

Oregon State University Extension Service

Blue Mountains Renewable Resources Newsletter

Vol. 25, No 1 Spring 2009

Paul Oester, Extension Forester ■ OSU Union County Extension Service ■ 541-963-1061 ■ Paul.T.Oester@oregonstate.edu
10507 N McAlister Rd, Ste. 9 ■ La Grande, OR 97850 ■ ph 541-963-1010 ■ fax 541-963-1036 ■ 1-800-806-5274

Website: <http://extension.oregonstate.edu/union/index.php>

Upcoming Events:

Diversifying Income Opportunities on Small Woodlands

Date: Wednesday, June 24, 2009

Time: 8:00 AM—4:00 PM

Location: Ag Service Center
Conference Room
10507 N McAlister Rd
Island City, OR

Cost: \$20/person (includes lunch)

Pre-registration is required by **Friday, June 19, 2009**

Topics will include:

- What's Ahead for Forest Products Markets
- Incentive Programs & Assistance for Small Woodland Owners
- Forest Stewardship Council (FSC) Certification and Markets
- Carbon Credit Programs & Markets
- Income from Water-Recreational Fishing
- Blue Mountain new Forest Economy: Opportunities and Challenges

An Added treat will be 9 forestry professionals from China, Brazil, Australis, Bosnia and Germany who will be in attendance as part of the World Forestry Center's International Fellowship Program!

Give us a call for a brochure and more infor-

mation at 541-963-1010

Oregon Tree Farmer of the Year Tour

When: Saturday, July 18, 2009

Who/where: Ted and Mary Brown, & Family are the 2008 Oregon Tree Farmers of the year. They are now competing for the American Forest Council Western Regional Outstanding Tree Farmers.

Come and join the Brown family along with many other tree farmers from around Oregon to celebrate their award/recognition and tour this amazing tree farm near Medical Springs. Some of the highlights include:

- Long term commercial thinning studies in ponderosa pine
- Tree planting and seeding in old fields
- Managing mixed species stands
- Dwarf mistletoe management
- Small sawmill demo (if possible).
- And more!

More information to follow—Stay tuned!

Continued on next page

Best Regards,

Paul Oester, Extension Forester
Umatilla, Union & Wallowa Counties

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

Oregon State University Extension Service offers education program activities and materials without regard to race, color, religion, sex, sexual orientation, age marital status, disability, and disable veteran or Vietnam era veteran-status as required by Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University is an Equal Opportunity Employer.

Succession Planning

Put November 12 on your calendar. On this date we'll have a succession planning workshop sponsored by the OSU Extension Service and Titan Financial Services of Lake Oswego, OR.

More Information to follow.

Forest to Fuel: school district makes use of biomass energy

By Kevin Weeks, ODF Agency Affairs Specialist

The Enterprise School District in September cut the ribbon on a new forest biomass energy facility that seeks to save the District \$76,000 per year in energy costs and use existing forest wood wastes in Wallowa county. The 1.5 million dollar project is the first biomass boiler system to be installed in an Oregon school district in more than 50 years.

“This project demonstrates that by working together we can restore forest health, create economic growth in rural communities, and help Oregon meet its ambitious goals to reduce carbon emissions,” state Governor Ted Kulongoski.

“This project is a model for other communities across the state.”

“Enterprise is the first Oregon K-12 school district that has converted from a diesel to a woody biomass fueled heating system,” said Brandon Adams, energy specialist with the Oregon Department of Energy. “Enterprise is also the first school to utilize the new state tax credit for renewable energy by using the pass-through option for entities without a tax liability.”

Project qualified for energy tax credit

The biomass project, which took nearly a year to complete, is the first project of its type to qualify for Oregon's new Renewable Business Energy Tax credit, which provided almost a third of the cost. The project allows construction money to stay in the local economy, while the boiler system makes use of wood that would otherwise increase forest fire risk.

The biomass boiler uses renewable wood fuel provided by the remnants of forest management activities and wood manufacturing residues from wood products companies in Wallowa and Union counties. The biomass boiler was manufactured by Oregon-based SolaGen.

Reducing forest fuels, keeping forest healthy

The Oregon Department of Forestry in La Grande worked closely with Wallowa Resources in Enterprise and other project partners to develop a plan that would ensure the school district a long-term supply of biomass fuel—while supporting forest fire fuel reduction objectives within Wallowa County's Community Wildfire Protection Plan.



“The energy put forth by people to see this project be successful not only benefits a school's district's budget, but it also builds community pride, aids the local economy and assists in keeping our forests healthy by creating a market for waste wood,” said Rick Wagner, stewardship forester with ODF's La Grande Unit. “It's a model for other school districts in Oregon to follow, and perhaps a foundation for other woody biomass projects in Wallowa County.”

The Enterprise School District contracted the project to energy service company McKinstry Essention, based in Seattle. McKinstry, in collaboration with a team of local contractors, constructed the building that houses the boiler and biomass materials.

“McKinstry enjoyed being involved in the project for so many reasons,” says Cam Hamilton, Business Development Manager for McKinstry's Portland office. “The people of Enterprise are wonderful, the School district board and administration were engaged and involved, and it keeps the resources in the local economy. It is a win for all involved.”

The project has been in development for several years thanks to a unique public-private partnership between Wallowa Resources, the Enterprise School District, Oregon Department of Energy and the Oregon Department of Forestry.

In 2004, Wallowa Resources contracted with the Biomass Energy Resource Center (BERC) to evaluate the potential for developing a market for low-grade biomass use for energy in public schools in Wallowa County. BERC's analysis found that the Enterprise School was an excellent site for a fully-automated wood chip heating system, and would save substantially on heating fuel costs.

It's estimated the Enterprise School District's new biomass system will save more than 45,000 gallons of fuel oil per year, and is expected to reduce CO2 emissions by 1.016 million pounds—equivalent to removing 67 cars from the road annually, or planting 138 acres of trees in Oregon each year.

New Markets for Baker County Private Forest Owners

Modified from an article by Ed Merriman, Baker City Herald

A regional forest investment grant to Sustainable Northwest will contribute to planning and building a new sustainable wood products industry in Baker County capable of providing income for woodland owners and low-cost power, heat, wood pellets and firewood to the community.

During a recent meeting of Baker County Small Woodlands Association, Nils Christoffersen, executive director of Wallowa Resources, presented a preliminary report and recommendations for using some of this regional investment funding to fund business planning and development of a wood-fired gasification plant, a wood pellet mill and firewood production.

The preliminary cost estimate for all three options totals about \$9 million. Payments to woodland owners who supply the material are projected at about \$1 million per year, based on a price of \$25 per green ton for wood delivered to a site in Baker City, plus a \$10 tax credit per green ton for the renewable energy portion of the projects.

Delivered

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

May 15, 2009

Umatilla/Pendleton/Lewiston								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs
	6-11"	12-17"	18-24"	25+"				
\$270	\$170	\$270	\$350	\$370	\$260	\$260	\$260	—
La Grande/Elgin/Joseph								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs
	6-11"	12-17"	18+"	20-24"				
\$300	\$220	\$250	\$250	call	\$200	\$200	\$200	—
Burns/John Day								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs
	8-11"	12-17"	18+"					
\$275		\$240	\$240	\$240	—	—	—	call
<i>Source: Oregon Log Market Report, Editor John Lindberg, ph 360-693-6766, fax 360-694-8466, logmkt@comcast.net</i>								

The plan focuses on developing productive uses for 41,000 to 45,000 tons of non-saw-log woody biomass per year from private forests in Baker County and 15,000 to 20,000 green tons from southern Union County, according to the report from Wallowa Resources.

Another 3,000 to 5,000 green tons per year is available from juniper cutting, and from the Baker County landfill, according to the report. Biomass from federal forests could add additional tonnage to the supply, if forest officials authorize more thinning.

Christoffersen described a system where woodland owners would thin their timber stands and the logs not sold to mills would be cut and dried for firewood. Smaller trees and other woody biomass, including slash piles from logging, would supply the gasifier power plant and the pellet mill. Heat created as a byproduct from the gasifier plant would be used to dry the pellets.

Besides providing a sustainable source of income for woodland owners, Eileen Gyllenberg, president of the Baker County Small Woodlands Association, said the products from those operations would benefit area residents, businesses and government institutions by providing less expensive sources of power or heat than what is available from natural gas or electric utilities.

When You're So Old

By Robert H. Mealey
Oregon State College, School of Forestry
Class of 1936

My friends quite often ask of me,
Why does an old man plant a tree?
It grows so slow it will not pay,
A profit for you anyway.
Then why in storm and winter cold,
Do you plant when you're so old?

The answer seems hard to define,
When muscles ache and they are mine.
But I just cannot stand to see,
A space where there should be a tree.

So that in part as years unfold,
Is why I plant when I'm so old.
I know that animals, bugs and things,
Love trees, and so do such as go on wings.
So creatures wild that benefit,
Is one more reason I can't quit
From planting trees while I can hold,
My planting hoe, though I'm so old.

They say that those retired from labor,
Should fish and play and talk to neighbor.
They say also that folks in leisure,
Should do the things which give them pleasure.
And so the thought on which I'm sold,
I'll plant some trees though I'm so old.

As times goes on my trees will grow.

So tall and clean and row on row.
The furry folk will have a home,
The birds can nest, and kids can roam.

And all of this as I have told,
I planted trees though I'm so old.

And then there is my family,
Young folks who will follow me.
I'd like to leave them with some land,

Stocked with trees and looking grand.

These gifts I value more than gold,
so I plant some trees though I'm so old.

And taxes too for schools and roads,
With jobs and lumber for abodes.
I won't see these things, I won't be here.
But to my mind it's very clear.
The words of some who could be polled,
Might thank a man who is so old.

Man should be proud of what's his own,
And how he's managed what he's grown.
But management must be begun,
By planting seedlings one by one.
And so my pride I shall uphold,
I'll plant some trees though I'm so old.

So when my friends ask of me,
Why does an old man plant a tree?
Perhaps the lines above explain,
How aching back and limbs in pain,
May be commitment be controlled,
To plant my trees though I'm so old.



Forest Health Matters: Larch Casebearer

Paul Oester and Dave Shaw

Adapted from a MWM Gazette article

Most woodland owners in Oregon have never seen this defoliator in their forest and probably have never heard of it. That's not surprising because most forestland owners don't have western larch growing in their forest! You have to go to the eastside, especially north of Bend along the Cascades and the "far" eastside in the Blue Mountains to find this tree and the larch casebearer. Although you may not have this pest anywhere near your forest, we think that it's still an important insect to know about because it's interesting and, more importantly, it's an introduced species.

Western larch grows naturally in pure stands or mixed with other species, such as Douglas-fir, grand fir, lodgepole pine and ponderosa pine. It is the only native deciduous conifer we have in Oregon and in the fall the yellow foliage contrasts beautifully against the green of the other conifers across the landscape. Larch is preferred by many owners and managers because of its rapid initial growth, wind-firm stature, fire-resistance, and good end product values. Another key to its favorable status is its root disease resistance and general lack of major insect pests, especially bark beetles. However, recently there has been concern about the amount of defoliation occurring on western larch trees across eastern Oregon (Figure 1).



Figure 1. Early summer defoliation of young western larch in northeast Oregon caused by the larch casebearer.

We called our friend Rob Flowers, Oregon Department of Forestry Entomologist, to see if he had any current information on where these insects might be causing damage and any trends. He graciously provided a number of maps and charts ODF developed based on information from their aerial survey. You can access digital maps and GIS files of survey information by going to the following Oregon Department of Forestry and USDA Forest Service websites.

http://www.oregon.gov/odf/private_forests/fh.shtml

<http://www.fs.fed.us/r6/nr/fid/data.shtml>

What's particularly interesting about this insect is that it was introduced into North America from Europe in 1886 on planting stock. It took another 71 years before casebearer was detected on western larch in Idaho, and currently it can be found wherever its host grows and is considered the most serious pest of larch in the west. Larch casebearer larvae are tiny, but mighty. They consume needle tissues, causing needle death and defoliation. Early on, newly hatched larvae mine inside the needles. Later, the larvae cut off a portion of the hollowed out needle and line the needle with silk to form a small, cigar-shaped case, and hence the name (Figure 2). Once this is completed the larvae live, feed and develop inside the case and overwinter there too. Finding these cases is the key to identifying this insect.



Figure 2. A close up of the "cigar" shaped case that can be used to identify the larch casebearer

Larch usually can withstand repeated light to moderate defoliation, because it can produce more needles late in the growing season. However, continued heavy defoliation for 5 years or more can retard growth, cause branch dieback, and occasionally may stress the tree enough that it succumbs to other factors, which is especially likely with smaller trees.

Outbreaks have been recorded since the 1970's but were not well documented. Aerial survey records indicate that damage from larch casebearer has been detected every year since 1999 (Figure 3). It should be noted that aerial detection can be tricky because western larch produces a second flush of needles after defoliation making defoliated trees difficult to detect. Also, foliar diseases can also be common and likely contribute somewhat to the observed damage, depending on the year. Ground checking helps clarify the culprits.

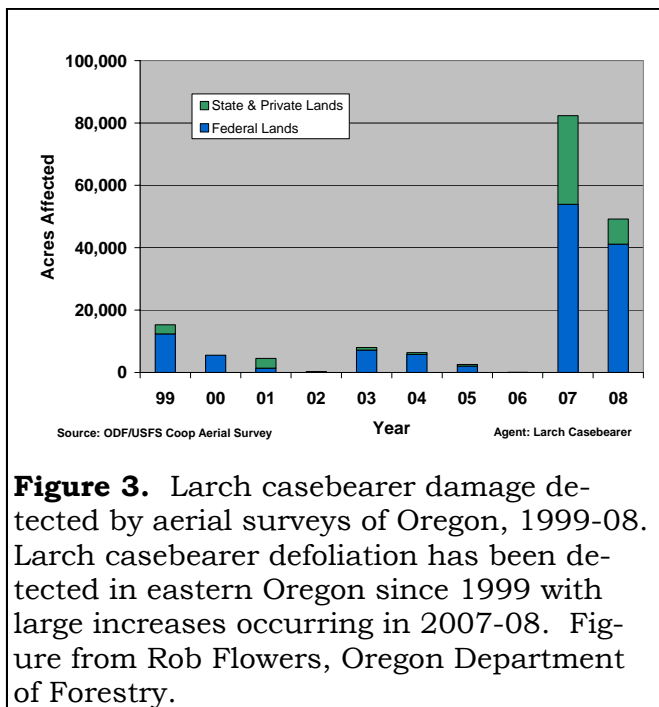


Figure 3. Larch casebearer damage detected by aerial surveys of Oregon, 1999-08. Larch casebearer defoliation has been detected in eastern Oregon since 1999 with large increases occurring in 2007-08. Figure from Rob Flowers, Oregon Department of Forestry.

In the 2007 aerial survey, when all defoliating insects are considered (chewing and sap feeding), over 314,000 acres were affected in Oregon (Figure 4). Of the total area, the balsam woolly adelgid accounted for the majority of the damage (42%), followed by western spruce budworm (31%) and larch casebearer (26%). Low intensity casebearer defoliation was detected on over 82,000 acres in Central and Northeast Oregon, (Figure 4). Damage was widespread on the Wallowa-Whitman and Umatilla National Forests along

with many surrounding private ownerships. Ground surveys indicated that while casebearer defoliation was abundant, foliar diseases were also present and contributed somewhat to the observed damage.

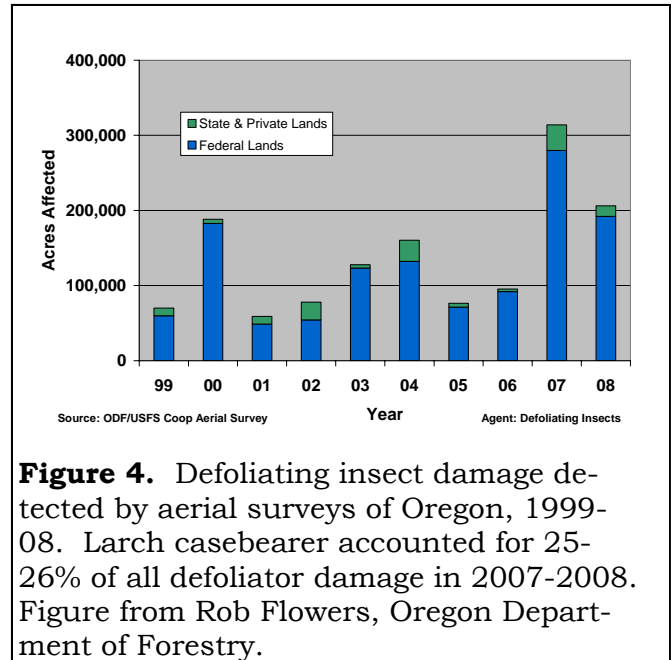


Figure 4. Defoliating insect damage detected by aerial surveys of Oregon, 1999-08. Larch casebearer accounted for 25-26% of all defoliator damage in 2007-2008. Figure from Rob Flowers, Oregon Department of Forestry.

In 2008, the picture changed (Figure 3 & 4). Overall, total defoliation was down (206,000 acres instead of 314,000 acres), with larch casebearer damage occurring on 49,000 acres (25% of total). Western spruce budworm damage was also down (10,000 acres) and contributed only 5% of the total. The majority of damage was attributed to the balsam woolly adelgid, which rose to almost 140,000 acres (68% of total). Rob Flowers notes that the apparent declines of western spruce budworm and larch casebearer may be a function of survey timing. Western spruce budworm was very late developing and much of the damage was missed (showing up in the fall ground surveys). The pattern was similar for larch casebearer, although it didn't seem quite so obvious. The 2009 aerial survey should provide confirmation of population trends. The distribution of larch casebearer defoliation in Oregon for 2008 can be seen in Figure 5.

Little is known about how actions such as thinning affect larch casebearer populations and damage, or predator and parasite relationships. Stress factors that weaken trees, such as dwarf mistletoe, probably add to decline in defoliated trees. Promoting vigorous growth should allow better

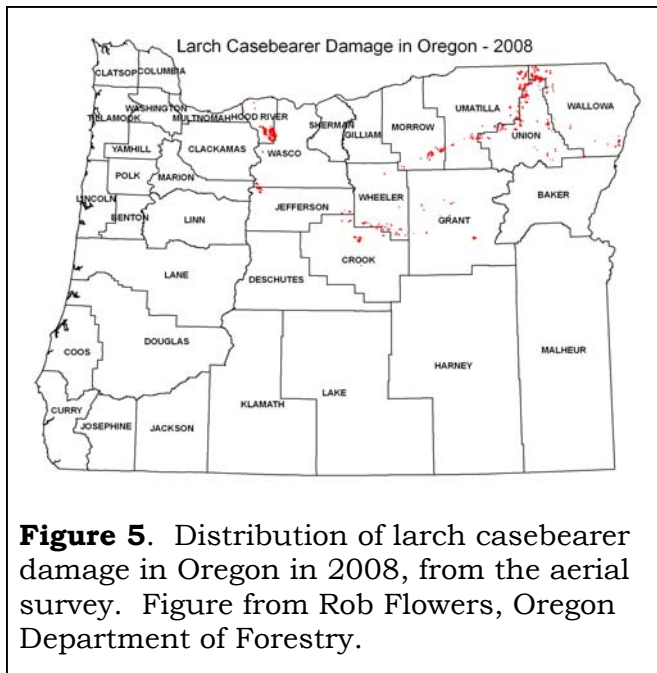


Figure 5. Distribution of larch casebearer damage in Oregon in 2008, from the aerial survey. Figure from Rob Flowers, Oregon Department of Forestry.

recovery once defoliation subsides. Until we know more, manage stands with larch at moderate stocking levels, promote mixed-species compositions, and, in thinning, leave disease-free trees with long, dominant crowns.

A Biological control success story in the making?

In the early 1960s, two European parasitic wasps, *Agathis pumila* and *Chrysocharis laricinellae*, were introduced into North American western larch stands to control the larch casebearer. The success of this program has been heralded as an example of the use of biological agents to control an invasive, non-native insect. Early monitoring was promising; the two wasps appeared to increase their populations in tandem with increasing larch casebearer populations. Usually, the parasites lagged a year or so behind a rising casebearer population, but eventually controlled the insect. However, no monitoring has been done recently in Oregon and little is known about what is controlling populations at this time. We will likely only know in a few years if the parasites that were introduced 50 years ago are controlling the population of larch casebearer in Oregon now.

It is hoped that these parasites, along with environmental factors that help regulate populations, such as cold, wet springs, with frosts

will lessen larch casebearer defoliation and future outbreaks. A number of native predators, including birds and arthropods, and parasites feed on larch casebearer but don't appear to control growing populations. Larch needle blight (caused by *Hypodermella laricis*) and larch needle cast (caused by *Meria laricis*), both limit foliage available to the casebearer and so appear to help moderate casebearer outbreaks. Symptoms of these needle diseases can be confused with casebearer defoliation; however, the needle diseases normally are concentrated in the lower crown, while casebearer damage typically is in the upper crown or throughout the crown.

No pesticide is registered for treating larch casebearer in Oregon. Besides, aerial pesticide application isn't practical because larch is scattered across the landscape in mixtures with other species.

Given larch's ability to re-leaf late in the growing season, and the existence to some degree of predator and parasite controls, the long-term management strategy for this pest is to let natural processes take effect. It is thought that over time the combination of previously released biological control agents, native natural enemies, and environmental factors will reduce populations below damaging levels in Oregon as has occurred in some Eastern states.

For more information on the biology and management of larch casebearer, as well as other insects and diseases of western larch see: ODF's Forest Health Note, *What's damaging Western Larch in Oregon?* (http://www.oregon.gov/ODF/PRIVATE_FORESTS/fh.shtml)

The following was written by a local woodland owner who wanted to share his experience. Thanks Stephen!

Growing Your Own Tree Seedlings in Styroblocks

By Stephen Bersch

Why grow your own? Since forest trees are zone specific, the best seed source is on your own land. By using styroblocks you can pull trees and plant anytime you want. Plant in

spring just like bare root, or plant in fall when soil temperatures are still warm enough to facilitate root growth.

To start, collect seeds when seeds are ripe and before cones open; late in August in Eastern Oregon is a good time. When the squirrels start harvesting cones, they are ready, so take your cue. Walking through your forest, the squirrels nip off small branches in the process of harvesting cones, indicating that seed cones are being taken. If you are present while the squirrels are working, they drop a lot of cones on the ground before they scurry down the tree to collect the cones for a winter cache. They will call you all sorts of “names” in squirrel talk if you pick them up.

If you're interested in collecting cones off of individually selected trees, Google “FAO Forestry paper 20/2 A Guide to Forest Seed handling” specifically Chapter Four, for more information. For fir and western larch, I have to pull cones off of trees. Squirrel caches can be raided anytime in the fall. The squirrels like to stash them in small streams so they stay closed until ready to be eaten. The caches in streams that I have found have all been ponderosa.



Closed cones have to open to collect the seeds. Stream caches should be air dried in sun light or a warm open area until they start to open. Placing non wet cones in paper bags near a wood stove or heater works. A lot of seeds simply fall to the bottom of the bags. Tapping open cones on a hard surface produces more seed drop. Placing open cones in your oven on low heat will open them further for even more seeds.

The seeds you collect will have paper like wings that, in nature, enable the seeds to fly from open cones on breezes to land far from the parent tree for distribution. Rubbing winged seeds between both of your palms will shred off most of the wings. Under a light breeze, drop mixture into the bucket below. Vary drop height to allow shredded wings to fly away on their own and the cleaned seed

will fall into the bucket. Even more “wing chaff, can be removed by blowing over the mixture placed on cookie tray.

Fall seed harvest can now be placed in ziplock bags in the back of your refrigerator. Ponderosa will keep this way for up to ten years (U.S> Dept of Agriculture Publication #654 Woody-Plant Seed manual). Fir and western larch do not keep as well and should be used the next spring.

I recommend planting seeds in May, when day time temperatures are beginning to warm. To help awaken your seeds from their winter sleep in the refrigerator, place them in a container filled with slightly warm water in which they will float. Each day plant the ones that

sink, or place them between wet paper towels in a closed, flat bottomed plastic container (Tupperware or similar). After the third day, the seeds that still float are thrown-away (mostly hollow shells). By placing at least some of your seeds between wet paper towels in a dark flat containers, you can watch germination. A white root will start popping out of the germinating seed. I like to check daily and even then a root can grow quite long. I remove the paper toweling and flood the container with slightly warm

water. The seed germinating will orient its root sprout facing upward for easier identity and removal for planting. Pour remaining seed through a colander to remove water and replace between wet paper towels. Placing between wet paper towels is not necessary for a crop and is only offered as a side note.

I planted seeds in a Styroblock which is a Styrofoam cube with tapered holes that are filled with planting medium. Sizes and number of holes per block, vary. Studies show that the number of cubic inches of planting medium per hole does not affect the survival success of the seedling. Styroblocks are available through Stuewe & Sons (800-533-5331) in Tangent, Oregon. They carry many sizes of styroblocks, but I would recommend the newer copper lined styroblocks. The copper



liners direct root growth downward. To remove trees from non-copper lined styroblocs, I sometimes have to lay blocks on their side and pull on trees while pushing with a dowel from the bottom side. Possibly, the new copper lined blocks will

make removal easier. After the first season of use, sterilize blocks with a mild Clorox solution and dry in sun light before replanting. The planting medium in the styroblocs should be a mixture of a sterilized planting “soil” mixed with peat moss and vermiculite to retain moisture. I fertilize once a week until the end of July using a light dose of a water soluble fertilizer in a sprinkling can. Read and follow directions for the fertilizer used.

Stopping fertilizer applications in late summer allows the new plant growth to harden off before the first frost. Growing outdoors, without a greenhouse environment, seedlings take about 2 years before being ready to plant in “the wild”.

Styroblock seedlings or “plugs” are easy to plant with just a step on a narrow planting shovel. Insert shovel to 10-12” depth, push forward then pull back on shovel handle, creating a gap in the soil. Place plug in gap, and use boot lightly to close opening in soil. It’s critical to eliminate all air pockets in the soil and to firmly seal the soil around the seedling to prevent the root plug from drying out. A few sprinkles of granular herbicide (for p. pine and D. fir) is also a must as studies confirm the soil moisture is better maintained if all competing vegetation around the seedling is eliminated. (Editor’s note: contact your OSU Extension Forester for recommendations. Pesticide regulations and availability can vary and change with short notice. It’s critical to apply the right herbicide at the right time. Improper applications can kill trees.) If you get a spring with very little soil moisture, and you choose not to plant, the seedlings in styroblocs will keep until the fall or even the following spring. Fall planting is best done by tanking in the trees (construct an earthen bowl and around

the seedling and water). Growing your own seedlings allows you to plant trees that are site specific for your property and gives flexibility as to when you plant as you are not restricted to bare root season. Plus, there is a wonderful satisfaction in harvesting, growing and planting your own seedlings.

“If a tree is healthy then it doesn’t make sense to cut it down.” -Leo Goebel

In Memory of Leo R. Goebel

Leo R. Goebel, 77, died March 28, at his home near Joseph. Leo was buried March 29 on the family property on Bear Creek near Wallowa

Leo was a founding Board Member of Wallowa Resources and helped guide the organization through the formative early years. He was well-known for his dedication to forest management. He and Bob Jackson spent more than three decades practicing and teaching forest stewardship on their alder Slope tree farm near Enterprise.

The two men were named “Oregon Tree Farmers of the Year” in 1984 and 1991 and “Western Regional Outstanding Tree Farmers” by the American Forest Council in 1992. Leo and Bob hosted students from all over the U.S. and several foreign countries at the tree farm. Many of these tours were coordinated by Wallowa Resources.

Leo Goebel’s family is involved in the management of the tree farm—his work will continue past his lifetime. Memorial contributions may be made to the Kate Johnson Goebel Scholarship Fund, in care of the Wallowa School Foundation, 179 Highway 82, Lostine 97857, or any other Wallowa County nonprofit organization.

WR Quarterly Connection, Spring

Publications of Interest (cont)

OFRI has published *Oregon Forest Facts and Figures 2009*. This new publication covers the majority of the “hot topics” related to Oregon's forests, including ownership, forest protection laws, forest health, economic contributions woody biomass potential and much more. To download a copy go to

<http://www.oregonforests.org>

New, (in print). *Field Guide to Managing Common Disease and insect Pests of Oregon Conifers*. June 2009. Oregon State University Extension Service. EM 8980. Contact the Union County OSU Ext office for copies. ((Available in July)

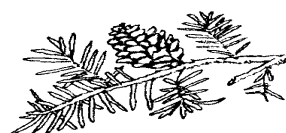
Timber Tax Management for Family Forest Owners by Wilm. (Bill) Hoover and Mark Koontz. Order on-line at : www.timbertaxadvice.com

EC 1573-E, *Hazardous Fuels Reduction on Woodland Property: Thinning* <http://extension.oregonstate.edu/catalog/pdf/ec/ec1573-e.pdf>

EC 1574-E, *Reducing hazardous Fuels on Woodland Property: Disposing of Woody Material* <http://extension.oregonstate.edu/catalog/pdf/ec/ec1574-e.pdf>

EC 1575-E, *Reducing Hazardous Fuels on Woodland Properties: Mechanical Fuels* <http://extension.oregonstate.edu/catalog/pdf/ec/ec1575-e.pdf>

EC 1576-E, *Reducing Hazardous Fuels on Woodland Property: Pruning* <http://extension.oregonstate.edu/catalog/pdf/ec/ec1576-e.pdf>



Return Service Requested

OSU Extension Service, Union Co
10507 N McAlistier Rd, Ste. 9
La Grande, OR 97850

PRSR1 STD
U.S. POSTAGE PAID
PERMIT 204
LA GRANDE, OR 97850