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Hardwoods are Growing Up

PHOTO COURTESY OF GREENWOOD RESOURCES

A one-year-old alder plantation.

BY DAVID SWEITZER

In 1955, 60 maverick companies joined together to become the charter members of what is now known as the Western Hardwood Association (WHA). They were considered mavericks because they were making a living using a Pacific coast hardwood called alder. Foresters throughout the region were using any means available to eradicate what was known as a "weed" tree. Bulldozing, burning and spraying were common techniques used to make way for Douglas-fir. More than 50 years later there are still a few who would like to see green conifers the year around and not be bothered by deciduous hardwoods.

As formidable as was the effort to eradicate the alder, it still persisted and is now gaining favor among foresters. Alder is the first to sprout after a fire or other disaster. It is a prolific contributor to the biodiversity of the forest. Alder fixes nitrogen in the soil and is immune to the effects of root rot and Swiss needle cast. One short rotation of alder will cleanse the soil of these diseases that affect many coniferous species.

In 1990, the WHA, which is comprised of a voluntary membership, approached the Washington State legislature to form a Washington Hardwoods Commission (WHC). The WHC would have a similar status as other commodity commissions such as apples and sheep. This commission would gain a valuable presence in the forest products industry by being authorized by the state legislature.

By 1991, and after two legislative sessions, the legislature authorized the formation of the WHC as a commodity commission. Each company that changes the round form of the Washington grown log or ships it out of Washington submits a quarterly report and pays a fee based on volume. The landowner generally is not obligated to this "report and pay" procedure; rather, this is the responsibility of the buyer who will process the log or export it from Washington.

Now let us look to the year 2000 when alder logs surpassed Douglas-fir logs in price for the first time. This trend is continuing today and is projected to continue in the future. Alder represents a niche market with 98 percent of the alder coming from the Northwest and southern British Columbia. The niche market for alder is primarily furniture, cabinets and pallets. Alder is in high demand throughout the world, and the WHA and WHC are working tirelessly to assure a sustainable supply.

About 26 percent of the alder is grown in riparian zones, which is unavailable because of ever-widening buffer zones to protect fish and wildlife. The remainder is grown below 1,500 feet in elevation and is subject to forest practices rules and regulations that restrict its harvest. All this leads to a reduced supply in an increasing demand climate. Although 2008 posed a severe challenge for the forest products industry, we are hopeful that better times are just around the corner and hardwood and softwood markets will rebound.

Better silvicultural techniques cou-

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Hardwoods are Growing Up

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pled with intensive management may help assure an adequate supply of alder in the future. The Hardwood Silviculture Cooperative based at Oregon State University has been intensively managing hundreds of test plots for nearly 17 years. Variables in the plots include site preparation, spacing, pruning and thinning. Height and dbh (diameter at breast height) measurements are also taken. This data, along with taper equations and standardized data from other sources, form the basis for an alder growth and yield model.

Also on the horizon is the possibility of a better alder log. Research is being conducted to develop superior seedlings. Many feel this will lower the rotation from 30 years to perhaps 20 years or lower, while improving the quality of the log to increase yield. GreenWood Resources and other major landowners have test sites in Oregon and Washington where this research is being conducted.

Many also feel that alder is destined to be grown on plantations where variables can be controlled. These plantations would likely be agricultural sites. If rules could be changed to reflect the rotation on agricultural land of 12 and 15 years to 20 years, alder could be included under the less restrictive agricultural rules rather than the forest practices rules. Oregon's legislature has been considering changing the rules to accommodate the 20-year crop rotation.

Here is one logical scenario and profit potential: Harvest every 20 years with a yield of 20 mbf per acre of sawlogs, after logging and replanting costs, the net to the landowner could be as much as $7,500 per acre.

With hardwood forest products becoming increasingly more important to both the local and global economy, we hope you will enjoy this issue of the *Western Forester*. This issue will look at the ecological contributions of hardwood stand management for improved soil and water quality and how enhanced wildlife habitat can be important to ecosystem function, as well as the refinements being made in superior planting stock, establishment practices, stand improvement and marketing. ◆

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Next Issue: Chemicals

The Practice of Red Alder Silviculture

BY ALEX DOBKOWSKI

Red alder is a valuable hardwood species that competes well with many other hardwood species in the marketplace for the production of lumber and veneer. Lower grade alder logs have value as a desirable pulpwood species. Because of the expectation of a continuing strong hardwood industry in the Pacific Northwest, some landowners are investing in growing red alder sawlogs to provide future raw material for that industry. This article will describe red alder plantation silviculture as practiced on thousands of acres of industrial forestlands in southwest Washington.

Regeneration

Site preparation. Heavy first- and second-year weed competition, including herbaceous weeds, has been shown to be detrimental to red alder survival and growth. For practical purposes, all broadcast herbicide control measures must be taken prior to planting. Only Atrazine 90 WDG (Loveland Products; Washington State only), Accord Concentrate (DOW) and Escort (DuPont) are labeled for use on red alder (follow label instructions). Cumulative vegetation ground cover in the first growing season of less than 10-15 percent is desirable for rapid tree growth and stand establishment. Sites that have aggressive, heavy weed invasions or are dominated by salal are extremely difficult to regenerate because of the ineffectiveness of herbicides in reducing competition to low levels in these situations. Scarification that exposes mineral soil (when combined with a soil residual herbicide) can increase survival and growth when heavy slash/forest floor is present.

Planting. Planting densities must be high enough to achieve the following: (1) quickly occupy the site to capture early height and stem diameter gains; (2) keep branch diameters in the first log small and promote rapid crown recession; and (3) provide a high enough thinning selection ratio to weed out damaged and poorly formed stems. Planting 540 to 680 trees per acre (tpa) will accomplish these objectives—with higher stocking on lower sites and where aggressive weed competition is expected.

A planting date should be selected to balance the risks of freeze damage and drought stress. The recommended planting window for elevations less than 1,000 feet is mid-March to mid-April.

To partially offset the effects of heat and drought on newly planted seedlings, deep planting (ground level approximately two to three inches above the root collar) is recommended. The thin bark of alder is easily damaged by sun-scald and heat. Seedlings should be planted at least one foot away from downed logs and larger branches that can reflect heat and cause sun-scald. If scalping that could expose the tree to sun-scalding is required to properly plant the seedling or remove slash, minimize the exposure of mineral soil; mineral soil at the base of the stem acts as a heat sink, and the bark readily damages.

Stand tending

Thinning. Our understanding of density management and thinning in red alder is far from complete. However, there are findings relative to red alder plantation stand dynamics that can give acceptable guidance.

Thinning can maintain diameter growth rates as long as the thinning takes place when crop trees still have a good live-crown ratio (60-70 percent live-crown length). Thinning early maintains good diameter growth, lessens epicormic branch formation and decreases the potential for stem diseases. Sometimes it is necessary to thin red alder early to reduce the competitive effects of conifer and hardwood in-growth—western hemlock and cascara can be particularly problematic.

Thinning early means crop trees will reach commercial size sooner, but there will be a decrease in the rate of crown recession/self-pruning and an increase in branch diameters in the first 16-foot log. Thinning late, after crown recession exceeds the length of the first log, gives better log quality and more clear wood, but less growth response from thinning, smaller

PHOTO COURTESY OF WEYERHAEUSER TIMBERLANDS RESEARCH

A 12-year-old red alder plantation on red alder site index 100 feet near Silver Lake, Wash.—three years after pre-commercial thinning from 600 to 360 trees per acre.

For Additional Reading

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crop tree diameters and a longer rotation to achieve commercial size. Stand density needs to be regulated to keep the stand growing between Relative Density of 0.15 to 0.35. Red alder plantations will usually require two thinning treatments to achieve desired log dimensions at harvest. The second thinning could be a commercial thinning depending on market conditions.

Maintaining a uniform growing environment is critical to the production of quality sawlogs. Leave tree selection criterion priorities are spacing, stem quality/disease and diameter at breast height (dbh). Minimizing damage to crop trees (stem wounding, top-break) is critical—it is the primary pathway for entry of disease and resulting decay. Time the thinning operation for late-summer to late-winter when tree bark is less susceptible to abrasion from falling trees. Direct cut trees into the lower stem of crop trees to facilitate breaking of dead branches from the stem. Cut out forked stems that originate below breast height—cut with a downward sloping angle to promote shedding of water.

Pruning. Live-branch, multiple-lift pruning can be done to increase the yield of clear wood without slowing DBH growth appreciably. Clear wood formed at an early age will have the same value as clear wood laid down at a later age because of the consistency in red alder wood properties with age. Pruning is done using hand saws and ladders (with a ladder length to match the height of the lift). Branches are cut flush with the branch collar without damage to the branch collar. Given the self-pruning exhibited by red alder, there will be a fair amount of clear wood produced without the expense of pruning. A good estimate of the amount of clear boards or veneer produced without pruning is needed in order to evaluate pruning as a silvicultural investment.

Nutrition. Red alder nutrition is a knowledge gap. Little work has been done to identify nutrient deficiency levels for red alder and the work that has been done was with seedling pot culture studies. Work done on red alder fertilization has shown red alder to respond positively to phosphorus (P) fertilization in almost every experiment. An unpublished Weyerhaeuser study in red alder on multiple sites showed fertilization with 250 lb./acre P at planting and at age seven years increased soil and foliar nutrient concentrations of nitrogen (N) and P, and tree growth.

It is very important to remember that red alder is much less forgiving than Douglas-fir to deviations from Best Management Practices (BMPs). It is essential that BMPs for site selection, plantation establishment and silviculture be followed in order to achieve successful plantations. Red alder tree growing can be very successful on the "right" sites. Plantation establishment success and subsequent tree growth can be highly variable on the "wrong" sites. Generally, the best sites biologically for growing red alder are also some of the best sites for growing Douglas-fir. It is also important to remember that having uniform stocking and rapid early growth so that the stand "captures the site" within the first three years is critical. If landowners practice what is known about red alder tree growing, they can produce valuable sawlogs in a relatively short rotation when compared to other high value hardwood tree species. ◆

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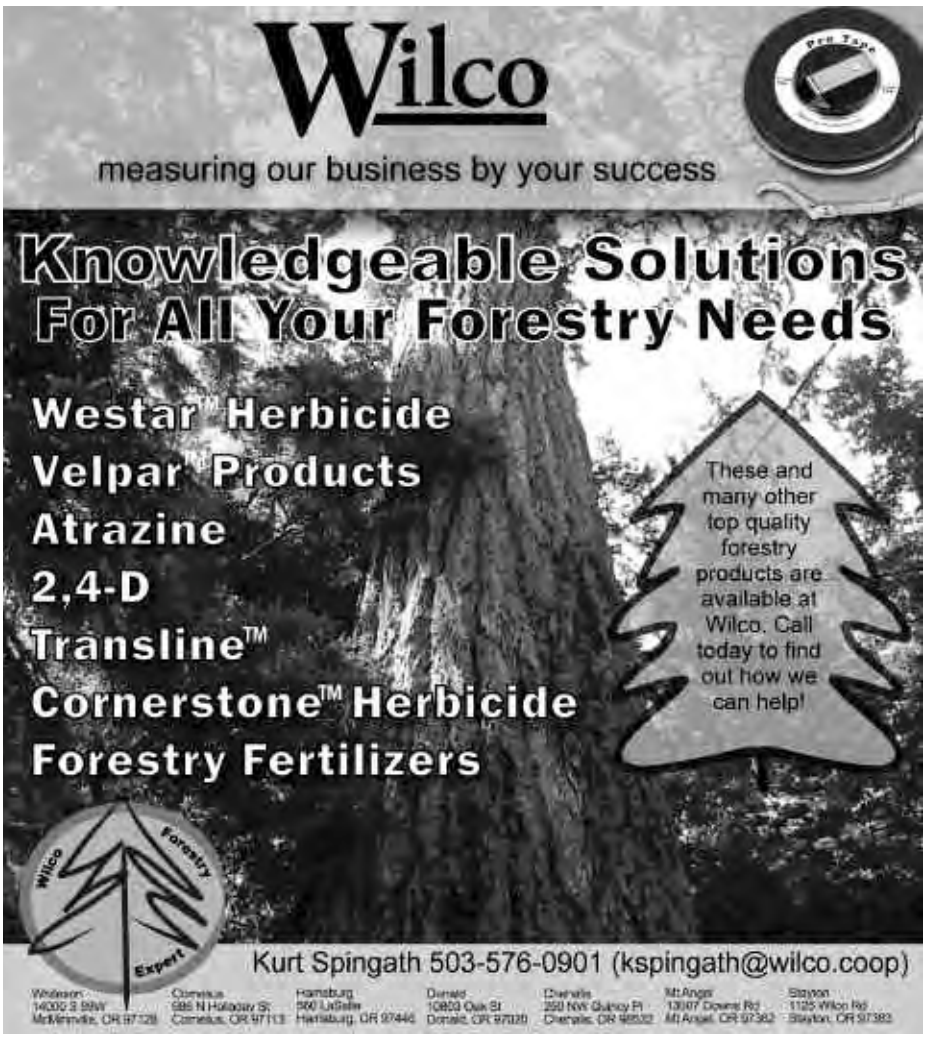

The Practice of Poplar Silviculture

BY JAKE EATON

Agricultural land supporting various crops has been converted to poplar production in the Pacific Northwest (PNW). Generally, poplar follows pasture land or grass hay crops on the wetter sites west of the Cascade Mountains and annual vegetable crops or alfalfa hay on the dryer eastside irrigated locations.

Poplar cultivation utilizes agronomic techniques. Currently, three management regimes are used in the PNW. The pulp chip regime grows poplar on six- to seven-year rotations and is characterized by high planting density. The sawlog scenario uses rotations of 12-15 years and is characterized by lower planting density and pruning. A third management scenario has gained interest for biofuels. Here, very high density plantings are managed on two- to five-year coppice rotations to produce biomass for conversion to heat and power or liquid fuels.

Silvicultural practices

Weed management. Weed control is accomplished by chemical and cultural means. Poplar tree performance is greatly affected by weed competition and significant production can be lost with substandard weed control during the first few years. PNW poplar plantations use herbicides and cultivation to control weeds. Eventually the tree canopy closes and shades out the weeds, nearly eliminating the need for weed control.

Nutrition. Soil analyses are often done prior to planting on green field sites and should be done on second rotation sites prior to replanting. This information establishes a baseline for correcting gross nutrient deficiencies prior to planting. After trees are established, soil sampling loses its utility and periodic leaf analysis is done to gauge tree nutrition needs.

Poplar grows best on soils with a pH between 6.0 and 8.0, but can tolerate more acidic soils and still do well. Once the pH gets above 8.0, nutrients become less available and trees show signs of deficiency. Clearly nitrogen

PHOTO COURTESY OF JAKE EATON

A five-year-old poplar stand after pruning.

(N) is the most important element for optimizing poplar productivity. Other nutrients are applied when deficiencies are identified through the leaf analysis. Phosphorous at planting, potassium at the end of the growing season, and other macro-nutrients are applied periodically throughout the rotation. Zinc, iron, boron and copper have all been applied in a micronutrient package. In the PNW, westside Oregon and Washington plantations have shown little response to nutrient applications. It's likely that the rich organic soils of this area contain the proper balance of nutrients to sustain poplar growth.

Irrigation. Irrigation is required in the eastside plantations of the PNW. Soil moisture sensors and evapotranspiration models are used to predict tree irrigation demand. In GreenWood Resource's drip irrigated plantations in eastern Oregon and Washington, one-year-old trees receive 6-10 inches per acre, and after canopy closure at age five the trees receive 30-40 inches per acre per year. Maximum daily use can be greater than one-third inch on hot, windy days.

In the westside plantations of the PNW excessive water is a greater problem. Westside plantations often use drainage to remove water and prepare the ground for poplar cultivation.

Pest management. Breeding programs select for resistance to disease and insect pests and affected varieties can be identified and eliminated in testing. In the westside plantations of the PNW, *Melampsora* leaf rust is the major damaging agent, and *Venturia* shoot blight is also an important disease. Deer browsing is a significant problem for plantation establishment. In addition, voles *(Microtus spp.)* can cause significant damage and mortality in plantations. Control measures for voles include clean cultivation and bait application as a last resort. Abiotic agents such as wind, snow and ice can also cause significant damage.

Conditions in the dryer eastside plantations in the PNW are not favorable for disease development. However, the lack of disease problems are more than made up for by the number of insect and mite pests. The primary defoliating insects are the cottonwood leaf beetle (CLB, *Chrysomela scripta*) and various species of army worms (*Spodoptera spp.*). These can cause significant defoliation and loss

of growth if not controlled in a timely manner. Systemic insecticides effectively control CLB and the other worms can be controlled by aerial applications of insecticides. Of greater concern to the sawlog management programs of this region are the array of wood-boring insects. The three primary pests are the western poplar clearwing moth (*Paranthrene tabaniformis*), poplar-willow borer (*Cryptorhychus lapathi*), and carpenter worm (*Prionoxystus robiniae*). All can severely degrade the lumber produced from these plantations.

Stand improvement

Pruning. PNW plantations being managed for sawlogs employ pruning on a large scale with a goal to prune the stem to a height of approximately 22 feet. Pruning results in higher grade recovery of the sawn wood and higher value. Pruning is done annually beginning at the start of the third growing season and is completed no later than the fifth growing season. It is important to maintain a minimum of 50-60 percent live crown after pruning to avoid growth loss.

PHOTO COURTESY OF BRUCE SUMMERS

A twelve-year-old poplar stand prior to harvest.

Thinning. Limited thinning has been employed to convert from pulp chip plantations to sawlog management. Results from thinning can range from good release of the residual trees to catastrophic wind throw. Managers generally prefer not to thin and instead plant at the target harvest density.

Conclusions

In the last 10 years poplar has grown from a species used exclusively for furnish in the pulp and paper industry to one that is being moved into high quality moldings, cutstock and veneers. The emergence of poplar as a higher value species here in the PNW mirrors its use in European poplar culture, where poplar has been an actively managed species for decades. In the PNW, this change has been possible with novel silvicultural activities developed by GreenWood Resources and designed specifically for poplar. By matching elite genotypes and proven silvicultural practices, poplar in the PNW has a bright future. ◆

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Hardwood Growth and Yield

BY DAVID HIBBS, CEES VAN OOSTEN AND ANDREW BLUHM

David Hibbs

Cees Van Oosten

Andrew Bluhm

Of the hardwoods in the Pacific Northwest, only red alder and hybrid poplar have had systematic examinations of growth or yield; both are now being managed in commercial plantations. Red alder is managed in the coastal mountains. Hybrid poplar east of the Cascades is mostly irrigated and fertilized; west of the Cascades, it is not an irrigated crop. For the other hardwoods, estimates of growth and yield can be found in sources like *Silvics of North America Vol. 2*.

Red Alder

The information presented here comes from OSU's Hardwood Silviculture Cooperative. This group has variable density alder plantations from Coos Bay on the central Oregon Coast to half-way up Vancouver Island. This summary draws on the oldest five of 26 installations. The oldest measured plantations are 17 years old.

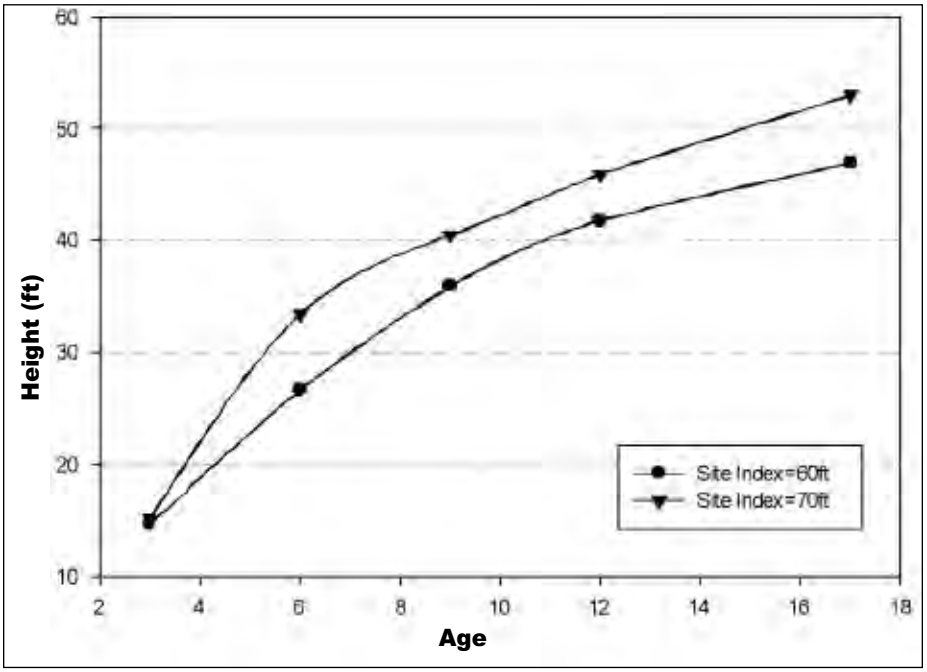
Height growth. Alder height growth is not sensitive to stand density except at very low densities (<300 trees per acre or tpa). Height growth is also not sensitive to thinning when thinning is conducted at less than 10 years of age.

A comparison of observed site index in plantations with predicted site index (SI) shows that height growth is better on lower site indexes than predicted by as much as 10 feet at 20 years base age.

Juvenile height growth of red alder is fast (see Figure 1), but also declines at a young age relative to most conifers and other hardwoods. As a result, alder will achieve 80-90 percent of its age 40 height by age 20. One management consequence of this pattern of height growth is that thinning must occur before age 15 to 20 to be effective. Later thinning means that live crown ratio and diameter growth have already dropped and are not easy to recover.

Diameter growth. Diameter growth is very sensitive to stand density with quite high growth rates possible (see Figure 2a). Because of the rapid rates of juvenile height growth, competition among trees in plantations begins by age three to five as seen in the declining diameter growth rate after this time. Average diameter in natural stands of a similar SI is about 5.1 inches at 17 years, 2 inches less than seen in high SI unthinned plantations and considerably less than seen in high SI thinned plantations.

Figure 1. Alder height growth. $SI60_{20}$ is the mean of two sites. $SI70_{20}$ is the mean of 3 sites.



Thinning helps maintain the early rapid diameter growth rates. Thinning at age five versus nine results in significantly larger trees. Thinning also changes the diameter distribution, resulting in higher grade and value logs. Unthinned stands can show a rather dramatic decline in diameter growth after about age 10.

Volume growth. New taper equations were developed in 2007 for managed red alder, making prediction of volume yields much more accurate than in the past.

Early thinning (age five) maintains stand volume growth rates longer than unthinned plantations (see Figure 2b). Later thinning also main-

tains volume growth rates, but produces stands of lower volume (about 500 ft^3 less in this example) because of the early diameter growth loss.

Since no plantations have gone to full rotation and no growth and yield modeling system for plantation red alder exists, rotation length and harvest volume remain. Extrapolation of Figure 2b and similar exercises suggest that yields of 15 to 20 mbf/ac in 25-30 years are possible.

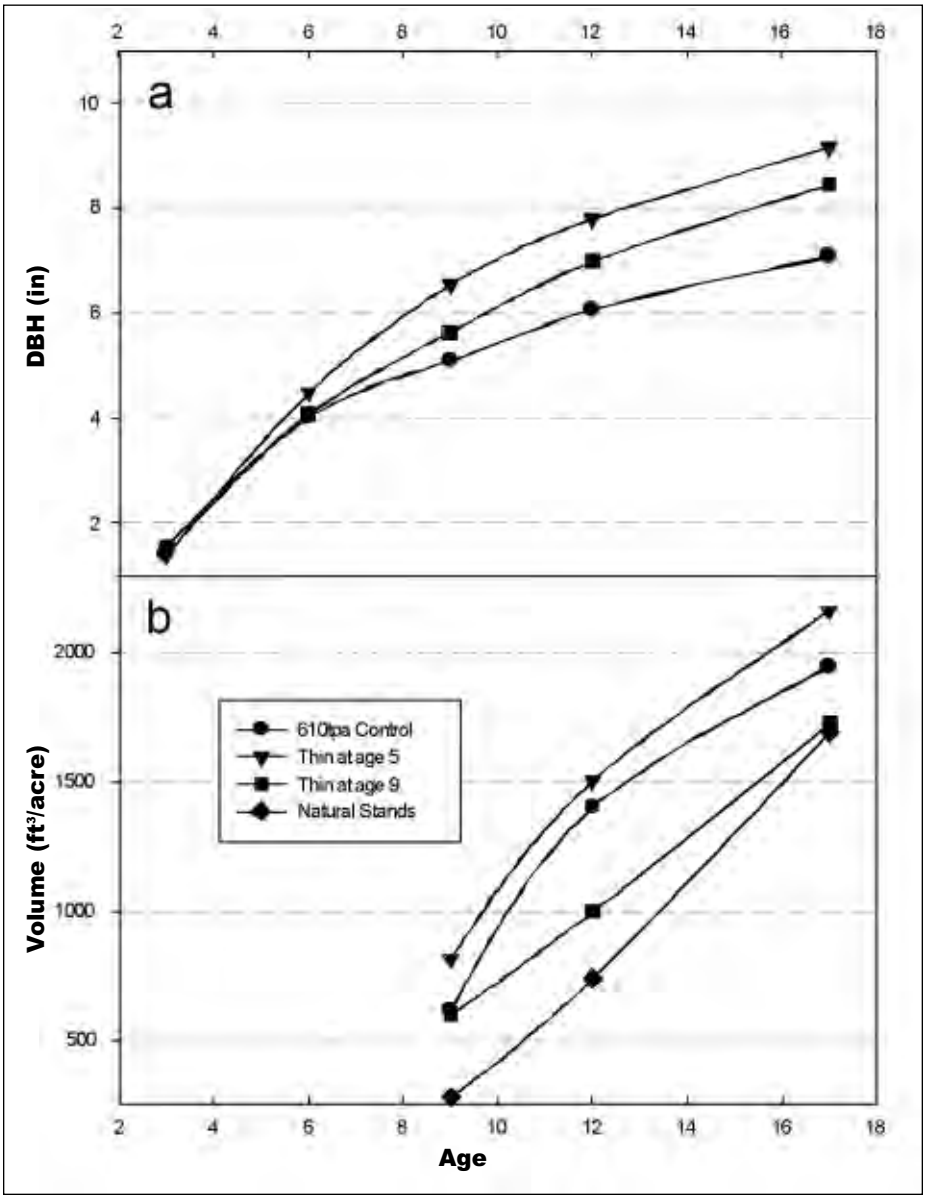
At OSU, the Hardwood Silviculture Cooperative and David Hann are developing a managed alder version of the growth and yield modeling system ORGANON. A public version will be available soon. The U.S. Forest Service is also adding managed alder to FVS. These models should provide a much more accurate prediction of yields at different rotation ages.

Hybrid Poplar

Growth and yield information for hybrid poplar crops (short-rotation woody crops or SRWC, and short-rotation-intensive-culture or SRIC) is being developed by several corporations managing for either pulp fiber or sawlog (and chip) production in the PNW and southwestern British Columbia. Growth and yield projections and associated growth models are proprietary and therefore not in the public domain.

This discussion assumes that best management practices have been followed, in particular weed control. It is important to note that SRWC/SRIC hybrid poplar is grown as a monoclonal crop. Poplar data for this discussion originate from trials in the PNW and British Columbia and cover crop densities from 176 tpa (434 spha

Figure 2. a) Alder diameter of the same three SI70 sites with an initial planting density of 610 tpa. Thinning reduced density to 240 tpa. b) Merchantable volume to a four-inch top of the three SI70 sites with an initial planting density of 610 tpa. Natural stand volume comes from Worthington et al. (1960) for a comparable site index.



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or stems per hectare). The results provide a preliminary picture of growth and yield in western North America.

Height growth. Hybrid poplar attains maximum height growth in the third to fifth year following planting; early increments as high as 15 feet (five meters) per year are not unusual, especially in fertigated crops. In 'dry-land' crops, height increments of 10-13 feet (3-4 m) are typical from age two to age six to eight years. After height growth has peaked, it declines and levels off to one to three feet (0.3-0.9 m) per year by age 12 to 14 years; it only slightly declines for the remainder of the rotation.

Figure 3. Basal area growth per year (ft^2/ac) of SRWC/SRIC hybrid poplar crops at various crop densities. Plot information originated from Oregon (west of the Cascades) and British Columbia (Fraser Valley). Source: van Oosten 2006

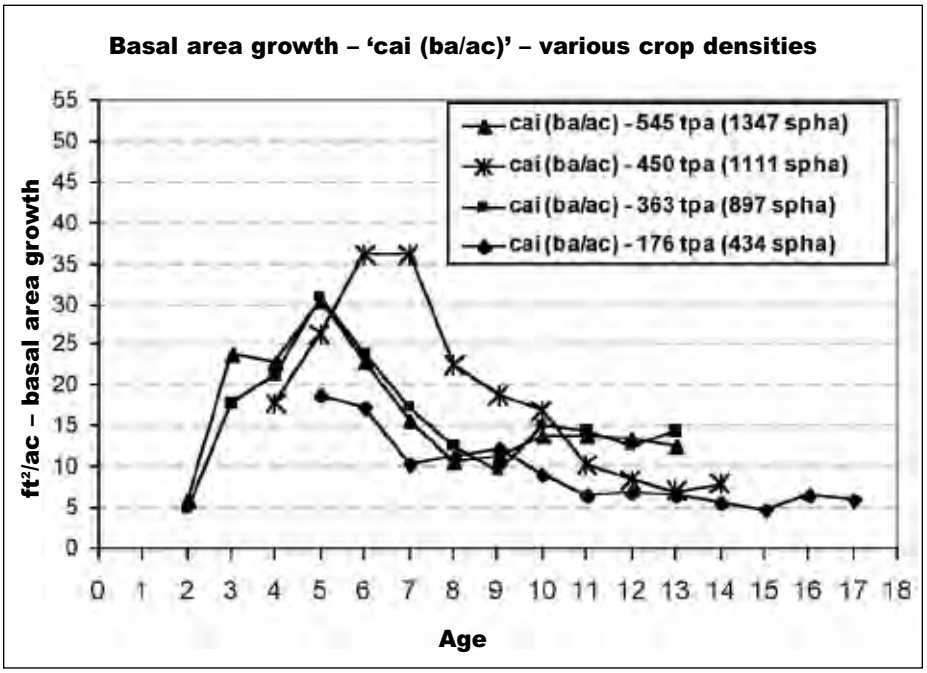
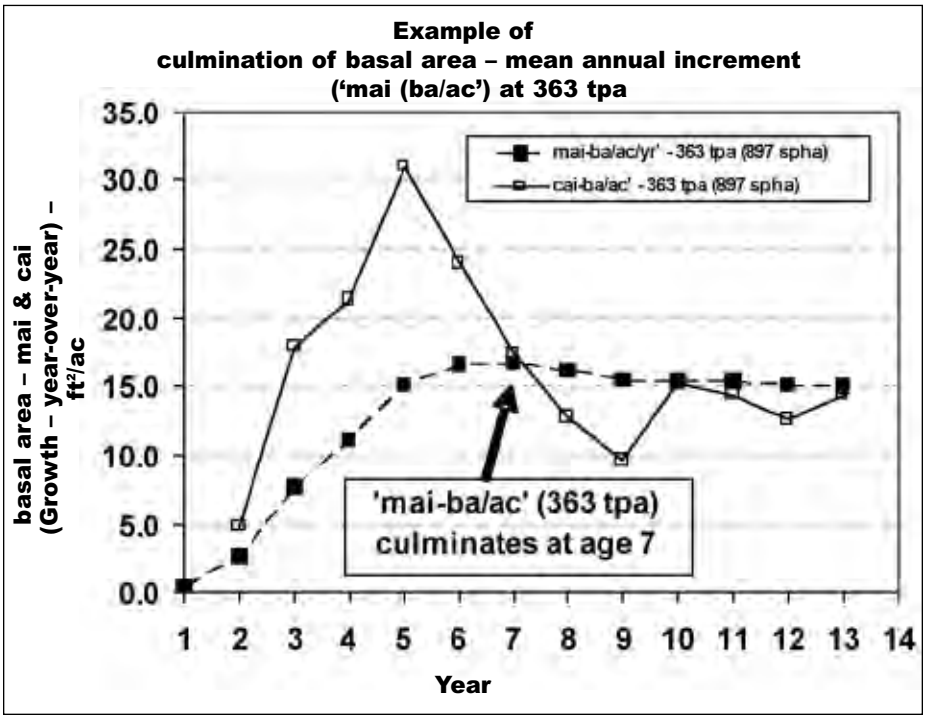


Figure 4. An example of the culmination of mean annual increment of stand basal area for an SRWC (SRIC) hybrid poplar crop planted at 363 tpa (897 spha) in western Oregon. Source: van Oosten 2006



Stand basal area. Dbh growth will peak between years three and four, depending on the clone. The timing of peak dbh growth is independent of crop density; however, the rate of dbh growth depends on crop density and decreases with increased density.

Current annual increment (cai) of stand basal area also peaks early (see Figure 3), in general two (to three) years following the peak of the dbh growth. The timing of peak cai (ba/ac) is independent of crop density. Cai (ba/ac) stabilizes after 10 to 12 years.

When the cai curve of the stand basal area intersects the mean annual increment curve, culmination of mean annual increment occurs. The mean annual increment of stand basal area (or mai (ba/ac)) decreases slightly following culmination, as can be seen in the example of 363 tpa (897 spha) in Figure 4. The implication is that trees could be left 'on the stump' for several years without a significant decline in mai; this is a valuable management option in a situation of poor markets and low prices. Culmination of the stand volume mai follows the stand basal area mai by two to three years.

Note that experimental plots reviewed for this discussion are a conglomerate of data from Oregon (west of the Cascades) and B.C. (Fraser Valley), and do not have associated height measurements for each year.

Volume. There are much better data available for dbh and basal area than for heights. The volumes presented in the following were developed from dbh data from Oregon and B.C. plots and used heights from a 'height-over-age' curve from Vancouver Island. A taper equation developed for Vancouver Island SRWC/SRIC hybrid poplar was used to calculate tree volumes. Therefore the resulting volumes can only be considered relative to each other in this analysis. Figure 5 demonstrates a simulated volume breakdown into sawlog and pulpwood for several crop densities and indicates a range of

optimal crop densities of 200-350 tpa (500-850 spha).

Thinning

While generally not practiced, thinning has been used in hybrid poplar crops to reduce crop density and enable longer sawlog rotations. Results have been mixed from successful release of residual crop trees to catastrophic wind throw. ◆

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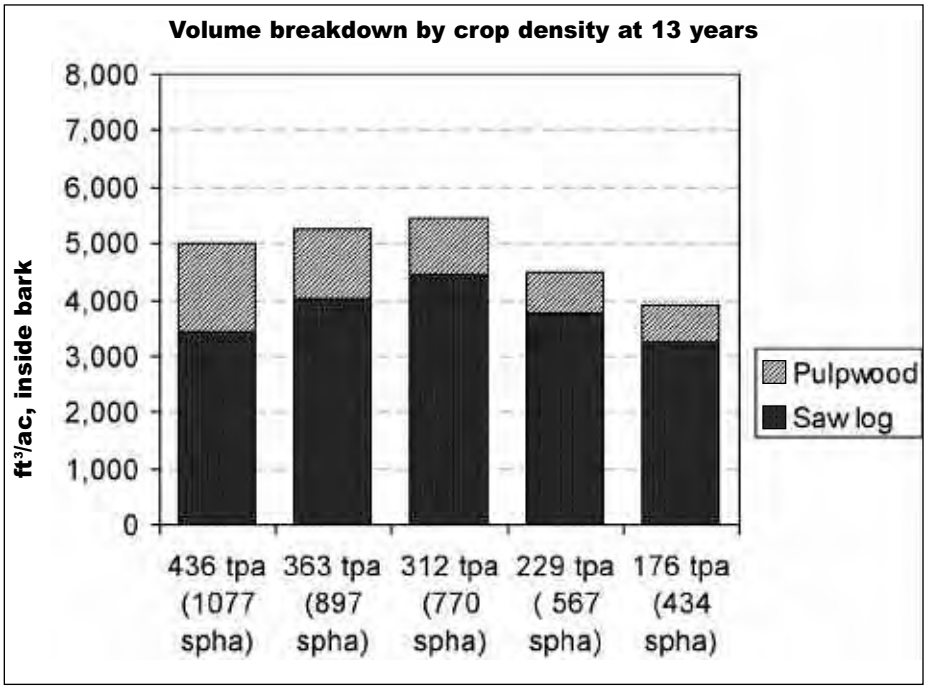
Figure 5. Simulation of the breakdown into sawlog and pulpwood volumes for five SRWC (SRIC) hybrid poplar crop densities at age 13 years. Plot information originated from Oregon (west of the Cascades) and British Columbia (Fraser Valley and Vancouver Island). Source: van Oosten 2006



Coppice This!

BY STEPHEN A. FITZGERALD

Coppice is the culturing of stump sprouts that develop on hardwood stumps (and some conifers) after cutting. Coppice management of hardwoods is a silvicultural system that isn't widely used, but it has great potential for those interested in promoting hardwoods in their forest for diversity or to use for firewood (see Figure 1) or sawtimber, depending on species and its marketability. Coppice is one of the oldest methods for regenerating forests. Species that coppice well include aspen, bigleaf maple, alder, oaks, myrtle, cottonwood and Pacific madrone. Redwood is an important commercial conifer that coppices well. In fact, most of the second-growth redwood trees that are harvested today developed from sprouts from the old-growth stumps.

Once hardwoods are cut, the stump erupts with a profusion of sprouts that arise from dormant buds on the top, side and root collar of the stump. The sprouts grow rapidly because they have the advantage of using the parent root system and carbohydrate stores. The benefits of culturing trees from sprouts is that you don't have to spend money planting them, and sprout growth is often faster than the same species planted as a bare-root or plug seedling.

Typically, hardwoods are killed to favor more desirable conifers, such as Douglas-fir. However, you may want to consider promoting hardwoods in areas lacking conifers or in areas not capable of supporting conifers.

(CONTINUED ON PAGE 20)

Figure 1. Coppice of Pacific madrone in southwest Oregon. The parent trees were topkilled by widlfire. The landowner thinned the sprouts. The remaining sprouts will be allowed to grow and then harvested for firewood.

PHOTO COURTESY OF STEPHEN FITZGERALD

Evaluating Sites for Planting Hardwoods in the Pacific Northwest

BY CONSTANCE HARRINGTON AND WILLIAM SCHUETTE

Constance Harrington

Many foresters who used to plant only conifers are now planting or considering planting hardwoods. The increased interest in hardwoods may be due to increased stumpage prices for alder or to interest in utilizing other species for problem areas (wet sites or those with *Phellinus* root rot) or for special uses such as wildlife habitat or biodiversity. Hardwoods have a well-deserved reputation for being picky about their site conditions, though, so it's important to match the right species to the right site.

First, ask yourself why you want to plant a particular species. You can get alder to grow on many Northwest sites (especially on low- to mid-elevation sites west of the Cascades) as long as they are not excessively dry or cold, but if you want to produce high-quality sawlogs—the product commanding the high stumpage prices—you will need to select a site that is very productive.

The best alder sites will be low elevation, on a floodplain, terrace or lower-slope position, receive at least 15 inches of rain from April 1 through September 30, and not be subject to any special hazards such as exposure to high winds or in a frost pocket.

Additional Resources

Additional information on hardwood site quality is available at this website: www.fs.fed.us/pnw/olympia/silv/hardwoods/.

PHOTO COURTESY OF CONSTANCE HARRINGTON

Researchers fell alder stems to look at past growth rates and compare growth to soil and site characteristics.

Alder shoots are not very strong and wind can break tops or branches resulting in trees with poor form and reduced height. Alder is susceptible to both late fall and early spring frosts, so care must be taken to ensure the site is not in an area where cold air will accumulate. It is important to remember that alder is a riparian and upland tree species—not a wet-site species. Looking at high-value alder stands on sites in your area and talking to local log buyers about their observations may be very useful.

In terms of soil physical properties, the very best alder sites have deep, moist but well drained silt loams with access to a summer water table at 5 to 12 feet. They also have a pH around 5, low bulk density, moderate organic matter in the surface soil, and no or minimal horizon development associated with leaching (see additional resources for specifics on these factors). Because alder is a nitrogen-fixing species, the amount of nitrogen on the site isn't very important (nitrogen is often limiting on many northwest soils for other species). However, just because alder is a nitrogen-fixer, that doesn't mean it will grow well on all sites low in nitrogen as the sites may be too droughty, cold or have other negative attributes. In addition, soils low in phosphorus can limit alder growth presumably by affecting the amount and function of the nitrogen-fixing nodules on alder roots.

Sometimes people choose to plant alder because the site has had problems with conifer mortality caused by *Phellinus* root rot (all hardwoods are immune to this problem). Alder may be a reasonable species to plant on some of these sites, but you should not make the assumption that just because the site has laminated root rot it will be a good site for alder growth. In addition, while alder is immune to laminated root rot, it IS susceptible to other conifer root rots such as annosus and armillaria root diseases.

Hybrid poplar (and our native black cottonwood) has many of the same site requirements for a productive site as does red alder—deep, moist but well drained sites. But due to their tremendous growth potential on the best sites, it is even more important that site con-

ditions be carefully evaluated as the fall down in growth with selecting the wrong site can be very dramatic. In addition, the impressive early growth that has been documented for hybrid poplar is only obtained with excellent site preparation and early tending practices. West of the Cascades, the best hybrid poplar sites are in riparian areas or flood plains. Hybrid poplar can also be grown on the eastside if it is irrigated, and impressive yields can be obtained on these warmer sites as long as water and nutrients are provided in abundant quantities. Poplar has been planted very successfully on former agricultural sites as those sites often are very suitable for the equipment used for tending and harvesting short-rotation woody crops. However, some former agricultural sites are not suited to poplar culture due to factors such as high pH, wind exposure or frequency of flooding.

There have been substantial changes in the forest products industry in recent years; thus, land managers should verify where mills are located that utilize poplar and if those mills are likely to be interested in the raw material in the future and if so, if they have cost-share programs to work with potential growers.

Although we have briefly discussed alder and hybrid poplar, many other species of hardwoods can be planted or managed on appropriate sites. Bigleaf maple, Oregon ash, Pacific madrone and Oregon white oak are all Northwest hardwood species that have considerable wildlife value and may also produce wood that can be sold. Information on the ecology of these species is available from many sources and can serve as a guide to the types of site conditions that would be appropriate. County or other soil surveys include information on woodland suitability although the amount of information on hardwoods is fairly limited for most soil series.

You may want to start with a small planting to verify you have chosen the right site, planting stock and tending practices. For most species, a fairly local seed source is a safe bet (for large projects you may have to contract the production of the planting stock). Some nurseries have expanded their production to include more species, but have not worked out appropriate cultural practices for new species, so it is wise to specify or inspect the planting stock to ensure it has a good root system and that the top and root system look balanced.

For hybrid poplar, clonal plantings will be made. The selection of the appropriate clone is best made after some discussion with local foresters who have had experience with specific clones. For example, some productive clones are more susceptible than others to wind damage and would be a poor choice on windy locations. ◆

PHOTO COURTESY OF CONSTANCE HARRINGTON

Examination of local alder stands can help foresters determine which site conditions are associated with good growth and form or identify conditions that may cause problems.

Constance Harrington is research forester with the Silviculture and Forest Models Team of the USFS Pacific Northwest Research Station in Olympia, Wash. She has a fondness for neglected species and can be reached at charrington@fs.fed.us. William Schuette spent 10 years with James River/Fort James as research silviculturalist developing poplar plantation establishment and management practices.

Hardwood Market Opportunities from the Pacific Northwest

BY LEE JIMERSON

Unless you have been living under a rock, you know that there are lots of "opportunities to excel" in the wood products market right now. Log prices are eroding, along with lumber pricing, production and sales volumes. We can either think of ourselves as victims of the larger economic recession/depression, or we can look to the opportunities this "resetting" of the economy may afford.

The western hardwood market, which is predominately alder, will continue to experience challenges and opportunities going forward. Maintaining and growing markets beyond housing construction-related applications will help to broaden the western hardwood market and make it more resilient in the future. These markets include pallets and packaging, furniture and other consumer goods, infrastructure, commercial construction, energy and other green markets, such as environmental services. Who says we should only be paid for the lumber? We need to sell the squeal too!

Some opportunities are moving targets. In the second half of 2008, the dollar was weak and oil was at all-time record highs. Now, the dollar has strengthened substantially and oil prices have dropped by four-fold. The weak dollar and record-high shipping rates made imported wood alternatives more expensive last year. Now that is a distant memory. However, some lumber buyers still remember tightening imported wood products supplies and are actively working to diversify their wood sources going forward. Business in our backyard, the West Coast and in the rest of the United States are areas where western hardwoods can gain market share going forward.

The Lacey Act will begin to be enforced April 1 for imported lumber. That means importers will be required to show documentation that the wood was legally harvested. This will put pressure on illegally harvested wood products imported into the U.S. that typically do not pay their fair share of expenses and taxes, and thus define the lower end of the wood market. Western hardwoods can help fill this void that is sure to develop. To gain access to this growing market, the industry needs to provide assurance to customers that our western hardwood offerings are legally harvested, which will be relatively easy and inexpensive to accomplish. Most any legally recognized forest certification or program with a "chain-of-custody" component will suffice for proof of legality, whether it is the Forest Stewardship Council, Sustainable Forestry Initiative, American Tree Farm System, CSA or others.

The West Coast has a reputation as being "green-minded" and consumers/specifiers are increasingly calling for certified wood that comes from a source that is documented as well-managed. Access to certified woods has been growing rapidly the last several years, throughout the supply chain. If you want to play in the market, there has never been a better time for availability of raw material and markets for the products. If you approach this market with the view of growing your market, rather than making more on each sale, it will help you improve your bottom line.

Hybrid poplar is a western hardwood species that has been around for decades, but is now just being commercialized on a large scale (100 million board feet per year) for lumber applications under the trade name of *Pacific Albus* by The Collins Companies, in conjunction with GreenWood Tree Farms.

Historically, hybrid poplar was known as a species just grown for paper pulp. The Collins Companies wanted to differentiate the hybrid poplar that is used for *Pacific Albus*, which is only made from those varieties of hybrid poplar that make good sawn lumber. GreenWood Resources will continue to develop new varieties to improve upon the yields and quality of *Pacific Albus*. Through continuous tree improvement by traditional breeding methods and pruning, the percentage of high-grade products will increase over the mid-term, thus improving the average realization for the species.

The physical attributes that set *Pacific Albus* aside from most other western species include its light color and density. It is ideal for ceiling applications where light reflectivity, acoustic dampening and light weight all are positive attributes. *Pacific Albus*, because of its light weight, is also ideal in applications where it will be transported on a regular basis, such as trade show displays, boxes and pallets. *Pacific Albus* has market access to all green building programs since it is Forest Stewardship Council (FSC) certified. In addition, *Pacific Albus* is hypo-allergenic, making it a good choice for sauna interiors and food grade applications.

As this article is being written, the first trial shipments are just going out to prospective customers. As with any lesser-used species, care needs to be taken in developing new products and markets. It is critical to provide technical support regarding proper knife angles, sand paper grit, fasteners, etc. For example, a splayed or barbed staple can help a lighter density species meet staple holding requirements.

Reviewing each of our lesser-used western hardwood species in a similar way will highlight each species' strengths, whether it is color, hardness, weight, availability, dimensional stability or forestry certification. For example, madrone is ideal for flooring due to its superior hardness, rich color and availability in shorter lengths.

Many of the market pressures, such as certification, are being forced upon us. It is up to us to use these market pressures to our advantage, and to not spend our efforts fighting what may be our best market opportunity of a generation.

Green building screams "use local wood that has been grown, harvested and manufactured in an environmentally, socially and economically responsible manner." Our western hardwoods can be well positioned to supply this growing market. ◆

Lee Jimerson is manager of manufacturing accounts, The Collins Companies, Portland, Ore. He can be reached at 503-471-2266 or LJimerson@collinsco.com.

Alder Vegetative Propagation

BY BARRI HERMAN

In the 1990s, Weyerhaeuser saw a need and an opportunity to increase the amount of plantation-grown red alder that would have consistent wood properties suited to the company's manufacturing processes. The company decided on an intensive phenotypic selection program followed by varietal testing. The goal has been the deployment of the top varietal selections for managing use in intensively cultured plantations managed on short rotations for the production of sawlogs of enhanced grade recovery and wood quality.

The process started with selections from existing red alder plantations. This meant that selections were made from trees that had originally been selected for straight stems and excellent volume growth within the selection area. Initial selections were made only from inland sites on high yield soils. Since that time a second program has been initiated to develop adaptability to coastal areas less suitable to fir and hemlock. The initial selections were made on disease-free trees with excellent stem form, branching habit, stem diameter and volume.

The wood-properties criteria are based on processing needs. The selections were categorized into two specific gravity classes with each showing a gradient of not more than 50 points between the core of the tree and the outer growth ring of the tree. Similarly, no growth ring could be more than 30 points higher or lower than the next growth ring. This makes for very stable wood that dries exceptionally straight. Each class also met certain parameters relating to both wood strength and elasticity.

All of the selected trees have been tested for tolerance of all of the important pathogens of red alder. Moreover, the company has been collaborating with Washington State University in developing cold tolerance in the varieties. Finally, selection for the ease with which the tree forms a symbiotic relationship with the nitrogen-fixing *Frankia* is underway.

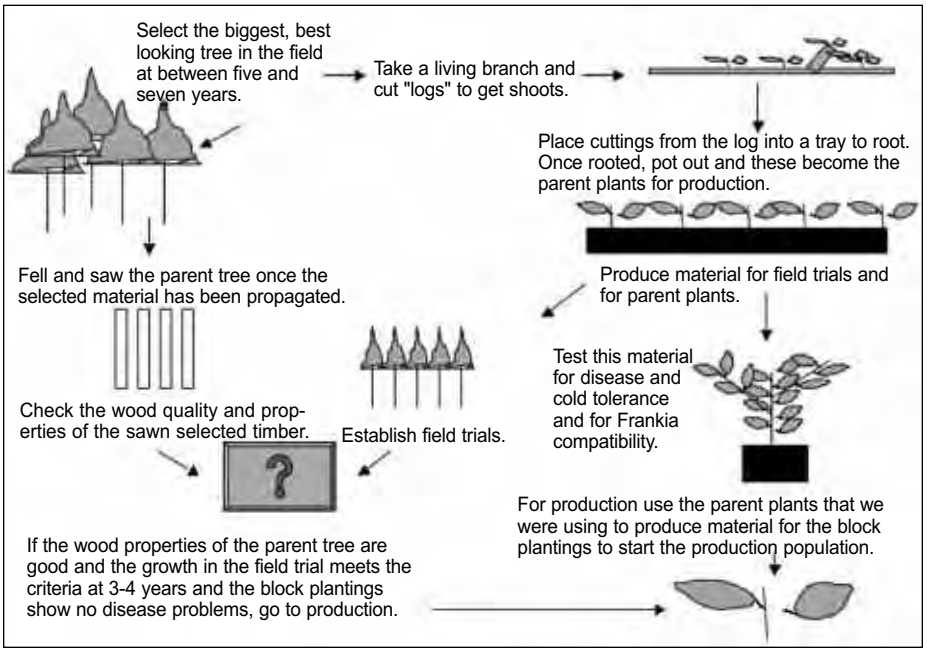
The entire process of phenotypic selection, varietal propagation and testing for wood quality, disease resistance, and cold tolerance is scheduled for completion within four to five years so that the best varieties are ready for production deployment (see graphic).

Since the inception of the program, over 600 selections have been tested from good sites in field trials. Of these, over 30 have passed all of the selection criteria with another 250 still in full testing. Material from the coastal zone is currently being tested and almost 230 selections are undergoing tests and expect to put the first selections into production in 2011.

The latest production trial has been very promising with the nursery achieving 98 percent rooting. The crop for field planting in 2009 is currently being packed. ◆

Barri Herman works for Weyerhaeuser and can be reached at barri.herman@weyerhaeuser.com.

Selection and propagation plan



Ecological Value of Natural Red Alder and Cottonwood Stands

BY SUSAN SHIRLEY

Red alder is well known to provide many benefits to wildlife within forested ecosystems of the Oregon coast range. Through its ability to fix nitrogen from the atmosphere, red alder enhances concentrations of nitrogen in soils, foliage and litter providing a high quality substrate for decomposers as well as improving the growth of trees and shrubs. Annual mean nitrogen flux entering streams is doubled in areas bordered by red alder compared to conifers, mostly observed in the fall season during leaf die-off. Detrital subsidies in alder riparian zones are of higher quality because of the high nitrogen content of deciduous leaf litter. Red alder litter also decays more rapidly than conifer litter under both deciduous and coniferous canopies and is more rapidly incorporated into terrestrial and aquatic food webs.

PHOTO COURTESY OF ERIC FORSMAN

This photo shows a white-footed vole nest with fresh alder cuttings. The white-footed vole feeds mainly in trees on the leaves of green plants. Red alder leaves make up over 40 percent of their diet.

Red alder provides a food source for animals through the consumption of leaves, catkins, fruits and seeds. Red alder supports twice the invertebrate biomass compared to deciduous shrubs such as salmonberry and vine maple and higher annual biomass of terrestrial insects compared to conifer-dominated forests. Along streams in central Oregon, the biomass of aquatic emergent insects is over 50 percent higher in alder-dominated sites compared to coniferous-dominated sites. Similarly, subsequent colonization of alder litter by fungi and bacteria in streams enhances the production of benthic invertebrates and invertebrate drift. Together, these sources of insect production constitute a higher overall insect prey availability for terrestrial and aquatic predators.

A review of wildlife in non-coniferous forests documented nine bird and 26 mammal species from a wide range of foraging groups (herbivores, granivores, nectarivores, frugivores and omnivores) that were primarily associated with food resources provided by deciduous trees, shrubs and herbs. Several of these species, including ruffed grouse, warbling vireo, long-tailed vole, white-footed vole and shrew mole, relied specifically on red alder for feeding on vegetation or insects. Overall, abundant insect prey in alder-dominated forests is reflected in higher abundances of foliage-gleaning birds and activity levels of several species of bats. Within bird communities, the species mix changes according to the matching between successional stage and foraging type. Increases in canopy height associated with increasing tree age benefits most bird species because the vertical distribution of foraging areas is greater and several forest-dependent bird species are found exclusively in older 35- and 60-year-old stands. However, for some early successional understory bird species such as the song sparrow, orange-crowned warbler and nectivores such as the rufous hummingbird, a decline in the forest understory with increasing canopy age means the foraging habitat apparently becomes much less suitable for alder stands beyond 10 years of age. For resident fish and amphibians, invertebrate drift biomass can be up to three times higher along streams bordered by red alder providing a critical food source.

As well as being an important foraging substrate for many wildlife species and herbivorous insects, the structure of red alder provides important nesting habitat and protection for many forest species. Red alder trees including snags and logs provide breeding habitat for 136 wildlife species. However, the utility of alder snags and logs as cover for mammals and amphibians is short lived relative to that of conifers due to its faster decay.

Although not as well studied as red alder, native cottonwoods (populus spp.) in western landscapes provide similar ecosystem functions. Native cottonwoods are not able to fix nitrogen, but provide high quality deciduous litter and vegetation for terrestrial and aquatic invertebrates as well as breeding and foraging habitat for a number of vertebrate species.

Differences between natural stands and plantations

The degree to which the above benefits of red alder and populus spp. to wildlife will be realized in plantations will depend on the extent of management efforts made to maintain species diversity. Intensive management techniques in plantations such as high

density planting and pesticide use to discourage competition by understory species may impair some natural functions. While nutrient and litter contributions may be largely unaffected, the production of insects, seed and fruit are reduced, particularly following canopy closure, resulting in lower overall abundance and diversity of mammals, birds and amphibians.

Compared to natural cottonwood forests, hybrid poplar stands have fewer species and individuals of small mammals and birds (though higher numbers of both compared to row crops or pastures) and communities are dominated by generalist species. Younger plantations with an existing understory prior to canopy closure support more species associated with native shrub-steppe habitat while older plantations provide habitat for generalist forest birds and hunting and roosting owls in winter. In general, wildlife species dependent on understory vegetation for feeding or breeding may be under-represented compared to native habitats.

Recognizing the value of wildlife biodiversity to the health of ecosystem processes such as seed dispersal and nutrient cycling, some tree farms have initiated management strategies to preserve biological diversity. These strategies include: (1) maintaining habitat diversity across the landscape using a mix of plantation ages and natural reserve areas in and around plantations; (2) retaining small woody debris as food for insect prey and as cover for small mammal and bird predators and by minimizing the amount and toxicity of pesticides; and (3) leaving some trees unpruned to maintain vertical vegetation structure is important to understory bird species. ◆

Susan Shirley is a postdoctoral researcher in the department of Forest Ecosystems and Society at Oregon State University. She is studying the role of red alder in the functioning of riparian food webs of the Oregon Coast Range as part of the Cooperative Forest Ecosystem Research (CFER) program. She can be reached at 541-737-6194 or susan.shirley@oregonstate.edu.

WSSAF Annual Meeting to Meet in Ellensburg

BY ERIC WATRUD

The 2009 Washington State Society of American Foresters Conference will be held May 6-8 in Ellensburg, Wash., at the Kittitas County Event Center.

The last 20 years have brought tremendous challenges and changes to managers of the nation's forestlands. In no region have these changes been greater than in the Pacific Northwest. As we look ahead, we see new challenges and creative approaches on the horizon. This year's program is designed to provide foresters and other natural resource professionals with knowledge and insight about new and ongoing issues and to foster future success. The theme for the annual meeting, hosted by the Central Washington Chapter, is "Forestland Management: Meeting the Challenges." Some topics that will be highlighted include:

- Endangered Species Act: After two decades since the federal listing of the northern spotted owl, what is its current status and future outlook? How are habitat protection strategies evolving to deal with forest health issues and invading species? What are the status and issues involving other listed species? What approaches have been successful in achieving ecological and environmental objectives?
- Forest Health: What is happening in our forests and why? What successful, sustainable management strategies are being employed? How are these strategies being integrated with other management and economic decisions?
- Markets: What is the outlook for these difficult forest product market conditions? What will be the role of new utilization strategies such as cogeneration, biofuels and carbon sequestration? What are some current success stories?
- Collaborative Efforts: New partnerships between private, public, tribal and conservation groups are showing great promise for tackling tough issues, such as declining forest health and markets. These endeavors transcend property lines and political boundaries and make for strange bedfellows. A local, successful example will be highlighted.
- Field Tour: Local tours will get participants out on the ground to see forestland challenges that affect us all. We'll investigate novel habitat thinning techniques and look at eastside harvesting approaches and management strategies. In addition, we'll explore opportunities for land managers to generate revenue and energy by experiencing the 229 MegaWatt Wild Horse Wind and Solar Farm.

The meeting will bring expert speakers, poster presentations and great food and drinks to a comfortable, relaxed environment—complete with historical displays, swimming center, a western museum and a cowboy poet!

Detailed program information and a registration form are available online at www.forestry.org/wa/annual/index.php. Members will also receive a brochure in the mail.

As has been done in the past, this year's annual meeting will feature a raffle to support the WSSAF Foundation and the Foresters' Fund. We look forward to seeing you all in Ellensburg. ◆

Eric Watrud is the WSSAF annual meeting chair. He can be reached at 509-925-0947 or eric.watrud@dnr.wa.gov.

Genetics of Poplar Plantations

BY BRIAN J. STANTON

They're most noticeable in the eastern Oregon desert as you motor by them on I-84, a large block of green in an otherwise arid, shrub-steppe environment. You also see them cropping up in the pasture lands along the lower Columbia River floodplain and among the Willamette Valley's grass fields. It's hybrid poplar. Originally managed by the pulp and paper industry as the best bet to forestall the shortage of red alder fiber, hybrid poplar is now also being managed for saw- and veneer logs, environmental amelioration projects and soon, energy feedstock. No matter the locale where it is grown or the management practices used, all poplar operations rely upon the vegetative propagation of highly selected, genetically-improved cultivars to maximize yields and wood quality while maintaining resistance to pathogens, insects, cold and wind throw.

Hybrid breeding of distinct poplar species has proven to be the most profitable method of generating these elite materials. It brings the variation encompassed by separate species into a single generation that exhibits heterosis—hybrid vigor—for yield. And the ease with which individual, superior poplar varieties can be replicated by a low-cost vegetative propagation method utilizing dormant cuttings, allows breeders to select across the entire range of genetic variation created by species hybridization in the commercialization of elite varieties.

Large-scale commercial poplar hybridization programs were first conducted in North America in the 1920s. Here in the Pacific Northwest, Reinhard Stettler of the University of Washington and Paul Heilman of Washington State University worked together on the groundbreaking work in poplar genetics during the 1970s and 1980s. Today, GreenWood Resources is the main source of new varieties in the region, oftentimes developed in collaboration with breeders in Europe and Asia through the exchange of pollen and seed in reciprocal hybridization arrangements.

Populus x generosa, a combination of eastern cottonwood (*Populus deltoides*) from the Mississippi River Valley and the Pacific Northwest's native black cottonwood (*P. trichocarpa*), is the region's most vigorous hybrid taxon and used mostly west of the Cascades. In the arid mid-Columbia River basin, *P. x canadensis* formed by cross pollination of *P. deltoides* and the Eurasian species, *P. nigra*, replaces *P. x generosa* as the best-adapted taxon.

The selection of all current commercial varieties has been tailored to three main criteria: 1) compatibility with plantation management (ease of propagation from hardwood cuttings, rapid growth, pest resistance, good stem form); 2) adaptability to the local climatic and edaphic conditions of the lower Columbia River floodplain, the Willamette Valley and the arid mid-Columbia River basin; and 3) suitability of wood and fiber properties for paper and lumber manufacture (wood specific gravity, fiber length, cell wall thickness).

In 2006, the genome of a black cottonwood from Washington's Nisqually River was fully sequenced and published in *Science*, the first for any tree. This will extend poplar's longstanding reputation as the model species for forest biology to the first case in which molecular tools are applied to traditional tree improvement programs: Functional genomic markers, single nucleotide polymorphisms (SNPs), when associated with commercial traits could lead to new approaches to the evaluation of segregating populations for superior selections that normally would not be revealed until conventional field tests are conducted for a half rotation or longer.

Currently, such gene association studies are being carried out in the Northwest by the University of California-Davis, University of British Columbia, and the Department of Energy's Bio-Energy Science Center. While the focus is the ease of sugar release during biochemical conversion of wood to liquid fuels, applications to other traits and markets are likely not far behind. Genetic transformation methodologies have also been well developed in *Populus* by Oregon State University's Tree Biosafety and Genomics Research Cooperative and conceivably will improve existing varieties for desired characteristics that otherwise are unavailable to conventional hybridization programs. Poplar varieties have been modified for herbicide resistance, altered lignin content and leaf beetle resistance, but more extensive testing is yet to be completed before commercialization of this important technology. ◆

Brian J. Stanton is managing director, Tree Improvement, GreenWood Resources, Portland, Ore. He can be reached at 971-533-7052 or brian.stanton@gwrglobal.com.

Calendar of Events

Density Management in Pacific Northwest Forests, April 8, Portland, OR. Contact: WFCA.

Professional Timber Cruising Seminar, April 15-16, Beaverton, OR. Contact: Atterbury.

National Indian Timber Symposium, April 20-23, Lewiston, ID. Contact: Intertribal Timber Council, www.itcnet.org, 503-282-4296.

GIS in Action, April 21-22, Vancouver, WA. Contact: Chris Aldridge, chris.aldridge@i10assoc.com, www.orurisa.org/events/gisinact/2009event/index.html.

Alaska SAF annual meeting, April 28-May 2, Fairbanks, AK. Contact: Kathryn Pyne, kathryn.pyne@alaska.gov.

Oregon SAF Conference, April 29-May 1, Canyonville, OR. Contact: Eric Geyer, 541-679-2524, ericg@rfpco.com, www.forestry.org/or/annual/index.php.

Variable Probability Sampling Workshop, Spring 2009, Corvallis, OR. Contact: Donna Williams, conferences@oregonstate.edu, 800-737-9300.

Fuel Reduction on Steep Slopes, May 4-5, Kamloops, BC. Contact: FEI.

Western Forest Economists annual meeting, May 4-6, Welches, OR. Contact: WFCA.

Mechanized Harvesting, May 6-7, Kamloops, BC. Contact: FEI.

Washington State SAF annual meeting, May 6-8, Ellensburg, WA. Contact: Eric Watrud, 509-925-0947, eric.watrud@dnr.wa.gov.

Helicopter Logging Workshop, May 8, Kamloops, BC. Contact: FEI.

SuperACE/FLIPS Seminar, May 13-14, Beaverton, OR. Contact: Atterbury.

Oregon Forest History Roundtable, May 15, Tillamook, OR. Contact: Doug Decker, 503-359-7439, ddecker@odf.state.or.us.

Learn ArcPad in One Day, May 19, Tualatin, OR. Contact: Resource Supply, jon@resourcesupplyllc.com, www.resourcesupplyllc.com, 503-707-6236.

WFFA annual meeting, May 29-30, Ellensburg, WA. Contact: WFFA, 360-736-5750, www.wafarmforestry.com.

OSWA annual meeting, June 5-7, Ashland, OR. Contact: OSWA, 503-588-1813, www.oswa.org.

Council on Forest Engineering annual meeting, June 15-18, Lake Tahoe, Calif. Contact: Bruce Hartsough, 530-752-5714, brhartsough@ucdavis.edu.

Western Mensurationists' Meeting, June 21-23, Vancouver, WA. Contact: WFCA.

IUFRO Diseases and Insects in Forest Nurseries Meeting, July 10-17, Hilo, Hawaii. Contact: WFCA.

Western Forest Genetics Association annual meeting, Aug. 10-13, Asilomar, CA. Contact: Tongli Wang, 604-822-1845, tlwang@interchange.ubc.ca.

Who Will Own the Forest? 5, Sept. 14-16, Portland, OR. Contact: Angie DiSalvo, 503-488-2137, adisalvo@worldforestry.org.

ArcPad Seminar, Sept. 23-24, Beaverton, OR. Contact: Atterbury.

Growth and Yield Workshop, Sept. 23-25, Corvallis, OR. Contact: FBRI.

Professional Timber Cruising Seminar, Oct. 21-22, Beaverton, OR. Contact: Atterbury.

Planning Workshop, Nov. 4-6, Corvallis, OR. Contact: FBRI.

Contact Information

Atterbury: Atterbury Consultants Inc., 3800 SW Cedar Hills Blvd., Suite 145, Beaverton, OR 97005, 503-646-5393, pwroe@atterbury.com, www.atterbury.com.

FBRI: Forest Biometrics Research Institute, PO Box 1688, Corvallis, OR 97339, 541-754-1200, www.forestbiometrics.com.

FEI: Forest Engineering Inc., 620 SW 4th St., Corvallis, OR 97333, 541-754-7558, www.forestengineer.com.

WFCA: Western Forestry and Conservation Association, 4033 SW Canyon Rd., Portland, OR 97221, 503-226-4562, richard@westernforestry.org, www.westernforestry.org.

Send calendar items to the editor, *Western Forester*, 4033 SW Canyon Rd., Portland, OR 97221; fax 503-226-2515; rasor@safnwo.org.

Coppice This!

(CONTINUED FROM PAGE 11)

How to cultivate and manage sprouts

If you are already conducting a timber harvest in an area, here is a rundown of how to coppice (propagate) hardwood trees from stump sprouts:

• Cut down hardwood tree, creating a low stump.

• Let stump sprout. Hundreds of sprouts will erupt depending on tree species and size of stump. Let the sprouts compete with each other for several years (five years or so). Most hardwoods need this kind of "training" to help produce straight stems. Let them compete and grow tall enough so that you get at least an 18- to 20-foot straight stem on the best sprouts within the clump.

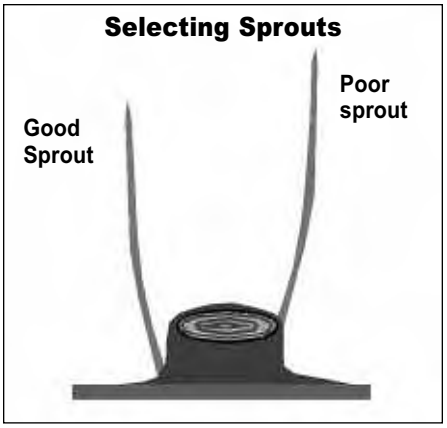
• After five years or when they reach 18 to 20 feet, select one to three of the straightest stems to leave and flag them (Figure 2). Cut away all the other sprouts. Sprouts to leave should be selected from the lower portion of the stump or from sprouts that originate from roots (Figure 3). The reason for this is that if you select sprouts from the top of the stump, the stump eventually rots and the sprout can break out as they mature.

Figure 2. A two-year-old bigleaf maple clump. Note the tall, straight center sprout. In a few more years, the sprouts can be thinned, leaving a few of the straightest stems.

PHOTO COURTESY OF STEPHEN FITZGERALD

Figure 3. Select sprouts from the lower portion of the stump or from sprouts originating from roots.

GRAPHIC COURTESY OF STEPHEN FITZGERALD



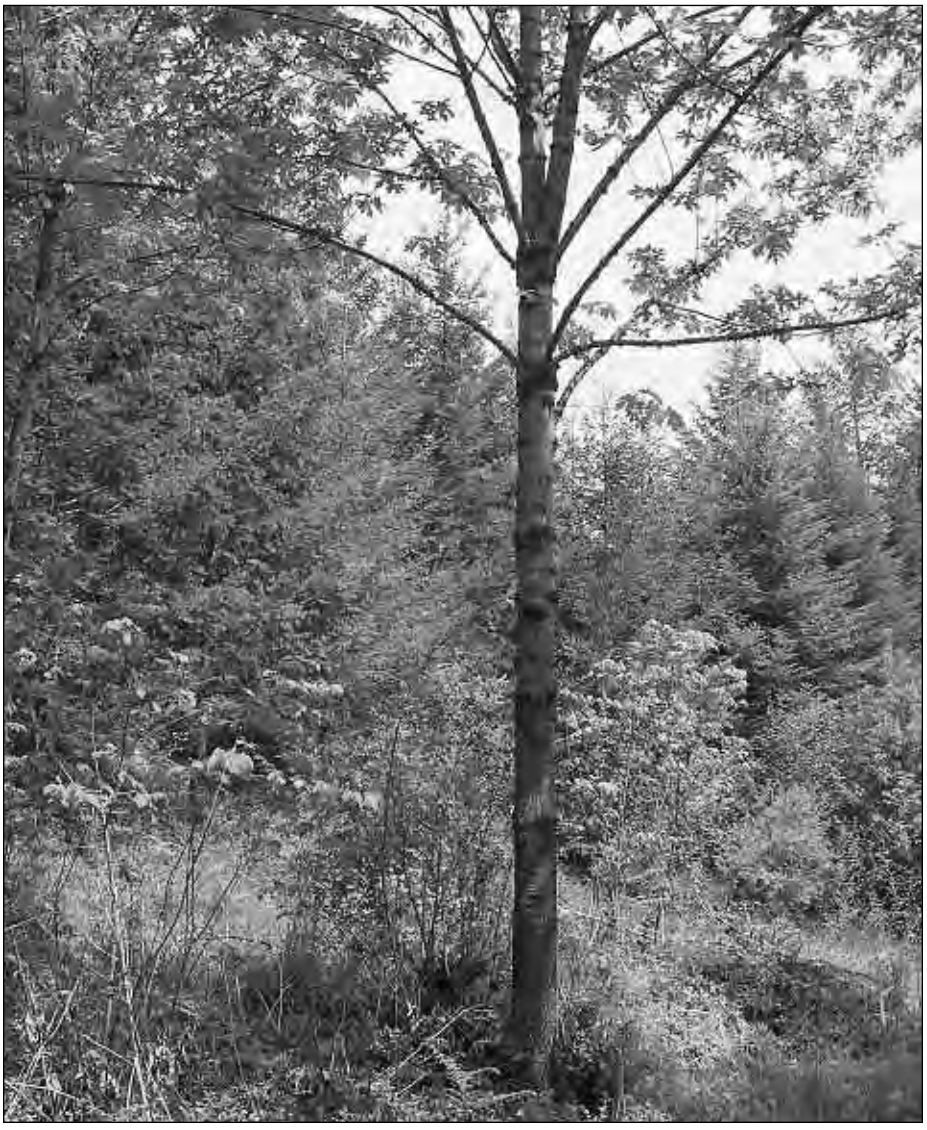
• The one to three remaining sprouts can be thinned again, if needed, a few years later, leaving the best sprout. The remaining sprouts can be pruned to produce clear wood (Figure 4).

• Allow sprouts to grow to the desired diameter, then cut, harvest and start over. ◆

Stephen A. Fitzgerald is the eastern Oregon silviculture & wildland fire education specialist for the Oregon State University Extension Service. He can be reached at stephen.fitzgerald@oregonstate.edu.

Figure 4. This bigleaf maple tree originated from a center sprout. The other sprouts helped train this residual sprout and then they were cut away. This tree could now be pruned up further (to the fork) to produce clear, high-value sawtimber.

PHOTO COURTESY OF STEPHEN FITZGERALD



February Council Meeting Focuses on Organization, Leadership and Policy

BY CLARK W. SEELY, CF

Under the leadership of President Bernie Hubbard, the SAF Council held their first meeting of 2009 on February 21-22 in Minneapolis, Minnesota. All Council members were present.

Highlights of the February meeting include:

• With a change in staff last year and an aging data system, we've been experiencing difficulties in retrieving and reporting current membership information at all levels of the organization in a timely manner. To remedy this situation in the near term, a web page off the national website will be created so that local units and state societies can retrieve their membership reports. In the longer term, over the coming year, SAF will be upgrading the membership data system to a platform that integrates with the financial system, other office applications, and be functional from the internet. There are many other benefits from this upgrade including membership data management over time, national convention management, local state society meeting management, bulk and tailored emailing, and more.

• Speaking of the internet, the SAF national website redesign is nearly completed and will be up and running in March. The new website design is intended to facilitate easier access to member information, networking and communications, current SAF documents and materials, state society, chapter, working group and committee support, and general public information. Other news on the internet front includes completion of the online version of the SAF Dictionary of Forestry found at www.dictionaryofforestry.org/ and the new Encyclopedia of Forestry found at www.encyclopediaofforestry.org/index.php/Main_Page. Both of these efforts provide significantly enhanced member service and also outreach to the general public.

• In the policy arena, Council approved a revision and update to the national position statement on International Trade in Forest Products. In addition, based on an HSD recommendation from last year, Council directed the Forest Science and Technology Board and the Committee on Forest Policy to examine the subject of high-grading, and provide Council with a recommendation on whether to pursue a position statement, and if so, in what manner.

• Last year, there were some member concerns expressed about the SAF position and testimony provided on the federal appropriation bills for the U.S. Forest Service budget, with not enough emphasis on the State and Private Forestry aspect. National staff has taken those concerns to heart, and from here forward, the analysis of the situation and development of SAF's position and testimony will include involvement with the Committee on Forest Policy in order to gain a more full perspective.

• Council and staff reviewed the initial concepts for a broad-based SAF leadership development program that will take the important elements of SAF leadership and governance at all levels and create materials, methods and tools to accomplish leadership training and development. Some of the program elements and resources will be meeting-based, other will be web-based. Council endorsed moving forward on the concept and as one element, modifying the time devoted to the 2009 HSD meeting at the national convention to integrate some of the new elements. Further information will be coming as the program is developed in a joint effort between staff, the national Leadership Development Committee, and Council.

• Council reviewed and provided input to the strategic actions for the second half of 2009 and 2010 in support of the newly adopted national strategic plan. These actions will be finalized at the June Council meeting and form the basis, in part, for 2010 SAF national budget development.

• Council reviewed the initial staff analysis of the 2008 HSD recommendation relating to membership recruitment and retention. Following review, with Council input, the list of items was referred to the Council Membership Subcommittee for development of final recommendations.

Finally, I'm pleased to serve on the national Finance and Investment Committee for a second year in 2009, this year as committee chair. District 1 Council Representative Chuck Lorenz is also serving on the committee when it meets as the SAF Audit Committee. Chuck is also serving on the national Professional Recognition Committee. Please contact me or Chuck anytime if you have any questions or concerns relating to national SAF operations or governance. We look forward to serving you. ◆

District 2 Council Representative Clark Seely can be reached at 503-945-7203 or cseely@odf.state.or.us. District 1 Council Representative Chuck Lorenz can be reached at 360-357-9088 or c_4str@yahoo.com.

Policy Scoreboard

Editor's Note: To keep SAF members informed of state society policy activities, Policy Scoreboard is a regular feature in the Western Forester. *The intent is to provide a brief explanation of the policy activity—you are encouraged to follow up with the listed contact person for detailed information.*

OSAF Shares Forest Issues Booklet, Considers New Positions. From May 2008 through January 2009, the Oregon SAF Executive Committee approved revised and updated position statements on five important forestry topics: "Salvage Harvesting," "Using Pesticides on Forest Lands," "Clearcutting," "Active Management to Achieve and Maintain Healthy Forests," and "Landslides on Forest Lands." OSAF has compiled these and three other active positions into a booklet titled "A Professional View of Forestry Issues in Oregon." As of this writing, there are plans to send the booklet and other material about OSAF to each of the 90 members of the Oregon Legislature. The booklet also is expected to be useful for sharing OSAF's views with Oregon's newly elected federal representatives and other key policy and decision makers.

OSAF currently is working on two new position statements, one on "Forestry and the Wildland-Urban Interface (WUI)," and the other on "Thinning." The increasing numbers and presence of homes and people in Oregon's WUI areas have raised a number of diverse and unique issues for forest policy and management. The position statement on thinning was prompted in part by recent legislative and other policy or management proposals to limit timber harvesting on public lands solely to thinning. In addition, there is concern about the effectiveness of silvicultural prescriptions when relatively arbitrary age- or diameter-based cutting restrictions are imposed by current or proposed policies. All OSAF position statements are available online at www.forestry.org and draft positions may be posted in the "members only" section. Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@ oregonstate.edu.

WSSAF Policy Updates. Peter Goldmark took office as Washington State's Commissioner of Public Lands on January 14 and oversees the Department of Natural Resources. He has made statements indicating that he will maintain timber harvest levels from state lands.

The Washington Department of Fish and Wildlife and the Washington Forest Protection Association prepared a letter with a recommended Executive Order to Governor Gregoire on January 23. The order is designed to improve and simplify the permitting process for forestland owners and is expected to reduce costs for both land owners and WDFW.

Right to practice forestry legislation has been introduced in the Legislature HB 1483. It's intended to correct the law in light of a Washington Supreme Court ruling that the act of growing trees is not sufficient to establish the practice of forestry for the purpose of avoiding a nuisance claim by an adjacent landowner.

The Washington State SAF hosted a legislative breakfast on March 5 at the State Capitol Building in Olympia. The intent of the event was to increase awareness of forestry issues that face our state and to provide a scientific and technical resource for our elected state senators, representatives and staff. It was made possible by the generosity of the Southwest Washington Chapter with their support of a continental breakfast. A big thanks goes to John Walkowiak, John Ehrenreich, Karen Temen and Alicia Sullivan for making this an educational and successful event.

The Forestry/Bioenergy/Carbon Connection in Idaho. The theme topic for the 12th annual Forestry Day at the Legislature this year was the connection between wood bioenergy opportunities and challenges, and carbon management. Several community-based groups throughout the state are interested in wood-to-energy projects. The Idaho Department of Commerce has formed a Woody Biomass Task Force focused on job creation that complements the Idaho Strategic Energy Alliance's Forestry Task Force, which your correspondent chairs. Mater Engineering of Corvallis, Ore., has begun work on CROP (Coordinated Resource Offering Protocol) projects that will help begin to identify potential feedstock resources on federal lands in the state. The Western Governors Association is revitalizing its efforts in this area, and the U.S. Forest Service is revising the supply estimates in the 2005 "Billion-Ton Report" with county-by-county estimates of availability. Contact: Jay O'Laughlin, IESAF policy chair, 208-885-5776, jayo@uidaho.edu. ◆

April Conference Offers Unique Perspective on Pacific Northwest Forestry

BY LISA WINN

As current market conditions test the strength and endurance of timber companies, agencies, timberland owners and communities, the Umpqua Chapter of the Oregon Society of American Foresters offers an exciting conference examining factors critical to current and future forest management decisions. The three-day conference, *Positioning Pacific Northwest Forestry for Global Success*, will take place from April 29-May 1 at the Seven Feathers Hotel and Casino Resort in Canyonville, Ore., located in the heart of beautiful southwest Oregon.

Today's forest management decisions are influenced by global market demands, environmental constraints and societal goals. This conference will provide a well-rounded perspective of these issues and offer solutions to how the Pacific Northwest can continue to successfully manage our forests into the future. The presentations will be valuable to all natural resource practitioners representing private companies, public agencies, small woodland owners, academia and policy makers. We hope to see many non-SAF members from around the Pacific Northwest in attendance.

The first day of the conference includes a powerful line-up of featured keynote speakers:

• Dave Rumker, managing partner of the Campbell Group, will present "Forestry in the Pacific Northwest: Where are we and how did we get here?"

• Bob Flynn, director, International Timber, RISI, will provide an expert analysis and prediction of inventories, production, productivity, infrastructure and demand in major wood producing regions worldwide.

• Eric Hansen, professor at Oregon State University, will compare societal expectations, environmental concerns and political processes that affect natural resource decision-making worldwide.

• Lynn Scarlett, former deputy secretary of the Department of Interior, will consider how public perceptions of risk affect the ability of managers to meet on-the-ground objectives.

• Allyn Ford, president and CEO of Roseburg Forest Products, will be the dinner speaker presenting "The State of the Industry: What's in Store for the Future?"

Day two of the conference will offer two concurrent sessions. *Understanding the Big Picture* will provide fresh perspectives on the successes and challenges of major wood producing regions around the world (China, Russia, South America, Australia/New Zealand and Canada), with special attention to emerging technologies and the role of society in forest management.

The second session, Silviculture in the Pacific Northwest, will provide an in-depth look at the 21st century's cutting-edge approaches to PNW silviculture. Special emphasis will be placed on stand establishment improvements, fertilization, management for a broad array of objectives, and emerging forest health issues. This session will also address how our profession can remain vital and competitive in both the current market and in the future.

The third and final day will include a field tour to the Hinkle Creek paired watershed study to examine the potential effects of active management under current Oregon forest practice rules and a tour to compare the BLM's new resource management plans (which resulted from WOPR) to the Northwest Forest Plan.

Located in the Land of the Umpqua, the area offers something for everyone including renowned fishing, hiking, boating, site-seeing, waterfalls, wine-tasting and gaming. In addition, exciting local tours will be offered for spouses.

Don't miss this unique opportunity to hear from many leading natural resource professionals and managers on how Pacific Northwest forestry can and will endure through difficult economic times and future societal demands. Visit www.forestry.org or look for our brochures for more details. ◆

Lisa Winn is a member of the 2009 Oregon SAF Conference Marketing Committee. She can be reached at 541-784-6454 or lawinn@charter.net.

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