

# Northwest Woodlands

A Publication of the Oregon Small Woodlands, Washington Farm Forestry, Idaho Forest Owners & Montana Forest Owners Associations

## PUBLIC BENEFITS FROM PRIVATE FORESTS

### Valued Ecosystem Services

### Grizzly DNA

### Benefits of Wildlife



### New Landowner Tools

### Northwest Firewood

### Carbon Markets

**NEXT ISSUE . . .**  
**Capturing Value from**  
**Your Forestland**

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Family forestland owners can help even common birds like the American goldfinch that are seeing significant declines in the U.S. Beavers have become a focus species in the West's battles with drought and wildfire. Photos courtesy: Cynthia Orlando and Shutterstock

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## PRESIDENT'S MESSAGE



ALLEN CHRISMAN



# Benefits from Montana Forests

**P**rivately owned forests provide incredible benefits for the citizens of Montana—including outstanding wildlife habitat, clean water, recreation and wood products. Some 28,000 Montana non-industrial private forest owners hold over 30 percent of Montana's total forestlands. And private forestlands—industrial and non-industrial—cover more than 3.9 million acres in Montana.

Forestlands are managed for a broad range of objectives based on the priorities set by their owners. However, all timber harvests in Montana are required to comply with the terms of both the Hazard Reduction Act (HRA) for slash disposal and the Streamside Management Zone (SMZ) laws. Forest Practices are expected to comply with the Montana Forestry Best Management Practices (BMPs). These BMPs are voluntary but compliance has been excellent. The 2018 BMP audit found 97 percent compliance with BMPs on harvest sites on federal, state and private forestlands. In addition, the effectiveness of the BMPs was assessed at 97 percent—meaning that when the BMP was implemented, it met the desired outcome. BMP audits are

conducted every other year except for 2020 due to COVID.

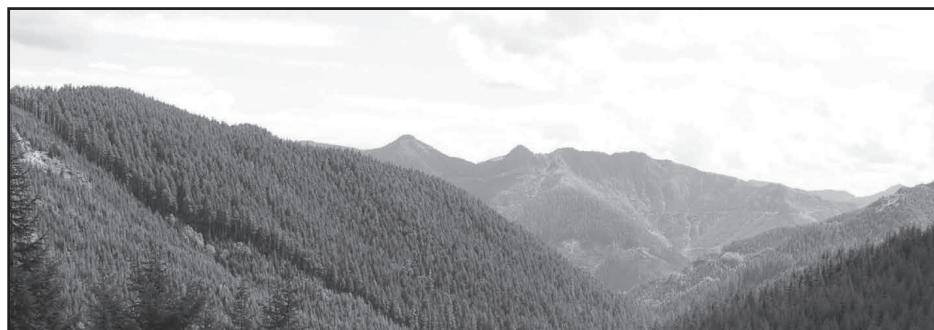
What does this mean? It means that across forestlands in Montana, timber harvest is done in a manner that is environmentally sound. BMPs are specifically crafted to reduce the potential for sediment to reach stream channels. Consequently, managed forestlands can be expected to produce clean water, which is critical to municipal watersheds, private water sources and primary-contact recreational water uses, such as swimming and water-skiing. The streamside management zones provide shade and cover to streams, and SMZs along the streams are undisturbed by equipment. This aids in providing not only clean water but also the cold water necessary to maintain Montana's outstanding trout fisheries—which depend on cold, clean water for high quality habitat.

Privately owned forests provide incredible wildlife habitat across Montana. While federal and state ownership boast great habitat for elk, deer, moose and all their predators, as well as small mammals and birds, if it weren't for private lands that habitat would not be nearly as effective. As it is, private forestlands provide key habitat for big game animals, as well as the large predators that chase them, and connectivity between larger ownerships. Montana is known for its wildlife and private forestlands are critical to helping maintain those wildlife populations.

Private forestlands also provide varying levels of recreational access. Some of our larger owners allow recreationists to use their property but many smaller holdings reserve their land for family and friends. Regardless of ownership, the Montana Stream Access law provides legal access below the high-water mark for fishermen and floaters on our major rivers.

Managed forests, regardless of ownership, provide needed fuel breaks that give opportunities for suppression operations during fire season. Most often these areas are found on managed private forests, significantly increasing their value in fire suppression.

Montana's forests—providing benefits for generations! ■



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## PRESIDENT'S MESSAGE



DICK ALESCIO



# A Multitude of Public Benefits

**P**rivate forests provide multifaceted benefits to the public. There are physical/non-contact benefits; contact benefits and esoteric benefits. Some examples are:

- Rain in the forests provides cool, clean drinking water to the watershed reservoirs, which then feed into our municipal water systems, and help fill our rural aquifers.
- Watersheds provide erosion and flood control, evidence of which can be currently observed in the slides in recently burned areas.

- Good spawning for fish reproduction: salmon, steelhead and all other fish species.

- Habitat for vertebrates and invertebrates, deer, elk, moose, bear, cat families, coyotes, raccoons, possums, otters and all the migratory and non-migratory birds.

- A major source of oxygen, through photosynthesis, for all life on land and whales, dolphins and porpoises to breathe. This process takes CO<sub>2</sub> out of the air combines it with water from the ground and turns it into the carbohy-

drates that make up the roots, growth rings, boughs, leaves and needles of our trees, while expelling oxygen into the atmosphere.

- The addition of the annual growth rings on the tree trunks allows the forest trees to grow and provide shade in summer, warmth and shelter in the winter. This phenomenon exists due to moisture being held in the needles of the individual tree crowns. The added growth rings allow the trees to put on girth for legacy trees and for timber.

- All lumber purchased and made into furniture and for construction originates in the forests. Since early man and the settlers and pioneers in our own country, first logs and then sawn lumber has been a highly valued and sought-after commodity. Logging and sawmill operations historically employ thousands in many states. Plywood and oriented-strand-boards are made from resin, peeler logs and wood chips in special hot presses. Pulp/rayon and paper production use wood chips from the sawmill operations.

- Electric power generation comes from wood waste (hogfuel) from the sawmills and provides steam generation from wood waste boilers to dry lumber in the dry kilns.

- All units in timber production must be replanted after harvest operations. So, all the lumber that was produced and is used for construction sequesters carbon. All the new replanted trees immediately start removing CO<sub>2</sub> from the air and sequestering more carbon.

- Walking, hiking, skiing, hunting, mountain-bike riding on established trails, birding, biology and geology and visual green space.

Research shows that a 10-minute walk in the woods appreciably lowers human stress levels.



In summary, forests provide for healthy survival of healthy communities. When forestlands are taken out of forest use, for any reason, particularly at this time in human development, it is not a good thing for mankind. ■



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## PRESIDENT'S MESSAGE



J. FRANK MORADO



# Public Benefits Can Be Obvious or Obscure

The Idaho Forest Products Commission reports that approximately 86 percent of Idaho's forests (land where at least 10 percent of it is covered by trees) are owned and managed by government entities. The remaining 14 percent (or 3.1 million acres) of Idaho's forests, are owned by industrial and non-industrial private owners, 1.4 and 1.7 million acres respectively.

Reasons for private ownership vary widely, but maintaining a healthy forest is a general underlying goal for both large and small private landowners. Healthy private forests serve as a sustainable source of lumber, providing jobs in tree harvesting, the processing and sales of finished wood products and other industry-supporting businesses. Depending upon landowner objectives, private forests may also provide a wide range of public recreational activities, such as hiking, hunting, fishing, berry picking and camping. Less perceived benefits include the sense of belonging and being a part of the natural world. When every day may bring one high pressure life challenge after another, getting away is priceless.

Nearly every day, we are reminded that humans are part of the natural world, and our activities affect Earth's ecological economic balance. Analyses of Antarctica ice cores show that concentrations of carbon dioxide and other greenhouse gases are on the rise, primarily because of industrialization. Fortunately, our forests and oceans are natural carbon sinks, but there are limits and consequences. Increased carbon absorption in our oceans is resulting

in ocean acidification, particularly in temperate oceans, with cascading negative effects. Through a process called photosynthesis, carbon dioxide is fixed in the structural components of plants, both above and below ground, and there it will remain indefinitely. However, the potential effects of elevated carbon sequestration and eventual decomposition on forest soils are not fully understood.

Water is a vital life element and forests play a key role in water quality. At least 50 percent of our freshwater resources originate from forests that cover about one-third of the United States. Forests act as large filters providing clean water by absorbing rainfall, reducing erosion and refilling groundwater aquifers. Forests also slow and filter stormwater runoff. In general, forests reduce floods while maintaining watershed stability, resilience and quality.

Forests, whether private or public, are vital to our quality of life and provide benefits that are both obvious and obscure. ■

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## PRESIDENT'S MESSAGE



KEN NYGREN



# Talking About the Value of Forests in Oregon

The timing of the theme for this issue of *Northwest Woodlands* covering “Public Benefits from Private Forests” is very relevant for all Oregon forestland owners today. The Oregon Small Woodlands Association is actively participating in discussions, facilitated by the governor’s office, on implementing a habitat conservation plan on private forestlands in the state to protect water quality and associated riparian forests. These talks reflect the

growing desire of the public to protect those non-consumptive values across a greater expanse of the landscape.

As active and practical managers, family forestland owners must balance the changing values of our society with our desire to actively manage our patch of the earth to promote a healthy forest and incorporate our family’s financial health, desire for recreational space and a legacy for future generations to enjoy. In many aspects, these discussions

resemble the conversations all families face when discussing intergenerational transfer of these properties. Not only must we communicate what we are doing and the values that guide our decision-making, we must also find ways to share the joy, knowledge and experiences that managing a healthy, functioning forest ecosystem add to public values. We must listen to what is important to non-landowners in shaping the environment they live in with us and remind them of the benefits they derive indirectly through good jobs, affordable housing, tax revenues, education opportunities and scenic values.

The value and focus of family landowners banding together in a landowner association is to share our ownership experiences with our neighbors, our political leaders and the public in general. We bring these messages of what managing a healthy ecosystem requires to a broader audience. We must share our challenges not only financially, but also in terms of a skilled, experienced workforce and a supporting infrastructure to promote active management. We must remind them of the connection active management provides in maintaining healthy forests and sustaining these important natural spaces on the landscape.

Conversely, we must hear what others, who may not have experience or the opportunity to own land, are telling us and be willing to incorporate new ideas, methods and opportunities that arise from this active discussion. We must challenge ourselves to not only understand how the public values our properties (as well our own family future generations), but also seek to meet those needs.

Each of us plays a role in engaging in this conversation, from inviting your neighbors over to visit to show them what you are doing and listening to how they view your property, to actively participating in the forestland owner associations. The only way to truly influence the opinions and views of the public is to educate them through conversation and inclusion. ■



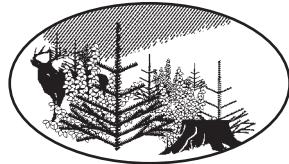
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# Down on the Tree Farm

## FEBRUARY

✓ Register for your association's annual meeting, conference or tour: IFOA's conference on March 29 in Moscow; MFOA: look for the Montana Forest Stewardship Foundation's Virtual Forest Landowner Conference April 22-23; WFFA will wait until 2023 for a large indoor event and OSWA will convene June 23-25 in Corvallis. They are one of the best benefits of membership—an opportunity to exchange success stories and challenges with your fellow forestland owners.

✓ Clean out and repair your bird boxes and perches; install new ones wherever you've seen recent activity. Raptors would appreciate a handy perch adjacent to your mouse, vole or ground squirrel activity!

✓ Assemble pertinent tax records and prepare your return. If you are lucky enough to have an accountant or tax preparer, take your paperwork to them early.

✓ Research integrated pest management options for invasive plants or insect/disease issues on your forestland. Pesticides are sometimes the best solution, but they're not the only solution. Consult with your tree farm contacts for treatments that have been successful. Whenever possible, practice prevention.

✓ Where there is potential for pine engraver beetles to enter your thinning slash, complete your precommercial thinning early in the year so the slash has time to dry before the first flight.

✓ Tour your proposed logging operation with your forester and logger. Rely on their experience and good reputation to conduct a successful operation. Develop a solid contract and time your operation carefully. Take the responsibility to assure that your logger has all appropriate fire equipment in good working order.

## MARCH

✓ Begin tree planting in higher elevation units this month. Avoid planting in frosty soils and protect your bare root seedlings from freezing. Finish well before the moisture is gone from the soil.

✓ Complete fuel reduction projects around your structures and in your forest. Don't forget the outbuildings, public and private access roads and that precommercial thinning project you just completed!

✓ Order seedlings for 2023 reforestation projects. Make sure your seedlings match your site.

✓ Install seedling protection measures before the tasty buds have opened.

✓ If you're pruning to improve aesthetics, log value or to remove ladder fuels, finish before sap begins to flow to minimize bark damage and insect activity.

✓ Survey nesting sites to record activity. Keep a sharp eye out for adults and sensitive young.

✓ Take some time to evaluate your riparian buffers and wetlands and how they enhance the local habitat and connectivity. How does your forestland contribute to the larger watershed and society?

## APRIL

✓ Survey winter storm damage and plan for salvage and/or repair.

✓ Finish cutting firewood before fuels dry out to minimize the potential for wildfire. Spreading the cut wood on the ground will allow it to dry before collection.

✓ Plan for fire season: meet with neighbors, ask your fire protection agency for a courtesy inspection, prepare equipment, move firewood away from your house and assure adequate access for engines. Make sure your family members know what to do in the event of a fire. You are an important part of the fire prevention solution.

✓ Develop a recreation plan and get the family involved in clearing trails, camping areas and fishing spots. Then take some time to just enjoy your property.

✓ Monitor your 2021 projects and update your photo points. Plan a tour for fellow forestland owners to share your accomplishments. You deserve a pat on the back from people who know!

## FOR MORE INFORMATION...

check out these favorite websites and publications:

- [www.natureswaybirds.com/blogs/news/spring-cleaning-is-for-the-birds](http://www.natureswaybirds.com/blogs/news/spring-cleaning-is-for-the-birds)
- [uidaho.edu/extension/ipm \(integrated pest management\)](http://uidaho.edu/extension/ipm)
- [fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5187526.pdf \(pine engraver\)](http://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5187526.pdf)
- [catalog.extension.oregonstate.edu/em9184 \(fuel reduction\)](http://catalog.extension.oregonstate.edu/em9184)
- [knowyourforest.org/learning-library/logging-and-selling-timber](http://knowyourforest.org/learning-library/logging-and-selling-timber)
- [timbertax.org](http://timbertax.org)
- [catalog.extension.oregonstate.edu/ec1196 \(Selecting and Buying Quality Tree Seedlings\)](http://catalog.extension.oregonstate.edu/ec1196)
- [mywaterway.epa.gov](http://mywaterway.epa.gov)
- [blogs.oregonstate.edu/treetopics/2021/02/16/storm-damage](http://blogs.oregonstate.edu/treetopics/2021/02/16/storm-damage)
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# The Benefits of Ecosystem Services Provided by Private Forestland Owners

By DR. ROBERT DEAL

For forestland owners, there are significant opportunities to increase forestland values through the provision of ecosystem services. These ecosystem services are critical for the functioning of life on Earth and provide natural assets that are intrinsic components of our economy.

The Millennium Ecosystem Assessment (MEA, 2005) provided a broad working definition of ecosystem services as “the benefits people obtain from ecosystems.” These benefits include provisioning, regulating, supporting and cultural services.

Provisioning services are a familiar part of the economy that provide goods, such as food, fresh water, timber and fiber, for direct human use.

Regulating services perform necessary environmental maintenance functions, such as disease control, water purification, climate stabilization and crop pollination.

Supporting services are life-sustaining processes, such as nutrient cycling, soil formation and primary production from our ecosystems.

Cultural services make the world a place where people want to live and include recreational, spiritual, aesthetic and cultural values.



PHOTO COURTESY: US FOREST SERVICE, ROSTERLA

*Wetlands are federally protected areas with significant financial and ecological value for landowners. They provide critical water and wetland services and habitat for many wildlife and aquatic species. Wetlands are potentially worth hundreds of thousands of dollars per acre to landowners, but also need to be maintained in perpetuity.*

Ecosystem services depend on sustainable forest management, and forest products play an important role in global carbon management. However, one of the major forestry concerns worldwide is reducing the loss of forestland to development. Currently, deforestation accounts for approximately 20 percent of total greenhouse gas emissions. New efforts to encourage landowners and managers to conserve forests through their management as “natural capital” are being developed at the local, national and international scales. The connection of sustainable forest management and forest products with ecosystem services is one of the principal motivations for encouraging forestland owners to provide these services.

Forests play a major role in the global carbon cycle through the ability of trees to withdraw or sequester carbon, and forests serve as a terrestrial carbon sink during most stages of forest development. Forests also have high con-

servation value for several threatened and endangered species, for mitigating pollution, for flood control and for other ecosystem services.

Direct government payments for ecosystem services, and mitigation markets based on regulations are two common examples of financial incentives for the provision of ecosystem services. Market-based mechanisms for ecosystem services may have an important role to play in ecosystem protection. These markets can generate financial resources by providing new revenue streams for landowners and create incentives for investment by the involvement of the private business sector in environmental management.

The concept of providing incentives through market mechanisms has helped stimulate interest in market-based programs for ecosystem services. Although other public policies, such as regulations and zoning, tax credits, conservation easements and other



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incentive payments, have important policy roles for ecosystem protection, the recent emergence of market-based incentives for carbon, water, wetlands and biodiversity has enlisted a broad suite of new stakeholders. Ecosystem services, when considered as “natural capital,” lead landowners and managers to regard landscapes as natural assets that require accounting for different ecosystem services and ensuring the people who rely on these services know their value and the cost of losing them.

These new markets offer potential financial incentives to landowners to maintain and manage forestlands rather than converting these forests to other uses. To provide an understanding of policy and regulatory frameworks, brief overviews of U.S. wetlands, water quality trading, species mitigation banking and carbon credits are briefly outlined here.

The most mature market for ecosystem services in the U.S. is wetland mitigation banking. Wetland ecosystems provide a broad range of ecological services. Studies have shown the importance of services provided by wetlands, including improving water quality and quantity, increasing the quality of recreation and wildlife habitat, controlling floods and intercepting pollution.

Ecosystem services for water include water supply, water damage mitigation and water-related cultural services.

Water quality trading is regulated by the Environmental Protection Agency and several state agencies. Markets for water quality credits are established from a regulatory structure that producers or developers must follow to acquire permits for their operations. Market-based schemes for improving water quality are generally limited to local or regional programs within a specific watershed. Water quality trading provides a market-based process for polluters to pay for the reduction of pollutant levels to achieve targets for a watershed. When conservation and protection efforts are employed by landowners, additional benefits to the watershed include flood and erosion control, habitat retention and wetland restoration.



*Older forests provide large amounts of stored carbon as well as important habitat for late-seral wildlife species.*



*Younger forests can rapidly sequester large amounts of carbon and well-managed forests can provide more carbon credits than normal (baseline) levels of forest carbon.*

Species conservation banking, the creation and trading of credits that represent wildlife conservation values on private lands, is more than twenty years old and is regulated by a variety of federal and state agencies. A conservation bank is a parcel of protected natural land that is authorized to sell a set number of credits, usually in the form of land area of habitat, to the customer who is required to mitigate their impact to the same species and habitat on nearby land. Private landowners

reported that financial motives were behind most of their interest in conservation banking, but bureaucracy was the biggest challenge, with the time for establishing banks varying from 8 months to over 6 years.

Since about 20 percent of human-induced carbon dioxide emissions are due to land use change and deforestation (FAO, 2005), sustainable forest management, to preserve existing

—Continued on next page—

PHOTO COURTESY: US FOREST SERVICE

PHOTO COURTESY: ROBERT DEAL

carbon in older forests and increase carbon sequestration in younger forests, can play an important role in climate change mitigation.

Forestry offsets also provide a range of environmental benefits, such as wildlife habitat and water quality improvement. Due to the absence of a comprehensive greenhouse gas (GHG) regulatory emissions reduction standards, such as national cap-and-trade legislation, voluntary carbon markets have dominated in the U.S. and state and region-based programs are being developed to reduce GHG emissions. To address GHG policy, the forestry community has a significant opportunity to shape what kinds of forest projects are included.

In summary, there are important policy issues to incorporate in forestry offsets, including clear definitions for carbon baselines and additionality, permanence and leakage, possible inclusion of wood products for the long-term storage of carbon, and projects that promote additional carbon sequestration and discourage conversion of forests to other land uses.

Each of the previously discussed markets for wetland mitigation, water quality trading, species conservation banking and carbon credits has the potential for providing additional revenue for landowners while also providing public goods to society (Deal et al., 2012). However, current markets for these services are operated as separate programs, each with their own set of specific regulations. Market-based approaches, such as mitigation markets, or direct government payments, along with incentive-based options and regulatory approaches all have important roles for conserving natural resources and providing for a variety of social benefits associated with forestland, including scenery, wildlife habitat and water resource protection.

Worldwide, the ecosystem services concept has emerged as a way of framing and describing the comprehensive set of benefits that people receive from nature, including commonly recognized goods like timber and fresh water, as well as processes like climate regulation, water purification and cultural and aesthetic benefits. Ecosystem services, in conjunction with forest restoration and stewardship, has the potential to provide a new way of framing and describing these and can be used as natural capital for landowners.

Timber continues to be an important foundational provisioning ecosystem service from actively managed forestlands. Understanding the relationship between timber harvest and other ecosystem services is essential to inform decision-making about where, when and to what extent logging is sustainable. Gains and losses to other services, like recreation and aesthetic values, warrant consideration, as do the short- and long-term timing of multiple-service provisioning and the geographic context at small and large scales. Active forest restoration can contribute to the provision of multiple ecosystem services and potentially provide new revenue streams for forestland owners.

Ecosystem services, when considered as natural capital, can lead landowners, land managers and the

public to regard landscapes as natural assets by ensuring that people who rely on these services know their value and the cost of losing them. An ecosystem service framework can clarify relationships between the quantity or quality of services provided by forests and the condition of forest ecosystems (Daily, 1997). This approach can bring attention to the functions performed by healthy ecosystems, distinguish between those that are low- and high-functioning, lead to investigations about causes of ecosystem degradation or impeded function and identify where restoration or other actions are needed. Hence, managing for forest ecosystem services should ultimately help us to attain forest ecosystem resilience.

Managing to sustain functions and processes also encourages a broadscale perspective and serves dual objectives of enhancing land stewardship while providing public benefits. This perspective can help highlight functions and processes in a decision-making framework, clarify priorities and management needs and support the design and implementation of projects with clearly articulated goals and results. By providing a clear structure for describing these relationships, an ecosystem services framework can promote collaborations among interest groups that share stewardship goals. Set in an adaptive-management context, land managers for both public and private land can better evaluate the trade-offs inherent in management activities when presenting their objectives in terms of ecosystem services outcomes. ■

**BOB DEAL** retired after spending more than 40 years as a research forester and science team leader for the USDA Forest Service, Pacific Northwest Research Station in Portland, Oregon. He is an international authority for ecosystem services and sustainable forest management. Dr. Deal is actively involved with the Society of American Foresters (SAF) and serves as program chair for the Portland SAF chapter. Bob can be reached at [robertdeal1701@outlook.com](mailto:robertdeal1701@outlook.com).

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# Do People Drink Water from Your Forest?

By SALLY CLAGGETT

Forests and water are inextricably connected: two-thirds of the U.S. water supply is filtered by forests.

This is a good thing because forests are, by and large, protective of water quality. When it comes to drinking water, it is paramount that these water supplies are safe and reliable. Clean drinking water is perhaps the most coveted ecosystem service coming from forests.

Some watersheds are more important than others in producing clean water. The U.S. Forest Service recently released Forests to Faucets 2.0 assessment (F2F2) to show where watersheds are most important to surface drinking water. The primary purpose of F2F2 is to quantify, rank and otherwise illustrate the geographic connection between a watershed's forests (both private and public), surface drinking water supplies and populations that depend on them. "Important" watersheds are those that provide the most surface drinking water. In other words, the most important watersheds are those that produce sufficient water yield and are directly upstream of population centers.

Secondarily, F2F2 examines what is threatening forests in these watersheds. With all the public land in the Northwest, it may surprise some that most of the nation's forests (56 percent) are privately-owned (Butler et al., 2016). Many of the watersheds most important for drinking water contain a mix of public and private forestland. Both types of forest are threatened to various degrees by fire, insects and disease. Private forests are also threatened by development. The water yield (supply minus demand) in these watersheds is threatened by climate change. The relative impact of all these threats is visible in F2F2 reports and maps that are made to be easily searchable by using the interactive mapping tool that



was developed for the assessment.

Sometimes these threats overlap. Across the West, insect epidemics, drought and a loss of markets have put forests at higher risk for wildfires. Exacerbating these issues, fuel has been building up in most parts of the country—an unintended result of decades of fire suppression—making fires larger and more severe, which can pummel water quality. At least one-third of forests in key drinking water water-

sheds are at high risk of wildfire and are privately-owned (American Forest Foundation, 2015). These findings can also be seen in F2F2.

The "new" threat in this analysis is water stress—reduced water supply (due to warmer temperatures and precipitation changes) and greater demand (due to population growth, crop irrigation water use, socioeconomic change, associated energy demands and others).

—Continued on page 23—

Example of watershed-specific details for a Northwest watershed that are available in the Forests to Faucets 2.0 interactive map. The amount of detail varies by watershed. Go to: [tinyurl.com/2nxmuzra](http://tinyurl.com/2nxmuzra)

## Headwaters East Fork Armells Creek

### How Important is my Watershed?

The relative importance of watershed 101000011001 to surface water consumers is 37 out of 100.

This watershed includes 1 surface water intakes serving 25 people and 0 ground water intakes serving 0 people. There are approximately 4,326,337 surface water consumers downstream of this watershed.

### Watershed Characteristics

82.29% Natural Cover Land (Forest, Grassland, and Shrubland)

0.52% Agricultural Land

1.27% Impervious Cover

85.08% Riparian Natural Cover

38.8 mm/yr. Average Annual Runoff

Ability to Produce Clean Water (APCW) index is 18 of 100\*

### Forest Ownership

4.28% of the Watershed is Private Forest

0.91% of the Watershed is Protected Forest (Includes Federal, NFS, State, Local, NGO, Permanent Easement)

0.00% of the Watershed is National Forest

### Watershed Threats

#### Insect Disease

0.00% of watershed 101000011001 is at risk for mortality (25% of standing live basal area greater than one inch in diameter will die) over a 15- year time frame (2013 to 2027) due to insects and diseases.

The relative Insects and Diseases threat to Important watersheds is 0 of 100\*.

#### Wildfire

0.25% of watershed 101000011001 has a high or very high wildfire hazard potential.

The relative wildfire threat to Important watersheds is 13 of 100\*

#### Land Use Change 2010-2090 High Emissions

0.12% of watershed 101000011001 may experience land use change between 2010-2090 under the high emissions climate change scenario.

The relative land use change threat to Important watersheds is 5 of 100\*.

#### Water Yield Decrease 2010-2090 High Emissions

Watershed 101000011001 is predicted to have a -35.28% change in mean annual water yield between 2010-2090 under the high emissions climate change scenario.

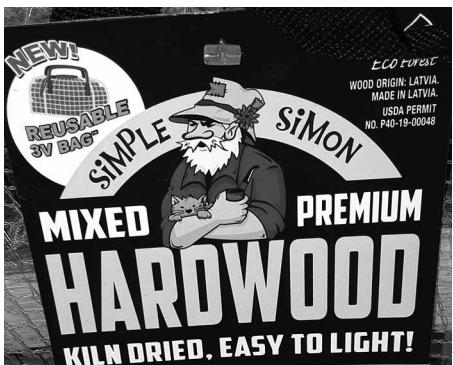
The relative water yield decrease threat to Important watersheds under this scenario is 46 of 100\*.

\* All indices have been normalized to allow comparison between subwatersheds. Values range from 0-100. For example, a value of 90-100 are in the top 10% of all watersheds.

# The Northwest Firewood Market Is Hot

By DORIAN SMITH

**W**ith the urgency of climate change, dirty fossil fuels are being replaced with high tech alternatives, with increased capacity for wind power and decreasing costs for solar panels. But firewood is still popular for its warm crackle and smoky seasoning.



This imported firewood at Home Depot comes from Latvia.

Shoppers at neighborhood and big box hardware stores are greeted with large displays of plastic wrapped firewood from nearby states, Canada and

far off countries. Some Home Depot outlets reportedly sold birch firewood from Latvia. The strong firewood prices indicate the market is sustainable. Export firewood fetches at least \$5 for less than a cubic foot, which calculates to more than \$600 a cord. But firewood continues to be the most affordable heating source for many households.

About 10 members of the Oregon Small Woodlands Association (OSWA) collaborate in harvesting, seasoning and selling their own brand of bundled firewood. In the 12 months ending May 2021, they sold \$240,000 worth of firewood to 25 metropolitan convenience stores and Ace Hardware outlets, a 20 percent increase over the previous year, reported Neil Schroeder, Oregon Woodland Cooperative's president. They are now bidding on the contracts to sell firewood to campers in state parks. Other family forest owners add more than \$10,000 annually to household income by serving neighbors who gladly pay for a few delivered cords or an occasional pickup load.

At this time, much of the firewood market is served by small businesses that buy the wood and distribute it to private and commercial customers.

Most rely on large private landowners or federal forests for supply. But some said they would consider offers from family forests.

Dave Goetz has operated Quality Firewood for 41 years in Puyallup, serving a market between Seattle and Tacoma. He grosses about \$125,000 a year, selling hundreds of \$300 cords. He said his urban customers don't rely on it for home heating and mostly burn it for living room ambience. His business has slowed during the pandemic. But he keeps busy purchasing wood, seasoning it for at least 6 months (to reduce moisture content to 15 percent) and delivering it to private homes and restaurants.

Firebrand bundled firewood is sold in grocery, hardware and convenience stores in Washington, Oregon and Idaho. Originally, the facility in Lyons, 50 miles south of Portland, made chips for paper manufacturing. The plant switched to firewood 7 years ago and now specializes in consistently high-quality wood for living room fireplaces and beach campfires. To assure quality, they kiln-dry all the wood for a week, instead of waiting for nature's year-long seasoning.

A single forestland owner provides Firebrand's wood, which is mostly Douglas-fir with smaller volumes of white fir, hemlock, alder and oak. The company also produces and ships about a million tons of wood pellets a year to Europe through the Panama Canal.

Many neighborhood Ace Hardware stores feature fireplace firewood, including the Gig Harbor outlet near Tacoma. The store manager said he sells firewood year-round but faces a dire need at Thanksgiving and during the holiday season. That's also when he sells "a ton of chainsaws." Most of his store's firewood sales are for boxes of compressed sawdust logs.

Bill Weiss, owner of BLW Firewood, testified that firewood sales are very strong in Seattle and heavily urban suburbs nearby. "Since the pandemic

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PHOTO COURTESY SATTLER SERVICES LLC

### Sattler Services maintains a firewood service station in Montana.

started, my business has doubled,” he reported. Customers believe quality firewood supports the traditional Northwest lifestyle that is comforted by flames slowly consuming logs on cold winter nights.

BLW’s website offers custom selections based on species and characteristics. Prices range from \$600 to \$1,000 per cord. However, the highest-priced madrone wood was sold out before Halloween in 2021.

Marianna Groth, secretary of the Idaho Forest Owners Association (IFOA), says only half the heat for her home comes from natural gas. The other main heat source is from 4 cords of dead standing trees that are harvested each year from her family’s 60-acre forest near Pinehurst in Idaho’s panhandle. The wood is consumed in an EPA-approved stove that “burns it down to a powder.” Her husband’s auto repair shop in an outbuilding is also heated with a wood stove and supplemented by a clean and efficient waste oil stove. Marianna said firewood heat offers several benefits besides warmth. Removing dead trees may be an arduous task, but it reduces the “blood red sunrises” of wildfires.

Kirk David, another IFOA member, said he heats his home almost entirely with firewood (with an expensive electric backup). He burns about 5 cords a year in a “parlor” stove. With the local price at \$200 a cord, he saves about \$1,000 a year cutting wood from his 160 acres. His average monthly electric bill is down to \$35 a month.

In its brief two years, Sattler Ser-

vices LLC has pulled out all the stops to contact and serve firewood customers in the Townsend area, 34 miles from Helena, Montana. Owner Andy Sattler said home heating with firewood is not an option but a way-of-life during Montana’s legendary cold winters. Rural households burn 12-15 cords annually. He estimates up to 70 percent of most homes rely on wood heat, especially when electrical connections break down.

Most of Sattler’s firewood is purchased as “no grade” from U.S. Forest Service timber sales. They also buy wood from the Bureau of Land Management. Sattler said he will consider purchasing from small forest owners.

Sattler Services kiln dries or seasons about 1,000 cords per year. The customers can order split or rounds of mostly lodgepole pine for \$180/cord or Douglas-fir for \$190/cord. Delivery is free in the Townsend area or \$20 to Helena and beyond. They will travel up to 200 miles for a prorated mileage charge and a 4-cord minimum. Sattler’s is a family business. His wife averages three to four deliveries a day and sometimes up to eight or nine.

They also sell bundles at several retail outlets and \$5 firewood bags with the company’s logo. They keep in touch with customers through the Internet and social media. A photo is taken of every firewood delivery and posted on Sattler’s Facebook account. The photos help in planning future deliveries. The business even stocks a self-service firewood stand for emergency loads in Helena. One-third-cord loads are avail-

able around-the-clock at the unmanned station for customers who run out. ■

**DORIAN SMITH** is a forest industry researcher. He has gathered information for the University of Montana Bureau of Business and Economic Research and Oregon State University’s College of Forestry. From 2003 to 2017 he compiled and edited the annual timber harvest report and nine 100-page Washington mill surveys for the state’s Department of Natural Resources. With a B.S. in journalism from the University of Washington, he worked as an editor and reporter more than 10 years in weekly and daily newspapers. Dorian can be reached at 253-441-8624 or [doriansmith@hotmail.com](mailto:doriansmith@hotmail.com).

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# Forest Carbon Projects: A New Conservation Tool for Small Woodland Owners

By SANDY LETZING

**M**ost of us are reading this magazine because we love the forests that we own. These forests provide a myriad of ecosystem services valuable to our health and livelihood, such as: heating, timber, clean air, water filtration, flood control, fish and wildlife habitat, recreation, education and cultural enrichment in our lives. In addition to these services, forest carbon sequestration and storage projects are an ecosystem service that is now accessible to small woodland owners in the U.S. Forest carbon projects provide an economic incentive to grow trees longer or reduce harvest rotations, which results in positive influences towards the other ecosystem services that a forest can provide. Additionally, in the face of climate change, storing carbon is one of the most immediate and beneficial things we can do. Forest carbon proj-



ects generate revenue for landowners and enhance climate resilience and the biodiversity of our forests.

Forest ecosystems are the earth's greatest source of terrestrial carbon storage. Here in the U.S., one-third of our landmass is forested, and over 39 percent of that is privately owned. Forests sequester carbon by capturing CO<sub>2</sub> from the air via photosynthesis, and then store carbon in the trees as biomass. About half of the carbon is stored in the trunk, limbs and leaves, while another half is stored in the roots and soil around the tree. Besides capturing carbon, forests are good at storing it for long periods of time. In the U.S., America's forests sequester 866 million tons of carbon a year, which is roughly 16 percent of the country's annual emissions. The Pacific Northwest is a carbon storing powerhouse, thanks to our high growth rates and large trees. Oregon captures and stores as much as 90 percent of the carbon that it emits annually in its forests (Cloughesy et al., 2020). Most importantly, studies suggest (Erb et al., 2017) this could be

nearly doubled with the right actions, which include:

- Keep more forests as forests and avoid conversion to non-forest uses
- Reforest (or plant more trees) in deforested or understocked areas
- Improve management of existing forests

All of these actions are permissible under forest carbon projects. Carbon projects can then allow landowners to capitalize on the carbon they can grow, acting as another income stream. Further, forest carbon projects enhance the benefits of other forest ecosystem services, like wildlife habitat, soil stabilization and water filtration and can include sustainable timber harvest. As a small woodland owner this can be another tool to use in considering forest management, alternative income pathways and economic incentives for addressing climate change.

While there are various carbon markets throughout the world, this article will focus on the regulatory and non-regulatory (voluntary markets) that are available to U.S. landowners. In 2013, California launched its regulatory market, also known as cap-and-trade program, to curb greenhouse gas emissions and slow climate change, which also created the first regulatory carbon market in the country. The cap on greenhouse gas emissions (primarily CO<sub>2</sub>) places a firm limit on allowed pollution each year by major emitters. This limit is reduced each year, which drives an overall improvement in practices to reduce emissions. The "trade" portion of the cap-and-trade program is a market for companies to buy "offsets" that let them emit a small percentage more (up to 4 percent of their emissions). An offset is equal to one metric ton of carbon-dioxide equivalent. Trading gives companies a strong incentive to save money by cutting emissions in the most cost-effective ways. This usually means

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improving efficiencies and implementing renewable resources, but it can also mean purchasing offsets to help meet their annual cap on emissions.

As its name suggests, the regulatory market is mandatory and is imposed by governments on companies that are legally mandated to reduce their emissions (in the U.S., this market only exists in California). Non-mandated companies may also participate in the regulatory market, although they are not required to. The non-regulatory (voluntary) carbon market, on the other hand, operates outside the regulatory markets, allowing companies and individuals to purchase carbon offsets on a voluntary basis. Projects within the regulatory market are developed and carbon calculated according to one of the existing approved standards and verified by a third party. These projects are designed for permanence (lasting 125+ years) and have a higher price per carbon credit since these projects are driven by a stable government-mandated demand and are more rigorously certified (higher-quality) than the non-regulatory market.

Carbon offsets can be generated by many different project types that reduce, sequester or avoid emissions. Many of these projects fall under the “improved forest management” category. This is for landowners committed to enriching their forests’ biomass rather than business-as-usual harvesting practices. These offsets can be sold on the carbon market, and the holder of these carbon credits (the forestland owner) receives those funds. However, the steps to verify a project are rigorous. The time and cost for meeting the standards, regulations and reporting requirements for these projects have traditionally made smaller forestland owners unable to participate in the carbon market.

There are a few things however, that have made market access for small landowners with forest carbon projects possible. One, the price of carbon continues to increase, improving the viability for small landowners. Two, there are now companies, like Forest Carbon

Works (FCW), that have streamlined access to the compliance market. Traditionally, developing carbon projects for a landowner with less than 5,000 acres was cost prohibitive due to project development costs. FCW has overcome this with new technology, boots in the woods and program efficiencies. Payments can range from \$10 per acre per year to well over \$100, depending on forest type and location. Current projects range from 52 to 3,000+ acres in size, from coast-to-coast. Typical project development is 12-18 months, and credits can be earned from carbon in the compliance market for 25 years or more.

This is a great time and opportunity for forestland owners to invest in this new conservation opportunity, considering the revenue from simply letting the forest grow, while providing the co-benefit of protecting the legacy of the land and its ecological value for generations to come. It also remains compatible with and can help fund

good forest management practices like thinning, fuel reduction treatments and selection harvesting. If you are interested in entering the market, think about your long-term objectives for your forest, climate and land. Then talk to your forester or reach out to FCW to help you achieve your financial, forest and family goals.

For more information: inquire@forestcarbonworks.com. ■

**SANDY LETZING** has a master’s degree in resource management from Oregon State University and has extensive experience working for and with tribal, state and federal agencies to enact natural resource landscape-scale projects. Her focus has been on forest health and wildfire resilience, as well as water quality initiatives in Washington, Oregon and Idaho. She is the PNW forester for Forest Carbon Works and is based in Carlton, OR. Sandy can be reached at [sandy@forestcarbonworks.com](mailto:sandy@forestcarbonworks.com).

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# Grizzly Bears, Rub Trees and DNA Analysis

By ALLEN CHRISMAN

My folks bought their mountain retreat in the North Fork of the Flathead River drainage north of Kalispell, Montana, near the Canadian border and across the river from Glacier National Park in the late 1950s. At that time, they had no idea that 60 years later their property would provide habitat for a recovered grizzly bear population, nor that hair samples collected from grizzly bears on our property would add to the knowledge base on family groups, lineage, bear movements and more.

The property, now the Chrisman/Wiley Family Forest—part of the American Tree Farm System—provides excellent habitat for the entire list of predators and prey that exist in the North Fork. My folks have since passed on, but their legacy survives in their kids and grandkids.

Sixty years ago, grizzly bears were unusual if not rare in the North Fork. Tracks would be seen in the snow



during the fall hunting season, but the homesteaders had taken care of problem bears—both black and grizzly. And, of course, there was still a hunting season on grizzlies at that time. We occasionally saw black bears, but never grizzlies.

With the passage of the Endangered Species Act in 1973, the grizzly bear became listed as threatened, and protected under the act. This didn't affect us much since it took a long time for the population to rebound to the point that they were noticeable in the North Fork. It was 1990 before I saw my first grizzly bear and that was some 2 miles down the valley from our place.

The population was increasing and by the early 2000s the Northern Divide Bear Project, a significant research project sponsored by the United States Geological Survey (USGS) to collect population data on grizzly bears using DNA analysis, was launched. Led by researcher Kate Kendall, the project started out using scent stations and then added bear rub trees to collect hair samples. At the completion of the project in 2004, using modelling based on the data collected from the DNA analysis, the grizzly population

in the Northern Continental Divide Ecosystem (NCDE, including Glacier National Park, the North Fork and Bob Marshall Wilderness) was estimated at about 765 bears, a significant increase from previous estimates.



PHOTO COURTESY: ALLEN CHRISMAN

*Photo 1. Typical bear rub trees on the Chrisman/Wiley Family Forest are lodgepole pine and have distinct bite marks at about 6 feet.*

Bear rub trees are a fascinating feature in our forest. During a lecture by Kendall on the DNA research on grizzly bears, Kate described rub trees that were used in their study to collect hair samples. Rub trees are selected and used by bears—both black and grizzly—for several reasons. Obviously, they make great back scratchers—as anyone who has searched “pole-dancing bears” on the Internet has seen. But the bears also use the rub trees to leave scent, and I imagine post messages, like Facebook for bears. And they mark up the tree through bites or claw marks to show size or dominance.

Bear rub trees stand out in the forest when you have figured out what to look for. Our rub trees are normally lodgepole pine and have a distinctive bite mark at about 6 feet. The bear bites the bark and jerks up from the bottom, ripping off a patch of bark that looks like a blaze. In addition, they may claw the tree or nearby trees. With continued use, the bark from about 2 feet up to 5 feet becomes smoother and lighter in color than normal, often with strands of hair caught in the bark crevices. And



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the ground at the base of the tree shows the effect of continued use with a small depression and stomped down vegetation encircling it.

I identified our first bear rub trees in 2013, and in 2014 I set up game cameras on them. Since then, we have had dozens of outstanding grizzly bear and black bear photos, as well as incidental photos of deer, moose, elk, mountain lion, coyotes, wolves and even Canada lynx.



PHOTO COURTESY: ALLEN CHRISMAN

**Photo 2.** Rub trees wrapped with barbed wire provide better hair samples and a more satisfying scratch.

In 2019, Montana Fish, Wildlife and Parks asked us to collect grizzly bear hair from our rub trees to add to their data on grizzly bears. Unfortunately, the bears didn't leave good clumps of hair that year, maybe because the bark was so smooth. With a little research, I found out that the scientists collecting bear hair had wrapped rub trees with barbed wire to gather samples. They determined that the barbs did not injure the bears but did a great job of increasing the hair samples. For 2020, I wrapped our rub trees with barbed wire and successfully collected six hair samples in the fall. The hair samples were dropped off at the Montana Fish, Wildlife and Parks Office to be sent to the Wildlife Genetics Lab in Nelson, British Columbia for DNA analysis.

One advantage of having the game cameras, of course, is when I can match



**Photo 3.** Data is enhanced using game cameras to match the hair samples to a specific bear.

up the hair samples with photos. One camera got excellent photos of a bear scratching her back on the rub tree with barbed wire. The DNA testing determined this was bear 173370—a female who had been detected in 2012 through the USGS DNA project.

The original USGS DNA collection project was described this way: "This project applies non-invasive genetic techniques in conjunction with statistical models to estimate the number of grizzly bears and black bears inhabiting the NCDE. DNA profiles with informa-

tion on the degree of genetic variation, relatedness of individuals and sex will be used to address bear conservation issues." The subsequent project was designed "to examine population trends, including changes in abundance, survival rate, regional density and genetic structure. Collecting hair from bear rubs promises to be a safe, reliable and cost-effective way to sample bear populations and monitor their status over time."

Grizzly bear hair collection and the

—Continued on next page—



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subsequent DNA analysis is a non-invasive method of collecting critical information about grizzly bear populations, distribution and trends. The samples themselves identify individual bears and their gender. This DNA information is used to chart family groups and show the level of genetic diversity within the population. Currently, both the NCDE and the Greater Yellowstone Ecosystem have been considered for delisting the grizzly bear. One of the issues that needs to be resolved before that can happen is demonstrating that the two distinct populations are connected by individuals travelling between them and adding genetic diversity. That connectivity hasn't been shown yet but, when it is, the DNA analysis will provide excellent proof that the populations are connected.

The population estimates have been refined as well. Current modelling projects the NCDE grizzly bear population to continue to increase as shown in the report: Costello, C.M., and L.L. Roberts. 2021. *Northern Continental Divide Ecosystem Grizzly Bear Monitoring Team Annual Report*, 2020. Montana Fish, Wildlife & Parks

The results from the DNA analysis of our 2020 collection of six grizzly bear hair samples were very interesting and exciting.

- Three of our first samples were from a previously undetected male. He visited three times in the fall of 2020. We are excited to be able to add to the known population of grizzly bears through this sample and photos.

- Two samples were from a male identified as "Bratwurtz" because he had been captured for research purposes.



**Photo 4.** A citizen science project like collecting hair samples can be rewarding for the landowner and adds valuable data to research projects.

es in 2013 near the Wurtz airstrip south of us in the North Fork. It is neat that 8 years later, he is one of our regular visitors.

- We had one sample from the female shown in Photo 3. She was first detected, not captured, in 2012 in the USGS DNA project. In addition, her offspring was detected near McGregor Lake west of Kalispell and the sire was Bratwurtz! It is incredible to have both those breeding grizzlies visiting our family forest.

Managing our family forest for wildlife habitat is very important to us. The presence of grizzly bears on our property is incredible, especially given their conspicuous absence in the 1960s and 1970s. We now see grizzly bears annually on our property, usually spring and fall, and do our best to live in concert with them. Eliminating attractants and using secure storage; creating good sight distances by thinning and pruning along roads and trails; and always carrying bear spray are the keys we have used to avoid surprise encounters with grizzlies. When we do encounter them, hazing them away safely is critical to insure they associate humans with an unpleasant experience.

Recruiting private forest owners to

assist with collecting grizzly bear hair samples not only is cost-effective, but it engages private individuals in a citizen science endeavor. Be sure to look for bear rub trees in your forests. And use game/trail cameras to find out who is using your forest when you aren't looking. You might be surprised!

Thanks to Tim Manley, grizzly bear management specialist with Montana Fish, Wildlife and Parks, for his assistance with this article and his work with private landowners to minimize conflicts with bears. ■

**ALLEN CHRISMAN** is currently president of the Montana Forest Owners Association and past chair of the Montana Tree Farm System. Allen retired as the Flathead National Forest's fire program manager in 2008 after a 33-year career in timber, resources and fire. Since retirement he has been active in many forestry programs and manages the Chrisman/Wiley Family Forest, certified under the American Tree Farm System, in the North Fork of the Flathead. He tells people that they "raise grizzly bears and harvest the occasional lodgepole pine tree." You can reach Allen at [achrisman52@gmail.com](mailto:achrisman52@gmail.com).

PHOTO COURTESY ALLEN CHRISMAN

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# A One-Stop Grant Shop for Landowners

By RACHEL SANTA OLALLA,  
JOHN MANKOWSKI AND  
KAITLYN LANDFIELD

**S**mall forest and agricultural lands comprise a large portion of the Cascades-to-Coast region in Washington, making them a significant part of the area's culture, economy and livelihood. These lands provide a variety of benefits to people, including wood products, food, clean air and extreme weather mitigation and they support our mental and physical well-being. However, the risk of small forests and farms being converted to non-forest or agricultural uses poses a threat to these valued ecosystem services.

One of the challenges of preserving these lands is these landowners are aging and there is uncertainty about how to pass their lands to the next generation. Land use pressures are influencing the decision-making of small farm and forestland management. There is a widespread common interest in the best management and viability of private farmlands. Various state and federal regulations can impact what landowners can and cannot do with their lands.

Most landowners are committed to good stewardship for wildlife and ecosystem health that their lands provide. Effective and efficient incentive programs are important tools to support and encourage environmental stewardship for landowners. Incentive programs play an important role in achieving many of the region's shared



Rachel Santa  
Olalla



John  
Mankowski



Kaitlyn  
Landfield



*The lands of the Pacific Northwest's small forestland owners, like these in Thurston County, Washington, provide invaluable ecosystem services to each and every resident and creature.*

landscape values. It is in everybody's interest to maximize access to incentive programs.

In the quest for connected and resilient landscapes, the many working lands and conservation partners involved in the Cascades to Coast Landscape Collaborative (CCLC) looked at how regional challenges impacted landscape values. How do climate change, invasive species, development and siloed decision-making

impact productive farms and forests, health of fish and wildlife populations, habitat connectivity, collaborative decision-making, and the vibrancy of rural communities? The economic viability of forests and farms, and the ability to manage land and associated resources needed to be carefully considered.

Among many potential solutions, the landowner community suggested that

—Continued on page 31—

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# Ecosystem Benefits Provided by Wildlife—A Few Examples



PHOTO COURTESY: KEN BEVIS

*This forest in western Washington provides many benefits that are examples of “ecosystem services,” from pleasing aesthetics to wildlife habitat, for the landowner and the public.*

By KEN BEVIS

**F**orests provide benefits and services to people in many, many ways. Wildlife is a part of this wonderful gift from nature.

Keep forests as forests; this is one of the key objectives for the various stewardship forestry programs, including state Extension forestry programs and Washington's Department of Natural Resources (DNR) program. A large-scale justification for this work involves providing and continuing values that flow from these lands for everyone, including landowners. These benefits are collectively known as ecosystem services (or benefits). This is one way to describe and demonstrate the extensive tangible, as well as intrinsic, values of forests.

In Washington alone, there are approximately 3.2 million acres of non-industrial, small private forestlands owned by about 218,000 families



and individuals. These ownerships are puzzle pieces in the greater landscape ownership patterns (mixed with various public and private lands), and provide significant shared public benefits to everyone.

Academic analyses have divided ecosystem services into some basic categories. These categories and some simple examples are:

- Goods (Provisioning)—wood, meat, mulch
- Functions (regulating and support)—water filtration, soil building, pollination, carbon storage
- Social/Cultural—enjoyment of nature, aesthetics, outdoor recreation, “Shinrin yoku” (forest bathing)

Wildlife on forestlands provides and contributes to these direct and tangible benefits to landowners in all of these categories.

Many of the social/cul-

tural benefits are aesthetic and simply make us feel good. Wildlife is beautiful. We enjoy seeing a powerful hawk or a mysterious owl, a delicate deer with her twin fawns or a tiny warbler in the brush. We marvel at the unusual salamander on top of the leaf mulch in spring. A glimpse of a bear, cougar or bobcat is a life highlight. Our lives are usually enriched from experiences with wildlife and simply knowing they are out there, sharing our world. Hunting is a communal and personal activity that produces significant pleasure, and cultural tie-in, to participants. Providing habitat to enable wildlife to thrive, and enjoying their amazing presence, are sources of great satisfaction from owning forestland. Wildlife always lists as a high priority in landowner surveys.

Wildlife can provide important regulating and supporting ecosystem functions too. For example, western gray, Douglas and red squirrels enable seed dispersal by losing some of their cached cones and seeds. Clark's nutcrackers plant pine seeds on open ridges and mountain tops. Beaver create wetlands that raise water tables and provide habitat for a myriad of species. Slugs break down dead plant material and help with soil building. Gophers, moles and voles aerate the soil with their burrow systems. Flying squirrels spread mycorrhizal fungi spores in their scat. Hawks and owls consume small mammals that can destroy young



PHOTO COURTESY: KEN BEVIS

*Enjoyment from seeing a whitetail deer in the forest is an example of a “cultural/social” ecosystem service.*



PHOTO COURTESY KEN BEVIS

*By distributing conifer seeds, the Douglas squirrel is one of many forest animals that contribute an ecosystem service.*

trees or other desired plants.

Wildlife can also provide tangible goods, particularly in the form of meat, bone, hides or pelts. Although hunting has declined in the number of participants in recent years, it is still an important activity on forestlands.

Deer, elk, bear and grouse, for example, live in forest habitats and many are harvested by hunters for their meat and bones. Beaver, bobcat or marten are sometimes harvested for their pelts. Tangible goods in the form of food or other animal parts provide an ecosystem service from wildlife.

Having forests on the landscape benefits all of society in a myriad of ways, and many programs, including Washington State, Oregon State, Montana State and University of Idaho forestry Extension programs are here to help. Various state and federal programs also exist, including DNR's forest stewardship program, to assist landowners with land management questions and solutions. Thinking about our forests in terms of ecosystem benefits and services broadens and specifies our appreciation for our lands and adds determination to keep forests as forests.

Send me your best example of a wildlife-based ecosystem service. ■

**KEN BEVIS** is the stewardship wildlife

biologist for Washington Department of Natural Resources forest stewardship program. He works across Washington with small landowners, writing and giving advice on forestry and habitat, and teaching classes and webinars with Washington State University. He likes to sing and tell stories. He gathers good photos of wildlife for publications and presentations. Send them along; you'll get photo credits if he uses them. Ken can be reached at [Ken.bevis@dnr.wa.gov](mailto:Ken.bevis@dnr.wa.gov).



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# Get Started Tapping Bigleaf Maple

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The Idaho Forest Owners Association, Montana Forest Owners Association, Oregon Small Woodlands Association and Washington Farm Forestry Association have begun the process of recruiting a new editor for *Northwest Woodlands* magazine. This is a part time contractor position that will begin on August 1, 2022. The request for proposals is being prepared and proposals will be due by April 22, 2022.

Interested applicants can contact Anne Maloney at [annewithinww@gmail.com](mailto:annewithinww@gmail.com) or visit: [www.wafarmforestry.com/RFP-Editor-NWWmagazine](http://www.wafarmforestry.com/RFP-Editor-NWWmagazine)



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## Do People Drink Water from Your Forest?

*continued from page 11*

The water stress for a watershed is defined as the ratio of water demand to water supply. Water stress is likely to worsen with the now-familiar double-whammy of population growth and climate change. Climate change can alter a forest's ability to regulate water flows (Bergkamp et al., 2003), exacerbating the issue of water stress. Use the F2F2 analysis to find watersheds that are expected to experience water stress in the coming decades.

Another function of F2F2 is a ranking of the inherent ability of a watershed to produce clean water. Like the other parts of the analysis, it compares all 88,000 watersheds in the continental U.S. by using land cover attributes. These watersheds are smaller-sized (HUC12s which are ~35 mi<sup>2</sup> on average). Because the analysis covers the entire country and uses broad, national-scale maps, some specificity will be lacking. This analysis does not supplement higher resolution, more detailed or local information, but is meant to function as a first-stop for information and screening.

While F2F2 was designed for regional planners, water utility managers and foresters, it is accessible to anyone. Forestland owners, for instance, may want to look at one watershed to see how important it is for surface drinking water, and what the threats to it are. Once you locate your watershed of interest, pop-ups detail relevant land use and hydrologic statistics (see sidebar on page 11). One can also see which public utilities receive water from that area. The data provide an indication of what forestry projects could help to protect drinking water—projects such as forest restoration (e.g., tree planting in sensitive areas), conservation (i.e., protection from development) or forest stewardship (e.g., planning, thinning and other projects). Private landowners may want to manage their land to protect against fire or other threats, but 77 percent of landowners cited the high

cost of management as a barrier (American Forest Foundation, 2015). If you are in an important watershed identified by the F2F2 analysis, this fact could potentially unlock funding to help your forests create cleaner drinking water for downstream users. ■

**SALLY CLAGGETT** has been with the US Forest Service since 1990—first

as a botanist in the Pacific Northwest, and then as a watershed specialist and Chesapeake Bay Liaison. She holds a M.S. in ecology from the University of Oregon, and a B.S. in environmental biology from the University of Colorado. Sally can be reached at [sally.claggett@usda.gov](mailto:sally.claggett@usda.gov).

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# Enhancing Pollinator Habitat

By JED ARNOLD

In fall of 2017, Hampton Family Forests, the forest management arm of the Hampton Lumber company, hired me to manage environmental stewardship initiatives on their industrial timberland. Shortly after I started, I was approached with an idea from one of the Hampton family: Could we use our timberlands to support the health of native pollinator populations?

It was an idea that made a lot of sense. Most of us who work in forestry have observed that pollinators, especially bees and butterflies, can often be seen on timberlands. Making use of the floral resources that pop up wherever the canopy is open, it's not unusual to



see native pollinators along forest roads, landings and in abundance in post-harvest years before the trees grow tall enough to shade out ground-cover plants. Still, I wasn't sure how to go about implementing it. I had some experience working on meadow restoration and installing pollinator hedgerows alongside agricultural fields, but I wasn't aware of any existing suggested practices for pollinator habitat enhancement.

Some initial research seemed to indicate that this was, indeed, an idea that had a lot of value. Though pollinator usage of forestlands was (and remains) a young field of study, research was already strongly pointing at post-harvest industrial timberland having a strong habitat value for native



PHOTO COURTESY: JED ARNOLD

A high-elevation seeded burn pile with flowering lacy Phacelia (*Phacelia tanacetifolia*), baby blue eyes (*Nemophila menziesii*) and fragrant popcorn flower (*Plagiobothrys figuratus*).

bees and other pollinators. (people.forestry.oregonstate.edu/jim-rivers) However, I could not find any publicly available information on what techniques might be used to enhance the value of these landscapes to support healthy native pollinator populations. After consulting with some of the academics currently involved in researching pollinator usage of forestlands, including Dr. Jim Rivers, I learned there were likely two areas of enhancement that were worth pursuing: improving the availability of suitable nesting sites and increasing the quantity and species diversity of forage available.

Providing suitable nesting opportunities is important for the long-term success of enhancement techniques, however, it is also relatively straightforward and easy to accomplish on harvest sites, since good nesting opportunities are often created during a standard harvest process. Woody debris is used by some bee species for nesting, and the mix of large and small wood in the residual rings around burned slash piles often offers great nesting habitat. Other species of bees nest in the interior of the canes from various berry plants. A simple slash with a machete on bunches of salmonberries can create good nesting sites. Invasive Himalayan blackberry canes also make good nests if the canes are cut after the plant is treated with herbicide. And other species nest in the ground, where they need loose, exposed soil, as is often



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found along road cuts and the edges of landings.

With nesting sites already plentiful on most timberlands, my experiments to date have primarily focused on cost-effective ways to increase forage availability, primarily through the sowing of native plant seed on recently harvested units. With no other suggested practices available, in our first attempt I used basic seeding protocols for meadow restoration on about 15 acres in several plots of recently harvested timberland. Unfortunately, that first year met with very limited success. About 85 percent of the area that was treated had negligible observed increases in pollinators or pollinator food sources. We did, however, learn several valuable lessons about how to proceed in the future, not the least of which was that practices developed on agricultural lands would not work in the forest. We were going to have to build our own system from scratch.



PHOTO COURTESY: JED ARNOLD

*Slash pile burn scars appear to be the most favorable locations for seeding with native wildflowers for pollinator habitat.*

Observations from this first year of failed seedlings led me to believe seedbed preparation was the primary factor in a successful planting of forage seed. In the years since, we have conducted additional multi-acre test treatments and, in 2020, controlled studies on seedbed preparation to determine the factors that seem to influence successful germination and flowering.

None of my findings to date can be called definitive. Practical experimentation by other land managers across a variety of landscapes would need to be conducted before reliable recommen-

dations could be developed. My casual observations of these initial experimental installations indicate that making use of slash pile burn scars for forage seeding seems to be highly effective, and my controlled experiments in 2020 seem to support that. That said, other forest managers wanting to experiment with pollinator habitat enhancement on their land will likely want to consider the following.

- Selection of appropriate seed species is critical. Many native pollinators are specialists and will only thrive alongside plants they are adapted to having in their environment. Make sure the species you select are native to your specific area, not just state or region.

- Timing of seeding seems important. For broadcast seeding, units harvested in summer or early fall may be best.

- If there are months of growing season between when the harvest disturbance is finished and when the seed is put down, the existing seed bank in the soil may have time to germinate and out-compete the forage seed the following spring.

- Ideally, seed should be put down at the end of fall or early winter. Spring seedings are known to have lower germination rates and this seems to be doubly true in forest settings.

- Alterations to vegetation management may be necessary.

- Preemergent herbicides are not recommended on a unit that will receive pollinator forage seeding.

- Spring release sprays cannot be done on seeded units. Make sure you are coordinating closely with any other land managers to ensure they aren't spraying over the forage plants you just spent time and money seeding.

- Our experiments have given some indication that use of appropriate herbicides prior to seeding might be beneficial by decreasing competition, but we have not yet conducted experiments on this.

- Seedbed preparation poses significant challenges not present in many agricultural environments.

- Significant amounts of harvest residuals in/on the soil and/or significant amounts of duff on the soil's surface substantially reduce germination rates and makes hand seeding ineffectual.

- Additional mechanical removal of harvest residuals during slash piling can be used to expose more soil for seeding, and will likely result in increased germination rates, but the additional machine time needed is substantial and therefore expensive.

Implementing all the suggestions

*—Continued on next page—*

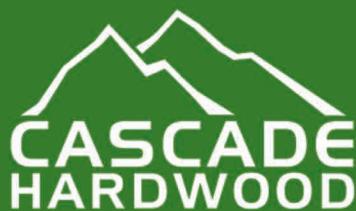
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above, broadcast seeding of pollinator forage plants over acres of recently harvested timberland can produce substantial increases in available flowering plants for pollinators. However, that method is also quite expensive, requiring multiple pounds of seed per acre. Costs can be reduced somewhat by hand-sowing the seed only on exposed soil

and carefully stepping down the seed to push it under the soil surface. However, this process is time-consuming and requires carefully walking back and forth over acres of land.

There is one feature common on many Pacific Northwest timberlands that avoids many of the confounding factors that seem to make seeding on timberlands difficult: slash pile burn scars. The slash burns down to the soil, removing harvest residuals and duff, leaving loose, exposed soil which is easily seeded. The burned slash leaves behind lots of easily accessible nutrients for the young plants to access. The heat of the burning slash kills compet-



PHOTO COURTESY: JED ARNOLD

*A unit broadcast seeded with flowering minature lupine (*Lupinus bicolor*), Oregon sunshine (*Eriophyllum lanatum*), and common yarrow (*Achillea millefolium*).*

ing seeds present in the soil seed bank, including most, if not all, non-native species. Further, so long as you conduct broadcast spraying in the fall and burn the slash piles in the winter, no changes to post-harvest vegetation management are necessary (spring release sprays are still out though).

The controlled experiments I conducted in 2020 supported these observations with data that strongly points to seeded burn scars being an easy and cost-effective way to increase forage availability. I implemented five treatments across multiple replicants on four recently harvested units of various elevations and orientations. The treat-

ments were: burned unseeded, burned seeded, soil cleared unseeded, soil cleared and seeded, and control.

The treatments where seeding was conducted in burned slash piles showed substantially higher germination, growth and flowering rates than other treatments, with a lower presence of non-native species to boot. Less formal observation of previous years' sites also shows substantially higher rates of re-establishment of the pollinator-friendly plants in seeded slash piles versus other seeded areas. Although more experimentation is certainly needed, the information I have to date indicates this method can be used to improve pollinator habitat in young stands for a comparatively small cost. Four-to-six ounces of a pollinator-friendly seed mix is generally sufficient to seed a 30-foot diameter burn pile. The mix we used at Hampton cost around \$50/lb, although costs can be lower or higher depending on the exact species mix used. While slash management techniques vary, a rough generalization would be that a pound of seed mix per acre is more than sufficient to seed every burned slash pile in a harvest unit. Careful casting of the seed mix to ensure it is well-distributed in the burn scar, thus minimizing competition among seeded plants, could likely cut costs even further. Although the costs are still not insubstantial for a small woodland owner, these techniques do open some great possibilities, particularly around collaboration with nearby agricultural operators who may need pollinators to ensure success of their crops. ■

# FORESTS ARE THE ANSWER



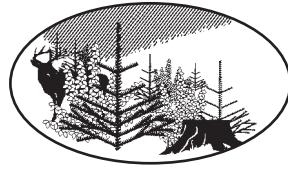
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**JED ARNOLD** is the former stewardship coordinator for Hampton Lumber, where he managed restoration projects, scientific research, grant coordination and public outreach on conservation issues. He has recently accepted a new position as the southern region resource management officer for the Nevada Division of Forestry. He previously worked for a large conservation district and in academia. Jed can be reached at [jtarnold@forestry.nv.gov](mailto:jtarnold@forestry.nv.gov).



# The Understory

## Songbird Habitat: Family Forestland Owners Make a Difference

By CYNTHIA ORLANDO

Surprising, but true. Nearly 80 percent of wildlife habitat in the U.S. is privately owned.

However, according to a recent study published in Science magazine, bird populations are declining in the U.S.—an estimated loss of up to 29 percent of western forestland birds. Common bird species like barn swallows and American goldfinches are seeing significant declines.

That's why having bird-friendly landscapes and forestlands has never been more important. Here are some practical measures owners of small, forested parcels can take to help improve the outlook for birds.



### Oak woodlands

Oak woodlands are characterized by Oregon white oak, an open canopy and, often, ponderosa pine or Douglas-fir. Birds found here include slender-billed nuthatch, acorn woodpecker and Lewis' woodpecker. These habitats are being impacted by conversion to other land uses, such as agriculture and development. Landowners can help by maintaining oak stands and striving to keep a diversity of tree sizes and ages—particularly large oak and ponderosa pine trees. Remove Douglas-fir trees in oak stands and maintain or create snags to provide birds with cavity habitat.

### Mature pine

Mature pine habitat is diminishing in parts of the Blue Mountains, East Cascades and Klamath Mountains areas. This habitat is important to white-headed woodpeckers, flammulated owls, gray jays and evening grosbeaks. Detrimental factors include timber harvest and uncharacteristically severe wildfire. Maintain mature ponderosa pine. Plan reforestation to create corridors between habitats. Conduct thinning and reduce fuels in the understory to help protect the stand from fires. After wildfires, replant with native pines and other trees, shrubs and grasses; maintain some snags and down logs for wildlife habitat.

### Streamside areas

Streamside vegetation often consists of shrubs and deciduous trees like alder, bigleaf maple, aspen, cottonwood, ash and willows. Spruce and pines may dominate at higher elevations. Streamside areas provide important wintering habitat and travel corridors for songbirds and grouse. Landowners can minimize road-building impacts, retain streamside vegetation following management activities, keep livestock out of riparian areas and establish native plants.

### Snags

Birds need places to nest, hide from predators and shelter from the weather. Some birds, like woodpeckers and chestnut-backed

chickadees, excavate cavities in dead tree trunks for nesting and roosting—cavities then used by other birds like bluebirds, owls and ducks. As much as a third of bird species in forests use snags for nesting or foraging—they are critically important. Maintain dense wooded areas where trees are allowed to die or create snags by girdling or topping live trees. If natural cavities are hard to find or creating snags is not feasible, installing nest boxes gives some birds a place to raise young.

### Urban areas

For urban dwellers, reducing or eliminating the amount of lawn in the yard or garden is one way to enhance the ecosystem values provided by the local landscape. Try leaving some areas on your property wild, where native, non-invasive weeds can grow undisturbed. Plant native trees and shrubs. If you own forested property in an urban area, create as diverse a forest structure as possible to provide birds with better nesting opportunities.

### Water

Ponds, small streams, rain gardens, bubblers and birdbaths are all helpful for birds.

### Other tips

Become familiar with the Oregon Department of Fish and Wildlife's Conservation Strategy: [www.oregonconservationstrategy.org/](http://www.oregonconservationstrategy.org/). See [woodlandfishandwildlife.com](http://woodlandfishandwildlife.com) for more resources on managing small woodlands for fish and wildlife.

Private forestland owners can receive technical (and sometimes financial) assistance from their local Natural Resources Conservation Service, Extension office or the Oregon Department of Forestry. ■

### CYNTHIA ORLANDO

*worked for 30 years for both the Oregon Department of Forestry and the U.S. Forest Service. Now retired, she resides just north of Eugene and volunteers for natural resource causes and two radio stations. She hopes to inspire middle and high school students to consider forestry careers through talks at local area schools. Cynthia can be reached at cynthia2017@netzero.net.*

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# TreeSmarts: Answers to Your Tax Planning Questions

*TreeSmarts: Answers to Your Tax Planning Questions appears every other issue in Northwest Woodlands. The column is edited by John P. Johnston, a partner, CPA, and CMA with Bancroft Buckley Johnston & Serres LLP in Seattle, Washington. He is a member of the AICPA, IMA and WSCPA.*

## Which Business Structure is Best?

One of the most frequent topics I am asked about is how the tree farm should be set up; what is best for structure and tax? I am not an attorney so I will avoid offering advice from the legal perspective. But from the tax and accounting side, the overall answer is, once again, "it depends." I will try to offer enough information to begin the thought process and maybe even develop some questions for a more detailed discussion with your CPA.

Let's review a handful of concepts. First, there is the question as to whether this is an active tree farm, or a simple real property investment held for long-term appreciation. Next, there are various entities that can be used. An incomplete list includes a limited liability company (LLC), corporation, S-corporation, partnership, sole proprietorship or even nothing. Then there is the need to understand what we mean by taxes. There is income tax, which can be fur-

### Send in Your Tax Question

Do you have a question that relates to accounting, business, or tax planning? If so, send it to tax expert John Johnston (jjohnston@bjbsllp.com) and he will answer it in the next scheduled column.

ther sub-categorized, but there is also a payroll tax.

I sometimes see small forestland owners largely ignoring the asset and just treating it as a passive long-term real property investment. But just know that there are many weaknesses to this approach. Other small landowners simply report the tree farm activity directly on their personal income tax returns (Schedule C), which is fine but has shortcomings in certain situations. A variation on this is when the assets are placed into a wholly owned LLC. The IRS ignores wholly owned LLCs and just expects reporting to be done by the owner (Schedule C for an individual).

Beyond the foregoing structures there begins to be more tax planning opportunity. So, if your tree farm is a bit larger and has more material operations, thought should be given to other entities.

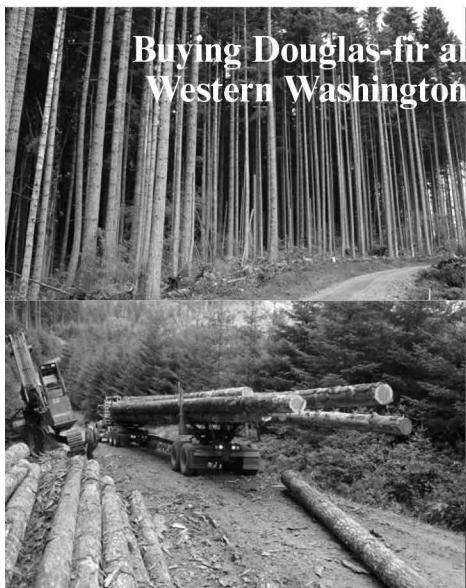
First, just for clarity, the IRS doesn't recognize LLCs—they are either taxed as a partnership or a corporation, with election normally made when created.

The standard corporation (C-corp) is the most straightforward. Income is taxed to the C-corp, and then a second time to the owner when it is paid out in a dividend. An active owner would probably need to have a payroll for

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themselves, so now there is payroll tax as well. But a C-corp can elect S-status and would then be taxed differently. There would still be payroll tax on wages but income in excess of wages is passed through to the owner and income tax applied at the owner level. Taking this one step further, a partnership passes all income to the owner for income tax, but only ordinary income is subject to payroll tax (self-employment tax). And finally, retirement plan contributions can only be made if there is earned income (e.g., wages or ordinary income).

Payroll tax is important. Without going into detail, this tax is paid by both the employee and employer—which in this instance is the same person. It is 15.3 percent of the first \$142,800 (2022) and another 2.9 percent on everything above \$142,800. Further, taxable wages do not get reduced for deductions that taxpayers apply when determining income tax. Ergo, payroll tax rates begin to approach income tax rates.

Finally, the character of taxable income is important. The typical tree farm held for several years will generate ordinary losses and even larger capital gains. In many respects this doesn't matter for a C-corp. But for partnerships and S-corps this provides planning opportunities.

So, how do we put this together to frame a conversation. It is going to involve trying to line up several different concepts and then mixing and matching to arrive at the best scenario for the specific situation. For example, having taxable income flow through

to the owner is going to interact with whatever else is in that owner's return. If there is ordinary income (e.g., wages, real estate, small business), the ordinary loss from the tree farm is going to offset that, converting high tax rate income (ordinary) to low tax rate income (capital gains). The likely ordinary loss from a partnership would prevent retirement contributions. However, that ordinary loss would generate negative

payroll tax that could reduce other payroll taxes being paid.

The foregoing is obviously not a thorough explanation of how to decide the best structure. But hopefully it offers some insight on a few concepts that are important to include in the analysis. Most importantly, the best strategy cannot be envisioned without including the many other things going on in your tax picture beyond the tree farm. ■

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# Twig Tales

## Leave it to Beavers

By KEN BEVIS

Chew Barka's and Clint Eatswood's powerful jaws chomped tree branches and stems into fine wood chips. Princess Laydownatree and R2 Tree Chew busily felled small pine and Doug-fir into precise rows for processing. Luke Streamblocker and Bark Vader (he is your father, Luke) piled the chips onto wide tails and deftly waddled the stuff to the pyrolizers. The force was with them.

I was near the North Cascadia ski town of Woodthorn, observing an ecosystem services approach to forest fuels management. Woody Alderstub is the veteran "beaver believer" in charge of these ecosystem engineers. Woody is a short, grizzled character, with a weathered "Worth a Dam" ball cap; a determined, powerful man. He founded the North Cascadia Beaver Rehabilitation and Relocation (NC-BRR) project earlier and is legendary for training beavers to do his bidding using only coos and whispers.

O.K. Noggin stood close by. He is pioneering the "See Six Forests" project, using small diameter wood prepped by this crack team of masticators, creating rows for portable, steam-punk-style pyrolizers. O.K. is tall and imposing, with icy blue eyes and a gigantic handlebar moustache under stylish, ever-changing western hats. He constantly chews on twigs, and, like the beavers, he says, "I favor cottonwood." Noggin is a visionary, mass-producing this strategic soil amendment for degraded land everywhere, thus saving the world—a big goal.

Woody explained his methods. Problem beavers are an ongoing issue. They eat the best trees, clog culverts and flood farms. The NCBRR catches errant beavers and trains them in worthwhile work. Woody is up for a lifetime achievement award with the FDCNRAFDESP (Forestry



Division Coordinated Natural Resource Agency Forestry Department Ecosystem Services Program) and I was treated to this amazing demonstration.

Woody explained that problem beavers do time in rehabilitation at the abandoned Woodthorn hatchery. They learn community service by thinning, helping forests survive drought and wildfire. "Look at all of the ecosystem services going on here!" shouted Woody. "Climate, carbon, water, habitat and soil, all by beavers!" O.K. nodded in sober agreement. I was impressed.

They worked as a finely honed, precision team. One falls the tree, another cuts branches, others chew the wood into piles and chips are carried to the pyrolizers. It was so amazing I contacted *Geographical Nation* magazine to do a feature story. It was a big hit internationally!

A month later, my phone buzzed. "Ken, it's Woody. I knew that article would be trouble. Pirates kidnapped my beavers!" What? Pirates? I checked Oatmealgram. Oh no! Rogues kidnap all sorts of trained animals and sell them overseas to circuses (including the notorious Barndoar and Beavers show). The gram warned they were now working North Cascadia and to be on the lookout.

I rushed back up to Woodthorn. Woody, O.K. and I snuck up onto the ridge after dark. We lay on our bellies and looked through night vision binoculars down at a campfire. Sure enough, a cluster of classic burly pirates, in rough clothes, eye patches, hooks and big hats huddled below, drinking grog from rusty metal mugs. "Har, har, har," we could hear them laugh. "We gonna be rich from these scurvy rats!" The scoundrels snuck into the hatchery after hours and made off with the beavers; all but Chewy. We shuddered at the thought of beavers in dank cages, forced to do tricks in some far away, dingy circus. Brave Chewy sat by Woody, quietly growling.

At the edge of the firelight were five

animal crates. Beaver eyes glinted from each.

We watched for a long while listening to loud "Yo, ho, hos." My mind was spinning. What to do? Finally, a plan: make a distraction, and then, direct action!

"Chewy, can you drop that cottonwood right on them?" He nodded yes. "O.K., do you have a smoke bomb on you?" Yes, of course. "Woody, send Chewy in, and just before the tree whacks those creeps, set off the smoke bomb and we go!" Fierce eyes nodded, illuminated by red headlamps. Chewy mewed approval.

Hours later, the pirates were finally sprawled out in drunken stupor. "Chewy, ready? Yes, drop it right on them. O.K., get that smoke bomb ready, and as it falls, and smoke billows, me and Woody will zip in and let the crew out." Chewy nodded wisely, those little beaver eyes tight on Woody. Noggin spit. Woody growled.

An owl hooted and we sprang into action. Chewy carefully waddled out and started chewing. The pirates snored on. Noggin watched until the tree was almost ready to fall, then popped the smoke right by the pirates. Woody and I zig-zagged to the cages.

The cottonwood tottered! A cloud of red smoke erupted from the brush! The pirates stumbled to their feet just as the tree crumpled them all into a tidy heap! We cracked the crates and whispered, "Let's go! The force is with us!" Woody made strange beaver coos and whistles and we all followed him to safety. The pirates swore and thrashed about, all stuck and tangled up in the branches, never to be seen again.

We made it safely back home and we all ate fresh greens and had cottonwood beer. The project was saved; beavers, bio-char, ecosystem benefits for everyone! The force was with us. It's tough being this lucky. ■

**KEN BEVIS** is the statewide stewardship wildlife biologist for the Washington Department of Natural Resources. He is fascinated with all things offbeat and loves to see odd pieces of yard art or beautiful cavity snags on properties he is privileged to visit. Beware, however: anyone he meets who is interesting, eccentric, highly skilled or all of these, could become a model for a *Twig Tales* character! Send me your nominations at ken.bevis@dnr.wa.gov.

## A One-Stop Grant Shop for Landowners

*continued from page 19*

it is too time-consuming to discover which incentive programs are available for them to apply to their lands when looking across the spectrum of all federal, state and local programs. Thus, CCLC took on a project to create a simple web-based tool called the Conservation Program Explorer. This tool enables landowners or agency staff to quickly discover which incentive programs are available based on one's geographic location and the type of program they are interested in.

The CCLC partners worked with rural landowners to better understand their needs while developing the tool. The consistent hurdle for landowners to take advantage of programs was navigating the numerous websites, which was something we came to understand

while creating the Conservation Program Explorer's program database; there really are a lot out there.

The goal of the Conservation Program Explorer is to easily access all incentive programs that landowners could be eligible for in one place, including those offered by federal, state, county, non-governmental organizations and other resources. Incentive programs were grouped into three categories: financial, public recognition and free technical assistance. Using a series of drop-down menus, landowners will be able to select their location, land type and desired program to see what's currently available to them. The Conservation Program Explorer prototype for western Washington launched in early November 2021.

Although the launch of the tool is a milestone for CCLC, feedback from landowners using the tool will be just as important as the tool itself. This feedback will drive the dialogue with program providers to create and amend programs as needed to further collective stewardship efforts. The project lead, Rachel Santa Olalla, will work with the project advisory team to engage landowners and stakeholders in the Conservation Program Explorer tool. In addition to periodic program database updates, feedback on experiences using the tool will also be an important driver of future improvements.

CCLC is an informational hub for landowners who value conservation and a collaboration space for conservation partners. Please visit our website at [ctocl.org](http://ctocl.org) to see what we are up to, stay informed with updates and events (like the Conservation Program Explorer launch) by signing up for our newsletter, and get in touch with us for partnership in your conservation endeavors. In the meantime, if you



**Ken Miller, a small forestland owner and active member of the Washington Farm Forestry Association, leads a forest tour.**

PHOTO COURTESY: CASCADES TO COAST LANDSCAPE COLLABORATIVE

have questions or ideas on this project, please contact Rachel Santa Olalla or John Mankowski. ■

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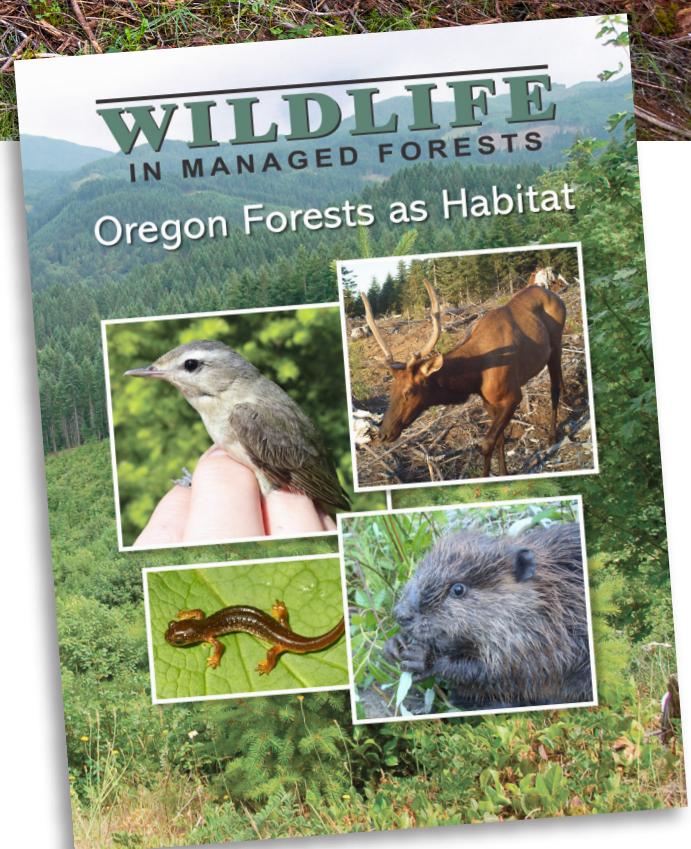


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