Oregon State University Extension Service

Blue Mountains Renewable Resources Newsletter

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DATES *To Remember*

Understanding Forest Operations Costs & Bidding Practices

The purpose of this workshop is to support the professionalism of Oregon forest operations contractors. It covers nature of the business, types of costs, production systems, machine and labor costs, estimating, profit & risk, bidding, and negotiations. We will discuss strategies to improve recordkeeping, production estimates and business results. The Excel™ program for budgeting/cost estimation/ tracking will be demonstrated and a copy given to each participant. This program is useful for operations such as logging, fuels treatment, site preparation, road building, and others involving equipment and people in a forestry environment.

The class will be held at the OSU Extension office in Union County on Saturday, December 10 from 8 am - 4 pm. The fee is $100 and spouses may attend for $10 to cover the cost of lunch. Make checks payable to OSU Extension.

The instructor is John Garland, Timber Harvesting Extension Specialist, OSU Forest Engineering Department.

Oregon State University OSU Extension Service Union County

The registration fee includes course materials, computer program, lunch and professional credit. For more information contact OSU Extension, Union County at 541-963-1010, 800-806-5274 or John Garland at 541-740-6614. *Brochure to be mailed at a later date.*

Housing Boom Boosts Oregon Timber Harvest

Oregon's timber harvest jumped 11% in 2004, propelled by the red-hot US housing market. Loggers cut 4.45 billion board feet of timber, up from four billion board feet in 2003 and the most since 5.29 billion was cut in 1993, according to an annual report by the Oregon Department of Forestry. Small woodland owners in Western Oregon were responsible for a big chunk of the surge, cutting 478 million board feet in 2004, compared with 298 million the year before. The same owners group in eastern Oregon harvested 16% more in 2004 than 2003 for a total of almost 100 million board feet.

Best Regards,

Paul Oester

Paul Oester, Extension Forester
Umatilla, Union & Wallowa Counties

Scott Reed new Extension Dean and Director

After a national search, A. Scott Reed, associate dean and forestry Extension program director in the College of Forestry at OSU, has been named Dean and Director of the OSU Extension Service. Reed began his new duties September 1. He succeeds Kelvin Koong, Interim Dean for the past year.

Reed came to OSU from the University of Minnesota in 1990 when he was named Assistant Dean of the College of Forestry. He is a 1975 graduate of Michigan State University with a master's degree in forestry and a Ph.D. in forest economics and policy from the University of Minnesota.

OSU Provost Sabah Randhawa said the strong support for Reed from campus leaders and stakeholders around the state was impressive. "He's well respected for his efficiency, his effectiveness as a manager, his ability to listen, and as an advocate of Extension."

As Dean and Director, Reed will oversee an Extension Service that has OSU faculty and programs in every Oregon county and an organization that is serving a state contending with changes in politics, demographics, and economics. Reed says the challenge is to serve Oregon's people by utilizing OSU's research and knowledge to help empower people and communities, and to make decisions that lead to a better future. OSU Extension employs 550 faculty and staff located on campus and throughout the state.

Primary Forest Products Measurements Units

When primary forest products like logs and pulpwood are bought and sold in Oregon, either a volume or weight measurement is used to determine the amount of material exchanged.

The following paragraphs explain the fundamentals of each system. Table 1 shows the Scribner decimal C log rule and table 2 shows conversions between volume and weight measurements.

Volume - buyer and seller agree on a dollar amount per unit of volume exchanged (usually $ per 1,000 board feet, where 1 board foot = 1" x 12" x 12").

The board foot volume of a log is determined by measuring log length and log diameter at the small -end of the log. These measurements are used to calculate the log's board foot volume (see table 1). Volume deductions may be taken to account for log defects.

Weight - buyer and seller agree on a dollar amount per unit of weight exchanged (usually $ per ton, where 1 ton = 2,000 pounds) . Product weight is determined by measuring the weight difference between a loaded and unloaded log truck.

Wood weight varies by species, log size, season, geographic area, and the time between harvest and weighing. Therefore, it is a good idea to ask the buyer to weight scale and volume scale the same truck load of logs so that a weight to board foot conversion can be developed for that particular timber sale.

Adapted from Montana Forest Products Marketing News, July 2005

Table 2

Board foot to ton conversions (logs)

1,000 BF Douglas fir = 6.2 to 8.5 tons
1,000 BF Ponderosa pine = 7.1 to 9.7 tons
1,000 BF Western Larch = 7.6 to 10.4 tons
1,000 BF Western Hemlock = 6.1 to 8.8 tons
1,000 BF White Pine = 5.2 to 7.5 tons
1,000 BF Lodgepole pine = 5.9 to 8.5 tons
1,000 BF Englemann spruce = 5.8 to 8.4 tons
1,000 BF Grand fir = 6.9 to 9.9 tons
1,000 BF Subalpine fir = 6.7 to 9.7 tons
1,000 BF Western red cedar = 4.0 to 5.9 tons

Table 1

Scribner Decimal C Log Rule (board feet in tens)

Log Diameter (inches) \ Log Length (feet)	16	18	20	22	24	26	28	30	32	34	36	38	40
4	1	1	1	1	2	2	2	2	2	2	2	3	3
6	2	2	2	3	3	3	3	4	4	5	6	6	6
8	3	3	4	4	4	5	5	6	6	7	8	8	9
10	6	6	7	8	9	9	10	11	11	13	14	14	15
12	8	9	10	11	12	13	14	15	16	17	18	19	20
14	11	13	14	16	17	19	20	21	23	24	26	27	29
16	16	18	20	22	24	26	28	30	32	34	36	38	40
18	21	24	27	29	32	35	37	40	43	45	48	51	53
20	28	31	35	38	42	45	49	52	56	59	63	66	70
22	33	38	42	46	50	54	58	63	67	71	75	79	84
24	40	45	50	55	61	66	71	76	81	86	91	96	101

Why do Mussels stick on rocks? Because they're strong!

Resins such as phenol and urea formaldehyde are commonly used as adhesives in the manufacture of wood products such as laminated veneer lumber, plywood and oriented strand board. However, new soy-based protein adhesives are looming on the horizon because of discoveries made by wood scientists like Kaichang Li at Oregon State University's Department of Wood Science and Engineering.

(Continued on page 4)

Delivered

LOG MARKET REPORT *$/ 1,000 board feet* *October 15, 2005*

Umatilla/Pendleton/Lewiston

Douglas-fir /Larch	Ponderosa Pine 6-11"	12-17"	18-23"	24"	Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/chips Logs
$450-475 5"+55/ton	$240	$360	$500	$500	$300-325 38-40/ton	$320-340 38-40/ton	$300	- -

La Grande/Elgin/Joseph

Douglas-fir /Larch	Ponderosa Pine 6-11"	12-17"	18+"	20-24"	Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/chips Logs
$480	$200	$400	$500	call	$300-370	$350-380	$380-420	- -

Burns/John Day

Douglas-fir /Larch	Ponderosa Pine 5-7"	8-11"	12-17"	18+"	Grand fir /White fir	Lodgepole Pine	Englemann Spruce	Pulp/chips Logs
$485-500	$220	$250	$380	$550	$315-360	$ - -	$220	$10/ton

Source: Oregon Log Market Report, Editor John Lindberg, ph 360-693-6766, fax 360-694-8466, logmkt@comcast.net

Li's road to discovery started about 5 years ago when he was on a weekend trip to the Oregon Coast. He observed mussels tightly stuck to rocks, despite being battered by ocean waves. Li wondered what allowed the mussels to stick on the rocks?

He soon learned that mussels have an adhesive made of unique proteins and amino acids in their byssus, an anatomical feature made of small threads that a mussel uses to adhere to rocks and other surfaces. Armed with that information, Li began experimenting with adhesives derived from mussel proteins. He found those adhesives had desirable characteristics. However, the mussel protein was not readily available, which would limit commercial application.

That is when inspiration struck Li again. While eating a lunch that included tofu, he realized that the soybeans used to make tofu are also high in protein.

Back in the lab, Li began mixing soy flour with amino acids to create an adhesive similar to that derived from mussels. Li discovered that the soy-based adhesive was strong and remained strong when exposed to water. In addition, soy flour is readily available. Finally, the soy-based adhesive emits no vapors. This contrasts with wood products made with formaldehyde resin, which release vapors that can collect in confined spaces and cause bronchitis, irritation of the lungs and eyes, dizziness and headaches. New homes full of such pressed-wood products may contain three times the formaldehyde levels known to cause health problems, according to the U.S. Environmental Protection Agency.

Oregon State University has licensed exclusive rights to use the new adhesive in plywood to Columbia Forest Products, a Portland, OR based company that is the largest US manufacturer of decorative wood panels . The company recently announced that they would switch from urea formaldehyde to 100 percent soy-based adhesive with in the next year.

Montana Forest Products Marketing News, June 2005

Conservation and the Water Cycle

Water is probably the natural resource we all know best. All of us have had first-hand experience with it in its many forms—rain, hail, snow, ice, steam, fog, and dew. Yet, in spite of our daily use of it, water is probably the natural resource we least understand. How does water get into the clouds, and what happens to it when it reaches the earth? Why is there sometimes too much, and other times too little? And, most important, is there enough for al the plants, and all the animals, and all the people.

Water covers nearly three fourths of the earth. Most is sea water that contains minerals and other substances, including those that make it salty, that are harmful to most land plants and animals. Still, it is from the vast salty reservoirs—the seas and oceans—that most of our precipitation comes, no longer salty or mineral-laden. Water moves from clouds to land and back to the ocean in a never-ending cycle. This is the water cycle, or the hydrologic cycle. Ocean water evaporates into the atmosphere, leaving impurities behind, and moves across the earth as water vapor. Water in lakes, ponds, rivers

and streams also evaporates and joins the moisture in the atmosphere. Soil, plants, people, and animals, and even factories, automobiles, tractors, and planes, contribute moisture. A small part of this moisture, or water vapor, is visible to us as fog, mist, or clouds. Water vapor condenses and falls to earth as rain, snow, sleet, or hail, depending on region, climate, season, and topography.

Every year, about 80,000 cubic miles of water evaporates from oceans and about 15,000 cubic miles from land sources. Since the amounts of water evaporated and precipitated are almost the same, about 95,000 cubic miles of water are moving between earth and sky at all times.

Storms at sea return to the oceans much of the water evaporated from the oceans, so land areas get only about 24,000 cubic miles of water as precipitation. Precipitation on the land averages 26 inches a year, but it is not evenly distributed. Some places get less that 1 inch and others receive more than 400 inches. The United States gets about 30 inches a year, or about 4,300 billion gallons a day. Not all of this precipitation becomes available for use. Roughly 70% of this precipitation, or 3,100 billion gallons a day, is returned to the atmosphere as vapor, including the water used by plants. The remainder, total stream flow from surface and underground sources, is about 8.5 inches a year, or about 1,200 billion gallons a day.

People can exist on a gallon or so of water a day for drinking, cooking, and washing, though we seldom do so, voluntarily or otherwise. In medieval times. People probably used no more than 3 to 5 gallons a day. In the 18th century, especially in Western nations, people were using about 95 gallons a day. At present in the United States, people use about 1,500 gallons a day for their needs and comforts, including recreation, cooling, food production, and industrial supply.

Management of the precipitation available to us determines whether or not we have both the quantity and the quality of water to meet out needs. It is our obligation to return water to streams, lakes, and oceans as clean as possible and with the least waste.

Adapted from Natural Resources Conservation Service publication http://www.wcc.nrcs.usda.gov/factpub/aib326.html

Forest Stewardship Notes, Spring 2005

Reforestation Demonstration Yields 7-year Results

Introduction

In 1998, funded by a grant from the Oregon Department of Forestry, OSU Extension established twenty-one plots to demonstrate a variety of available seedling stocktypes, weed control options and animal damage control techniques. Each plot was planted with fifty trees in a 12' X 12' spacing. At the end of 7 years we measured survival and height growth of trees that survived.

Site Conditions

The demo site is on OSU's College of Forestry Oberteuffer Research and Education Forest northeast of Elgin. It's a relatively flat area that was once forestland, but converted years ago to pasture. Elevation is 4020 feet, annual precipitation is 25-28 inches, and soils are Lookingglass silt loam. This residual soil represents a moderately productive site in the Blue Mountains.

What was done

The following stocktypes, weed control and animal damage options were tested:

Ponderosa pine 2-0 bare root seedlings:

Large spot (5'X5') application of Velpar L herbicide (hexazinone) @ 2 lbs/ acre at the time of planting

Spot application of Pronone MG (hexaxinone) with Weed-o-Meter @ 2 lbs/acre at the time of planting

Spot application (5'X5') of Oust herbicide @ 4 oz. active ingredient/acre at the time of planting

A one time broadcast application of Velpar L @ 2 lbs/acre at the time of planting (1X)

Two broadcast applications of Velpar L @ 2 lbs/acre, one at the time of planting and the other the following spring (2X)

3'X3' PAK ground cover mat (black UV-stablized woven cloth type plastic)

3'X3' Arbotec ground cover mat (Brush Blanket, a light weight green polyethylene material)

3'X3' Kraft paper mat (asphalt laminated paper)

3'X3' hand scalp done with a hoedad, which removed the top few inches of sod

Spot application (5'X5') of Velpar L herbicide applied @ 2 lbs/acre at the time of planting with every other seedling getting a Vexar tube or solid (blue) growth tube protecting the seedling from browsing damage

No treatment

Ponderosa pine plugs (Styro-5's, 5 cubic inch root mass)

Spot application (5'X5') of Velpar L @ 2 lbs/acre at the time of planting

Ponderosa pine 1-1 bareroot seedlings

Spot application (5'X5') of Velpar L herbicide @ 2 lbs/acre at the time of planting

3'X3 Arbotec ground cover mat at the time of planting

Douglas-fir

Used a spot application (5'X5') of Velpar L herbicide @ 2 lbs/acre at the time of planting for Douglas-fir 2-0, Douglas-fir 1-1's and Douglas-fir plugs (styro-5's)

Western larch plugs (styro-5's)

Spot application (5'X5') of Oust herbicide applied @ 4 oz. active ingredient/acre at the time of planting

3' X 3' hand scalp at the time of planting

No treatment

Lodgepole pine plugs (styro-5's)

Spot application (5'X5') of Velpar L @ 2 lbs/acre at the time of planting

Results

After 7 growing seasons, ponderosa pine 1-1 seedlings showed a 32% better height growth than the best 2-0 seedlings and 1-1 seedlings with grass control more than doubled survival over 2-0 seedlings with no treatment (Figure 1). Any vegetation contol option provided at least a 44% improvement in survival compared to not treating the vegetation. Spot applications of Velpar L and Pronone MG, mats, hand scalp and spot treatments with animal damage control all provide close to or better than a 100% increase in survival compared to the no vegetation control treatment. Height growth was more variable, but all grass control options improved height growth 35% to 225% better than no treatment.

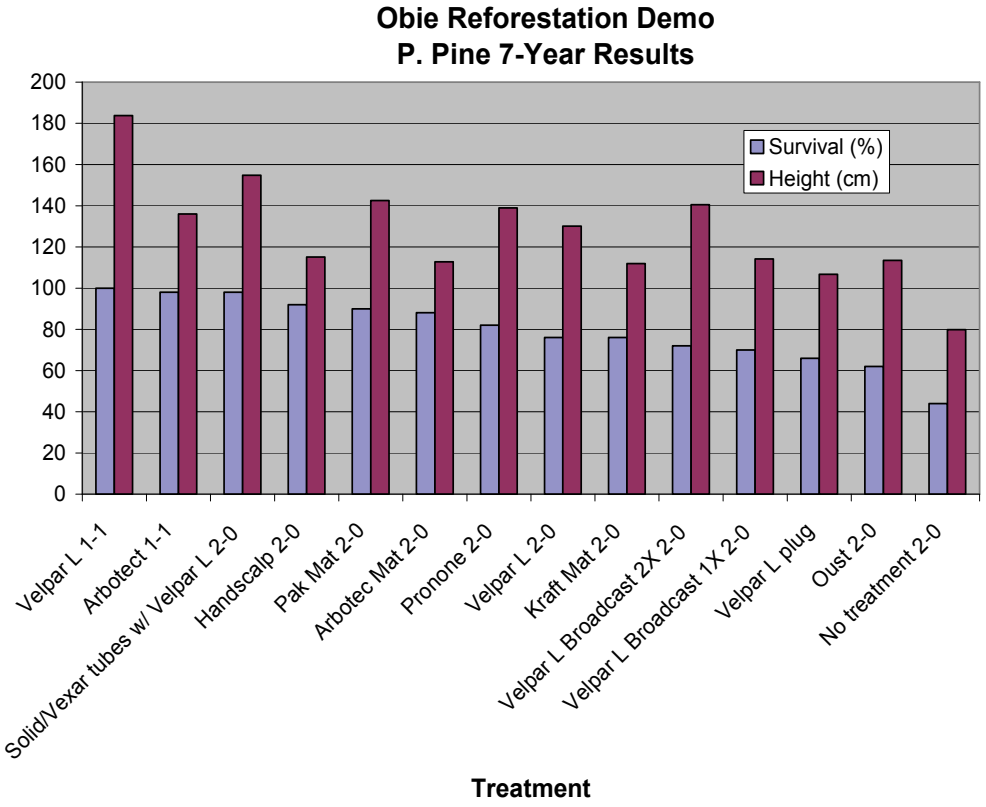
Cost per established seedling (intial cost divided by % survival in decimal form, e.g. $1.00 per seedling ÷ 50% or .5 = $2.00 per established seedling) was lowest for Velpar L 1-1, Vexar tubes with Velpar L 2-0, Pronone 2-0 and Velpar L 2-0.

For Douglas-fir, it didn't matter what vegetation management was used, mortality was 100% after about 5 years into the study. This was quite different, however, than another trial just two hundred yards

away with similar ground cover but on a north to northwest facing slope with a better soil where survival was much better.

For larch on this exposed warm, dry location, all treatments were essentially a failure. A few seedlings survived where Oust or hand scalped treatments were used. As with Douglas-fir survival, just two hundred yards away in another trial survival was better with vegetation control. For more information related to this demonstration contact Paul Oester, 541-963-1061.

Figure 1. Survival and growth of ponderosa pine seedlings after 7 years for fourteen treatments/stocktypes.



200-Year Experiment Changes Face of Forest Management

A 200-year study of rotting logs in the Oregon Cascade Range is only 10 percent complete, but findings from this research have already helped save hundreds of millions of dollars, improved forest health and shattered conventional wisdom about the decay of woody debris.

It also has attracted the interest of forest managers from around the world.

This work was begun 20 years ago by scientists from the College of Forestry at Oregon State University with 530 logs at the H.J. Andrews Experimental Forest near Blue River, OR. The research was seen as a way to more rigorously document the

process of wood decay and the value it provides in nutrient release, soil enhancement and other issues.

Even though the study is far from complete, it has already achieved many of these goals and raised other important questions that will continue to affect modem silviculture and the understanding of forest ecology, said Mark E. Harmon, the Richardson Chair and Professor of Forest Science at OSU. The work has been funded by the National Science Foundation and the U.S.D.A. Forest Service.

"Much of what we've found has run contrary to the conventional wisdom and is not what we expected," Harmon said. "And this long-term, intensive study of the decay of forest debris and logs has raised considerable awareness of this issue among forest managers."

Two decades ago, forest harvest operations usually "cleaned up" a site after logging, removing most of the debris at considerable cost and effort. As this and other studies showed the compelling ecological value of that material, the debris is now largely left where it is, making the forest healthier in the long run and saving hundreds of millions of dollars in unnecessary work.

"When this study began, we still assumed that most debris and logs decayed in more or less the same way, only releasing their stored-up nutrients after decades or centuries of decay," Harmon said. "It's now understood that there are large differences between the decay rate caused by different decomposers of different tree species, and that some nutrients from dead wood begin to enrich the forest almost immediately.

“That’s a huge change in our thinking, and there are still a lot more changes to come,” he said.

Among the other findings of the first 20 years of this work:

- As much as one-third of the nitrogen in Pacific Northwest forests, one of the key nutrients that limit vegetation growth, appears to come from nitrogen fixation processes within rotting logs, in addition to that being slowly released from the wood itself.
- Nutrient release begins far more quickly than ever anticipated, from both decaying fungi and the leaching effect of persistent rains.
- The “brown rot” fungi that cannot break down lignin in the trees leaves structural material behind to help form the next generations of forest floor and ultimately soil. White rot fungi, by contrast, degrade all parts of the wood, leaving almost nothing behind and decaying far more rapidly but only on some tree species.
- Although some wood (such as Douglas-fir) resists decay, mechanisms such as mushroom growth on downed logs work to drain nitrogen from these logs, much more than had been understood.
- There is a 10-fold difference in wood decay rates among dead trees. True firs such as silver fir will decay far more rapidly than other species, as much as 5-6 percent a year and may be gone in 60 years or less. Other species such as western red cedar or Douglas-fir may persist for hundreds of years.
- Some parts of a log will decay and release nutrients much more quickly than other parts, leading to complex patterns that cannot be predicted by considering just the "average" condition of the wood.
- Decay processes are dynamic and constantly changing, and they affect everything from nutrient release to soil changes, stream sedimentation, and plant, animal and fish habitat.

"In the past we just didn't pay much attention to what was decaying, and how, and what the ecological implications of that were," Harmon said. "We now know there are huge differences between tree species, that some fungi decay some species and not others, and that all of these factors will play a role in sustainable forestry and overall forest health."

Oddly enough, some of today's evolving forest management systems may seem more similar to those in the early days of the Pacific Northwest forest products industry – when large amounts of less-valuable wood was left behind in practices that were later deemed "wasteful" and changed dramatically after the 1940s, in order to harvest more of the wood and leave a clean site behind.

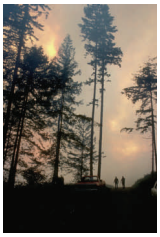
"We originally began this work assuming it would be of interest only to forest researchers and ecologists," Harmon said. "Now people from all over the world are watching these studies, and many experts think of nutrient release as one of the last frontiers in understanding the role of dead trees in forest ecology.

OSU News & Communication Services

Poll: Restore scorched forests

A survey finds three-quarters of Oregonians favor the logging of wildfire areas and planting of seedlings, an issue long debated.

Some three-quarters of Oregonians want federal forests restored after severe wildfires such as the 2002 Biscuit blaze by logging burned trees and replanting slopes with seedlings, a new poll has found.



The June survey of 607 registered voters across the state centered on how fast and how far land managers should go to replace scorched stands. It's a long-standing issue in Oregon: The Tillamook Burn decades ago prompted a massive restoration effort, but recent work has been slowed by debate over whether logging burned lands does more harm than good.

The poll was sponsored by a group with a strong position on the issue but was conducted by the independent Portland polling company Davis, Hibbitts & Midghall, Inc.

It comes ahead of expected moves in Congress --led by two Oregon lawmakers--to push more rapid forest recovery. Some fear that could limit environmental and court reviews often blamed for delays.

The issue has been driven by planned salvage logging, planting and other projects that remain unfinished following the Biscuit fire, which swept over 500,000 acres in Southern Oregon three years ago. Environmental groups have fought logging in protected older forests and roadless areas.

The limited logging leaves the government with less timber revenue to pay for replanting and reclamation.

Rep. Greg Walden and Sen. Gordon Smith, Oregon Republicans, are crafting legislation to give land managers a freer hand after wildfires or other catastrophic events. Walden, who heads the House of Representatives Subcommittee on Forests and Forest Health, attended a hearing in Colville, Wash., to discuss the issue.

A spokesman for Smith said the Biscuit delays have been "a very big lesson that post-fire recovery efforts are in crisis right now."

The new poll was sponsored by the Roseburg group Communities for Healthy Forests, which advocates more rapid reclamation of burned lands. Executive Director Sue Kupillas said many people are surprised more burned areas are not replanted to speed forest recovery.

The group is funded through private donations and federal money channeled through county governments for forest-related education.

The survey did not delve into a central Biscuit issue: How much logging of charred trees is appropriate on undeveloped lands such as roadless areas. Cutting makes way for faster replanting and re-growth, but environmentalists argue intensive salvage and replanting can replace diverse forests with unnatural tree farms.

Many findings were not startling. Nine of 10 Oregonians said that protecting forests from catastrophic wildfires, protecting fish and wildlife habitat and providing forest industry jobs is either very important or somewhat important.

But other results--not always tied to forests--stood out:

The timber industry is seen more favorably than environmental organizations often at odds with the industry. The timber industry was viewed favorably by 67 percent of Oregonians, and unfavorably by 19 percent. Environmental groups were viewed favorably by 53 percent and unfavorably by 30 percent.

The Oregon Legislature received the most unfavorable rating of any group by far. About 45 percent viewed it somewhat or very unfavorably.

Oregonians valued forests most highly because they help protect water quality, with 99 percent citing that as an important factor. Economic factors such as tax revenues were also important, but less so.

About three in four strongly or somewhat support restoring federal forests after wildfires by removing dead trees and planting seedlings. More than half said fires are growing out of control and cause too much damage, and everything possible should be done to restore burned forests.

Most did not buy arguments against logging burned lands. For instance, 56 percent thought it was a poor argument to say forests should be left alone because fires have occurred for centuries and more damage would be done by equipment and road construction.

The margin of error was 4 percent.

Conservation groups say it's the kind of restoration that is most important. If the goal is to prevent future fires, it's more important to remove smaller tinder than the large, more fire-resistant trees timber companies like to cut, said Francis Eatherington of Umpqua Watersheds in Roseburg.

"We would support restoration to a certain extent after fires, and replanting has a place," she said. "It's a question of what kind of restoration. Is it the type of restoration that benefits the forest, or is it the type of restoration that benefits the timber industry."

By Michael Milstein, The Oregonian, 29 August 2005

Mountain Pine Beetle

The mountain pine beetle (Dendroctonus ponderosae) is one of the most destructive pests of pine forests in the Pacific Northwest.

Need help controlling animal damage? Check out these publications:

Controlling Pocket Gopher Damage to Conifer Seedlings. Successful management of gopher damage can be achieved by:

1. Managing grass and forb vegetation to eliminate gopher foods and prevent much damage.
2. Selecting and applying appropriate control techniques that are compatible, rather than in conflict, with other silvicultural practices, and
3. Assessing effectiveness of your control program within 3 to 6 months, which will ensure that you used correct methods and will allow time to reapply controls if your first attempts were unsuccessful.

Online at: http://eesc.orst.edu/agcomwebfile/edmat/EC1255.pdf.

Understanding and Controlling Deer Damage in Young Plantations. Deer Browsing on young conifer seedlings frequently decreases the probability of seedling survival, and it retards growth. Online at: http://eesc.orst.edu/agcomwebfile/edmat/EC1201.pdf.

Controlling Vole Damage to Conifer Seedlings. Successful management of vole damage is greatly enhanced if you eliminate grasses and forbs from regeneration sites, or manage so that resulting vegetation doesn't provide required overhead cover. Online at: http://eesc.orst.edu/agcomwebfile/edmat/EC1256.pdf

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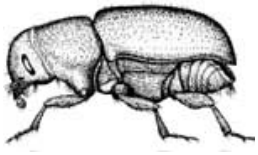

Hosts: Ponderosa pine, lodgepole pine, western white pine, sugar pine, Jeffrey pine, limber pine and whitebark pine.

Identification: Normally, standing trees 6" DBH and larger are attached. Look for clumps of dead or dying trees with fading or red foliage throughout the crown. Pitch tubes mixed with boring dust, about the size of a quarter, occur scattered along the bole of the tree from about 3ft from the ground to mid-crown. Removing the bark will reveal long, vertical egg galleries with short, larval feeding tunnels that branch off on alternating sides of the egg gallery. Adults and larvae may be present under the bark. Woodpecker feeding on the bole is another good indicator that these beetles have attacked a tree. Clumps of attacked trees are common. The sapwood will be heavily stained by *Ceratocystis montia*, a blue-stain fungus. Adults are stout, black and about 3/16 inch long.

Damage and Spread: In the Pacific Northwest one generation per year is common. Larvae and adults overwinter under the bark with emergence mostly happening in July and August. Emerging beetles attack green trees, causing pitch tubes on the bole. Newly infested trees will remain green until the following spring or early summer when they begin fading, eventually turning reddish brown. Dense stands, usually over 60 years old and 6 inches DBH and larger are most susceptible to damage. Outbreaks are associated with overstocked stands and drought.

Management: Thinning, thinning and more thinning! Thinning dense stands will improve the resistance of remaining trees to beetle attack. Guidelines will vary by site, stand conditions and landowner objectives. Salvage will capture lost value and sanitation can reduce beetle populations, however, where extensive mortality is occurring sanitation may not be as effective and salvaging dead and dying trees may not be as profitable because of market saturation. Carbaryl (Sevin) is an insecticide registered for bark application prior to beetle flight, however, it needs to be applied annually from the ground and is only practical for high value trees around your home. If firewood is cut from trees with beetles still inside, keep firewood stored away form green trees and cover with clear plastic to kill beetles, otherwise beetles can emerge and attack pines around your home.

May be confused with: Western pine beetle, red turpentine beetle, pine engraver (Ips) and root diseases (laminated, Armillaria, Annosus and black stain).

Oregon Tax Update

New Severance Tax Rates - D.O.R. sets and announces these rates each June.

1. Severance Tax rates for 2005 are:
   A. Western Oregon - $4.00/MBF
   B. Eastern Oregon - $3.12/MBF

Oregon Forestland Values - New bare forestland values that will be used to calculate property taxes for July 1, 2005 to June 30, 2006 have been published. They can be found on the D.O.R. website using this link: http://egov.oregon.gov/DOR/TIMBER/index.shtml.

Norm Elwood

Ecology and Management of Eastern Oregon Forests. This is a comprehensive manual developed to help forest managers understand the complex forests for eastern Oregon and how to manage them for their objectives. Nine chapters feature understanding eastside forest types, silvicultural systems, managing ponderosa pine, lodgepole pine and mixed-conifer, forest reforestation, pests, and range and wildlife values. Manual 12 ($25) can be ordered by calling 541-737-2513 or email puborders@oregonstate.edu.

Return Service Requested

OSU Extension Service, Union Co
10507 N McAlister Rd, Rm 9
La Grande, OR 97850

Publications of Interest

Contracts for woodland owners and Christmas tree growers. Revised January 2005, OSU Extension Circular, EC 1192. Online at: http://eesc.orst.edu/agcomewebfile/edmat/EC1192.pdf

Selling Timber and Logs: Seven Steps to Success. OSU Extension Circular, EC 1384.

How to Manage Your Own Timber Sale: Guidelines for Success. Revised 1997, OSU Extension Circular, EC 1487. Online at: http://eesc.orst.edu/agcomwebfile/edmat.EC1487.pdf

Forest Certification in North America. Revised 2002. OSU Extension Circular, EC 1518. Online at: http://eesc.orst.edu/agcomwebfile/edmat/EC1518.pdf

A Guide to Innovative Tree Farming in the Pacific Northwest, by Mike Dubrasich. This book reveals tree farming secrets that can turn your woodlot, brush patch or hay field into a veritable gold mine. To order go to: www.innovativetreefarming.com.

Reducing Hazardous Fuels on Woodland Properties. Short guides on the following topics: Mechanical Fuels Reduction, Thinning, Pruning and Disposing of Woody Materials. Find these at: http://extension.oregonstate.edu/sorec/Forestry/.

Oregon's Forestry Professionals: Evolution and Growth of the Forestry Profession in Oregon. A publication of the Oregon Forest Resources Institute. Discusses the different kinds of forestry professionals. Find it at: www.oregonforests.org.

Environmental Consequences of Intensively Managed Forest Plantations in the Pacific Northwest. John P. Hayes and others. Discusses the positive, neutral or negative consequences of intensively managed forest plantations. $11.41 plus tax. To purchase, go to: www.ingentaconnect.com and search for the title.

Biology, Ecology & Management of Western Juniper. Technical Bulletin 152, June 2005. OSU Agricultural Experiment Station, puborders@oregonstate.edu or call 541-737-2513.