



Oregon State University Extension Service

Blue Mountains Renewable Resources Newsletter

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Upcoming Events

Slash Burning 101

Thursday, November 1, 2007

8:30—2:00p.m.

Elgin City Hall, 180 N. 8th Street, Elgin

You should have already received an announcement for this program. If not, please call 541-963-1010 for a copy.

At the Crossroads: Sustaining Oregon's Forests in a Rapidly Changing World.

November 6-7, 2007

Corvallis, OR

Contact Lisa Gaines, Conference Co-chair

(541-737-1976) or by email at

lisa.gaines@oregonstate.edu

Tree School East 2008

Saturday, April 19, 2008, Loso Hall, Eastern Oregon University Campus, La Grande

Effectively Engaging Your Policy Makers

Bob Parker, OSU Extension

Last June I was fortunate enough to be invited to participate in the annual 'Week in Washington' training session which for the last 10 years has been organized by: *American Forests; Communities Committee; National Network of Forest Practitioners* and *The Pinchot Institute for Conservation*. This 5 day training session in Washington, D.C. is extremely well done and offers some good

information and insights for anyone interested in effectively engaging local, state and national policy issues. They also pay for a substantial chunk of the costs which is a big help for those of us on tight budgets so if you are interested in attending one of these sessions in the future, check out the contact information at the end of this article.

In our session there were 11 participants from various walks of the forestry world. We had people from all around the United States including private forestry related business owners, consultants, state forestry agents, an OSU graduate student, forestland owners and representatives from forestry associations. It was a lot of fun interacting with other folks and learning something about what's going on in their part of the world. It was also very interesting to hear how forestry needs and interests are so similar in such varying places around the country.

Anyway, if there's any way you can see your way clear to attend one of these trainings, I'd highly recommend you leap all over

Best Regards,

Paul Oester, Extension Forester
Umatilla, Union & Wallowa Counties

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

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it.

Here're a summary of what we talked about. Many folks don't take an active role to help influence policy, even though we're often on the receiving end of policies that directly impact our lives, because it's often felt that "we don't have any power". The challenge for Oregon's family forest owners, and anyone else, is to become active in forest policy development. Being active requires learning how forest issues emerge, how related policies are shaped, and how and when landowners can weigh in effectively during these processes.

One of the keys to consider is that it's about relationships with our friends in office. We need to think how to initiate, build and maintain positive relationships over the long haul. It seems like too often our involvement comes from a hot-button, crisis-of-the-month campaign to flood legislators with a deluge of phone calls, emails, faxes and letters, etc., etc. after which everyone heaves a collective sigh and then forget it until the next crisis emerges. That's not a terribly great way to build relationships. It's far better to work on consistently keeping in contact so legislators have a good idea who you are, what's important to you and why. Congress is a reactive body and they respond to well stated messages from their constituents. Policy development doesn't occur in a vacuum. Policy makers typically respond to constituents and community leaders who are saying, "We need to do something about this issue." Research shows that legislators and other decision makers respond to spontaneous mail – letters from individual constituents – more than any other single type of communication including mail campaigns, polls, and issue ads. A good letter **can** make a difference.

And, groups of folks with a similar interest carry a lot weight. Effective interac-

tions are enabled by organizing people who have the same goals in order to bring out and capitalize on their ideas and resources. And diversity creates more strength so organizing with all parties and groups who are in support of your position provides a strategic advantage through greater numbers and a broader base of constituents. It takes work to find common ground but broadly based coalitions have clout. Like one of our trainers said: "Coalitions ROCK!"



It's also good strategy to know who is also competing against you, or who is in opposition to you.

Know what you want. Spend some time thinking about what the problem you want addressed really is so that it can be articulated clearly and forcefully. That can be harder to do than you think! Be specific

because it is easier to target solutions to a tightly defined, specific problem. And don't hesitate to ask because if you don't ask, sure as sunshine you won't get it. But again thinking strategically, go for easy to reach, tangible short-term solutions, as well as long-term. And perhaps most importantly, don't just be standing there with a hand out asking for something – offer your own solutions as well. Don't put all your eggs in one basket, rather develop several winning solutions and then don't be afraid to change course in order to react as the situation requires.

When providing information to legislators or other policy makers, consider these points:

1. IDENTIFY YOURSELF, who you are and who you represent so they know you are their constituent.
2. Tell the TRUTH and be CREDIBLE – don't say what you don't **know**. Be clear, concise and back up your position with

solid data.

3. Be **COMPELLING** and state why the issue or concern is important now. Also prioritize what must happen first, second, third, and so on.
4. Get to **YES**. Start with something that's easy to say yes to and begin to get agreement. Don't start by asking for the moon!
5. Be **PREPARED** and bring information and materials supporting your position to a meeting with policy makers. It is helpful to share information and examples that demonstrate clearly the impact or benefits associated with a particular issue or piece of legislation.
6. Offer to be a **RESOURCE**. Policy makers deal with countless complex issues so knowing that they have someone in their district who really understands these issues can be very useful to them.
7. Be **POLITE**. Always treat policy makers and their staff with the same respect you expect. You can be forceful about your views and positions without being rude.
8. Marry local stories to important **REGIONAL** and **NATIONAL TRENDS**.
9. Always say **THANK YOU**. Policy makers often like public recognition, so a hearty thanks delivered on a letter head or through the media such as a press release can be much appreciated and pay dividends as you work to build those long-term relationships.
10. Maintain a **SUSTAINED PRESENCE** through letters, emails, conference calls, etc. It's a good idea to contact a legislator's local office before going to or communicating with Washington D.C.
11. Get them out **ON THE GROUND** so they can see and understand the community and issues first-hand.

Finally, staying informed about the issues and how the process works is the foundation of engaging in the policy process. It's not easy staying up on today's complex issues and policy responses sometimes evolve quickly or unexpectedly. Resources you can use:

OSU Extension Service: <http://oregonstate.edu/government/contacting.html>

Delivered

LOG MARKET REPORT \$/1,000 board feet

September 15, 2007

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+"				
\$380-400	\$300	\$450	\$560	\$650	\$300-340	\$275	\$275	30-34
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"				
\$420	\$270	\$440	\$540	call	\$320	\$300	\$300	32-34
Burns/John Day								
Douglas-fir /Larch	Ponderosa Pine				Grand fir /White fir	Lodgepole Pine	Engelmann Spruce	Pulp/Chip Logs
	5-7"	8-11"	12-17"	18+"				
\$370	?	\$260	\$400	\$480	\$350	\$300	\$300	call
<i>Source: Oregon Log Market Report, Editor John Lindberg, ph 360-693-6766, fax 360-694-8466, logmkt@comcast.net</i>								

Oregon Legislature: http://www.leg.state.or.us/bills_laws/
Committee for Family Forestlands: <http://oregon.gov/ODF/BOARD/cff.shtml>
Capital Press Newspaper. The online version is at: <http://www.capitalpress.com/speccpages/agriplus.htm>

If you would like to attend a Week in Washington training, contact the National Network of Forest Practitioners in Portland at 503-449-0009 or contact the NNFP national office, their website is: <http://www.nnfp.org>

Wood Ethanol Plants Planned for New York and Michigan

A Massachusetts company plans to become the first in the country to produce ethanol from wood on a commercial scale. Cambridge, Massachusetts-based Mascoma Corp. plans to make cellulosic ethanol at plants in the Griffis Business & Technology Park in Rome, NY and at an undetermined site in Michigan.

The Rome plant will be a pilot facility that will produce as much as two million gallons of ethanol annually.

National Woodlands, Summer 2007

Managing Competing Vegetation Has Long-Term Benefits

-A New Study of an Old Study Gets Started-

As part of her graduate work, Amanda Lindsay, a student in the Forest Science Department at OSU, has been measuring trees in plots that Bill Emmingham and I installed in 1988 on the Hall Ranch, southeast of Union, Oregon. Bill and I followed this study for 5 years, and then Amanda, Mike Newton (OSU), Liz Cole (OSU) and I re-constructed and re-measured the plots in fall 2006 and 2007. Tree measurements will possibly be taken in the fall 2008. The measurements consist of survival, basal diameter, diameter

at breast height, total height, and past five year's height growth. Analyses will compare mean height, diameter, and volume growth among treatments for each year. Once all the measurements are completed, regression analyses will be used to model height, diameter, and volume growth over time. Below (p.5) are the preliminary findings from the 2006 measurements compared to the 5 year results of 1992. Amanda will present this information at the National Society of American Foresters Conference in Portland in October, 2007.

Ponderosa pine 2-0 seedlings were planted in four blocks on two clearcuts. The five treatments consisted of a control, two levels of broadcast applications (Complete-application made two consecutive years and Standard-application made first year only), and two levels of spot applications of the herbicide hexazinone (the active ingredient in Velpar L and Pronone). This study indicates that applications of hexazinone adequate to control most herbaceous weed species can significantly improve seedling survival, growth, and vigor after five years. Although we used an herbicide for this experiment, other treatments, such as mulch mats (similar to spot herbicide treatments) or mechanical site preparation (similar to broadcast herbicide treatments), should show similar responses. The major difference would be cost; herbicides are a less expensive alternative.

The 2006 results have changed from the patterns seen in 1992. However, the complete treatment still has the greatest tree growth, with significantly greater results for tree volume and survival than the control. One reason the differences between treatments have begun to merge after 18 years may be due to competition be-

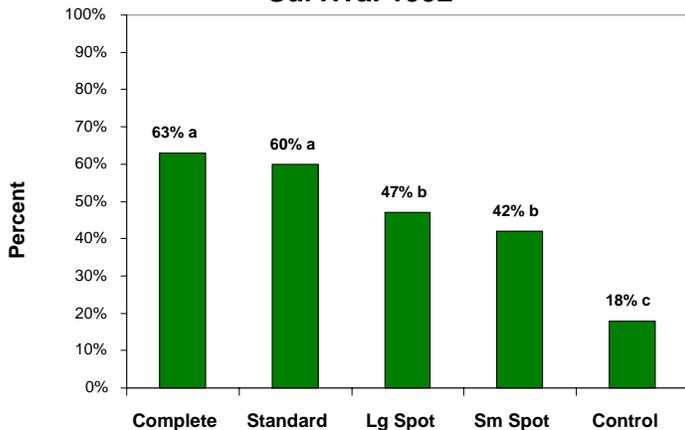


tween surviving trees. Those plots with more trees will show slower growth of individual trees earlier than plots with fewer trees. Regression analyses are needed to model differences in tree growth among treatments over time.

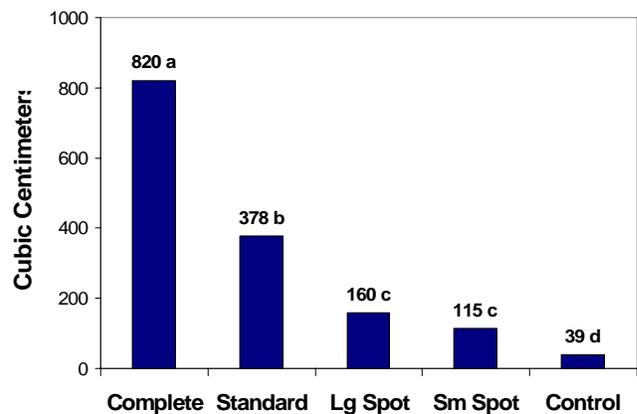
I'll update you on Amanda's work as she goes forward and we learn more. For now, I thought you might be interested in these preliminary outcomes. We have a solid research base for understanding the short-term benefits of controlling competing vegetation around newly planted seedlings, which is especially important on tougher eastern Oregon sites. Controlling competitors (grasses, forbs and shrubs) can bring big improvements in survival and good growth responses. However, long-term evaluations of vegetation management operations are rare, especially in eastern Oregon. Hopefully, we will gain some practical insights using Amanda's work. Stay tuned!

Ponderosa Pine Average Percent

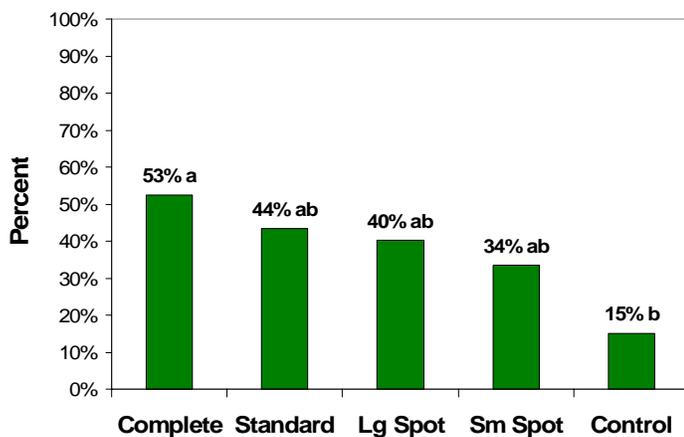
Survival 1992



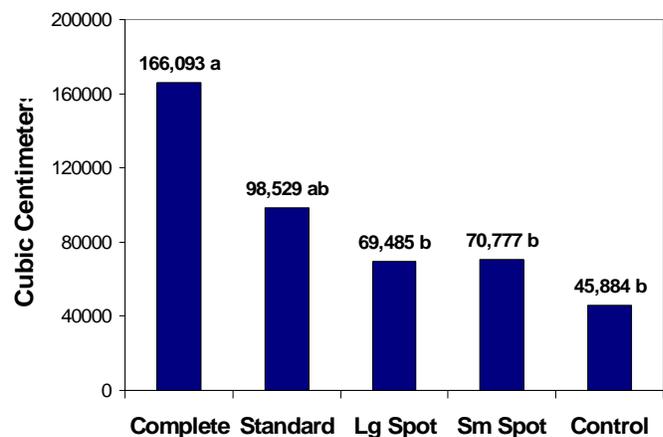
Ponderosa Pine Average Seedling Volume 1992



Ponderosa Pine Average Percent Survival 2006



Ponderosa Pine Average Tree Volume 2006



How Much Fertilizer In Slash?

By Chris Schnepf, U of I Extension

There has been much discussion among foresters and fire managers over the last ten years regarding the nutrient value of slash. Understanding this is critically important in making decisions about treating slash to reduce fire hazard or harvesting small trees and

slash for methanol, cogeneration, or other bio-fuels.

Moisture is the most influential factor limiting tree growth in most forests. But inadequate nutrients limit growth as well. Adding nutrients increases tree growth on most Inland Northwest forests, particularly fertilizers containing nitrogen, potassium, sulfur, and boron, though the size of the response from different fertilizer mixes varies considerably by site. Idaho's forest soils are not usually deficient in phosphorus (one of the "big three" plant nutrients whose weight is listed on the label at the bottom of fertilizer bags).

Presumably, repeatedly removing nutrients from these forests in the form of trees and slash will produce an opposite effect (reductions in tree growth). How much of a reduction has not been studied thoroughly, but one way of looking at it is to study the nutrient content of slash. How much nutrient capital is removed when green slash is burned or hauled away for bio-fuel? The standard response to this has been to note that roughly half of a tree's above-ground nutrients are tied up in the tree's crown. The Intermountain Forest Nutrition Cooperative has been study-

ing this question to develop more precise estimates of the nutrient content of trees on different types of sites.

For example, one case study projected the nutrient content of trees in an 80 year old stand in northeastern Oregon, on grand-fir habitat type, with basalt parent material. The stand in the example has 102 square feet of basal area/acre, and a species composition by volume of 82 percent grand fir, 6 percent Douglas-fir, 2 percent ponderosa pine, and 10 percent other species. This type of stand would be fairly common on the lower to mid-elevation sites in northern Idaho. In the crowns of this stand, there would be 122 lbs of nitrogen/acre and 101 lbs of potassium/acre. An equivalent amount of fertilizer would cost roughly \$100-120 an acre to apply—more if you added micronutrients such as sulfur or boron. Note that an additional 79 lbs of nitrogen/acre and 136 lbs of potassium/acre would be removed from the site if you took all the merchantable logs.

Nitrogen naturally re-accumulates in forests from atmospheric precipitation and from nitrogen-fixing plants and microbes. But this occurs slowly. A University of Idaho study on

Overstory Nutrient Components (pounds/acre). Rock type: Basalt; Vegetation Series: Grand Fir. Amount in standing crop before any cut.

Nutrient	Foliage	Small Branches	Coarse Branches	Total Crown	Unmerch Bark	Merch Bark	Unmerch Wood	Merch Wood
Biomass	5798	2331.8	14076	22205.8	983.3	20062.7	11446.8	57462.6
N	58.891	14.001	48.629	121.521	2.677	54.593	4917	24.448
K	38.283	12.543	50.357	101.183	2.743	56.7666	16.086	79378
P	7.129	3.238	13.263	23.63	0.782	16.109	4.56	22.786
Ca	75.908	21.956	89.57	187.435	8.301	172.207	21.406	106.043
Mg	6.426	3.11	12.423	21.959	0.618	12.604	4.108	20.332
S	3.687	1.163	4.514	9.365	0.241	4.964	1.23	6.169
Mn	0.733	0.523	2.366	3.621	0.282	5.928	0.557	2.744
Fe	0.385	0.613	1.136	2.133	0.086	1.728	0.656	3.238
Zn	0.112	0.085	0.422	0.618	0.027	0.549	0.169	0.824
B	0.224	0.036	0.123	0.383	0.009	0.179	0.053	0.263
Cu	0.009	0.039	0.27	0.317	0.013	0.254	0.104	0.517

Source: Intermountain Forest Nutrition Cooperative

a north Idaho cedar site found that nitrogen re-accumulated at a rate of roughly four pounds per acre per year annually. Potassium and other nutrients also re-accumulate, but even more slowly, mostly from parent material weathering and a miniscule amount from atmospheric precipitation. The same study found potassium re-accumulating at roughly two and one-half pounds per acre per year annually. The amounts are variable by site, but the loss of potassium and micronutrients would be even more critical on rock types that were lower in these nutrients, and slower to decompose.

Letting slash over-winter on site will capture many of the nutrients as they leach from the slash, though how much has not been studied precisely. In operations with very light slash accumulations, you might not even need to treat the slash very aggressively.

Nutrients are a critical dimension of any forest's health and growth. As you work to reconcile nutrient issues with fires hazard, contact your local fire warden for assistance.

Thanks to the staff from the Intermountain Forest Tree Nutrition Cooperative for information and comments on this article, which originally appeared in the University of Idaho Extension Spring/Summer newsletter Woodland Notes.

Chris Schnepf is Professor and Area Extension Educator—Forestry at the UI-Kootenai County Extension Office in Coeur d'Alene, Idaho

Ask the Expert

Have questions related to wood? The faculty of the Wood Science and Engineering Department at OSU have the expertise to handle almost any question about wood. Simply submit your question using the [Ask the Expert form](http://owic.oregonstate.edu/askexpert.php) (<http://owic.oregonstate.edu/askexpert.php>).

Please be as specific as possible.

The following are examples of recent 'Ask the Expert' questions:

Question: We are considering starting a business that would utilize peeler cores from plywood mills. How do we go about locating sources for peeler cores, and approximately how much should we pay for them (not treated or slabbed)?

Answer: We have an on-line directory of Oregon wood products firms that can help you locate the plywood mills in Oregon. The address for the Oregon Forest Industry Directory is www.orforestdirectory.com. To search for plywood mills, click on [Advanced Search](#) just under the search text box in the upper

left and search for "plywood, softwood", and one more for 'veneer, softwood'. You can skip the search for 'veneer, hardwood' since there are no mills peeling hardwood logs in Oregon (at least none that we know of). These searches will not be 100% accurate for mills that will have peeler cores because some plywood mills do not peel veneer-They purchase veneer to produce either plywood or laminated veneer lumber (LVL). However, this search will get you started.

As you may already know, peeler cores will be of varying sizes. Due to equipment limitations, some mills can only peel down to 4 or 5 inches. However, others can peel as small as 1-2 inches. Further, even the mills that can peel to very small cores will sometimes deliberately produce larger cores if the markets are right.

The current markets for peeler cores include chips (for paper), landscape timbers, posts (for fences or stakes. such as for grapevines and other agricultural products); there are also sawmills with small log handling equipment that can process larger peeler cores into 2x4 or 1x4 lumber. Regarding, determining price, your best bet is simply to call the plywood mills.

Question: When considering eastern and western Oregon ponderosa pine is there a difference in structural strength



between the two regions? Have the two regions been evaluated to determine if there is a difference?

Answer: I don't know of any research to evaluate the structural strength differences between the Willamette valley race of ponderosa pine (westside pine) and ponderosa pine from eastern Oregon (eastside pine) - at least, not yet.

Our wood anatomist, Barb Lachenbruch, and a grad student examined density differences of eastside vs. westside pine a few years ago. Not surprisingly, they found that the westside pine was denser. However, it was surprising that the westside pine was denser even though the samples they tested had the same percentages of latewood and equivalent growth rates.

The Willamette Valley Ponderosa Pine Conservation Association is currently considering research to determine the mechanical and physical properties of westside pine. We're working with them on this and are still in the planning stages to determine how many samples to test, what tests to conduct, etc.

I'm not sure when we'll have the information but you can keep in touch with us or the association folks to get the results when we have them. My suspicion is that westside pine will be significantly stronger than eastside pine. If so, there may well be justification for a separate grade stamp for 'valley pine.' We'll see if that suspicion is correct.

Question: I am inquiring about someone to purchase 3 black walnut trees in my yard.

Answer: This is one of the most frequent questions we receive given that walnut is prized for furniture, cabinets, etc. However, it is the kiln-dried lumber that is valuable, much more so than the standing tree. The difference, of course is the skills, equipment, and thus costs to fell the trees (particularly if they are near structures), remove limbs, cut logs to length, skid to a road, load, process (saw, edge, trim to length), dry and perhaps plane the lumber.

If you incur the up-front costs to have all that done, you will likely make some money selling the finished lumber product. Otherwise, it can be difficult to find someone to pay you (or

at least pay very much) for the standing trees due to the significant costs involved in simply getting the trees down on the ground and cleaned up. That said, you might be able to find a custom sawyer in the (<http://www.orforestdirectory.com>) [Oregon Forest Industry Directory](http://www.orforestdirectory.com) and/or a log buyer that would pay for the logs. If you click on 'Custom sawyers' you will see a list of 56 firms. You can narrow the list by selecting the region of the state where you live. To search the list of log buyers, return to the home page and click on 'walnut' under the list of log buyers. Again, you can narrow the results.

Another option might be to contact an arborist or tree service that can fell trees; you can find a list of certified arborists in the Pacific Northwest on the International Society for Arboriculture website at <http://www.pnwisa.org/>. Some of these folks might also have small sawmills (for just these sorts of occasions) and as such might be interested in buying the logs

Question: We are having problems with stain in pine. What might be causing this problem?

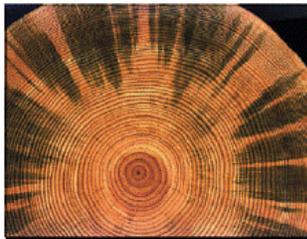
Answer: There are a number of different kinds of stain in wood:

Sapstain is usually a blue to blue-black color caused by fungi. The fungi use the sugars in the sapwood for food and thus the stain is limited to the sapwood.

Chemical brown stain is common in pine and is caused by high temperature and humidity early in kiln drying; these stains are usually a pale brown that look like the wood has been 'toasted.'

Iron stain is typically black and caused by tannins in the wood coming into contact with iron fasteners and/or water with high concentrations of iron. Iron stain is more common in oak and western redcedar than in pine.

Lastly, there are stains caused when two species come into contact due to reactions between chemicals found in the woods. Such discolorations are common in kiln-drying when the wood being dried and the wood used for stickers are from 2 (or more) different species.



Sapstain in southern pine.

From: Oregon Wood Innovation Center Vol 2, Issue 7, 8, & 9

Intergenerational Planning Resources

Are you interested in preserving the family forest and succession planning?

Gail Wells recently authored an excellent article about this topic in the July/August 2007 of Tree Farmer magazine. Below is a summary of web-based resources from the article. If you'd like a copy of the entire article contact the OSU Extension Service, Union County Office at 541-963-1010

Planning Resources:

Here are a few web-based resources to get you started on your succession journey.

- The intergenerational Family Forest Project, based at Oregon State University, developed the comprehensive "Ties to the Land" program. The workbook uses a fictitious case study to guide family forestland owners through the succession process. An interactive "Ties to the Land" DVD, complete with instructions for facilitating group sessions, is also available. Order from OSU's Austin Family Business website: <www.familybusinessonline.org/resources/ttl/home.htm>.
- McEvoy, Thom. 2006. "Sustainable Family Forests: The Wisdom of Creating an LLC." *Forestry Advantage* (newsletter of the National Woodland Owners Association), Fall 2006 edition. <www.forestryadvantage.com/Publication_Archives.htm>.
- McEvoy, Thom. In press. *Planning the Future Forest*. University Press of New England; due out in the spring of 2008
- *Northwest Woodlands* 21(4), Fall 2005. Special issue titled "The Future of Family Forests." A series of articles on succession planning, including two by Clint Bentz. <www.oswa.org/NWWFall2005.pdf>
- Forest Stewardship Estate Planning." 1997. A six-page introduction to estate planning from Pennsylvania State University Extension. <<http://pubs.cas.psu.edu/FreePubs/pdfs/uh105.pdf>>.
- Forest Landowner's Guide to Internet Resources: States of the Northeast. A searchable guide to web material on a variety of topics pertaining to nonindustrial private forestry in 20 northeastern states. <www.na.fs.fed.us/pubs/misc/flg/>.
- Siegel, William C. 2005. "Basic Estate Planning considerations." Pp. 23-25 in *National Woodlands*, Fall 2005 edition. <[www.woodlandowners.org/Publications?magazine\(2005-10\).htm](http://www.woodlandowners.org/Publications?magazine(2005-10).htm)>.

Publications of Interest

New OFRI Publications features **Wildlife in Managed Forests**.

This series of publications are designed to give the reader a source of what we know based on science findings in a useful, accessible format.

Two publications are now available. "Northern Spotted Owl" is based on the scientific research and evaluation of the owl since it was listed as a "threatened" species in 1990. The information in "Elk" was drawn from three decades of research (much from northeast Oregon's Starkey Project) including population dynamics, herd productivity, nutritional needs, habitat requirements and response to human disturbance. To get your free copy go to

www.oregonforests.org or call 1-800-719-9195.

EC 1587, **Selling Timber and Logs** New May 2007, 20 pages, \$3.50 <http://extension.oregonstate.edu/catalog/pdf/ec/ec1587.pdf>

EC 1603, **The Wildlife Garden: Dark-eyed Junco (Junco hyemalis)** New May 2007, 4 pages, \$1.00 <http://extension.oregonstate.edu/catalog/pdf/ec/ec1603>

EC 1606, **The Wildlife Garden: Wood Duck (Aix sponsa)**; New May 2007, 4 pages \$1.00 <http://extension.oregonstate.edu/catalog/pdf/ec/ec1606.pdf>

Publications of Interest (cont)

Careers and employment are focus of new Special Reports

Forestry, forest operations and forest product manufacturing have undergone significant changes as skilled jobs have become more technologically advanced. Two new special reports—*Oregon's Skilled Forest Products Workforce*; tax and *Oregon's Forest Operators*—now join an earlier one entitled *Oregon's Forestry Professionals* to complete a three-part series on employment and careers in the forestry sector where it is expected there will be excellent jobs in the future.

Oregon's Forestry Professionals describes the range of disciplines now embraced in the field, including engineering, chemistry, silviculture, hydrology and wildlife biology, and profiles working professionals. *Oregon's Skilled Forest Products Workforce* highlights new career paths involving innovative technology, with jobs incorporating seemingly unrelated skills in fields such as metallurgy and electronics. *Oregon's Forest Opera-*

tors follows classroom and on-the-job training routes to opportunities in today's sophisticated forest harvest operations

Tax Tips for Forest Landowners for the 2007 Tax year. This brief overview is a guide to assist owners of forestland with timber tax information. It is current as of October 1, 2007. If you would like a copy of this 2 page guide contact the OSU Extension Service, Union County Office at (541) 963-1010.

Wisdom, M.J., Technical Editor. 2005 **The Starkey Project: A Synthesis of Long-Term Studies of Elk and Mule Deer.** Alliance Communications Group, Lawrence, Kansas, USA. If you'd like a handy reference that provides a synthesis of research results from the Starkey Project this is for you. Twenty-three papers are included covering everything from effects of roads on elk to how the Starkey Project delivered on its commitments. This publication is available at Sunflower Books in La Grande for \$47.95.



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