



Oregon State University
Extension Service

TALL TIMBER TOPICS

A newsletter for those interested in Forestry, Woodland Management and Christmas Trees in Northwest Oregon

Spring 2019



Greetings and happy spring,

Things have been quite busy with the Forestry & Natural Resources Extension Program lately. We held a successful Basic Woodland Management Shortcourse in Columbia County in March. I always enjoy this opportunity to meet new woodland owners, or those who perhaps are not so new, but are new to our Forestry Extension program.

Right on the heels of that class our Master Woodland Manager training began. We have an enthusiastic group of 22 woodland owners from as far north as North Plains and as far south as Philomath. I'm looking forward to learning along with them at our classes, which are every two weeks through mid-July.

We also have a lot of things going on at the Matteson Demonstration Forest. Over spring break, we had our first youth field trip to the forest, through a partnership with [Beaverton PAL](#). I've begun a new applied research project involving monitoring for native bee populations (see article inside). Throughout the summer I'll be out there collecting bees with

some enthusiastic citizen scientists (bees only—no yellow jackets!). Also, we are planning to build a new foot trail that will connect the bottom of the property with the parking area, enabling people to walk a loop. In June, we'll have our first volunteer work party for those who would like to roll up your sleeves and lend a hand with that and other projects.

With the warmer weather, I hope you are balancing the work projects on your property with some time to appreciate the little bits of beauty that are popping up these days in the woods, like this trillium on the left. This newsletter contains both practical management information and resources, along with some articles that discuss some of the often overlooked parts of our ecological systems. Happy reading.

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UPCOMING EVENTS

APRIL

MASS TIMBER CONSTRUCTION

Tuesday, April 23rd, 7:00 pm. Washington County Small Woodlands Association monthly program. Location: Tualatin Valley Fire & Rescue #17, 31370 NW Commercial St., North Plains. Speaker: Kristin Slavin of Path Architecture will discuss designing building projects with Cross Laminated Timber and other mass timber. All are welcome, no RSVP needed.

CLIMATE CHANGE AND FORESTRY

Wednesday, April 24th, 7:00 pm. Yamhill County Small Woodlands Association monthly program. Location: 2050 Lafayette Ave, McMinnville. Speaker: Dave Shaw, OSU Extension Forest Health Specialist will discuss the effects of climate change on our forests. All are welcome, no RSVP needed.

MAY

PIECES OF EIGHT

Thursday, May 9th, 5:30—8:30 pm. Build Local Alliance presents eight stories of treasure from local trees and forests; tales of good wood, grown, crafted and placed. Location: Migration Brewing 2828 NE Glisan, Portland 97232. Info and RSVP at <https://buildlocalalliance.org>.

ESTATE PLANNING

Saturday, May 18th, 5:00 pm social/5:30 pm dinner/7:00 pm program. Columbia County Small Woodlands Association Spring Dinner Meeting. Speaker: Dave Lambert of Columbia Wealth Advisors. Location: Beaver Homes Grange, 31105 Beaver Homes Rd, Rainier. \$15/person for dinner, RSVP to Mark Dreyer, mdreyer51@msn.com or 503-369-9592.

YAMHILL SMALL WOODLANDS ANNUAL MEETING & DINNER

Wednesday, May 22, 6:00 pm social, 6:30 dinner, program to follow. Speaker: Fort Yamhill Garrison founder, David Plett will present history of Fort Yamhill and the Grand Ronde Agency. Location: Tequila Grill, 325 N. Hwy 99W, McMinnville. RSVP: Leonard Rydell, 503-538-5700 or larydell@teleport.com. Dinner cost to be determined.

JUNE

VOLUNTEER WORK PARTY AT MATTESON DEMONSTRATION FOREST

Friday, June 7th, 10:00 am—1:00 pm. We have several projects at the Matteson Forest that require a few extra helping hands. We will be hauling and chipping slash that will be used as mulch in a new demonstration hedgerow planting. Additionally, we'll be lopping brush along the route of a new trail to be constructed beginning this fall. RSVP: Sonia Reagan, 503-397-3462.

JULY

WASHINGTON COUNTY TREE FARMER OF THE YEAR TOUR

Saturday, July 20th, 8:00 am - 1:00 pm. Linda and Ernie Rieben's Madrona Ridge Tree Farm. Save the date! Details to come, check back at <http://new.wcswa.com/wordpress/calendar/>.

COLUMBIA COUNTY SMALL WOODLANDS ASSOCIATION SUMMER PICNIC

Saturday, July 20th. Save the date! Location and details to come.



Yellow wood violet, Viola glabella. What's blooming on your forest floor? Photo: Amy Grotta



Watch for problems with woodland roads

By Brad Withrow-Robinson, OSU Forestry @ Natural Resources Extension

Adapted from TreeTopics blog, <http://blogs.oregonstate.edu/treetopics>

Roads are an important asset for a woodland owner. Roads give access to the woods by foot or vehicle, for some or all of the year. This allows for recreation, management activities such as planting, weed control or harvest, and also fire protection. Roads are an important piece of a property's infrastructure and represent a significant financial investment.

Like other assets such as your house, car, pond or barn, roads need to be maintained to keep their practical values noted above, as well as value of investment. But in contrast to the buildings or other infrastructure on your property, with a road, a woodland owner takes on some legal responsibilities to maintain them. That is because, for all their benefits to a landowner, road systems also have the potential to do significant harm to the environment by creating barriers to fish passage or allowing erosion and delivery of sediment to streams. A forest landowner is expected to keep roads in good repair to prevent such harm to the environment. The type, timing and intensity of maintenance will depend on the type of road, location, construction and its use: a rock road used to haul logs down a valley in the winter is very different from a dirt road along a ridge with light seasonal use. Additionally, many family forest landowners have older, "legacy" roads. These older roads were likely not built to today's engineering standards, and have lost some of their function over time, so are deserving of some attention and stewardship.

Every landowner needs to avoid delivering sediment to our streams. Key objectives embedded in both road design and maintenance activities are to get water off the road surface quickly (avoiding ruts), and draining that water onto the forest floor well away from streams. That is why after heavy use, roads

are often re-graded to eliminate ruts, re-establish an outward slope on the road, with culverts, water bars, or other features built in to interrupt surface flow and take it off the road in desired locations. Seasonal dirt roads are often also seeded with a grass cover crop.

A key piece of annual maintenance in the rainy season is to survey all the cross drain culverts. These are the small pipes that carry water from the uphill side ditch, under the road and onto the forest floor. Debris built up in the ditch and culvert basin can block the culvert opening. A blocked culvert can cause water to back up and flow over the road, eroding surface and base, or in rare cases, lead to a serious blow out.

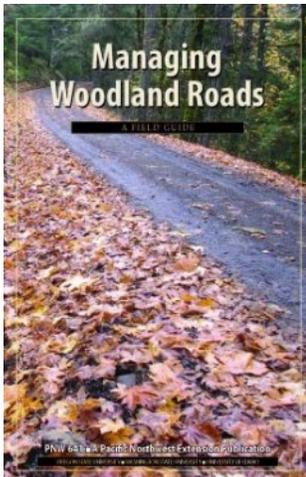
We have had some heavy rainstorms recently, and it is worth taking some time to see how your road system fared. Make it a habit to get out and inspect your road system regularly, especially in the wet season since water is a key element and force causing damage to roads. Bring paper, make notes and keep them as a reminder of what you saw and did.

When on your walk, you should be looking for signs of drainage issues: Water standing on the road, trapped water running down the road forming ruts, and water pooling in the uphill road ditch all indicate drainage issues that may lead to bigger, more damaging (and more expensive) problems.

Pay special attention to any stream crossings you may have. Here the drainage issues mentioned above can lead to environmental damage if water from the road system flows unfiltered directly into the stream.

(continued on page 4)

Watch for problems on woodland roads (continued)



Roads are a critical source of sediment, which can be very damaging to fish and other things living in the stream. It is important to find and fix such situations.

Be sure to get off the road at the stream crossing and take a look at the culvert below. After all, the crossing is not just a place for you to get over the stream easily, it is the place for the stream to get under the road. It must allow surges of water through and also fish and other stream residents to move back and forth as well. Check on the condition of the culvert, if it is deteriorating, clogging or hanging above the stream on the downhill side, those are signs that the culvert may not be functioning well. Other common problems, such as being too small, may not be so obvious to look at, but can be determined with help. Happily, there are resources available.

Chapter 6 of [Oregon's Forest Protection Laws: an illustrated manual](#) (third edition) published by OFRI and [Managing Woodland Roads: a field guide PNW 641](#) a Pacific Northwest Extension Publication, are well-explained and well-illustrated publications covering the roads basics.

TIMELY TIDBITS

New controlled burn rules take effect

Revised state rules aimed to protect air quality in areas of Oregon susceptible to smoke intrusion from controlled forest burns have gone into effect. The revised rules continue to meet federal air quality standards, but now tie the definition of a smoke intrusion to specific levels of smoke particulates considered unhealthy for vulnerable populations during certain time periods. They replace the former definition, which was zero visible smoke. Learn more about smoke management at: <https://www.oregon.gov/ODF/Fire/Pages/Burn.aspx>. Source: OFRI

Red alder trees "eat" rocks

By tapping nutrients from bedrock, red alder trees play a key role in healthy forest ecosystems, according to a new study. Researchers from Oregon State University and the U.S. Geological Survey determined that red alder, through its symbiotic relationship with nitrogen-fixing bacteria, extracts nutrients that are locked in bedrock, such as calcium and phosphorus. This process accelerates rock dissolution, releasing more mineral nutrients that allow plants and trees to grow. Read more at:

<https://today.oregonstate.edu/news/nitrogen-fixing-trees-%E2%80%99Ceat%E2%80%99D-rocks-play-pivotal-role-forest-health>

New Book: Managing Insects and Diseases of Oregon Conifers

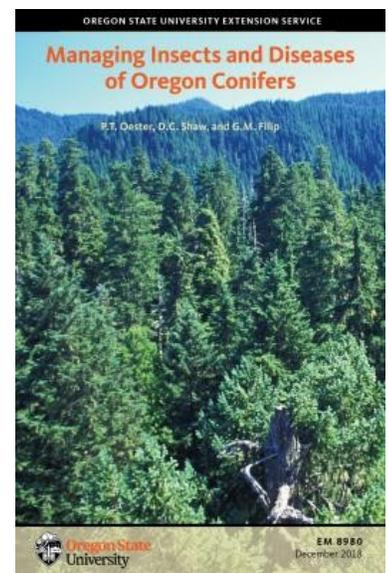
This 134-page book is written by current and former OSU Extension forest health experts. It discusses options for managing major insect pests and diseases of conifers in Oregon forests: bark beetles, wood borers, and ambrosia beetles; defoliators; root diseases and stem decays, and more. Full color with extensive reference section. Cost: \$18, order at:

<https://catalog.extension.oregonstate.edu/em8980>.

New Fire FAQ Fact Sheet: What is forest fuel, and what are fuel treatments?

A brief synopsis of fuel reduction treatments for both dry (eastside) and wet (westside) forests. Download a copy at:

<https://catalog.extension.oregonstate.edu/em9230>



Learning about forests and native bees

By Amy Grotta, OSU Forestry @ Natural Resources Extension

Adapted from TreeTopics blog, <http://blogs.oregonstate.edu/treetopics>, February 22, 2019

The health of insect pollinators is an issue of increasing concern and attention. Both managed bees (honeybees) and native bees face various threats, including diseases, chemical use, and loss of suitable habitat. While other insects (flies, butterflies, etc.) are pollinators, bees are considered some of the most important. Without healthy bee populations, many flowering crops we humans depend on would not flourish; and native ecosystems that other animals depend on would be impaired.

Because many people and organizations are interested in protecting and conserving bees in Oregon, the [Oregon Bee Project](#) came into being in order to be a clearinghouse of information, a facilitator of bee conservation and education initiatives. In February the Oregon Bee Project hosted the [PNW Pollinator Summit](#), a two-day conference that brought together researchers, Extension, non-profits, and other groups that are involved in pollinator conservation. I got to attend and was especially interested in the presentations and field trip focused on forestry.

It turns out that many of Oregon's ~800 species of native bees live in forests. However, we are just beginning to learn about their populations and their roles in forest ecosystems. The goal of current research is to understand more about these things.

Dr. Jim Rivers, a professor in OSU's College of Forestry, and Dr. Sara Galbraith, a post-doctoral researcher affiliated with his [lab](#), are really at the forefront of forest pollinator research in Oregon. At the Pollinator Summit, they shared some recent research findings and ongoing projects. One of their main messages was that recently harvested areas are especially important for native bees. Although many people might look at a clearcut and think it devoid of habitat value, the research indicates otherwise. It makes sense when you think about it – open areas such as clearcuts have an abundance of flowering plants, providing bees with a food source (pollen and nectar). Moreover, these areas also provide ideal nesting sites for bees. Many native bees are ground nesters that create burrows in the soil. Areas with exposed mineral soil are the best nesting sites, and that exposed soil can be found along roadbeds and places where slash has been removed or burned.

Other bees nest in wood cavities, which may be found in down wood, stumps, and snags. Then, there are those that like to hollow out pithy stems such as blackberry or elderberry stems and nest in there.

Preliminary studies suggest that the window during which native bees proliferate in recent clearcuts seems to be relatively narrow. Soon, new trees begin to dominate, there is less sunlight, and flowering plant abundance drops off. But there are still many questions to be answered, including whether and how forest managers can adopt specific practices to protect and enhance bees. We also don't know to what extent bees utilize older forests.

Many small woodland owners would like guidance on what they can do to manage their forests for pollinators. We're not at the point where we can offer specific guidance yet, but that is a goal. In the meantime, we can talk about broad bee-friendly guidelines, such as maintaining nesting habitat (see above) and floral resources.

And, we have some new research and demonstration sites! I've set up three bee monitoring and demonstration sites that I will be monitoring at the Matteson Demonstration Forest in Washington County, including two areas that were harvested last summer and the future site of a pollinator hedgerow.

I'm excited to be joining the bee bandwagon. Not only do I have a new reason to get out in the field regularly, but I also get to learn about collecting and identifying bees, something I knew absolutely nothing about going into this project. Fortunately, the Oregon Bee Project has fantastic resources available to help us with that, and some of their trained Oregon Bee Atlas volunteers will be helping. Our first sampling date was in early April, and we collected 21 bees from four genera. Not bad, considering the weather was not bee-aautiful (a bit cool and cloudy for them to be active). Stay tuned for more updates on this project.



A female bee in the *Andrena* genus digging a nesting burrow in the ground. Photo: Whitney Cranshaw, Colorado State University, bugwood.org.



Ground nest sites in a skid road at the Matteson Demonstration Forest.

Size matters: a brief look at site productivity and what it means

If you've ever been out on a field tour with a bunch of foresters, you probably heard one of them use the term "site productivity" in describing a particular forest, or comparing two different forests. But to the person without a lot of formal forestry background, site productivity may be a vague concept at best. However, it is an underlying attribute that turns out to explain a lot of what we observe in our forests: what types of trees thrive, which seem to have problems, what amount of competition our seedlings face, and more. So let's take a closer look at site productivity.

Essentially, site productivity refers to the amount of vegetation that a particular site can grow. In forestry, it's usually expressed in terms of wood production, but technically all vegetation counts. In Oregon, we have a wide variety of forests that range from low to high site productivity (see map). You can intuit site productivity somewhat with your eyes: forests in eastern Oregon tend to have sparse, lower-growing vegetation between the trees. In the Coast Range, there is biomass everywhere – tall trees, ferns, berry thickets, and thick carpets of moss.

Site productivity is largely influenced by the climate, the soil, and the terrain. Copious rainfall and mild winter temperatures favor plant growth; cold temperatures at high elevations do not. South-facing slopes tend to be hotter and drier. Silty loam soils are generally highly productive for conifer growth.

Site Index and Site Class

Foresters have quantitative measures to describe site productivity- site index and site class, which can help to predict expected wood volume grown over a period of time. Site index is based on tree heights. That is because for conifers, there tends to be relatively little variation in height growth of a given tree species on a given site, regardless of how close together the trees are spaced. (In contrast, diameter growth is highly dependent on stand density.)

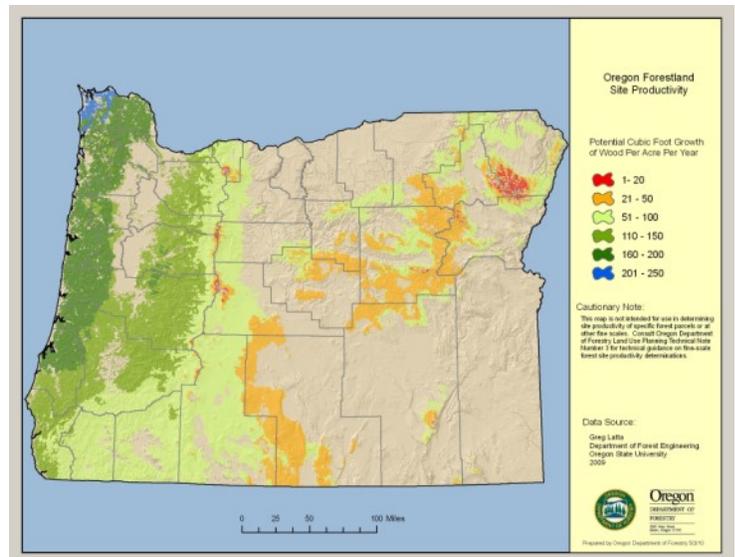
Researchers in early decades of the 20th century measured thousands of trees of different ages on different sites. From their data they constructed curves that would predict how tall trees would grow over time, on sites with different gradients of productivity. Then, to compare one site to another, an index age is used (typically 50). So on a site with a 50-year Douglas-fir site index of 110, Douglas-fir trees would be expected to reach 110 feet tall at age 50.

Site classes are simply groupings of site index, with site class I being the most productive and V being the least.

Recently we explored the concept of site productivity with our Master Woodland Manager trainees. At two different sites we calculated site index by measuring the heights of trees that were roughly 40 years old, and then found where they fell on a site index chart. At the first site, a higher elevation Coast Range location with 85 inches of annual rainfall, we estimated site index to be about 130, or a high site class II. At the second site, which was lower elevation and receives only about 50 inches of rainfall, it was about 95, or a low site class III.

So, armed with the right equipment and knowledge, you too can estimate your forest's site index. But, it might not match up with published values. This brings us to the last factor that influences site productivity (at least in terms of wood production), and that is management. It is really the only factor that we can control.

Remember, the forests where those scientists did their work to construct site index tables were natural in origin. But contemporary forest management practices emphasize trees that grow much faster than their naturally-originating counterparts. For example, tree breeding programs have selected genetic stock that is fast-growing, and that is the majority of what is produced by forest nurseries today. Secondly, we emphasize vegetation management in reforestation so that trees reach the



MWM trainees using site index charts. Photo: Tiffany Hopkins

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Lovely lichens lurk in your woodlands

By Brad Withrow-Robinson, OSU Forestry @ Natural Resources Extension

Adapted from TreeTopics blog, <http://blogs.oregonstate.edu/treetopics>, April 4, 2019

The woods are full of living things, all contributing to the forest's diversity: Trees; check. Shrubs; check. Woodland flowers; check. Birds; check. Obvious enough, right? But there are all sorts of less-obvious things which are seen only occasionally, such as mushrooms (fungus), many often-tiny things like insects, or secretive things such as amphibians. All add to the diversity, and many play important roles in how a forest functions.

Let's take a look at some more obscure but fascinating members of the forest community: lichens. We've all seen them. They are everywhere, including your woods. But what is a lichen? A lichen is partnership of two organisms that must grow together (so an obligatory, mutualistic association). The partnership includes a fungus which provides structure for the team, and a green algae and/or cyanobacteria which provides the carbohydrates through photosynthesis. These lichen partnerships are ancient, very diverse in form, highly adaptable and successful, and can be found in most environments around the world.

Lichens seem quite happy in our seasonally-moist forests of the Pacific Northwest. We see many lichens and mosses growing on and hanging from branches, or plastered as crusts on the bark of many trees and shrubs of our forests. Lichens and mosses are hitchhikers, growing on the trees without harming them (so are epiphytes, not parasites). Epiphytic lichens and mosses can make a significant contribution to diversity in our woodlands. There may be 50 or more species of epiphytic mosses and lichens in a typical acre of forest in western Oregon. That is noteworthy since they may outnumber all the trees, shrubs and herbaceous plants in that same acre!

But epiphytic lichens (and mosses too) contribute to forest diversity indirectly also. Many small insects live within the nooks and crannies of the epiphytes, which in turn provide food for many small birds foraging in the lichens. Lichens are seasonally important food to some mammals such as squirrels and deer. So lichens and mosses contribute to the food web, nutrient cycling (some lichens are nitrogen fixers) and animal diversity. So they are worth thinking about if you are growing a diverse forest. Steps towards enhancing the diversity of lichens fall broadly in line with suggestions for [increasing overall diversity in your woodland](#): Thin to prevent stands from becoming extremely dense and dark and to increase the structural diversity. Keep minor species, including hardwoods when thinning. Hardwoods help diversify structure in general, but are particularly good hosts for many epiphytes. Keep some older legacy trees if you have them, and plan for longer forest rotations.

So next time you are out, make an effort to pay attention to the lichens and other epiphytes that give our forests their characteristic fuzzy glow. It is easy to notice and appreciate their diversity of shapes and colors, even if not to identify them. Learn more about lichens in your woods by visiting this [epiphyte website](#) maintained by my friend Bruce McCune, an ecologist at OSU, lichens expert and family forest landowner.

Site Productivity (continued)

free-to-grow stage as quickly as possible. This reduces management costs and ensure better compliance with the Forest Practices Act.

As a result, much of our managed forest landscape is probably out-performing the site index tables to some degree. It's like Lake Wobegon, where all of the children are above average. So take the data with a grain of salt.

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