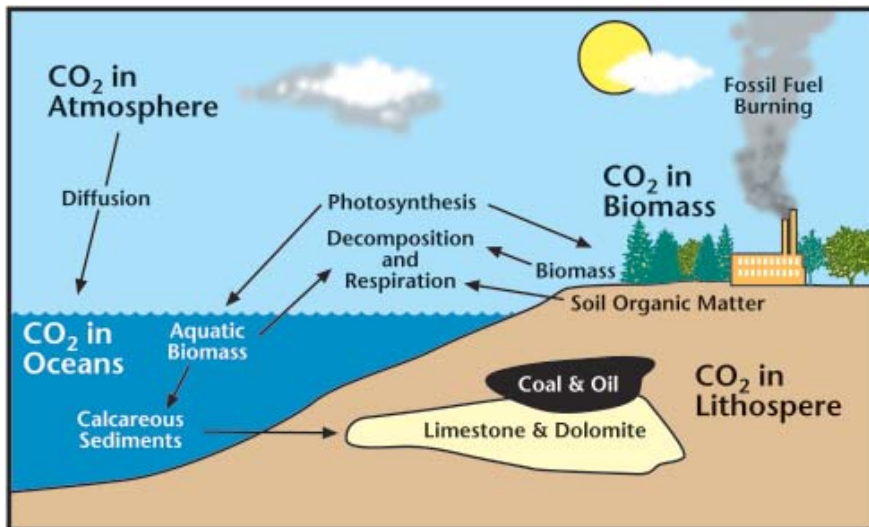
*“Foresters are chief players in a drama which may determine the fate of the earth.”*  
 ~ Leon Minckler

discouraging the conversion of forestlands to other uses. By monitoring the carbon stored in forests and forest products, and how that amount is changing, we can learn how our policies and actions are affecting the amount of carbon stored in Oregon’s forestlands and forest products over time. We can

then consider and make choices about how we will adapt and respond to a warmer world.



*Encouraging people to buy wood products is helpful in offsetting climate change, as wood emits less carbon dioxide during manufacture than does steel or cement.*



*The movement of carbon between the atmosphere and the land and oceans is dominated by natural processes, including photosynthesis. The earth’s positive imbalance between emissions and absorption results in the continuing growth in greenhouse gases in the atmosphere.*

# Conclusion:

## Putting Oregon Indicators of Sustainable Forest Management to work

Just as the trees we plant today are for the benefit of future generations, it's hoped that future Oregonians will benefit from our efforts at the start of the 21st century to ensure that the environmental, economic and social values our forests provide are maintained and enhanced.

Oregon's indicators of sustainable forest management are of long-term value to sound forest management. From a technical standpoint, the indicators are used to help organize and integrate forest-related technical assessments, research, and monitoring. With limited long-term funding available for these activities, the indicators highlight Oregonians' highest priorities for needed forest information. These priorities can be used to develop



photo by Jeri Chase, ODF

budgets that more efficiently allocate available funds by promoting assessment, research, and monitoring projects.

No doubt the indicators will be revised and refined over time in response to new knowledge and changing values, but the framework is now in place for all citizens interested in Oregon's forests – regardless of their perspectives – to use a common set of indicators to measure and discuss forest resource conditions and trends.

Greater public consensus and more politically sustainable solutions to complex forestry issues can result from this new way of looking at our forests.

*“These indicators can be used to address what Oregonians need from our forests. They are powerful tools that will allow us to be better informed about how well we are managing Oregon’s forests...and, what we need to improve upon.”*

*- Steve Hobbs, chair, Oregon Board of Forestry*



---

# Appendix

## Oregon Board of Forestry Ad Hoc Forest Management Indicator Advisory Committee

Throughout 2005 and 2006, the Board's Ad Hoc Forest Management Indicator Advisory Committee worked to develop sustainable forestry indicators for adoption by the Board.

Engaging the public, as well as many technical and policy experts interested in Oregon's forests, their work was an important service to Oregon and its citizens. The Board thanks the committee members for their contributions.

### *Members of the Oregon Board of Forestry Ad Hoc Forest Management Indicator Advisory Committee:*

**Committee Chair Craig Shinn**

Portland State University

**Susan Ash**

Portland Audubon

**Representative Chuck Burley**

House District 54

**Kevin Craig**

Coquille Tribe

**Jon Germond/Audrey Hatch,**

Oregon Department of Fish and Wildlife

**Kevin Godbout**

Weyerhaeuser Company

**Jim Golden/Cal Joyner**

U.S. Forest Service, Region 6

**Mike Haske,**

U.S. Bureau of Land Management,  
Oregon/Washington Office

**Chris Jarmer**

Northwest Regional Forest Practices  
Committee/Oregon Forest Industries  
Council

**Kemper McMaster**

U.S. Fish and Wildlife Service

**Tom Quigley/Cindi West/Paul Dunn,**

USDA Forest Service/Pacific Northwest  
Research Station

**Hal Salwasser**

Oregon State University College of  
Forestry

**John Shelk**

Ochoco Lumber Company

**Gary Springer**

Committee for Family Forestlands

**Karen Steer**

Sustainable Northwest

**Rex Storm**

Associated Oregon Loggers

**Karen Tarnow/Bob Baumgartner**

Oregon Department of Environmental  
Quality

**Bob Van Dyk**

Pacific University

**Sara Vickerman**

Defenders of Wildlife

**Representative Brad Witt**

House District 31

*This publication was produced by the  
Oregon Department of Forestry's Agency Affairs Program.  
Editor/Project Manager: Cynthia Orlando  
Principal Writer: Jeri Chase*

# From the Oregon Board of Forestry

## A staff summary of the Board's intent statement on use of the sustainable forest management indicators

### Striving for greater public consensus

The indicators represent a way to share common interests, and to promote agreement about forest issues.

The indicators are a key tool for measuring progress toward achieving the seven strategies in the *Forestry Program for Oregon*. Implementation of indicator data collection and reporting will not detract from the ongoing statutory responsibilities of the Department of Forestry's field programs.

- The use of indicators can lead to clear, unambiguous, consensual public policy decisions.
- The indicators are a tool for society to learn to make informed decisions and to take sound actions as it steers toward environmental, economic and social sustainability.

- The indicators should be used to focus and prioritize forest-related monitoring, assessments and research, so that limited resources can be allocated most effectively and efficiently.

- The initial "trend" statements for the indicators are intended to support public dialogue and promote greater consensus among Oregonians about the meaning of sustainable forest management. While the indicators and their components may remain fairly constant, trend statements for the indicators may be updated as more information becomes available, as interplay between indicators is better understood, and as societal values evolve.

- Neither the indicators nor trend statements should be viewed as policy objectives.

Instead, they should be used to evaluate current policies already established, and to help interpret the effects of those policies.

- Over time - perhaps through the anticipated 2011 revision of the *Forestry Program for Oregon* - it is hoped consensus will be achieved on quantifiable policy targets for the indicators so that future statewide forest assessments can measure and report on progress towards those targets. Since they also exist in the Oregon Benchmarks, two of the 19 indicators already have established targets.

### Building a network of cooperators.

The Department of Forestry will build and maintain a network of cooperators for support of long-term use of the indicators. This means not only technical experts, but also leaders of cooperating

organizations. Such collaboration will foster integration with other data and reporting efforts to improve the quality of information, while avoiding duplication and maximizing efficiency.

- Implementation of the 19 indicators will require integrating a wide variety of data from a number of sources. Most indicators build on current data and historic policy concerns. For some indicators, new data collection methods will need to be developed, existing funding will require reallocation, or new funding will be needed.

- For the indicators to remain credible, policy-makers and the public will need to see clear links between indicator reports and more detailed technical and scientific information supporting them.

---

On January 3, 2007, the Board of Forestry adopted the intent statement summarized here.



- All users of data associated with the indicators must understand that the indicators function as an integrated set of measures of environmental, economic and social performance. All indicators should be used together to provide a sustainable forest management picture for the State of Oregon. Absent this broader, integrated context, discussion of the performance of individual indicators is less productive and less desired.
- The indicators provide the basis for a sustainability view at a statewide scale. To be meaningful, some indicators may need to report trends at smaller scales, such as counties, timbersheds, watersheds, forest cover types or ecoregions. This state-level effort will complement smaller-scale assessments such as county, national forest or community levels, as well as regional and national assessments.
- Indicators are intended to complement - not replace or diminish - other important performance measures such as the Oregon Progress Board

Benchmarks and Department of Forestry performance measures. Within this broader hierarchy of performance measurement, the indicators should be viewed as the "vital signs" Oregon uses to track the environmental, economic and social benefits and values of Oregon's forests, as well as our progress on the journey towards sustainability.

- Future users of data produced by the indicators should understand that factors outside the direct control of Oregonians might significantly affect indicator trends. External factors may include: global economic cycles and forest products market forces; climate change; population growth, and invasive species.
- The dynamic, disturbance-



photo by Cynthia Orlando, ODF

*Schoolkids enjoy a picnic in the woods at a Klamath Outdoor Science School campout on the Sun Pass State Forest. Some 500 students participated in 2006.*

driven nature of Oregon forest ecosystems will also affect indicator trends potentially in both positive and negative ways. Therefore, indicators should be viewed within the

context of dynamic forest ecosystems, rather than from a static ecosystem perspective.

---

*This section provides data described by ORS 526.255, which requires that the State Forester submit a biennial report to the Governor and to the committees of the Legislative Assembly with responsibility for forestry*

*matters. Required information includes discussion of forest management plans, data about the volume and value of state timber harvests, and reports on receipts distributed to counties and to the Common School Fund.*

## **Four State Forest Management Plans**

The Oregon Department of Forestry has four long-range management plans in place to guide operations on the 780,000 acres of state forestland. These plans address legally required management directives for both Board of Forestry Lands and Common School Forest Lands.

Board of Forestry Lands must secure the greatest permanent value, defined to mean "healthy, productive, and sustainable forest ecosystems that over time and across the landscape provide a full range of social, economic and environmental benefits to the people of Oregon."

Common School Forest Lands are directed by the state constitution to be managed by the State Land Board "with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management." The Division of State Lands contracts with ODF to manage the forestlands.

### **Northwest & Southwest Plans**

Management plans for the state forests in northwest and southwest Oregon use timber harvesting - variations of thinnings to clearcuts - to produce revenue and develop habitat. The plans, both adopted in 2001, have "structure" targets that prescribe diverse forest conditions, ranging from open spaces following clearcut harvests to old growth-like stands after multiple thinnings.

Nine performance measures were developed in 2007 to assist the Board of Forestry in evaluating over time whether management of Board of Forestry lands is achieving "greatest permanent value" for Oregonians, as the law requires. Based on evaluations of the nine performance measures, the Board directed the Department to seek ways to improve performance of the forest management plan for Tillamook and Clatsop state forests.

### **Northwest Oregon State Forests Management Plan.**

Tillamook State Forest managed by Tillamook (westside) and Forest Grove (eastside) districts. Clatsop State Forest managed by Astoria District. Santiam State Forest managed by North Cascade District. Scattered tracts of forestland in Benton, Lincoln and Polk counties managed by West Oregon District. Scattered tracts of forestland in Lane County, managed by Western Lane District. Composition: 615,400 acres, 97 percent Board of Forestry (BOF) Lands, 3 percent Common School Forest Lands (CSFL).

The Southwest Oregon State Forest Management Plan: Scattered tracts of forestland in Josephine, Douglas, Jackson and Curry counties managed by Southwest Oregon District. Composition: 18,100 acres, 52 percent are BOF Lands, 48 percent CSFL.

### **Elliott Plan**

Elliott State Forest Management Plan: Elliott State Forest and

scattered tracts managed by the Coos District. Current plan, adopted in 1993 along with a habitat conservation plan adopted in 1995, is based on harvesting schedules in management basins of varying tree-age rotation cycles. Composition: 97,400 acres, 91 percent CSFL, 9 percent BOF Lands. Planning for revision of the Elliott FMP and HCP began in early 2000. The proposed plan moves from age-based management to structure-based management in and effort to improve economic outputs and more effectively manage for environmental benefits.

### **Eastern Region Plan**

Eastern Region Long Range Forest Management Plan: Sun Pass State Forest and scattered tracts managed by Klamath-Lake District. Plan, adopted in 1995, calls for uneven-aged management where trees of varying sizes - small to large - are thinned to promote healthy forests, and be resistant to fire and pests. Composition: 33,700 acres, 80 percent BOF Lands, 20 percent CSFL.



## Volume and value of state timber harvests

### Board of Forestry Owned and Managed Lands Summary by County

COUNTY	BOARD OF FORESTRY <sup>1</sup>	COMMON SCHOOL FUND <sup>2</sup>	TOTAL ACRES
BENTON	8,194.28	723.41	8,917.69
CLACKAMAS	7,265.93	112.99	7,378.92
CLATSOP	147,042.02	2,059.95	149,101.97
COLUMBIA	6,458.69	80.00	6,538.69
COOS	7,219.78	54,240.97	61,460.75
CURRY	0	2,597.13	2,597.13
DOUGLAS	8,625.27	34,566.36	43,191.63
JACKSON	0	2,061.68	2,061.68
JOSEPHINE	2,482.36	4,820.70	7,303.06
KLAMATH	26,912.21	6,826.96	33,739.17
LANE	24,734.24	1,762.39	26,496.63
LINCOLN	15,487.59	5,612.18	21,099.77
LINN	21,352.92	90.00	21,442.92
MARION	18,329.11	720.00	19,049.11
POLK	6,122.01	1,690.44	7,812.45
TILLAMOOK	310,624.30	5,583.75	316,208.05
WASHINGTON	46,885.66	250.00	47,135.66
YAMHILL	0	80.00	80.00
<b>Grand Total</b>	<b>657,736.37</b>	<b>123,878.91</b>	<b>781,615.28</b>

<sup>1</sup> Lands deeded by counties to state, owned by Board of Forestry  
<sup>2</sup> State lands managed by Board of Forestry under contract with Department of State Lands



## 2005-2007 Estimated Biennium Timber Harvest Volume, Value and Revenue Transfer Common School Lands

ODF Area	Volume harvested (MBF) *	Average Stumpage per (MBF)	Timber Harvest Value **
Northwest Oregon Area	9,109	\$298	\$2,717,261
Southern Oregon Area	32,096	\$526	\$16,875,728
Eastern Oregon Area	3,712	\$210	\$777,661
<b>Total</b>	<b>44,917</b>	<b>\$485</b>	<b>\$20,370,650</b>

\* MBF is one thousand board feet

\*\* Timber harvest value is the value of timber removed before project work is subtracted.

Northwest Oregon Area is all or parts of Marion, Polk, Linn, Lincoln, Benton, Clackamas, Tillamook, Clatsop, Yamhill, Washington, and Columbia counties  
 Southern Oregon is all or parts of Coos, Douglas, Josephine, Jackson, Lane and Curry counties.  
 Eastern Oregon is all or parts of Klamath and Lake counties.

## Board of Forestry Payments to Counties Volume, Value, and Revenue of Board of Forestry Lands

County	Biennium 2003-2005			Biennium 2003-2005 Estimated		
	Volume Harvested	Value	Revenue to County	Volume Harvested	Value	Revenue to County
Benton	14,633	\$5,831,841	\$3,388,601	10,012	\$5,148,256	\$3,511,000
Clackamas	5,098	\$1,866,094	\$1,145,401	3,199	\$1,312,567	\$951,000
Clatsop	178,843	\$56,665,911	\$34,291,921	168,712	\$65,969,892	\$36,754,000
Columbia	6,495	\$2,765,681	\$1,704,794	6,761	\$3,368,977	\$2,100,000
Coos	1,421	\$539,265	\$372,720	3,376	\$1,595,535	\$994,000
Douglas	41	\$9,532	\$30,348	3,708	\$1,381,681	\$840,000
Jackson	0	\$0	\$0	0	\$0	\$0
Josephine	0	\$0	\$0	106	\$19,397	\$17,000
Klamath	19,532	\$3,827,353	\$2,198,349	13,234	\$3,005,673	\$2,224,000
Lane	16,182	\$6,235,416	\$3,720,490	11,970	\$5,341,498	\$3,016,000
Lincoln	11,902	\$3,811,232	\$2,138,936	8,378	\$3,163,880	\$2,106,000
Linn	38,756	\$17,168,951	\$9,394,821	17,216	\$8,150,725	\$5,884,000
Marion	15,615	\$6,346,583	\$4,117,601	28,760	\$13,952,017	\$7,764,000
Polk	2,048	\$565,798	\$341,838	4,135	\$1,103,321	\$447,000
Tillamook	163,580	\$47,116,822	\$23,224,021	186,759	\$62,254,312	\$32,897,000
Washington	46,896	\$17,896,089	\$10,437,842	54,978	\$25,670,407	\$16,982,000
<b>Total</b>	<b>521,041</b>	<b>\$170,646,570</b>	<b>\$96,507,683</b>	<b>521,306</b>	<b>\$201,438,138</b>	<b>\$116,487,000</b>

*"Oregon is the state that beckons us to search out and find where the sunrise begins and the river ends: Part nature, part spirit, part memory, part dream - and always asserting its independence and freedom to think different. There is nothing wrong with setting limits. And there is everything right about making sustainability the fundamental test of our social, economic and environmental policies."*

*- Governor Ted Kulongoski*