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Biomass Energy and Biofuels from Western Forests



PHOTO COURTESY OF ROGER LORD

A recently thinned ponderosa pine stand near Klamath Falls, Ore.

BY MIKE CLOUGHESY AND
ROGER LORD

The conversion of woody biomass to energy in the western United States presents a unique opportunity to simultaneously address three challenging needs: restoring forest health, fire resiliency and wildlife habitat, finding renewable energy alternatives, and revitalizing rural economies.

The Western



Mike Cloughesy



Roger Lord

Governors Association (2006) and the USDA Forest Service estimates that there are 23 million acres of timberland in the 12 western states that are in need of thinning to reduce risk of uncharacteristically severe wildfires. These acres have the potential of providing woody biomass for production of energy or biofuels.

What is Woody Biomass?

Biomass refers to the sum total of all organic material in trees, agricultural crops and other living plant material. Woody biomass is any biomass composed of wood. In Oregon, it arises from three sources:

- *Wood products residue* is the wood

waste generated at Oregon sawmills and other wood products plants such as trim, shavings, woodchips, sawdust, bark and other residues.

- *Urban wood waste* includes discarded wood and yard debris. This waste stream often ends up in landfills, but it can be diverted for energy production.

- *Forest biomass* is the waste material generated from logging or thinning activities in forests. Although strictly speaking, biomass refers to the entire main stem, branches and tops of trees, the term is commonly understood to refer only to the small-diameter waste material, less than 5" to 7" in diameter, that cannot be used for traditional timber products.

What is the Opportunity?

Forest Health. Evidence indicates that many of our region's dry site forests are out of balance with natural conditions and therefore more susceptible to insects, disease and wildfire than ever before. Fire suppression and other influences over the last several decades have created an accumulation of excess woody material. This places our forests at risk of wildfires that could cause significant ecological damage at a landscape scale and, no less importantly, places our nearby communities at risk as well. Wildlife habitat is adversely affected as well. Many western forests need to be restored ecologically.

Federal forest scientists have identified nearly 100 million acres of forestland in the west in Fire Condition Classes 2 or 3. These conditions are found primarily on federal forestlands. In these forests, fire regimes are moderately to significantly outside their historic, natural range, and the risk of

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Biomass Energy and Biofuels

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losing key ecosystem components in the event of a wildfire are moderate to high. Treatments such as use of prescribed fire and mechanical thinning could be used to restore these forests to natural conditions. In some cases, fuel loads are so high that scientists believe prescribed fire cannot be used without mechanical removal of fuels first.

The lack of markets for forest biomass material makes fuel reduction treatments a costly undertaking. Harvest and transportation of small diameter logs and biomass material is more expensive than larger timber. Federal land management agencies and other landowners lack resources to cover these costs. Yet, to reduce fire hazards, the material must either be physically removed from the site or burned on location. Providing markets for this material to help cover the costs of forest restoration treatments would help solve forest health and

habitat problems.

Renewable Energy. With the peak of worldwide petroleum production in sight, interest in alternative energy sources is growing. Most people recognize that America is placing its economic future and national security at risk by continuing to rely on fossil fuels that are becoming increasingly expensive and often come from societies that are hostile to us. In addition, it is becoming increasingly evident that fossil fuels carry heavy environmental costs that must be addressed.

Bio-energy alternatives are emerging as substitutes for fossil fuels in power generation, transportation fuels (ethanol and biodiesel), steam heat and production of biochemicals. Conventional technologies are available that can be applied immediately to produce electricity and heat from biomass. In fact, they have been applied for decades by the forest products industry to utilize mill wood wastes and generate a significant amount of energy.

The potential payoff from produc-

tion of liquid fuels from biomass is greater. Technologies to convert cellulosic biomass such as wood to ethanol, while not yet commercial, should be available within the next decade. Ethanol, a substitute for gasoline, can reduce our reliance on fossil fuels for transportation and help bring down fuel prices. Currently, the nation's ethanol supply comes almost entirely from corn. Production of ethanol from cellulosic biomass has many environmental and economic benefits. Production of biochemicals to replace petroleum-based chemicals is also an opportunity that deserves increased attention.

Rural Revitalization. The west's rural communities, especially those that have long been dependent on the surrounding natural resources for economic health, are struggling. Many factors have contributed to this—one of which is the decline in timber harvest from federal lands. As timber harvesting has declined, family wage jobs have been lost, mills and supporting businesses have closed, and economies have weakened. Rural communities need revitalization.

Western Governors Association Biomass Supply Study

As part of an analysis of clean and green energy alternatives commissioned by the Western Governors Association, an estimate was made of forest biomass available from forest thinning to reduce the risk of uncharacteristically intense wildfires.

Estimates of forest thinning biomass were obtained using the Fuel Treatment Evaluator Version 3.0. The Fuel Treatment Evaluator identified 23 million acres of timberland in 12 western states at high risk for stand replacement fire (crowning index [CI] or torching index [TI] less than 25 miles/hour). Several thinning treatments were simulated for these acres to improve CI and TI values. Treatments include: (a) taking trees across all diameter classes (uneven-aged treatment); or (b) taking small trees first and then progressively larger trees until CI and TI targets are met (even-aged treatment).

For this Western Governors Association study, a composite treatment scenario was developed for



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Next Issue: Urban and Community Forestry



PHOTO COURTESY OF CHAD DAVIS, OREGON STATE UNIVERSITY

Understory fuel buildup on the Deschutes National Forest in Central Oregon.

which half the eligible area (11.5 million acres) was considered for treatment (a) and half for treatment (b). Treatment would be carried out on an eligible area only if it produced at least 300 cubic feet (or about four bone dry tons or BDT) of merchantable wood per acre. Sales of merchantable wood (wood that can be used for higher value products, including pulpwood, lumber, posts and poles) could offset thinning costs. Thinnings would also provide additional biomass from small trees, tops and branches.

This composite scenario would treat 10.6 of the 23 million acres identified; more than half the eligible area did not meet the 300 cubic foot/acre criterion. The 10.6 million acres would provide 270 million BDT of biomass. If 0.5 million acres were treated per year, then 12.3 million BDT of total biomass would be provided per year over 22 years. One-half million acres is chosen as a tentative annual treatment area to represent a plausible moderate increase in thinning area on public and private timberland. If 50 percent of the biomass would be used for higher value products, then the remaining 50 percent, or 6.2 million BDT per year, may be available for fuel. After 22 years, more area will have moved into the higher fire hazard class, and continued thinnings would likely be required on at least 0.5 million acres

per year.

The FTE 3.0 estimates are based on the assumption that there would be greater focus on treating land with high fire hazard. Annual biomass supply from timberland could be larger if

some areas with lower fire risk are treated for other forest health reasons or because they could be treated to reduce fire hazard at low cost along with nearby high fire hazard areas.

Oregon Biomass Study

A recent comprehensive study funded by the Oregon Forest Resources Institute (2006) and led by Mason, Bruce & Girard estimated that 4.25 million acres (about 15 percent of Oregon's forestland) have the potential to provide forest biomass by thinning of forest stands to reduce risk of uncharacteristic fire. Thinning these acres over 20 years could produce 1.0 million BDT per year of woody biomass, not including merchantable sawtimber.

Delivering this biomass to processing facilities would cost an average of \$59/BDT based on integrated harvesting and collection, which combines costs associated with biomass with the costs associated with merchantable timber. Harvesting and collection costs for woody biomass would be much higher if only non-merchantable material is harvested.

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cally feasible opportunity for woody biomass in the short term is for generation of electricity and production of heat. Longer term, production of bio-fuels and bio-products to reduce reliance on fossil fuels may prove to be the more significant opportunity.

One million BDT of biomass could produce about 150 megawatts (MW) of electricity. The cost of producing electricity from \$59/BDT of woody biomass in stand-alone electricity generating facilities would be in the 8-9¢/kilowatt (kWh) range.

To produce electricity at stand-alone

electricity generating facilities in the 6.5-7.5¢/kWh range of current markets, delivered fuel costs would need to be in the range of \$45/BDT. An estimated 0.6 million BDT of delivered biomass per year and electric capacity of 81 MW could meet these current market parameters.

Electricity produced in a combined heat and power facility, such as a lumber mill with cogeneration would result in significantly lower kWh costs.

The 1.0 million BDT per year of woody biomass created by thinning the 4.25 million acres identified in this analysis could be significantly increased through harvesting western juniper in rangeland restoration, collecting logging



PHOTO COURTESY OF GLEN MURPHY, OREGON STATE UNIVERSITY

The Timberjack Slashbundler harvesting thinning slash.

slash from commercial timber harvests, urban wood waste, agricultural biomass and excess milling residue.

What are the Environmental Benefits?

Science on the environmental issues surrounding use of forest biomass for energy production indicates environmental benefits arise from reducing the risk of catastrophic wildfire, restoring overcrowded forests to conditions that are more natural, and from replacing non-renewable energy with renewable energy. Benefits include air quality improvement, reduction in greenhouse gases, soil and water conservation, and protection and restoration of wildlife habitat and biodiversity. Some benefits accrue from both forest restoration and fossil fuel replacement. For example, air pollution and greenhouse gases emissions are lowered by reducing wildfire likelihood and by reducing emissions from energy production as biomass replaces fossil fuel. Other impacts are characterized in terms of short-term versus long-term risk.

Environmental benefits of biomass energy are estimated at 11.4¢/kWh. The value of avoided forest overgrowth is estimated as 20.2¢/kWh. The estimated net benefit of fuel reduction treatments is \$606-\$1,402+ per acre. These results suggest that the environmental benefits of forest biomass use for energy are well in excess of the market value of the electricity produced.

What are the Constraints and Challenges?

The Oregon Study identified a num-

What is a Bone Dry Ton?

Biomass fuels are sometimes reported in terms of green tons, which measure the material as freshly cut or "wet," or alternatively, as bone dry ton (BDT) equivalents, which is a measure of the fiber content of the material. A bone dry ton weighs 2,000 pounds at 0 percent moisture content. One BDT is generally equivalent to two green tons.



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ber of constraints and challenges that need to be addressed if biomass energy development is to help achieve forest restoration goals. These can be organized into the following categories:

Public Acceptance. Without a social license from the public, development of a woody biomass energy industry will not proceed very far. Many of the questions the public have are related to the environmental impacts of biomass energy in general and forest biomass harvesting in particular.

Biomass Supply. Assured access to an affordable, long-term supply of suitable woody biomass for fuel or feedstock is often identified as a major challenge in biomass energy projects.

Markets. Market-related issues including the overall competitiveness of biomass energy, project startup and energy market entry barriers, and other issues also rank high in terms of importance.

Public Policies. Both state and federal governments have made strides over the last few years in putting into place public policies supporting

renewable energy. However, there remain some challenges in the public policy arena that need to be addressed.

Institutional Issues. Since a large portion of the potential woody biomass supply in western states originates from forest restoration treatments on federal lands, the policies and capabilities of the two primary federal land management agencies, the USDA Forest Service and Bureau of Land Management, are critical to building a successful woody biomass energy industry.

Technical Issues. There are technical issues that require research and development attention. These include research on emerging energy technologies, forest restoration and fuel treatments, harvesting technologies, biomass supply, and alternative uses of harvested material.

Summary

Development of an appropriately scaled forest biomass energy industry has the potential to address three important issues: the need to restore

forest health, find renewable energy alternatives, and revitalize rural communities. These findings and general conclusions for Oregon, we suspect, would be echoed across other western states where there are similar conditions—overcrowded forests with high fire risk, struggling rural communities and the need for additional alternative, renewable energy sources. ♦

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Show Me the Money: Tools for Analyzing the Financial Viability of Biomass Utilization

BY RACHEL WHITE AND
JAMIE BARBOUR

The accumulation of flammable fuels in our region's forests poses a widely recognized risk. And, conducting fire hazard reduction treatments must be paid for somehow. That's why the prospect of converting biomass from thinning treatments into energy poses such an intriguing possibility. Given the large amounts of woody biomass these treatments generate, it makes sense to try and discern when, where and how that biomass might pay for its own removal. However, many of the people who plan fire hazard reduction treatments have little background in economics or financial analysis, and have few resources to help them sort out the associated costs and revenues.



Rachel White



Jamie Barbour

MyFTP Example

In an illustration of MyFTP, a series of fuel treatments was simulated on a selection of 18 stands from nine national forests in the western U.S. These stands were chosen because they represented common conditions on their respective forests, and because they were regarded as having excessive fuel. MyFTP analyzed treatments including thinning from below to 300, 200, 100 and 50 residual trees per acre with either prescribed burning or mechanical treatment. In this scenario, the average gross revenue with 50 leave trees was over three times that for 100 leave trees. The overall results revealed few opportunities for commercial products to pay for the full cost of treatment; however, they showed that in 12 of the 18 stands, the removal down to 50 leave trees does reduce the cost relative to leaving 100 trees.

Caveat: Markets for logs and chips vary widely throughout the western U.S.; these analyses used market data specific to each stand's location.

With this in mind, the Forest Service has developed some financial analysis tools related to biomass utilization that require little technical skill of the user.

My Fuel Treatment Planner

To help planners include cost-effectiveness in the design of fuel treatment projects, Forest Service researchers developed a spreadsheet-based financial analysis tool called My Fuel Treatment Planner (MyFTP). It can be applied to any dry forest setting in the western U.S., requires no background in economics or wood utilization, and entails only a minimum of training to use. Best suited to help planners evaluate what treatments in what areas will contribute to hazardous fuel reduction goals, it provides a way to calculate cost or net revenue of treatments, as well as surface fuel loads following treatment. It also provides estimates of the economic impact of treatments on the area where the project is located. MyFTP helps answer questions like, "Can I combine mechanical treatments and prescribed fire to make my fuel reduction project less expensive?" or "I have a lot of stands that look like this, what would it cost to treat them?" or "I

wonder what type of stand treatment could pay for itself on my land?"

The most important inputs required to run the model are: harvesting system, pretreatment surface fuel load, yarding and hauling distances, prices for chips and logs, size of harvest unit, slope, and data on the trees to be cut (species, diameter, number per acre and height if available). Additional inputs are necessary if cost estimates for prescribed fire are needed or for an evaluation of economic impacts on the project area.

MyFTP software and documentation can be downloaded from www.fs.fed.us/pnw/data/myftp/myftp_home.htm.

The FTE 3.0

Developed by the Forest Service's Forest Products Laboratory in collaboration with the Northern Research Station Forest Inventory and Analysis (FIA) program, the Fuel Treatment Evaluator (FTE) 3.0 is a web-based tool that allows users to simulate silvicultural treatments on timberland in the western U.S. It essentially enables users to draw a circle on a map, choose one of the two pre-selected



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treatment prescriptions, and obtain an estimate of the amount of wood that could be produced from fuel treatments, as well as estimates of harvest costs and biomass revenue. It uses data from 37,000 forest plots in 12 western states surveyed through FIA.

The two options for treatment that can be used include:

- Taking some trees from all size classes, producing an uneven-aged stand; or
- Taking trees starting with the smallest and then taking progressively larger, leaving an even-aged stand (thinned from below).

A key difference between this tool and MyFTP is that the FTE 3.0 supplies fire hazard screens and allows users to set fire hazard reduction targets. In this model, a plot is considered to have a high fire hazard if it has a crowning index (the wind speed at 20 feet off the ground that will sustain a crown fire once it begins) of less than 25 mph, or a torching index (the wind speed at 20 feet off the ground that will cause individual trees to burst into flame) of less than 25 mph with the crowning index less than 40 mph. Once identified, the chosen thinning treatment is then applied individually to the plot, with the goal of raising both the torching and crowning indexes to more than 25 mph, or increasing the crowning index alone to greater than 40 mph. This incorporates the ultimate objective of keeping a crown fire from starting, or if ignited, keeping it from spreading. Many of the features of the analysis can be varied, such as forest type, slope, land ownership, and presence or

absence of wildland urban interface—however, the crowning index and torching index limits are hard-wired into the model and cannot be changed.

As noted in the overview article (see Cloughesy and Lord, this issue), the FTE 3.0 was used recently in the Western Governors Association analysis of alternative energy opportunities in the region. This tool is most useful for this type of broad-scale analysis, although it can be applicable at finer scales if more detail is provided.

The FTE 3.0 can be found at http://ncrs2.fs.fed.us/4801/fiadbfire_tabler_us/rpa_fuel_reduction_treatment_opp.htm.

In Summary

The FTE 3.0 is most helpful in illuminating where on the “timbershed” scale pockets of financial opportunity or problems exist, whereas MyFTP is more helpful in providing site-specific information to analyze generic stand types common to a geographic area. Both tools were created to help planners evaluate the potential financial viability of hazardous fuel reduction treatments, and ultimately to improve

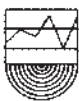
chances of meeting management objectives for these projects without requiring intensive technical skills. ♦

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Suggested Reading

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Bio-Energy Development Could Make Significant Contribution, but Many Questions Remain

BY LARRY MASON

With growing concerns about global warming, there is an international sense of urgency to reduce consumption of fossil fuels by shifting to clean and renewable energy sources. The 2002 U.N. World Summit on Sustainable Development identified "Clean Energy" as one of its five most important global policy imperatives. The U.S. State Department followed with implementation of the Clean Energy Initiative. Current U.S. energy policy includes legislated incentives and tax credits for renewable energy development. Twenty-two states have adopted Renewable Portfolio Standards that require increases in renewable energy. At the time of this writing, Washington citizens were voting on Initiative 937. If passed, I-937 will create a Washington Renewable Energy Standard that will require public electric utilities with at least 25,000 customers to obtain 15 percent of electricity from new renewable resources by 2020. It is important to note that the standard establishes that, "with limited exceptions," use of fresh



water for energy production is not considered renewable.

While hydroelectricity is inexpensive and reliable, most potential sites have already been developed and concerns about fish habitats and water supplies likely preclude any significant expansion of this power source. With no expansion of hydropower expected, energy analysts look to wind, geothermal, solar and biomass as sources of renewable energy with potential for expanded utilization. Unlike the massive centralized energy projects of the past such as large dams and fossil fuel generators, development of renewable energies will likely be smaller in scale and distribution. If fossil fuel reliance is to be substantively reduced in future decades, many types and sizes of renewable energy projects will be needed. Different locations will logically have different energy and resource potentials. Along the Columbia River, significant wind energy sites have been developed; in the agricultural areas of eastern Washington, crop residues can be utilized as energy feedstocks; and from the 16 million acres of unreserved Washington forests, woody biomass is an abundant resource that could be used as fuel for a variety of energy applications.

Wood biomass is uniquely versatile in that it can be a source of firm electrical power¹ with steam and heat as a valuable byproduct or it can be used to produce liquid and gaseous fuels to reduce reliance on fossil fuels for transportation applications. Valuable industrial chemicals can be extracted in the process. Residuals from the manufacture of forest products have proven to be a readily available and cost-effective source of biomass feedstocks. Forest management residues, typically burned in piles after timber harvests, represent another large source of woody biomass that is currently underutilized. Forest thinnings such as fuel load reductions on east-side dry land forests can provide woody biomass for renewable energy feedstocks with an added benefit of reducing the risks and costs associated with catastrophic forest fires.

In 2003, combined forest and agricultural biomass contributed 2.9 quadrillion British Thermal Units (BTU) to the nation's energy supply, supplying three percent of the total U.S. energy consumption. Biomass accounts for 47 percent of U.S. renewable energy consumption and recently surpassed hydropower as the nation's largest single source of renewable energy. More than 50 percent of total national biomass-derived energy comes from wood residues and pulping liquors created by the forest products industry. However, the Northwest Electrical Power and Conservation Council reported in 2005 that declines in wood products and paper industries are jeopardizing opportunities to exploit low-cost bioresidues useful for expansion of regional cogeneration capacity.

As public interest in renewable energy and pollution avoidance increases, it has become apparent that opportunities to utilize wood biomass provide a parallel opportunity to restore forest health and reduce wildfire hazard in overstocked dry forests east of the Cascade Mountains. During the summer of 2006, more than 360,000 acres of mostly federal forestlands burned in eastern Washington.



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More than 50 percent of total national biomass-derived energy comes from wood residues and pulping liquors created by the forest products industry.

Fire suppression costs were in the hundreds of millions of dollars, two million metric tonnes of carbon were released to the atmosphere in smoke plumes, more than three billion board feet of timber were burned, and, without aggressive salvage, an opportunity for biomass-to-energy is lost. In spite of dual state and federal policies to remove forest fuel loads and to promote utilization of biomass for energy, implementation remains slow, complicated and problematic.²

Expansion of small-scale distributed power customized for local resource utilization will require power distribution flexibilities never needed in the past. Institutional hurdles include complex wholesale/retail price, performance, and power distribution and reliability arrangements. While renewable power generated from wood could provide a price hedge and risk mitigation benefit to utilities, short-term price differentials serve as an investment disincentive as do the logistical complexities of multiple small-scale generating facilities. Rapid adjustments from centralized to distributed power distribution arrangements pose complicated logistical challenges to transmission grid capabilities, as does the reliability of enough wood to justify power grid contracts.

Further, the maze of production tax credits, green tags, renewable energy credits, low-cost loans, carbon credits and other complicated financing instruments are politically tenuous and confusing for would-be renewable energy developers. Distributed power

development in rural communities, located at the extremes of the transmission grid, should reduce line loss (estimated to average nine percent of national energy production) and maintenance costs, but no power price premiums reflect this public value. The economic development benefits and tax revenues of wood utilization in depressed rural communities are compelling, but are not incorporated into electricity rates.

There is broad confusion amongst the public about how to value and credit the many avoided costs, non-market values, environmental services and other ancillary benefits associated with distributed power generation from wood waste. For example, reduced pollution from less fossil fuel should mean lower health care, climate change and clean-up costs. Markets for carbon credits can help, but are in early stages of development. The economic and strategic benefits of reduced importation of foreign oil are significant and should be measured as a public benefit of domestic renewable energy development. A broader assessment methodology of avoided costs, jeopardized opportunities, economic impacts and environmental services associated with wood biomass utilization for renewable energy must reasonably be included when environmental impact assessments are required for forest management and other projects.

Opportunities exist for beneficial development of small scale wood-to-energy projects in the forest commu-

nities of the Pacific Northwest, but broadly available information is lacking and many questions are unanswered. Institutional and market arrangements confound renewable energy policy objectives. Political concerns about public forestland management may actually be in contradiction to reducing pollution. A thorough and critical investigation of the complex environmental, institutional, political and financial challenges associated with development of wood-to-energy resources in Washington state is needed. ♦

Larry Mason is the project coordinator for the Rural Technology Initiative at the University of Washington in Seattle. He can be reached at larrym@u.washington.edu or 206-543-0827.

¹Electrical energy generation is referred to as either firm or intermittent. Firm power, such as that generated from dams and fuel combustion systems, is produced constantly and, as a function of metered fuel intake, can respond to increases and decreases in demand. Intermittent power such as that generated from wind or solar collectors is available only when natural conditions accommodate and subsequently is utilized to augment existing firm power capacity. In contrast, additions of renewable sources of firm power (such as biomass conversion systems) can be used to replace less desirable existing capacity such as polluting coal- and gas-fired systems.

²For scale purposes, consider that one 25 megawatt (MW) combined heat and energy plant, fueled from forest biomass, requires that 10,000-15,000 acres of fuels reductions be treated each year over a 30-year treatment cycle (total dedicated forest area would equal 300,000 to 450,000 acres).

Biomass-to-Energy: A Case Study from Forks, Washington

BY JOHN CALHOUN

Forks, Washington, has become emblematic of the struggling rural resource-dependent communities throughout the Pacific Northwest. For decades, isolated communities like Forks prospered from the harvest of rich forest resources so abundant in Pacific Northwest hills and valleys. But, with dramatic reductions in available public timber supply, times have changed. Few expect, or even hope for a recovery based upon a return to the "good old days." The first order of business is to sustain what remains of the forest industry. The second is to find opportunities for the forest economy of tomorrow.

A challenge to the once-thriving cedar shake and shingle industry brought this message home recently to residents of the northern Olympic Peninsula.

The Crisis

For decades, cedar shingle producers have burned waste wood in wigwam or cyclone burners. The Olympic Region Clean Air Agency (ORCAA) had been working with Clallam and Jefferson County cedar mill owners for several years to bring them into compliance with the regulations that prohibit open burning of mill waste. In 2005, the final notice requiring compliance was issued. This action threatened closure for 11 small cedar mills unless cost-effective and environmentally acceptable waste disposal solutions could be found.

The mill owners went to Clallam County Economic Development Council (EDC) with a request for help. The EDC commissioned the University of Washington's Rural Technology Initiative and the Olympic Natural Resources Center to produce a report to characterize the situation for mill owners, to examine implications for the local economy, and to present information on options for cedar mill



waste utilization and disposal. The report included investigation of burner upgrades, centrally located incineration, pellet manufacture, mulch, animal bedding, road bed material, oil and chemical extraction, chips and hog fuel. Measures of economic feasibility for disposal/utilization alternatives were developed.



PHOTO COURTESY OF LARRY MASON

A typical cedar mill waste burner that is no longer permitted.

The news was not good. No option immediately available appeared to be economically sustainable. The practical necessity was to replace the burners with chip truck vans and haul the cedar waste to disposal points many miles where the waste could be ground up for delivery to the paper mill as hog fuel. Trucking and grinding costs would be in excess of \$200 per load and would put these mills at a disadvantage to competitors in other regions.

A Revitalizing Approach

The fundamental challenge was clear: find a way to avoid the costly haul of mill waste to a distant dumping site. Further investigation revealed that two sawmills in the Forks area (Portac Inc. in Beaver and Allen Logging on the Hoh River) produced a significant surplus of hog fuel and other mill waste (close to 200,000 green tons per year). This material was also trucked more than 50 miles away to the paper mill. University

investigators suggested a broader view of this local waste problem: cheap wood waste should represent a unique community opportunity to develop clean and renewable energy while establishing a fiscally and environmentally attractive outlet for mill residues.

The idea of turning wood waste into renewable, carbon-neutral energy while helping to support local forest-dependent businesses was compelling. Clallam County EDC took up the challenge. An application was submitted to the Washington Trade and Economic Development (CTED) agency for funding to engage an engineering firm to prepare a feasibility study of the most promising ways to utilize locally available woody biomass as a renewable energy feedstock.

Responding to strong local and state political support for this project, Washington Governor Gregoire traveled to Port Angeles to present Clallam EDC with a check for \$50,000. Within 30 days, equivalent matching funds were secured locally from the Port of Port Angeles, Clallam County Public Utility District, City of Forks, City of Port Angeles and Clallam County. A request for proposals to conduct a biomass-to-energy feasibility study in Forks was drafted and sent out to engineering companies throughout the region.

The Feasibility Study

Siemens Building Technologies, Inc. was selected to conduct the study. Siemens first verified local conditions and quantified available woody biomass. Then, an analysis of the technical and financial challenges to utilizing mill waste for a Forks biomass-to-energy project was prepared.

Three viable alternatives were developed for a combined heat and power solution: 1) a one megawatt plant located in the town of Forks that would produce steam for heating public buildings as well as electric power; 2) a 1.2 megawatt cogeneration plant located in the Forks Industrial Park that would produce both steam for use in dry kiln operations as well as electric power; and 3) a larger 3.2 megawatt cogeneration plant at the Forks Industrial Park also to produce steam and electricity. A small-scale, heat-only alternative was later devel-



PHOTO COURTESY OF LARRY MASON

Cedar mill waste requires grinding before it can be utilized in a boiler.

oped to retrofit propane and oil-fired burners that produce hot water for heating public buildings in Forks. Substitution of hog fuel for fossil fuels in small-scale applications has shown promise for immediate fuel cost savings and would provide a quick and affordable waste disposal solution to help local mills. The feasibility study, delivered May 12, 2006, demonstrated to the community that fundamentally sound approaches to development of combined heat and power generation utilizing existing hog fuel supplies were available at several scales of investment magnitude.

Once considered a burdensome waste disposal problem, wood residues from milling operations are now being regarded as a useful local resource.

Current Status

Community leaders are moving forward with preferred project alternatives: the retrofit of existing boilers to accept wood waste to heat public buildings and the construction of a 1.2 megawatt co-generation plant at the Forks Industrial Park. The retrofiting of boilers represents the minimum project scale that can directly address the needs of the cedar mills. It also is the least costly of all the options studied. The 1.2 megawatt cogeneration plant has the best financial rate of return of options analyzed in the Siemens report and will utilize a significant proportion of the available hog fuel produced in the community.

Federal loan programs have been

identified and applications submitted. State and federal elected officials are working closely with the community

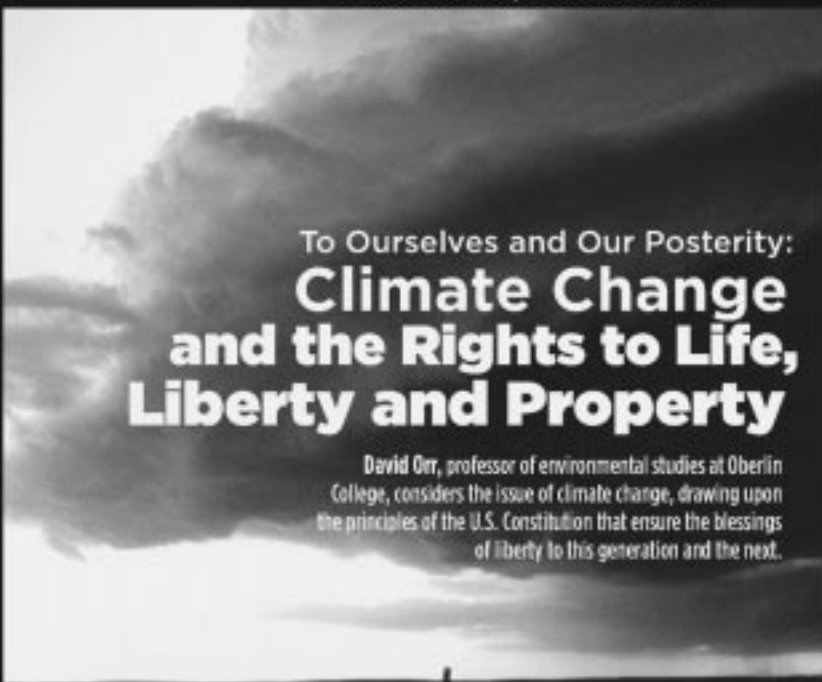
to identify low-cost public and private financing opportunities.

A next step could include establishment of a tub grinder at the new co-generation plant so that slash from forest operations and appropriate woody materials from municipal waste can also be recovered for renewable energy generation.

The community has become engaged and optimistic about the potential of forest-derived bio-energy. Adding value to existing supplies of surplus mill waste is now regarded as a beginning. ♦

John Calhoun is director of the Olympic Natural Resources Center, College of Forest Resources for the University of Washington in Forks, Wash. He can be reached at 360-374-3220 or jcalhoun@u.washington.edu.


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Modeling Outcomes of Hazardous Fuel Reduction Near Fairbanks, Alaska

BY TOM PARAGI, SCOTT RUPP
AND JOE LITTLE

Prolonged drought, high temperatures and frequent lightning contributed to wildland fires in interior Alaska that covered 11.2 million acres in 2004 and 2005, the largest and third largest areas burned since records began in 1950. Structures and developments in over 20 communities were threatened. Subsequent reviews by fire managers and the public prompted recommendations for a more proactive approach to hazardous fuel reduction, particularly in the black spruce ecosystem type.

Following adoption of interagency wildland fire management plans in the mid-1980s, fires near communities in Alaska were given priority for suppression resources, whereas many fires in remote areas were monitored instead of suppressed. The lack of natural disturbance near communities results in continuous fuels and eventually increases the risk of catastrophic fire. It also makes maintenance of wildlife habitat and other subsistence resources increasingly difficult.

In recent years, federal agencies in Alaska have been assisting communities with thinning treatments (shaded fuel breaks that often cost more than \$1,000/acre) that remove ladder fuels and increase spacing of trees by hand to reduce potential for fire spread near developments. The state of Alaska has been experimenting with vegetative response and cost efficacy of mechanical treatments (such as dozer shear-



PHOTO COURTESY OF ADF&G

This side view of a typical shear blade shows the sharpened cutting edge parallel to the ground and "stinger" for splitting trees too large to directly shear without difficulty. This site is an 80-year-old aspen stand with black spruce regeneration in the understory near Delta Junction, Alaska.

blading with windrowing of debris at an estimated cost of \$150/acre) since the late 1990s to enhance wildlife habitat where prescribed fire is difficult to achieve for social reasons. The larger scale picture of potential fuel reduction with shearblading could have a major effect on the visual landscape near communities. Thus, municipal and tribal governments have a desire to understand how fuel breaks may influence fire risk, how frequently breaks must be maintained, and how they influence habitat for wildlife, such as moose browse production.

Although markets for small-diameter wood do not currently exist in interior Alaska, economic feasibility studies indicate that under specific assumptions about transportation, harvesting costs and per-acre yields, chip fuel may be cost effectively used in the cogeneration of municipal heat and power. Identifying alternative

uses for the biomass generated by local fuel treatment projects is important given that potential revenues from such uses can be used to offset program costs. From an economic standpoint, a full life-cycle cost and market analysis will be needed to assess the efficacy of potential cogeneration projects.

Predicting outcomes from mechanical treatments requires an understanding of post-disturbance succession and how vegetation changes influence fire risk and habitat features. The key questions are: (1) Under what conditions can spruce be temporarily replaced by shrubs or deciduous trees? and (2) How long before coniferous fuel is re-established?

Scott Rupp was awarded a two-year grant from the USDA's Cooperative State Research, Education and Extension Service for "New Crop Opportunities" to conduct a pilot

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study on production of biomass fuel from harvesting small-diameter trees in boreal forests. Prediction will be done with a spatially explicit computer simulation model originally developed by Rupp and others (Boreal ALFRES-CO, http://depts.washington.edu/nwfire/project.php?projectID=102&mi_croweb=0) to predict how climate change may influence vegetation distribution and patterns of wildland fire in Alaska. The pilot project will scale the model down to the greater Fairbanks area and may incorporate terrain and wind vector in simulating how fuel breaks influence the potential for fire spread among vegetation types in the wildland-urban interface. A recent fuel type map made by the Alaska Department of Natural Resources, Division of Forestry to assess fire risk will be used as the vegetation layer for modeling biomass yield and potential for type conversion in mechanical fuel treatments and how treatments may influence fire spread and habitat features.

Field sampling has been conducted to define state-transition functions for the revised model. In summer 2005, we estimated density of late-seral features (snags, cavity trees and spruce rust brooms) in several stand types to

understand potential loss of nesting and denning habitat for songbirds and smaller mammals. During summer 2006, we worked with students on a retrospective study of post-disturbance succession in black spruce to identify ecological and treatment factors that might be useful as operational guidelines for temporary conversion to deciduous species. Although moose forage is an expected benefit from creating fuel breaks, we also hope to analyze how proximity to early-seral habitat may influence probability of moose-vehicle collisions near the road system, which can be a modeling scenario with respect to treatment locations. This coming winter we will put together these components along with biomass yield predictions and treatment cost factors to examine where further research may be needed to provide a model useful for community landscape planning and estimating economic feasibility of a biomass fuel industry. ♦

Tom Paragi is a wildlife biologist with the Alaska Department of Fish and Game in Fairbanks, where he works on habitat enhancement and restoration. Scott Rupp is the principal investigator and an associate professor in the Forest

Sciences Department at the University of Alaska-Fairbanks (UAF). He works on spatial modeling of fire and vegetation succession in boreal forest landscapes and can be reached at 907-474-7535 or scott.rupp@uaf.edu. Joe Little is an assistant professor of economics in the School of Management at UAF who specializes in natural resource issues. Paragi and Rupp are members of the SAF Yukon River Chapter, and Paragi was a founding co-chair of the Alaska Northern Forest Cooperative (www.uaf.edu/ces/aknfc).



PHOTOS COURTESY OF JASON MERCER, UAF

An example of paired site conditions observed during the 2006 retrospective study on post-disturbance succession of black spruce stands near Fairbanks, Alaska. The undisturbed black spruce stand on the left (of fire origin about 50 years ago) was 50 meters from the birch and willow on the right, which regenerated after shearblading in 1984.



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Fire, Biodiversity and Biomass

BY CATHERINE MACDONALD

For millennia, fire has played an important role in shaping the characteristics and population dynamics of individual species and, in aggregate, the composition, structure and processes of native ecosystems. But in many places today, fire behaves differently than it has throughout history, with too little, too much or the wrong kind of fire to maintain the species that historically occupied a given area.



The frequency, seasonality, size and severity of fire in a particular landscape make up what is referred to as its *fire regime*. Alterations in the historic natural fire regimes has been cited as a factor in the decline of dozens of species listed as threatened or endangered under the federal Endangered Species Act—the mountain golden heather, blue-tailed mole skink, American chaffseed, Peter's Mountain wallow, red-cockaded woodpecker, pallid manzanita, Alameda whipsnake, the Southern Idaho ground squirrel and Karner blue butterflies.

Where fire suppression and fuel accumulation is the issue, removal of biomass may be an important first step

in a comprehensive restoration effort aimed at conserving biological diversity. Three such situations exist in the Pacific Northwest. Historically, relatively frequent fires maintained extensive grasslands, oak savannas and open park-like stands of ponderosa pine forest, and periodically reset the successional clock in shrub steppe habitats. Suppression of fires over the last 60-100 years has resulted in significant changes in these habitats.

Exclusion of fire from oak savanna and woodland habitats, for example, has resulted in conifer invasion, increased tree and shrub density, and overcrowding of oaks. Among other impacts to wildlife, structural simplification and smaller-diameter trees in oak woodlands reduces acorn production and insect abundance, which adversely affects at least 12 bird species including western bluebirds and slender-billed nuthatch.

Although juniper has always been a part of sagebrush habitats, fire suppression has contributed to a dramatic expansion of western juniper into shrub steppe and juniper savanna habitats. Young, relatively dense juniper stands are not suitable for species that require open sagebrush habitats, such as greater sage-grouse, Brewer's sparrow and sage sparrow.

In ponderosa pine and mixed conifer forests, fire suppression results in the accumulation of dead and down fuels, proliferation of ladder fuels, a shift in composition to less fire-resilient species, and an increase in the vulnerability of older overstory trees to insects and disease. Loss of open park-like stands of ponderosa pine forest has contributed to the decline of white-headed woodpeckers where increasing understory density has been linked with reduced nest success. In a more complex situation, fire suppression resulted in forest canopy closure in historically open canopy ponderosa pine-dominated forests, improving habitat conditions for the northern spotted owl. However, today the northern spotted owl is at greater risk and declining in these dry forests due to impacts from high fuel loads, mortality associated with insects and disease, and stand-replacing fire events.

Recent LANDFIRE Rapid Assessment data identified two-thirds, or roughly 21

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million acres of Oregon's fire-prone forests and woodlands as moderately or highly departed from reference conditions potentially affecting habitat conditions for as many as 440 native species of conservation concern. While the departure is the result of a number of causes, efforts to remove biomass and/or restore fire will undoubtedly need to be part of restoration.

Sixty percent of these acres are public lands managed by the USDA Forest Service and the Bureau of Land Management. Although the Forest Service and Bureau of Land Management have been diligent in trying to address the issues in these fire-prone forests and woodlands, current levels of acres restored per year on public forest and woodlands in Oregon are not adequate to address the problem. Based on the new data and treatment estimates for 2005, federal agencies would need to at least quadruple current levels of thinning and prescribed fires on a sustained basis over a period of 25 years to address the problem.

Restoring health to Oregon's forests to benefit conservation of biodiversity is a complex undertaking requiring rigorous scientific grounding, adaptive management and public participation. Active management with thinning or fire includes risks to and will have mixed affects on, species of concern and their habitat conditions. In addition, restoration plans will need to address other related ecological changes such as invasive species. To be effective in meeting conservation needs, we need to look beyond the task of reducing the risk of unnaturally severe fires or using excess biomass and instead identify the actions, resources, infrastructure and human capacity necessary to restore forest conditions and fire. If done well, we could reap multiple benefits—more reliable clean drinking water, jobs and a new source of renewable energy to meet Oregon's need for electric power—in addition to improved conditions for fish and wildlife. ♦

Catherine Macdonald is director of conservation programs for The Nature Conservancy in Oregon. She can be reached at 503-802-8100 or cmacdonald@tnc.org.

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Council Holds Meeting During Convention

BY RICK BARNES

The 2006 National Convention, held in Pittsburgh, PA, was a huge success. Over 1,400 people registered for the convention with approximately 400 of these being students. Listening to Dr. Wangari Maathai give the keynote address was a real treat. It is not everyday you have an opportunity to listen to a recipient of the Nobel Peace Prize. Her description of the reasoning and efforts she went through to get women to plant trees in Kenya was very moving.

Another highlight of the National Convention was the national awards presented to very deserving SAF members. National Award recipients with connections to the Pacific Northwest were:

- Howard Heiner, from the Siskiyou Chapter in Oregon, received the Sir William Schlich Memorial Award for his outstanding contributions to the field of forestry for his efforts internationally.
- Sue Bowers, from the Emerald Chapter in Oregon, received the Outstanding Communicator Award.
- Albert Stage, from the Palouse-Snake River Chapter in Idaho, retired from the USDA Forest Service, received the Award in Forest Science for his breadth of contribution to forestry as reflected in more than 100 publications he has written.
- Stephen Bloedel, who works for Inland Forest Management and is a member of the Selkirk Chapter in Idaho, received the Presidential Field Forester Award from District 1.
- Brian Schlaefli of Forest Capital



Partners LLC and a member of the Siskiyou Chapter, received the Presidential Field Forester award from District 2. The Presidential Field Forester awards recognize those members that have made outstanding contributions to the forestry profession via their work in the field.

- Last, but not least, the Green River Community College Student Chapter in Washington tied for first place with the Mississippi Student Chapter as the Outstanding Student Chapter.

The Council meeting held at the National Convention is always condensed due to all of the convention activities. One of the most important actions taken by Council was the election of Fellows to honor those members who have provided outstanding contributions to the Society and to the forestry profession. Council reviewed all of the Fellow nominations submitted from each district. Council voted to accept the nominations of all Fellows nominated by the respective district nominating committees. In all, Council approved 30 new Fellows. Fellows elected from the Pacific Northwest include Dennis Bschor from Alaska; Russell Graham from the Inland Empire; John Bergvall from Washington; and Paul Adams and Marvin Brown from Oregon. Please join me in congratulating these most deserving Fellows.

Overseeing the finances and investments of SAF is an important duty for Council. Earlier in the year, Council selected Merrill Lynch to manage the Foresters' Fund Investments. At the October meeting, the M&T Investment Group was selected to manage the SAF Endowment Fund. These funds are managed in accordance with their respective investment guidelines previ-

ously approved by Council.

At each meeting Council reviews and ratifies, as appropriate, interim Council actions. As I read through the interim SAF actions, I am always amazed at the quantity of outstanding efforts made by our membership and staff throughout the year. Examples of actions that have taken place since our June Council meeting include:

- Testimony before the Senate Agriculture, Nutrition and Forestry Subcommittee on Forestry, Conservation and Rural Revitalization by our immediate past president, John Helms.

- A letter by President Marvin Brown strongly supporting the vision of Agenda 25 x '25, which sets a goal to provide 25 percent of the total energy consumed in the United States from America's farms, forests and ranches.

- A letter by President Marvin Brown commenting on the Healthy Forests Reserve Program.

- Ratification of the Federal Tax Treatment of Forest Land Position Statement as prepared by our national policy committee.

- The Forest Sustainability Task Force, including representatives from SAF, held its first meeting to further the idea of a national policy on sustainable forests.

- A letter from Michael Goergen, executive vice president, commenting on the Tongass National Forest policy regarding road building.

- A joint letter commenting on the USDA Forest Service—Forest Inventory and Analysis program, signed by SAF President Marvin Brown, James Hull of the National Association of State Foresters, and Patrick Rita on behalf of the American Forest & Paper Association. ♦

Rick Barnes is District 2 Council representative for Oregon. Kirk David is Council representative for District 1, representing Washington State, Inland Empire and Alaska. Both welcome your questions, concerns or suggestions. Rick can be reached at rbarnes@barnesinc.com or 541-673-1208; Kirk can be reached at kdavid@idl.idaho.gov or 208-666-8626.

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Joint CIF/SAF Activity Held on Vancouver Island

BY GORDON GIBBS

The Canadian Institute of Forestry hosted the SAF North Olympic Chapter for a joint activity on Vancouver Island north of Vancouver on September 23.

The general theme of the joint field trip was tree improvement and adapting to climatic changes. It appears that the general issues and daily challenges are very similar. As part of the day's activities, Dr. Alvin Yanchuck of the BC Ministry of Forests and Range gave a presentation on their genetics program; and Dr. Annette van Niejenhuis gave a tour of the seed plant, various seed orchards and nursery operations.

An annual event, last year's SAF/CIF activity was hosted by the North Olympic Chapter at the Merrill

and Ring Pysht Tree Farm near Port Angeles, Wash. ♦

Olympic Chapter. He can be reached at gibbsville@centurytel.net.

Gordon Gibbs in chair of the North

PHOTOS COURTESY OF GORDON GIBBS



CIF and SAF chapter officers.



CIF and SAF members get a tour of a nursery greenhouse complex.



The tour group visits a hemlock seed orchard, where an elevated watering system is used to simulate the fog zone.

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Joint Washington State/Oregon SAF Leadership Conference

January 19 and 20, 2007 – Hood River Inn • Hood River, Oregon

The New Year will once again find members of the Oregon and Washington State Societies gathering to share ideas and prepare for the responsibilities of carrying out their SAF roles during the coming year. **All Chapter Chairs, Chair-elects, Student Leaders and SAF members** are encouraged to join the members of both State Executive Committees for this opportunity to learn about the workings of the SAF organization, determine objectives and strategies for the coming year, and discuss how to make SAF a more effective organization—at every level. And even more important, this is your chance to meet other enthusiastic and successful SAF members, steal their good ideas and have some fun as well!

DRAFT PROGRAM

FRIDAY, JANUARY 19, 2007

- Northwest Office Committee Meeting (9:30 am)
- OFRI Speakers Bureau Training (10:00 am)
- Group Lunch (noon)
- Welcome, Introductions and Overview (12:30 pm)
- Joint session, OSAF and WSSAF—Strategic Planning Training with **Ray Ledgerwood** (1:00 pm)
- Concurrent OSAF and WSSAF Executive Committee Meetings (2:45 pm)
- No-Host Social (6:00pm)
- Group Dinner and Speaker: **Brian Baird, U.S. Congressman** (invited) (6:30 pm)
- Down Time! Take a short walk to the Full Sail Brewery to tour and sample great microbrews; hosted hospitality suite and social (8:15 pm)

SATURDAY, JANUARY 20

- Group Breakfast (7:30 am)
- Council and National Office Updates (8:00 am)—**Rick Barnes, Kirk David and Michael Goergen** (invited)
- Warm-up Game: “Who wants to be an SAF Millionaire?”
- What Role Should SAF Play in Responding to Controversial and Sensitive Issues like the Donato Paper? Panel Discussion: **Marvin Brown, Bob Dick, John McMahon and Michael Goergen** (invited) (9:30 am)
- Break (10:30 am)
- What is the SAF Northwest Office?—**Lori Rasor** (11:00 am)
- Concurrent Sessions (11:20 am)
- SAF Organizational Structure and Officer Job Descriptions (targeted for students and new leaders/members)—**Rick Barnes and Chuck Lorenz**
- Step-by-Step Walk Through of the Foresters’ Fund Application Process—**Angie DiSalvo**
- How to Properly Recognize SAF Members through the Awards Process—**Jim Rombach**

- SAF Taxes 101: What is SAF’s tax status and what are our responsibilities for filing, declaring income, etc.?—**George Chesley and Zoanne Aylesworth**
- Group Lunch and Speaker (noon): The 2007 SAF National Convention in Portland—Update on convention planning progress to date, what still needs to be done and how local leaders can get involved—**Clark Seely and Linda Goodman**
- Chapter Vitality: What can be done to maintain and enhance the vitality and viability of our local SAF Chapters? (1:00 pm)—**Doug Rushton**
- Wrap-up and adjourn by 3:30 pm

LODGING: A block of rooms at the Best Western Hood River Inn have been reserved at a special rate of \$75.00 plus tax, single or double, for those attending the conference. They are also offering a limited number of special value rooms at \$69 plus tax (ask about these when calling to make your reservation if interested). For reservations, call 1-800-828-7873. All major credit cards are accepted. The Best Western Hood River Inn is located a short hour east of Portland. Take Exit #64 off I-84.

REGISTRATION INFORMATION: The Leadership Conference registration fee is \$98.00 (\$110.00 after January 12, 2007), which covers four meals, breaks and all materials. Spouses or guests wishing to join the meals should register on-site. Please return your completed registration form and a check made payable to *Oregon SAF* to: SAF Leadership Conference, Northwest Office, 4033 SW Canyon Rd., Portland, OR 97221. Visa and MasterCard accepted.

OFRI Speaker’s Bureau Training (free): On Friday, January 19, from 10:00 a.m.-noon, OFRI has scheduled a training and review of their current Speaker’s Bureau presentations. OFRI has been fortunate to utilize the expertise of volunteers to help educate Oregonians about the benefits and issues of Oregon’s forests. They are seeking foresters interested in being part of their Speaker’s Bureau and representing OFRI during short presentations within your community. For further information or to register, contact Jordan Benner of OFRI at 971-673-2951 or benner@ofri.com.

Registration Form – 2007 SAF Leadership Conference January 19 & 20, 2007 • Hood River Inn • Hood River, Oregon

Registration includes all materials and 4 meals—Friday lunch & dinner and Saturday breakfast & lunch

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I plan to attend the group lunch on Friday ☐ YES ☐ NO

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Calendar of Events

Oregon Woody Biomass: Opportunities, Barriers and Breakthroughs, Jan. 3, Portland, OR. Contact: OFRI.

Logging Series Workshops, Jan. 9 (Multispan Systems) and Jan. 10 (Guying & Anchoring), Corvallis, OR. Contact: Forest Engineering.

LoggerPC V4, Jan. 11-12, Corvallis, OR. Contact: Forest Engineering.

Fuel Reduction on Steep Slopes, Jan. 16-17, Corvallis, OR. Contact: Forest Engineering.

Ecosystem Services: Market Incentives for Land Stewardship, Jan. 18, Vancouver Hilton, Vancouver, WA. Sponsored by PNW Research Station and WFCa. Contact: WFCa.

Mechanized Harvesting, Jan. 18-19, Corvallis, OR. Corvallis, OR. Contact: Forest Engineering.

OSAF/WSSAF Leadership Conference, Jan. 19-20, Hood River Inn, Hood River, OR. Contact: John Prendergast at jprender@charter.net (see registration form on opposite page).

Scaling and Marketing Private Timber, Feb. 3, Grangeville, ID, or Feb. 24, St. Maries, ID. Contact: UI Extension Office at 888-884-3246 and ask for either the Clearwater Co. Office (Grangeville) or Benewah Co. office (St. Maries).

LoggerPC V4, Feb. 8-9, Corvallis, OR. Contact: Forest Engineering.

Forests, Carbon and Climate Change, Feb. 13-14, Corvallis, OR. Contact: OFRI.

Cost Control Workshop, Feb. 13-14, Corvallis, OR. Contact: Forest Engineering.

Road Series Workshops, Feb. 15 (Water Control) and Feb. 16 (Slope Staking), Corvallis, OR. Contact: Forest Engineering.

Natural Resource Law for Foresters, Feb. 22-23, Vancouver, WA. Contact: WFCa.

Oregon Logging Conference, Feb. 22-24, Lane County Convention Center & Fairgrounds, Eugene, OR. Contact: www.oregonloggingconference.com or 541-686-9191.

Forest Road Surface: Principles and Design, March 5-6 in Canyonville, OR, and March 8-9 in Olympia, WA. Contact: WFCa.

Pathways to Resilience: Sustaining Pacific Salmon in a Changing World, April 3-5, Portland, OR. Contact: OSU Conference Services at conferences@oregonstate.edu or 541-737-9300.

Brazil Forestry Study Tour, April 15-29, Curitiba, Brazil. Contact: Mark Willhite at mark@worldforestinvestment.com or 503-695-6419.

OSWA Annual Meeting and Committee for Family Forestlands Symposium, April 26-28, Adair and Corvallis, OR. Contact: OSWA, 503-588-1813; oswaed@oswa.org.

Contact Information

OFRI: Oregon Forest Resources Institute, Dave Odgers, 971-673-2948; www.oregonforests.org.

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

Forest Engineering: Forest Engineering Inc., 620 SW 4th St., Corvallis, OR 97333, 503-754-7558; office@forestengineer.com; www.forestengineer.com.

Send calendar items to the editor, **Western Forester**, 4033 SW Canyon Rd., Portland, OR 97221; fax 503-226-2515; rasor@safnwo.org. The deadline for the January/February 2007 issue is December 8, 2006.

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Countdown to Convention '07

National Convention Program Taking Shape

BY GRETCHEN NICHOLAS AND
MIKE CLOUGHESY

Global trends, innovative markets and conservation strategies will be topics at the 2007 SAF National Convention in Portland, Ore., on October 23-27, at the Oregon Convention Center. The theme of this 87th national convention is *SAF—Sustaining America's Forests*. The format, agenda and majority of speakers have been confirmed for the general sessions, which include an exciting and diverse mix of national and local leaders.

Every year more than 2,000 forestry and natural resource professionals gather at SAF's annual national convention to exchange ideas, share professional expertise, and learn the latest technology and research. It is an opportunity to meet with professionals in natural resources from a broad variety of backgrounds. Participants include consultants, private industry foresters, students, government foresters, researchers and academics. The convention will include general sessions, technical field tours, concurrent technical and scientific sessions, student events, sponsored technology tracks where organizations and companies present commercial or proprietary products, services and research, job fair, exhibit hall and much more. All this plus an opportunity to earn up to 40 Continuing Forestry Education Hours! So mark your calendar now for the 2007 SAF National Convention.

The convention will be built around three general daily themes: (1) Globalization and public policy; (2) Social trends and markets for environmental services; and (3) Developing conservation strategies.

Richard Louv, columnist and author of *Last Child in the Woods*, has been invited to deliver the keynote address.

A Sampling of General Session Speakers

As a part of Wednesday's program, Chad Oliver, Yale University, will speak on globalization and public policy.

This talk will set the stage for the following day's sessions on social trends and markets for environmental services. Several speakers will be exploring these topics from different perspectives, including:

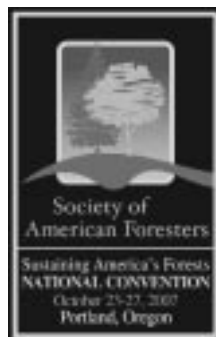
- Susan Stein, Private Forestland Studies coordinator, USDA Cooperative Forest Service;
- Russell Hoeflich, vice president and Oregon director, The Nature Conservancy;
- Ricardo Bayon, managing director, Ecosystem Marketplace;
- Bill Hohenstein, director, Global Change Program Office, USDA; and
- Laurie Wayburn, president, The Pacific Forest Trust.

Friday's program will offer meal-time opportunities to hear from leaders of various forestland management organizations. The breakfast round-table will feature Dale Bosworth, chief of the USDA Forest Service, to talk about priority conservation initiatives for the USFS. Challenges in leading change will be the topic of a "Lunch with Leaders" with Cassie Phillips, vice-president of Sustainable Forestry for Weyerhaeuser; Dick Porterfield, dean of Forestry at University of Georgia; and Doug Sutherland, Washington state commissioner of public lands.

Friday will also feature a number of concurrent scientific and technical sessions. Confirmed speakers for the session on conservation strategies include Gene Duvernoy, executive director of Cascade Land Conservancy, Bettina Von Hagen, vice president for Forestry and Natural Capital Fund for Ecotrust, and Bobby Brunoe, director of Natural Resources for the Confederate Tribes of Warm Springs.

Technical and Scientific Sessions

SAF consistently builds high quality sessions that are relevant to today's



professionals. The 2007 National Convention is making a special effort to include participation and presentations from family forest landowners, members of conservation organizations and members of allied businesses such as banking, high tech, natural resource retailing and insurance.

With more than 150 sessions to choose from, there really is something for everyone.

The convention will feature sessions under the following tracks:

- Measurement Technology for Management and Planning
- Healthy Forests and Watersheds
- Changing Private Forest Ownerships
- Silviculture for Multiple Values
- Forest Certification and Auditing
- Bio-energy and Bio-refinery Development
- Tree Improvement and Forest Genetics
- Forest Ecology and Conservation Biology
- Education and Communication
- Urban and Community Forestry
- Forest Recreation
- The Business of Forestry

If you are interested in submitting an abstract for an oral or poster presentation, you can do so through the convention website at www.safconvention.org. Proposals must be submitted by February 14, 2007.

America is blessed with an incredibly rich forest resource located on federal, state, county, industrial, family and NGO lands. As expressed by our theme, SAF: Sustaining America's Forests, we believe that foresters make major contributions in sustaining the environmental, social and economic benefits of America's forests for our grandchildren's grandchildren. So, make time on your calendar to attend this convention and continue to make a difference! ♦

Gretchen Nicholas and Mike Cloughesy are co-chairs of the 2007 Convention Program Committee. Gretchen can be reached at gretchen.nicholas@wadnr.gov or 360-902-1360. Mike can be reached at 971-673-2955 or cloughesy@ofri.com. For additional convention details, visit www.safconvention.org.



We Remember

John H. Beuter
1935-2006

SAF and the forest community lost a true friend September 6 when SAF president and former Oregon State University professor John Beuter passed away at his home in Corvallis, Ore., at the age of 70.



Mr. Beuter was born and raised in Chicago, then attended Michigan State University. With the help of a boxing scholarship (1954 All-University Intramural Champion in the 125-pound category), he graduated in 1957 with a Bachelor of Science in forestry and a minor in business. He subsequently earned a Master of Science in forestry with minors in economics and statistics the following year.

After college, Mr. Beuter served for three years as an officer in the Air Force, based in Grand Forks, N.D. In 1960, he married Jill Hanson in Chicago and they moved to Portland in 1961, where John took a job with the U.S. Forest Service. His next move was to Iowa State University where he was awarded a Ph.D. in forestry and economics. The Beuters, now a family of four, returned to Portland in 1965.

In 1968, he took a job with Mason, Bruce and Girard Inc. In 1970, the Beuters headed south to Corvallis to begin John's 18-year tenure at the OSU College of Forestry, serving in a variety of faculty positions including researcher, professor, director of the School Research Forests, chair of the Department of Forest Management, and associate dean for teaching in the College of Forestry. During this time, John led the development of a landmark study, first published in 1976 and later updated, of an assessment of Oregon's timber availability, which became known as the "Beuter Report."

In 1988, John resigned from Oregon State University and rejoined MB&G Inc. as a consulting forester and vice president. In 1991, he joined the administra-

tion of President George H.W. Bush as assistant secretary of agriculture for natural resources and the environment, which includes oversight of the Forest Service.

He returned to Corvallis in January 1993 and bought a half-interest in Duck Creek Associates and purchased two tree farms. During 1995 and 1996, he also assumed the role of chief technical advisor for a regional project of the Food and Agriculture Organization of the United Nations. Based out of Rome and Beijing, John provided guidance to the governments of China, Mongolia, Laos, Vietnam

and Myanmar in developing policies to aid the transition of their forestry sectors to market-based economies.

In 2004, he was elected to serve as president of the Society of American Foresters, having been a fellow since 1986 and a member since 1955. He also served on Council and was active with the Oregon Society of American Foresters Foundation.

Mr. Beuter requested that donations in memorial may be made to Benton Hospice Service, Oregon State University Library and the World Forestry Center. ♦



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Do you or have you enjoyed being a professional forester? Do you believe that well-qualified and well-trained professional foresters can and do help make the world a better place, not just today, but for our children and grandchildren as well? Does your vision of the future include seeing excellent students attracted to the field of forestry? If you answered "yes" to any of these questions, the OSAF Foundation is a good match for you.

The two main goals of the Foundation are to attract the best students to the profession of forestry and to improve the knowledge of Oregonians about professional forestry. Its programs include scholarships for Oregon State University forestry students and providing funding for public outreach efforts by our members or on behalf of the profession.

Too often, people leave their goals and dreams entirely to chance. The plans you make and the actions you take today can have a dramatic effect on whether or not your dreams are ever realized. Perhaps you are in a position to make a cash contribution to the Foundation. That's wonderful—enclose it with the coupon from

the ad below and send it to the OSAF Foundation at our Northwest Office address. Perhaps your support for the OSAF Foundation fits better as a part of your estate plan. Making a bequest is often as easy as writing a simple addition (codicil) to your will. You may designate a specific cash amount or a percentage of your estate for the Foundation, or you may list other assets such as securities and real estate.

The National SAF office has a brochure called "Investing in SAF's Future" that explains a variety of planned giving options. You can get a copy by calling 301-897-8720, x121 or by sending an email to giving@safnet.org.

The OSAF Foundation was established in 1985 and has grown since then because many foresters care about the future of their profession. Please consider a gift of your own, joining those who have gone before you to help those who will follow. ♦

—Sue Bowers

OSAF Foundation Chair

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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.

BLM Westside Planning Continues.

The process to develop new management plans for over 2.5 million acres of BLM lands in western Oregon continues. The agency took some public input during the initial scoping period and in reaction to its draft planning criteria and management alternatives. Revised alternatives in response to public comments were issued this fall, and a draft management plan and EIS are expected in spring 2007. OSAF submitted comments to BLM during the scoping period and in response to its draft planning criteria, and will consider additional input after the draft plan and EIS are released. For further background, visit www.blm.gov/or/plans/wopr/. Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@oregonstate.edu.

Two Position Statements to Expire in 2007. OSAF will soon need to address two position statements scheduled to expire in 2007. Most urgent is "Commercial Timber Harvest on Public Lands in Oregon," which will expire February 22, 2007. This issue remains very timely given extensive forest management needs and costs on federal lands, and due to long-held economic obligations to communities from nearby state and federal forests. "Landslides on Forest Lands" is set to expire on December 6, 2007. Although a lack of large storms has reduced the visibility of this issue in recent years, our steep, uneven terrain reflects the potential that exists for it to be front page news before too long. The OSAF Policy and Legislation Committee is now reviewing the Commercial Harvest statement, with the goal of having the Executive Committee renew the current statement or approve a revision by the February expiration date. Review of the Landslide statement will likely begin shortly thereafter. All OSAF members are invited to review the existing statements (www.forestry.org) and pass along any comments to your local chapter officers or the Policy Committee. Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@oregonstate.edu.

WA DNR Active. The Washington State Department of Natural Resources is engaged in several planning processes of interest to foresters:

- The department is taking public comment on its Southwest Washington Land Use Plan. Contact Eric Wisch at eric.wisch@wadnr.gov.

- DNR will be drafting a plan for the Olympic Experimental State Forest. Jim Hotvedt, team leader, can be reached at jim.hotvedt@wadnr.gov.

- DNR is drafting an aquatic lands Habitat Conservation Plan that will affect operators who own or lease tidelands and adjacent uplands. Contact David Palazzi at david.palazzi@wadnr.gov.

- DNR just published a FY 2006 State of the State Lands report (Jed Herman and Bob Van Schoorl, authors) that details the business (revenue, costs, proprietary lands management activities, etc.) side of the department.

- Two new reports are available from DNR: (1) The Forest Health Improvement Program assessment was published in September. The assessment details DNR's attempts to grapple with overstocking, and disease and insect infestations through a small wood harvest program; and (2) The Contract Log Harvesting Program analysis assesses the log sort sales program and results from this relatively new program. Contact Michael Eklund-Graham at 360-902-1015 for both reports.

Washington SAF Explores

"Science." Washington State SAF's Executive Committee recently chartered a task force to produce a white paper and recommendations related to attempts that define "science," and "scientists." The long standing problem of public perception as to what constitutes science and just who is or isn't a scientist continues to fester. It is a problem much bigger than either forestry or natural resource management, and WSSAF will move carefully through the land mines of this topic. Stay tuned. Contact: Bob Dick, WSSAF Co-Policy chair, bdick@afrc.ws or 360-352-3910.

The Ecosystem Marketplace. Want to know what California's Governor is doing about CO2 emissions these days? Check online at The Ecosystem Marketplace, a good source of information for keeping up with ecosystem services market developments. You'll learn that the other western governors gave his ideas a chillier reception than eastern governors have done. Two more stories follow: 1) USDA/EPA Water Quality Trading Partnership: The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and the U.S. Environmental Protection Agency (EPA) in

mid-October announced a partnership agreement to encourage Water Quality Credit Trading nationwide. The Ecosystem Marketplace interviewed USDA's Mark Rey; and 2) What's "Carbon Aggregation?" This concept is the core of a carbon trading scheme developed by Ducks Unlimited, the 70-year old conservation organization. Paying landowners to turn marginal farmland into forests, sequestering greenhouse gas emissions, restoring forests, reducing erosion, preventing floods and improving water quality: What's not to like? Well...that depends on how you feel about 100-year conservation easements. See both stories in The Ecosystem Marketplace at www.ecosystemmarketplace.com.

Forests, Carbon Sinks, and the Kyoto Protocol.

According to a recent report from the Resources for the Future think tank, most scientists, as well as the Bush administration, agree that global warming is indeed occurring and that it is a significant problem. The question of the efficacy of the Kyoto Protocol as a remedy, however, is another story. Economist Roger Sedjo says forest "sinks" hold enormous potential as one of the most efficient, low-cost ways to capture or sequester carbon. Read a short article and access the full report at www.rff.org/rff/News/Features/Role-of-Forest-Sinks.cfm.

Policies for Idaho's Forest

Business Sector Development. A new report from the College of Natural Resources Policy Analysis Group at the University of Idaho describes current contributions of the forest business sector in the state, and identifies opportunities and challenges facing the sector. The report is accessible from the Group's homepage at www.cnrhome.uidaho.edu/pag.

George Bacon Named Idaho State

Forester. The Idaho State Board of Land Commissioners in September named Idaho Department of Lands veteran George Bacon as interim director of the department, making him the state's top forester. At least three of the five board members, including the governor, turned over after the November election. The board may choose to search for and appoint a new director, or keep Bacon in the job. ♦

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