



Oregon State University Extension Service

# Blue Mountains Renewable Resources Newsletter

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## **DATES** *To Remember*

### **Master Woodland Manager Training is coming to Northeast Oregon!**

#### **Who is a MWM?**

MWM's are qualified family forest land owners who receive specialized training by OSU Forestry Extension to be effective volunteers and community leaders. In return for approximately 80 hours of free instruction in subject areas that range from management planning, ecology, and forest inventory methods, MWM's provide an in-kind service through various volunteer activities.

One of the most important functions of an MWM is to assist neighbors with basic forestry planning and decision-making processes, offering guidance and pointing them to local sources of assistance. Besides working with neighboring landowners, MWM's have optimized their own strengths and skills to complete their service in a variety of ways, such as:

- Assisting OSU Forestry Extension with tours and demonstrations,
- Taking leadership roles in local organizations and community government,
- Providing education to youth groups, and
- Speaking to non-forestry audiences regarding the importance of forestry

#### **Prerequisites**

For this specialized training we recommend that those attending have a management plan for their property and have participated in a Basic Forestry Shortcourse or been otherwise actively involved in Extension Forestry educational programs. This background will help participants get the most out of the training, as well as volunteer efforts. For those who qualify, we have room for a maximum of 20 people. Because of the cost and investment of travel for our instructors we're also asking that those who register come prepared to attend most if not all of the training.

#### **Training Schedule**

##### **Thursday, April 6 - La Grande**

8 hrs: Introduction to MWM, leadership training, extension methods

##### **Friday, April 7 - La Grande**

4 hrs: Management Planning and 4 hrs: Applied Ecology

Best Regards,

Paul Oester, Extension Forester  
Umatilla, Union & Wallowa Counties

**Oregon State**  
UNIVERSITY **OSU** Extension Service  
Union County

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Schedule Cont.

**Wednesday, May 3 - Baker City**

8 hrs: Timber Inventory

**Thursday, May 4 - Baker City**

8 hrs: Silviculture

**Thursday, June 1 - La Grande**

6 hrs: Wildlife and 2 hrs: Forestry Issues and Policies

**Friday, June 2 - La Grande**

6 hrs: Watershed Concepts and Principles/Ponds/Riparian and Stream Protection and 2 hrs: Wildlife

**Thursday, July 6 - Baker City**

4 hrs: Logging, Marketing, Access and 4 hrs: Business Management

**Friday, August 11- Baker City**

8 hrs: Reforestation

**Friday, September 15 - La Grande**

8 hrs: Forest Protection

**Friday, October 20 - Baker City**

4 hrs: Graduation and Dinner

**Locations:**

- La Grande: Conference Room, Ag Service Center, 10597 N. McAlister Rd., Island City
- Baker City: Conference Room, Baker County Extension Office, 2610 Grove St., Baker City

**Please register 1 week prior to Session 1**

*See page 9 for registration form.*

Mail registration form to: Baker County Extension Office, 2610 Grove Street, Baker City, Oregon 97814, Phone: (541) 523-6418, or Union County Extension Service, 10507 N. McAlister Road, Rm 9, La Grande, OR 97850, 541-963-1010. There is no registration fee for Master Woodland Manager training.

**TREE SCHOOL EAST IS BACK!**

TREE SCHOOL EAST is coming on Saturday, April 22, 2006 on the campus of

Eastern Oregon University in La Grande. This Extension Service mini-college will feature 23 classes on a wide variety of topics of interest to

family forestland owners, professional foresters, loggers, arborists, ranchers, farmers, students, teachers, and the general public. You'll find classes on managing timber sales, reforestation, mixed species management, well water information and testing, forest property taxes, climate in Oregon, bats in the blues, forest soil protection, landscaping with native plants, timber/grazing strategies, noxious weeds on the forest and farm, small timber markets, property rights and wrongs, pond management, conservation easements, insects and diseases, GPS training and tree identification. The daylong event offers classroom and field sessions taught by Extension foresters, resource management professionals, biologists and other experts. Classes will vary in length from 1.5 to 3.5 hours and you can participate in up to four over the course of the day. We'll throw in snacks and a great lunch buffet to keep energy levels high!

In addition to many forestry topics, we've included classes that may be of interest to a wide audience including these highlighted below:

- In "Keeping Your Well Water Well", Jacqueline Fern from OSU's Well Water Program in Corvallis, will discuss well design, how to protect your well, water testing and many other aspects of proper well management. We'll also have free well water screening for nitrate during the day.
- George Taylor, State Climatologist, who is not only THE expert on climate in Oregon, but entertaining as well, will discuss "Climate in Oregon: Past, Pre-



sent and Future”.

- If you’re interested in native plants, be sure to consider Tonie Fitzgerald’s class on “Landscaping with Native Plants in the Inland Northwest”. Tonie is from Washington State University Extension Service in Spokane and recently published a bulletin on this subject.
- Burr Betts, a retired EOU biologist, will teach “Bats in the Blues”.
- If you’re a rancher or woodland owner interested in trees and livestock, you might want to check out Tim Delcurto’s class on “Timber and Grazing: Strategies for Successful Combinations.” As a scientist with the OSU Ag Research Center in Union, Tim has vast experience on this subject and will provide a practical approach to using the most recent research information.
- As always, a popular class will be “Identification and Management of Noxious Weeds for Woodland Owners and Farmers”.
- Sam Ledridge, a local retired attorney, will teach “Property Rights and Wrongs-the Ins and Outs of Property Law”. If you’re a property owner and interested in your rights, you won’t want to miss this class.
- “Forest and Farm Pond Management” is a new class you might check out.
- It seems like more and more we hear about landowners getting involved in or considering a conservation easement. Shaun Robertson, from the John Day Basin Trust and John Day Resource Center, will teach “Conservation Easements 101” to help you get a handle on this subject.
- “GPS Basics” provides an opportunity to learn more about this technology that’s so useful for property owners, recreationists, rural landowners and others.

A complete list and description of classes and registration information will be in the mail soon!

*Delivered*

**LOG MARKET REPORT** \$/1,000 board feet

*January 15, 2006*

<b>Umatilla/Pendleton/Lewiston</b>								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/chips Logs
	6-11”	12-17”	18-23”	25”				
\$450-475 5”+55/ton	\$280	\$440	\$540	\$670	\$300-325 42/ton	12”+\$300 42/ton	\$300 42/ton	- -
<b>La Grande/Elgin/Joseph</b>								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/chips Logs
	6-11”	12-17”	18+”	20-24”				
\$440	\$200	\$375	\$475	call	\$390	\$350-390	\$370-400	- -
<b>Burns/John Day</b>								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Englemann Spruce	Pulp/chips Logs
	5-7”	8-11”	12-17”	18+”				
\$460-510	\$200	\$285	\$465	\$560+	\$285-380	\$ - -	\$250	\$10/ton
<i>Source: Oregon Log Market Report, Editor John Lindberg, ph 360-693-6766, fax 360-694-8466, logmkt@comcast.net</i>								

## Oregon Forest Institute for Teachers East: A Forest-based Learning Opportunity

When: June 20-22, 2006  
Where: Conference Room,  
Baker County Extension office  
Baker City, OR

Oregon Forest Institute for Teachers (OFIT) East is a forest-based teacher education program offered by Oregon State University, College of Forestry, OSU Extension Service, and Oregon Department of Forestry, in cooperation with the Oregon Forest Resources Institute. OFIT provides K-12 classroom



teachers, and educators of informal K-12 programs, with the knowledge, skills, and tools to effectively teach about forest issues, concepts, and practices. The 3-day program brings natural resource specialists and teachers together to deepen their understanding of the intricate interrelationships of forest ecosystems and human use of natural resources. This program will feature fine ecology and management, emphasizing eastern Oregon. Participants will be engaged in "hands-on" interactive learning experiences and practices that they can apply in their teaching situation.

**Free Workshop**-lodging, meal (including outdoor BBQ), and registration provided.

**Free classroom materials**-participants receive many useful materials, and curriculum. This includes Project Learning Tree, an award winning, environmental education curriculum.

**REGISTER NOW!** Space is limited. Registration Deadline is June 11<sup>th</sup>.

Please visit our website for more information. Please register through our website <http://www.cof.orst.edu/ofep/ofit> or call OFEP at: 1.800.554.6987 to request an application. For more information contact

Bob Parker, OSU Extension Baker County office 541-523-6418 or [bob.parker@oregonstate.edu](mailto:bob.parker@oregonstate.edu).

## Collaborative project will examine forests, carbon and climate change

The Oregon Forest Resources Institute (OFRI) has begun a collaborative project with the Oregon Department of Forestry and the OSU College of Forestry to produce a peer-reviewed synthesis of current issues and scientific literature related to the role of forests in climate change and carbon storage. OFRI director of forestry Mike Cloughesy will manage the project under the guidance of Hal Salwasser, dean of the College of Forestry. The synthesis will identify key questions or research topics. Expert authors are selected and have begun drafting chapters. Project peer reviewers are being recruited and the synthesis will be published this fall. OFRI will also publish a Special Report and offer a symposium next year based on the project's findings.

*OFRI News January 2006*

## Are private landowners and operators doing their part to protect water quality in Oregon?

The Oregon Department of Forestry newsletter, *Oregon Forest Practices Monitor*, focused its latest issue on the question, "Are private forest landowners and operators doing their part to protect water quality in Oregon?"



The newsletter is based on a comprehensive 1998 study that examined compliance levels in Oregon. The study looked at more than 13,000 applications of the rules on 189 forest operations. Overall compliance with the forest practice rules for Oregon was 96%. The survey found that about 1.25% of rule or Best Management Practice (BMP) applications were out of

compliance and also caused resource damage.

Some of the practices that were found to cause the most problems were not identifying small non-fish bearing streams, small wetlands, seeps, and springs, resulting in no protection for these features. While the level of rule compliance was high, 4 out of 10 operations had at least one non-compliant practice. Interestingly, the rate of compliance from the monitoring project compares favorably with the estimated rate of compliance based on citations and civil penalty data (96 to 98% compliance).

With regard to Riparian Management Areas (RMAs), the survey found that land-owners often chose not to harvest any timber even though there were options that allowed some timber harvest. In addition, RMA widths often exceeded the minimums in the rules. The full BMP technical report can be found at [http://oregon.gov/ODF/PRIVATE\\_FORESTS/docs/fp/BMPfinalTR15.pdf](http://oregon.gov/ODF/PRIVATE_FORESTS/docs/fp/BMPfinalTR15.pdf).

## Steps in Passing the Baton

*Thanks to Clint Bentz, Master Woodland Manager and CPA, for the following information.*

One of the most important things you can do to ensure a good handoff to the next generation is to select and groom your successor. This means choosing the person or persons you want to run the Tree Farm, training those people or making sure they get the training they need to be successful, and helping them gain the acceptance of the rest of the family in their eventual role. This will not happen by accident. The saddest situations I encounter are families in which children either cannot decide who will be the leader or the person best suited for the job is not accepted by the rest of the family. The longer you are around to encourage, assist, give advice and referee when necessary, the



Ecology and Management of Eastern Oregon Forests. This is a comprehensive manual developed to help forest managers understand the complex forests of eastern Oregon and how to manage them for their objectives. Nine chapters feature understanding east-side 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](mailto:puborders@oregonstate.edu).

more successful your children will be working together after you are gone.

Creating a business entity that will serve your family for multiple generations takes some work and thought. In addition to the family dynamics involved, there are many legal and tax issues that must be considered in drafting one of these agreements. You need to find legal and tax professionals who have experience preparing and working with multigenerational agreements to help you draft these agreements.

Through their participation on the property, some of your children may have contributed more to the equity of the property than others. It is rare to find an "on-farm" heir that has been adequately compensated for this effort. As parents, we often provide extra financial help to our children who have problems. In effect, we sometimes seem to reward our children more for failing than succeeding. While the successful children rarely resent this during your lifetime, at death this can be different matter.

Should all of your children be partners? Partnerships are hard work. They require willingness among the partners to get along, to compromise and to work together for the common good. We may have some children who are marching to a completely different drummer or, for whatever reason,

are not going to be successful as partners together. Don't try to push square pegs into round holes. You may have to make different arrangements for some of your children.



Remember to have fun! Many of us who own Tree Farms really enjoy working hard. Some of our children and grandchildren do not get the same enjoyment from this as we do. One of the easiest ways to do this is to create recreational opportunities on the property for your family. Make it easy for your city-dwelling offspring to come, visit, work, recreate and have fun. The possibilities are only limited by your imagination (and zoning laws).

It is important to step back from time to time and see the forest for the trees, and to enjoy the great beauty of the land we have been blessed to own and the great families we have been blessed to share. Make an appointment with your spouse this week to start this process - to renew your love for your property and to renew commitment to successfully passing your baton to the next runners in the race ahead!

### **Woody biomass could provide a "triple win" for Oregon State University**

OFRI has announced findings of its recent assessment of forest growth and mortality, part of Phase II of the economic study, *Oregon Forest Sector Contributions and Potential*. The study was conducted for OFRI by E.D. Hovee & Company. According to the assessment, Oregon could meet a significant portion of its energy needs by using woody biomass to generate electricity or create bio-fuels. Woody biomass is produced from thinning overstocked forests or as waste from wood products mills. Much of the wood potentially available for biomass harvest is on the 57 percent of the forestland in the state that is owned by the

federal government. These lands have high mortality levels, low harvest levels and, consequently, a high percentage of the growth being left in the forest to exacerbate forest health and fire risk problems. The OFRI assessment noted that thinning overstocked federal forests could provide the state with a "triple win" by:

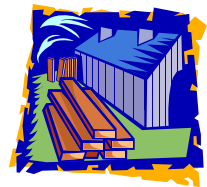
1. Improving fire resiliency, restoring forest health and wildlife habitat in federal forest;
2. Creating jobs and revitalizing the rural Oregon economy; and helping the state achieve its goal for meeting more of its energy needs from renewable resources.
3. It also found that conversion of woody biomass to renewable energy can reduce carbon dioxide emissions and dependence on fossil fuels and is complementary to biofuels produced from agriculture residue.

An energy-from-biomass strategy incorporating findings from the OFRI assessment was among the priority initiatives recommended for inclusion in the 2006 Oregon Business Plan and presented at the Oregon Leadership Summit in Portland earlier this month. In his closing remarks at the Summit, Governor Kulongoski said, "I want you to know that I am committed to making Oregon a national leader in forest biomass energy development."

*OFRI News, January 2006*

### **Potlatch Constructing New Sawmill At Its Boardman, Poplar Plantation**

Potlatch Corporation has announced that its constructing an on-site sawmill to manufacture hardwood lumber products from poplar trees harvested from the company's 17,000-acre poplar plantation near Boardman, Oregon.



The \$8.1-million project, which will include equipment to produce green hardwood lumber from poplar logs, is expected to be in operation by December 2006. Once completed, the sawmill is expected to produce an estimated 30 million board feet of green hardwood lumber and employ 55 at the Boardman site.

The new sawmill is part of Potlatch Forest Products Corporation, a taxable subsidiary of Potlatch Corporation, which is a real estate investment trust.

The Boardman facility was initially developed with sequential annual plantings of poplar trees, beginning in 1993. Computerized drip irrigation conserves water and delivers nutrients to the poplar trees, which are managed on 11-year rotations and cultured to produce clear, high quality hardwood for lumber.

Potlatch manages 1.5 million acres of timberlands in Arkansas, Idaho, Minnesota, and Oregon.

### **Interested in learning more about invasive weeds? Check out these sources...**

**Pacific Northwest Weed ID** – an excellent CD using dichotomous keys to identify 600 weeds of the Northwest. Available from XID Services Inc. [www.xidservices.com](http://www.xidservices.com) 1-800-USA-2XID

**Weeds of the West** – a standard reference with over 900 color photographs. It has a number of omissions such as giant hogweed, garlic mustard, Himalayan blackberry and false brome but illustrates many of the more common weeds.

**Northwest Weeds** - features the more prominent weeds but is far from inclusive.

**Pacific Northwest Weed Management Handbook** – revised annually and available from Cooperative Extension Offices in Oregon, Washington, and Idaho. In Oregon order from: Extension and Station Communi-

cations, Oregon State University, 422 Kerr Administration, Corvallis 97331, 541-737-2513. email: [puborders@orst.edu](mailto:puborders@orst.edu) Web: <http://www.eesc.orst.edu>

#### **Other websites:**

Weed Records and Information Center – <http://wric.ucdavis.edu/>

Encycloweededia – <http://www.cdfa.ca.gov/weedinfo/>

Center for Invasive Plant Management – [www.weedcenter.org](http://www.weedcenter.org)

The Nature Conservancy – <http://tncweeds.ucdavis.edu/esadocs.html>

Weedmapper – <http://www.weedmapper.org>

Plants Gone Wild – Alien Plant Invaders of Natural Areas – <http://www.nps.gov/plants/alien>

### **Wood for Wildlife**

When foresters talk about leaving organic debris, they often focus on feeding forest soils, minimizing fire risk, and avoiding bark beetle problems.



But if they are looking at broader ecosystem functions, they will also look at organic debris for wildlife. Many forest owners value wildlife for their own sake, but even where management focus is primarily on timber, wildlife can contribute to those objectives. For example, the owls that use snags left on a site will prey on pocket gophers – a chief nemesis of tree planters everywhere.

For the most part, wildlife biologists looking at organic debris concentrate on material larger than 3 inches in diameter, known as **coarse woody debris** (CWD). Slash (organic debris smaller than 3 inches in diameter) ultimately helps wildlife to the extent it enriches forest soils, which in turn

feed the plants, trees, and fungi that wildlife depend on. Slash piles may also shelter small mammals. But inadequate coarse woody debris is often more limiting to wildlife. Species ranging from bears to rubber boas use CWD for many purposes. For example:

- Both birds and mammals use CWD as a place to forage for insects or fungi;
- Martens, fishers, bobcats, and black bears use CWD for dens and shelter;
- Many small mammals use CWD for hiding cover and protection;
- Small mammals also use logs as runways;
- Many amphibians benefit from CWD because it provides a cooler, moister habitats with more stable temperatures for breeding and other activities;
- Birds use CWD for lookout posts and reproductive displays; and
- Predators such as martens and weasels use CWD for access under snow to their prey

Managing CWD for forest nutrition is relatively straight-forward. Determine how many tons of CWD you need per acre and when and how to treat it to minimize insect and fire concerns. Managing CWD for wildlife is more complicated. The size, distribution, and orientation of logs are more important than sheer quantity. Also, different wildlife species have different habitat needs, some of which may conflict. For example, heavy log concentrations may be good for small mammals but limit elk movement. Since many, if not most, wildlife species of interest cross property boundaries, you also have to factor in what needs are being met by nearby forests. More research is needed, but some general strategies for managing CWD for wildlife can be grouped into three categories: snags, size characteristics, and arrangement.

**Snags.** The primary focus in this article is logs on the ground. But before a tree can

become log habitat, it must die. Sometimes green trees are blown down by the wind and immediately provide CWD, but more commonly, the dead trees remain standing for decades. This dead, standing tree is called a snag. Snags are a valuable resource for a whole host of wildlife species and are often the first thing that biologist look for when evaluating forest wildlife habitat quality. For a good summary on snags, read *Managing Small Woodlands for Cavity Nesting Birds*, downloadable at <http://www.woodlandfishandwildlife.org>



**Coarse Woody Debris Size and Characteristics.** Wildlife biologists often emphasize large pieces of organic debris for wildlife, as they can benefit a wider range of species. For example, black bears can den in the stump of a large windthrown tree. Obviously bears cannot use a 6-inch tree for the same purpose. But those small logs still benefit other species – maybe even bears, if they can forage grubs from the decayed log. Longer pieces of CWD are also preferred because they provide a wider range of diameters, in turn benefiting a wider range of wildlife species.

Hollow logs (formed by stem decay fungi such as Indian paint fungus that decay the tree's heartwood while it is still standing) are particularly useful to many wildlife species (e.g., pine marten).

Downed logs provide the widest variety of habitat if the bark is attached, as some wildlife species or their prey will live in the space between the wood and the bark as the latter starts to loosen. Try not to roughen up downed logs any more than you have to if you want to keep that habitat.

**Coarse Woody Debris Arrangement.** Arrangement of fallen logs is critical to some species, particularly small mammals and their prey. For example, martens and fishers like logs that are “jackstrawed” or loosely piled up across the forest floor.



When these log piles are covered by snow they create a complex of snow-free spaces and runways that provide protection and foraging.

Log orientation matters too. Logs lying parallel to slope contours may be used more by wildlife than logs oriented up- and down-hill, especially on steep slopes. Arranging logs this way also allows soil to accumulate on the uphill side, which traps moisture, hastens decay, and reduces fire risk.

**Balancing competing objectives.** Several researchers have pointed out that the species that depend on CWD in forests managed for timber are currently relying on material left in historical logging. This often involved cutting in older forests that had more stem-decayed wood. Current harvests in second growth stands often do not have as much malformed wood and are made for markets that take logs down to a smaller top diameter (e.g., down to a 4 inch top rather than an 8 inch top). These harvests do not leave as much CWD as past timber harvest practices.

So with all the varied habitat needs of different wildlife species, plus all your other forest management objectives, how do you make decisions that benefit wildlife? Unfortunately, there is not much authoritative research that gives precise recommendations of how much and what kinds of CWD to leave for specific species of wildlife. Barring more prescriptive research results, the best strat-

egy may be to leave a variety of species, degrees of decay, and distributions of CWD to benefit a broad range of species. How much depends on your other objectives, but wildlife biologists rarely talk about a site having too much CWD.

At a minimum, pay closer attention to leaving low value (cull) pieces of stem wood out in the woods rather than burning them in one big pile, or worse yet, hauling them to a mill that won't pay you for them.

For more information on CWD, see *Trees and Logs Important to Wildlife in the Interior Columbia River Basin* available at <http://www.fs.fed.us/pnw/pubs/gtr-181>) and *Proceedings of the Symposium on the Ecology and Management of Dead Wood in Western Forests* available at <http://www.fs.fed.us/psw/publications/documents/gtr-181>).

*Adapted from Woodland Notes: Chris Schnepf*

**Rethinking the Forests.** Oregon Public Broadcasting: A Video of this OPB documentary is available at the OSU Extension office for free check out. Call ahead for availability at 541-963-1010, Monday - Friday

## Master Woodland Manager Training Registration

Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone: \_\_\_\_\_ e-mail: \_\_\_\_\_

Mail registration to: Baker County Extension Office, 2610 Grove Street, Baker City, Oregon 97814, Phone: (541) 523-6418, or Union County Extension Service, 10507 N. McAlister Road, Rm 9, La Grande, OR 97850, 541-963-1010. There is no registration fee for Master Woodland Manager training.

## Western larch: an information “nugget” about this important species

Western larch, *Larix occidentalis*, locally called “Tamarack” (which is actually another species of larch, *Larix laricina*, that grows throughout northern latitudes from Newfoundland to Alaska), generally grows between the 45<sup>th</sup> and 50<sup>th</sup> parallel along the east slope of the Cascades and in the upper Columbia River Basin, including Oregon’s Blue Mountains, northern Idaho, western Montana, northeast Washington and into Canada. Alpine larch, *Larix lyallii*, occupies remote and rigorous environments in or near timberline in the Rocky Mountains as well as limited areas in the north Cascades in Washington.

Western larch is known for its rapid growth as a youngster and its shade intolerance (it needs lots of light). It grows best on better sites in northeast Oregon, including north or east facing slopes and more moist soils at mid to upper elevations. Larch can grow on a variety of soil types, but does especially well where ash accumulations have been deposited.

Larch naturally reseeds best on exposed mineral soil or burned sites, although some studies have shown reasonable success where light duff occurs. Although throughout its range good larch cone crops average 5 year intervals, in the Blue Mountains late spring frosts restrict cone success considerably resulting in sporadic and unpredictable seed crops.

Larch is known for its overall pest resistance, such as low susceptibility to beetle pests and high resistance to most root diseases. Dwarf mistletoe is probably the most devastating pest issue for larch, which causes growth loss and eventually tree death. An exotic defoliator (larch case-bearer) has caused some defoliation over wide areas, although most of this damage is not life threatening and efforts to establish introduced parasitic wasps is largely thought to be successful.



Research has shown larch to be very sensitive to grass/sedge and shrub competition during its early development, so planting combined with good site preparation creates big payoffs in survival and growth.

Natural regeneration usually seeds in abundantly causing dense patches of trees. Without quick intervention these thickets can stagnate causing snail pace diameter and height growth. In fact, larch needs space throughout its life to grow well because of its shade intolerance. Spacing for thinnings is similar to Douglas-fir. Productivity (volume) of

larch also rivals Douglas-fir. Height growth of larch and lodgepole pine can out-run other species up until about age 50, after that larch passes lodgepole as the pine slows down. For larch this growth pattern begins to slowly taper off, and after about 100 years other species catch up (e.g. Douglas-fir).

Larch has lots of talents to make it a priority species to manage for. Its pest resistance (e.g. plant it where root disease is a problem) and ability to quickly dominate a site are two, but also consider larch’s productive capability and value in the market place (same as Douglas-fir). Also, there’s its fire resistance; thick bark and deciduous needles combine to make larch our most fire resistant species. An added plus occurs in the fall as larch sprinkles yellow colors across the landscape. Remember, if you want good survival and growth, then control competing vegetation in plantations and improve growth later on by controlling stocking with thinning. Also, management of dwarf mistletoe is essential to maintaining healthy stands. If you have mistletoe in the overstory even small seedlings/saplings can be infected, thus you need to remove the infected trees as soon as possible.

Below is how larch stacks up compared to other species when considering tolerances to environmental factors (Fiedler and Lloyd 1995).

- Low----- Moderate ----- High
- Shade tolerance
    - WL LP PP WP DF ES GF AF WC WH
  - Frost tolerance
    - WH WC GF PP WL DF WP AF ES LP
  - Drought Tolerance
    - WH WC AF ES WP GF WL LP DF PP
  - Fire Resistance
    - WH AF ES WC LP GF WP DF PP WL
  - Excess water tolerance
    - PP DF WL GF WP AF WH ES WC LP

**Table 1**

**Table 1 key:**

- |                       |                        |
|-----------------------|------------------------|
| AF: subalpine fir     | DF: Douglas-fir        |
| ES: Engelmann spruce  | GF: grand fir          |
| LP: lodgepole pine    | PP: ponderosa pine     |
| WC: western red cedar | WH: western hemlock    |
| WL: western larch     | WP: western white pine |

## Spruce Beetle

**Introduction:** The spruce beetle (*Dendroctonus rufipennis*) causes most of the natural mortality of mature spruce.

**Hosts:** This beetle attacks all species of spruce in the Pacific Northwest, including Sitka and Engelmann spruce.

**Identification:** Look for reddish-brown boring dust on standing or fallen trees and masses of pitch may be found around entrance holes, especially during the summer of attack. On downed trees most of the attacks will be on the lower side, engraver beetles (*Ips*) will more likely be found on the upper side. Watch for woodpecker evidence as they “debark” the tree looking for beetles. Foliage discoloration will normally be obvious during the year following attack when needles will turn yellowish-green to orange-red. Sometimes foliage will remain green until 2 years after the initial infestation. Egg galleries under the bark are about 3 inches to a foot long, have a slight crook at the base, and extend upward in standing trees. Eggs are deposited on alternate sides of the gallery and larvae initially feed gregariously creating a fan shaped appearance. Adult beetles are about ¼ inch long and dark brown to black with reddish-brown wing covers.

**Damage and Spread:** A completed life cycle usually requires 2 years, except on cool moist sites on north slopes where it could take another year. Adults exit breeding sites from May to October, but most attacks occur in early summer. Larvae are present for two summers, pupate and over winter as adults under the bark, however some adults emerge and over winter at the base of trees. Sometimes beetles only kill part of the bole (strip attacks), but do not kill the tree. Beetles carry the blue stain fungi and inoculate the tree upon attack. Trees less than 12 inches DBH are infrequently attacked. Most outbreaks in standing timber originate in windthrow. When populations increase to high level in windthrown trees or felled timber, beetles can move into standing green trees. Larger trees in the stand are attacked first, then smaller trees. Highly susceptible stands are those growing in well-drained sites in creek bottoms, have a DBH of 16 inches or larger, a basal area of 150 square feet or more and species makeup is 65% or more of spruce.

**Management:** If windthrown or felled timber is less than 18 inches DBH, tops and cull logs are cut in short lengths and left unshaded and exposed to sunlight it is unlikely there will be significant beetle populations develop. In stands with spruce beetle mortality, removal of all infested and susceptible trees will help lower populations. Cut green trees 12 inches DBH and greater can absorb up to 10 times the number of spruce beetles that a standing tree will absorb. These “trap” trees must be removed. Aggregating or anti-aggregating pheromones can be used to draw beetles into trap trees or discourage infestation of high-value trees. Insecticides (e.g. a 2% solution of carbaryl) are registered for application prior to beetle flight in the spring on uninfested trees and can prevent attack.

May be confused with: Root diseases (laminated, Armillaria, and Annosus) can also cause declining foliage, but presence of boring dust, beetles and galleries will indicate spruce beetle attack.

**Reforestation Information**

Successful reforestation is achieved by paying attention to preparing the site, match seedling to site conditions, ordering plenty of time ahead, proper handling and planting techniques and managing competing vegetation and animal damage. The following list of publications addresses these topics and are good resources to review before you get started with your tree planting efforts.

The Care and Planting of Tree Seedlings on Your Woodland. EC1504 \$2.00  
Introduction to Conifer Release. EC 1388 \$1.00  
Successful Reforestation: An Overview. EC 1498 \$1.00  
Selecting and Buying Quality Seedlings. EC 1196 \$2.00  
Site Preparation: An Introduction for the Woodland Owner. EC 1188 \$2.50  
Seedling Care and Handling EC 1095 \$1.00  
Controlling Vole Damage to Conifer Seedlings EC 1256. \$1.00  
Understanding and Controlling Deer Damage in Young Plantations EC 1201 \$2.00  
Enhancing Reforestation Success in the Inland Northwest. PNW 520 \$2.00  
 Contact the OSU Extension Service, Union County Office for copies 541-963-1010

**Publications of Interest**

A Guide to Oregon's Forest Wildlife. This new booklet describes some of the wildlife associated with stands of different age classes. For teachers interested in incorporating this topic into classroom discussions and activities visit the Oregon Forest Resources Institute web site at [www.oregonforests.org](http://www.oregonforests.org). For copies of this booklet contact the Oregon Forest Resources Institute, 317 SW Sixth Street, Suite 400, Portland, OR 97204. 503-229-6718 or 1-800-719-9195

Reducing Hazardous Fuels on Woodland Properties Series

- Thinning
- Disposing of Woody Material
- Mechanical fuels production
- Pruning

The above OSU extension publications will soon be available. They are designed as concise, easy to read fliers for forestland owners to use as a resource for making decisions about reducing hazardous fuels. You can order them by contacting the OSU extension Union County office (541-963-1010)

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