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Wildlife Considerations in Modern Forest Management

BY JOHN P. HAYES

In recent years, concerns over wildlife conservation have shaped forest policy and forest management decisions in the United States in ways that were almost unimaginable two or three decades ago. Species such as the northern spotted owl and marbled murrelet in the Pacific Northwest, the red-cockaded woodpecker in the Southeast, and the Indiana bat in the Northeast and Midwest were once largely known only to wildlife enthusiasts, but now drive policy and management decisions in many forests because of their listing as threatened or endangered under the federal Endangered Species Act.

Although the current attention to wildlife and emphasis on biodiversity in forests has resulted in abrupt changes in forest management practices, the seeds of change that led to our current approach to managing wildlife in forests were planted quite some time ago, and close interactions between the fields of wildlife and forestry have a rich history.

In historic and prehistoric times, it appears that American Indians and early European cultures may have manipulated forest structure extensively to promote habitat for game species. More recently, wildlife issues have played an important role in modern forest management since the early 20th century. Aldo Leopold, the visionary conservationist who is often considered to be the father of modern wildlife ecology and management, was trained as a forester and spent a substantial portion of his career working for the USDA Forest Service. Leopold's handbook on game management, published in 1915 by the Forest Service, articulated the foundation of the modern view of wildlife in forest systems. In it, Leopold argued that wildlife and their habitat should be considered to be products of forest management, and forests should be managed, in part, to provide for wildlife habitat.

Despite a long history of interactions between wildlife and forestry, until relatively recently much of the attention that forest managers gave to wildlife in forests focused on managing habitat for game species and on minimizing impacts of wildlife on seed production and forest regeneration.

The 1960s and 1970s saw the beginning of a transformation in our perspectives on wildlife-forestry interactions, coinciding with increased public awareness of environmental issues and passage of key legislation such as the Wilderness Act, the National Environmental Policy Act and the Endangered Species Act. Concurrent with this new view was a proliferation of studies on the ecology of wildlife in forests and enhanced understanding of the importance of dead wood, riparian habitat, old-growth forests and complex forest structure for wildlife.

A central paradigm emerging from this research relates to the concept of spatial scale. A large number of recent studies have demonstrated

PHOTO COURTESY OF USDA FOREST SERVICE

To provide critical habitat for northern spotted owls, managers must consider forest characteristics at different spatial scales.

that wildlife select different habitat characteristics at different spatial scales, and that attention to forest characteristics at different scales is critical to provide high quality habitat for wildlife. For example, early attempts to provide habitat for northern spotted owls emphasized protection of the nest tree (habitat component scale). We now understand that the characteristics of the stand in which the nest tree occurs are also important (stand scale), as is the amount, distribution and characteristics of stands surrounding the nest stand (landscape scale) and connectivity among different nesting areas (regional scale). To effectively manage for this species, attention to each of these scales is necessary.

Within forest stands, key aspects of habitat to which wildlife respond include vertical and horizontal heterogeneity, amount of standing and fallen dead wood, and vegetative

(CONTINUED ON PAGE 2)

Wildlife Considerations

(CONTINUED FROM FRONT PAGE)

species diversity. Special habitat features, such as riparian areas, rocky outcrops and unique plant associations, also provide important habitat for a number of species of wildlife. Forest management that maintains or increases structural complexity within stands can provide multiple niches for wildlife.

For many species of wildlife, standing dead wood, or snags, is particularly important. Woodpeckers and a suite of cavity-nesting birds, bats, forest carnivores, arboreal rodents, and other species are dependent on or highly associated with snags. Few management decisions influence abundance and composition of wildlife communities as strongly as decisions concerning management of snags. Maintaining large diameter snags in a variety of stages of decay is a key management strategy to providing habitat for several species.

Just as many species have been shown to prefer the complex forest structure found in old-growth stands, others are closely associated with stands in early stages of development. Because of the diversity of habitat needs of different wildlife species, maintaining a wide array of stand conditions helps promote a diverse wildlife community. A good example of an approach to maintain a variety of structural conditions through time is the recent management plan developed by the Oregon Department of Forestry. This plan manages for different structural conditions spread across the landscape, providing connectivity between key habitat types. Appropriately, these plans call for maintaining a minimum amount of habitat in the stem-exclusion stage, as this developmental stage tends to be poor quality habitat for most wildlife species.

Remote imagery, GIS and other technological advances have enabled us to begin to look at some of the consequences of our land management decisions at much larger scales. As a result, influences of fragmentation, connectivity and landscape structure on wildlife populations have begun to shape our modern view of quality of habitat for wildlife as well. Although many species of wildlife seem to be somewhat insensitive to landscape characteristics and respond more strongly to characteristics at smaller spatial scales, landscape characteristics appear to be very important for species with limited mobility or large home ranges.

The adage "it's a small world" has never been truer than it is today. At very large scales, global climate change and interregional patterns of land use will likely influence wildlife and forest structure as well. Such changes will influence wildlife within regions as well as migratory species that travel among regions. Globalization and global change has influenced forestry as it has many different fields and industries. Struggles to maintain global competitiveness will increasingly shape forest policy and management decisions in the years to come. Just as industrialization of agriculture resulted in a loss of hedgerows and strongly impacted the wildlife species associated with them, increased intensity of forest management under these conditions is likely to impact wildlife populations as well.

Recognition that it is important to take multiple spatial scales into account while managing forest stands has increased our understanding of effective ways to manage for wildlife in forest systems. However, this increased understanding has not simplified management decisions in any way. Each wildlife species relates to the characteristics of each spatial scale somewhat differently, creating chal-

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Next Issue: The PNW Research Station's Focused Science Delivery Program

lenges for managers interested in maintaining habitat for a broad array of species. Use of computer modeling can help managers predict responses of multiple species simultaneously over large areas, but a strong foundation of field-based empirical studies coupled with information from monitoring activities is essential to fuel the models. While many of these computer models are currently used almost exclusively by researchers, in the years to come it is likely that many of these will become more user-friendly and available for managers to use.

With increases in human population size and a globally shrinking forest base, public demand for a wide array of forest amenities, including sustainable ecological systems and healthy wildlife populations, is unlikely to diminish in the foreseeable future. To the contrary, it is almost certain that human demands on forests will only increase in the future. It is difficult to predict the ways that forestry and wildlife will interact in the years to come, but good stewardship of forestlands will continue to include maintaining habitat to support healthy populations of wildlife.

Maintaining large reserves is an important conservation strategy for species requiring large tracts of undisturbed habitat, and these reserves also fulfill a number of other important social values. But while reserves are important elements of many conservation strategies, a strategy that relies strictly on reserves for conservation will often be inadequate. Incorporating key components of wildlife habitat in forest management plans outside of reserves is essential to maintain healthy populations across the landscape. Providing these components in a climate of increased economic pressure to maximize economic profit from forests will be a significant challenge, requiring a well developed and rigorous scientific base of information. Cooperative interactions between scientists and managers, foresters and wildlife ecologists, and planners and practitioners who share a vision of managing forests to provide for a diverse array of societal needs, including ecological, economic, recreational and spiritual values, will be needed to tackle this challenging task.

Over the years foresters have developed a sophisticated set of tools to achieve forest management goals. Just as a carpenter who uses only a hammer would be unable to accomplish complex carpentry tasks, a forester who uses only a single silvicultural tool is poorly equipped to meet the complex forest management needs of today. To achieve societal demands for healthy forests, abundant wildlife and production of wood products, these forest managers will need to use a complex set of tools, including traditional even-age practices combined with establishment of reserves and use of practices such as green-tree retention, variable density thinnings and unevenage management. While providing the diversity of habitat to meet the needs of wildlife species can be a daunting task, even simple steps, such as providing dead wood in forest stands, managing for a variety of stand conditions, and protection of special habitat features, can result in significant benefits for wildlife. ◆

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Wood Decay in Healthy Forests: The Paradox and the Promise

BY BRUCE G. MARCOT

A Legacy of Snags in the System

It is widely acknowledged that standing dead or partially dead trees provide important habitat for woodpeckers and other primary cavity excavators, and that a wide array of other animals use woodpecker cavities. Guidelines exist for maintaining or even creating snags on federal lands, state forestlands and private forestlands. It is also known that large-diameter snags held over from previous, older stands constitute one aspect of "wood legacies" that provide ecological functions more fully than small-diameter snags produced from understory suppression during even-age stand management.

Snags are utilized by wildlife in many ways. For example, red squirrels use witches' brooms created by mistletoe in Douglas-fir trees. Black bears den in hollow trees and logs in northeastern Oregon. Shredded down wood and bark piles at the base of snags are often used by salamanders in Douglas-fir forests of Washington. Long-eared bats use tree stumps for roosts. High-cut stumps are used by white-headed woodpeckers for cavities. Ponderosa pine snags are used as breeding roosts by bats.

However, it has only been more recently acknowledged that many other forms of wood decay—other "wood decay elements" or WDEs—than just snags also provide vital ecological services in forest, woodland and riparian ecosystems. This is a brief review of the diversity and ecological roles of WDEs.

Beyond snags: elements and functions of wood decay elements

WDEs also include down wood, root wads, tree stumps, litter, duff, broomed or diseased branches, hollow trees and partially dead trees. They also provide resources and substrates for many organisms that perform vital ecological roles of transforming and cycling nutrients, decomposition, respiration and other biological processes. Such roles benefit ecosystems far beyond the confines of the wood decay elements per se, and are a natural and vital part of native forests and ecosystem processes. Providing for WDEs may seem like sacrificing growing space, but in the long run, ecological processes of WDEs greatly contribute to overall ecosystem health, soil productivity and growth of desired tree species.

PHOTO COURTESY OF BRUCE G. MARCOT

Hollow standing and down trees are used by an array of wildlife species, including Vaux's swifts, pileated woodpeckers, black bears and fishers.

Beyond just providing wildlife habitat, WDEs also provide for an array of ecological roles of wildlife in forest ecosystems. For example, in southwest Oregon conifer-hardwood forests, hollow trees are used by 24 wildlife species, including nine bats, five owls, two woodpeckers, a swift and others. Of these 24 species, five (two birds and three mammals) also serve the beneficial function of dispersing seeds and fruits of native plants, and two (mammals) tunnel in soil that in turn creates burrows used by other species and can help improve soil structure and uptake of organic matter. These and other secondary beneficial ecosystem services are provided by many wildlife species associated with all WDE categories in all forests.

Down wood has a high pore volume and serves as moisture reservoirs, and in moderation, provides microsites for beneficial mychorrizal fungi, plants and animals that aid in forest recovery after prolonged drought or fire. Large pieces of down wood eventually work into the soil where they serve as long-term, time-release sources of humus, organic matter, phosphate and nitrogen, and mediate soil nutrient cycles. Woody material in the soil creates acidic soil conditions that favor soil microbial activity that help fix nitrogen for use by trees. Down wood on the surface can help stabilize soil movement and deter erosion, and serve as nurse logs for spruce, hemlock, alder, Douglas-fir and other trees. Wood that enters the soil profile tends to stay there. Some carbon dating studies in the Inland West have shown buried wood material to be 500 to 1,000+ years old. All this means that restoring natural levels of coarse wood in soil horizons may be an immensely long-term process.

The paradox of health and harm

Such direct and indirect benefits of WDEs, however, are often ignored because of the fear that WDEs (especially snags and down wood) increase undesirable fire and insect hazards. In some situations this is true, but the ecological benefits of WDEs contributing to healthy, diverse, productive forests over time could be weighed against any such short-term risks. The challenge to forest managers is to provide enough

WDEs in a variety of types and spatial patterns for long-term soil productivity, ecosystem functions, and use and need by organisms, but at the same time to avoid undue hazards of fire, insect pest outbreaks, and operational and recreational safety problems.

The promise of how much, where and how

WDEs could be provided in both clumped and dispersed patterns, particularly taking advantage of natural patterns such as small, isolated root rot pockets that create local clumps of snags and hollow trees, or low-quality trees with splitting or sloughing bark growing on rocky soil or sites unfit for commercial tree use. More widely dispersing rather than clumping WDEs in fire hazard zones, such as urban-forest interfaces, may provide some measure of wood decay, but not contribute to fire and insect pest risks.

Also, managing for WDEs can be evaluated at stand, local watershed and broader landscape scales to ensure that large areas are not devoid of legacy wood elements. Most important, by considering WDEs in forest management, managers are planning for the future when they account for dynamics of tree growth and decay, stand rotation and disturbance dynamics (particularly fire, insect pests and pathogens).

How much WDEs should be provided? That depends, of course, on the overall forest management objectives. One possible objective is to provide a minimal amount of WDEs in more intensive tree farms to help complement greater amounts of WDEs found on adjacent national forests or other multiple-use forestlands. Other possible objectives may include providing greater patches of WDEs on less productive growing sites, or rotating stand management methods across the landscape so that each site gets an occasional infusion of WDE legacies and large wood into the soil. To various degrees, the forest manager may wish to emulate some range of historic or unharvested conditions.

Studies by A.E. Harvey suggest that in forests of the Inland West, about 30 percent of organic volume of soils will maintain peak mycorrhizae amounts in the organic soil horizon. This translates to about 10-15 tons/acre of surface down wood, which should be relatively large woody residue scattered across areas with minimal soil disturbance. Further studies have generally supported this recommendation, but found high variation among forests, with western hemlock forests having much higher levels and grand fir/maple forests having much less. In forests of the Inland West, one rule of thumb is that 60 tons/acre is a fire hazard. The forest manager could reduce this hazard by providing lower down wood mass but still providing ecological benefits of coarse wood in soils.

Studies in Wyoming suggest that chipping of fuel wood is not an ecologically viable solution, as rainfall leaches large amounts of toxic, water-soluble phenolics from the chips and blocks soil structure, causing mortality of tree seedlings. In some cases, artificial logs could be introduced to cover greater than 25 percent of the area in piles large enough to provide deposits of large coarse wood similar to natural levels. Snags and down wood have been inventoried across many ownerships; these data are available on the DecAID Advisor website, discussed in the companion article on page 12).

Broadening the vision

The overall lesson is that the forest ecosystem manager can view WDEs as natural and desirable parts of the forest ecosystem, and more than just providing occasional snags for woodpeckers. I have not discussed the essential role of WDEs—particularly large logs—in fish-bearing streams and riparian systems, but WDEs in those habitats too should be considered in forest ecosystem management. All types of WDEs provide important functions for plants, animals and ecological processes that together maintain natural, diverse and self-sustaining forests. ◆

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Forest Stewardship Certification and Wildlife

BY GARY J. ROLOFF

The relationship between wildlife conservation and forestry is not new. In fact, conservation measures to protect certain wildlife species in the United States date back to the late 1800s when political leaders recognized the need to consider wildlife relative to commerce activities. Of course, as forestry and other natural resource management activities expanded in the United States throughout the 20th century, environmental awareness increased. Today, wildlife is a vital consideration of many land management activities, either through established laws and regulations or through voluntary forest stewardship activities.

Forest stewardship certification for private forest landowners is a relatively new program in our history of natural resource management. Though an environmental awareness existed prior to the introduction of certification programs, just within the last 25 years were landowners provided structured frameworks for measuring and benchmarking the success of their stewardship programs.

These structured frameworks are the forest stewardship standards currently in use world-wide. Some of the more common certification programs include the Sustainable Forestry Initiative®, American Tree Farm System, Green Tag, Scientific Certification System, SmartWood and the Canadian Standards Association, among others. In all of the common certification programs currently available, wildlife is a critical consideration.

Early forest stewardship certification programs incorporated wildlife objectives in general terms. For example, simple statements that suggested landowners "consider" or "incorporate" wildlife into timber management activities provided little specific direction and constituted the extent of wildlife requirements.

As forest stewardship certification programs evolved, more specific requirements have ensued. The process of moving from general requirements to specifics is a double-edged sword. There is benefit in keeping wildlife requirements general so that all landowners can personalize their programs within their individual budgets, expertise and ownership patterns. I have firsthand witnessed the positive effects of organized wildlife stewardship and the goal should be to keep acres enrolled in these programs, not to make the standards so complex and prescriptive that landowners cannot afford to remain involved. However, specificity was also necessary as certification programs matured. With most certification programs susceptible to socio-economic pressures, individual issues rise to the top and warrant consideration for the program to be viewed as valid. For example, many of the certification programs are currently being encouraged by outside sources to incorporate more specifics on landscape-level management and old growth.

PHOTO COURTESY OF GARY J. ROLOFF

This patch was retained in a Boise harvest unit for a Cooper's hawk nest.

PHOTO COURTESY OF GARY J. ROLOFF

Residual patch retained in a recently harvested unit to provide wildlife habitat on Boise land.

From my perspective, this increase in specificity serves two purposes. First, it lends credibility to the certification standard by ensuring that the topics deemed most important by society and the ecological sciences are considered. Second, the detail offers a template that facilitates consistent implementation of the wildlife standards across diverse ownerships. Because the wildlife standards are consistently implemented, more explicit statements regarding benefits can be made and measured across all of the enrolled acres. Thus, the conundrum is balancing generality and specificity; it is important to keep the certification standards general enough to ensure operational feasibility while providing the specificity required by stakeholders (including customers and the general public) of the program(s).

What has certification done for wildlife?

The result of balancing generality and specificity is that wildlife programs across the country are as diverse as the landowners that are enrolled in certification programs. This diversity is reflected in activities ranging from stand retention of snags, green trees and downed wood, to the more theoretical consideration of landscape context in forest planning.

Certification programs typically encourage wildlife training and involvement with some level of wildlife research, either individually, through membership to a trade association or through cooperative efforts. The important aspect of implementing wildlife activities, regardless of certification program, is that informed forest management decisions are made with respect to wildlife.

Perhaps the greatest benefit of forest stewardship certification programs for wildlife has been as a communications tool between wildlife and forestry professionals. This dialogue was occurring long before the beginning of certification standards; however, the standards offer a consistent set of expectations and definitions that facilitate communication between wildlife biologists and foresters.

A structured stewardship standard for wildlife has required those enrolled in certification programs to organize their data, critically review processes, prioritize issues for research and development, and to institutionalize monitoring programs aimed at continuous improvement. Because of more structured communication among the resource professionals in an enrolled organization and an expectation by upper-level management to meet the spirit and intent of the certification standard, enrollment in a stewardship certification program facilitates getting wildlife practices done on the ground, where it matters the most. ◆

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Wildlife Responses to Thinning

BY JENNIFER WEIKEL

Commercial thinning is used to achieve a variety of objectives including improving wood yield, reducing fuel loads and improving biodiversity values by enhancing structural diversity. Despite its wide use and recent increase in public awareness, effects of thinning on many species of wildlife are still uncertain. Recently, many new studies on effects of commercial thinning have been published. Most of these studies describe immediate to short-term impacts of thinning on songbirds and small mammals. We still know little about effects of thinning on amphibians, uncommon species (e.g., forest-dwelling owls, marbled murrelet), large-bodied species (e.g., cougar), and those that range over large areas (e.g., pileated woodpecker, black bear, blue grouse). In addition, we know little regarding long-term or landscape-level impacts of thinning for any species. The intent of this article is to conceptually describe how thinning works to change forest structure for wildlife and to summarize the "state of knowledge" regarding effects of thinning on wildlife populations.

Most thinning is conducted in single-storied, structurally simple stands. Thinning usually removes suppressed and subdominant trees, resulting in greater spacing between trees and reduced canopy cover. As a consequence, more light and other resources are available to remaining overstory trees, regenerating seedlings and saplings, understory shrubs and herbaceous plants. The amount of sun reaching the forest floor and the duration of time that the forest floor will continue to experience increased radiation depends on the amount of overstory removed. Light thinning may result in an initial flush of resources that is short lived. Because few trees are removed, the canopy closes quickly and begins to shade understory plants in only a few years. Heavier thinning allows more light to reach the forest floor and increases the length of time that resources will be available before the overstory closes.

Larger trees

From a wildlife perspective, thinning can result in changes in habitat quality, much of which is positive. Overstory trees remaining after thinning grow faster, resulting in trees with larger trunks, deeper crowns and larger branches. Conifer trees (and some hardwoods) develop increasingly deep furrows in their bark as they grow. Deeply furrowed bark provides hiding spaces for spiders and insects, which in turn provides a steady and abundant food source for bark-foraging birds such as nuthatches and creepers. Trees with particularly deeply furrowed bark can also provide crevices used as resting sites for bats and cool, moist hiding places for salamanders. Large branches on trees provide stable structures on which birds can build their nests. Many species of birds (e.g., hermit warbler, golden-crowned kinglet) and one species of mammal, the red tree vole, specialize in living in the crowns of coniferous trees in the Pacific Northwest. Although some of these species are initially negatively impacted by thinning, as tree crowns develop, increasing the depth and volume of foliage, habitat quality will likely improve for these species over the long term.

Understory plants

Most single-story, closed-canopy stands have little to no understory vegetation. By allowing more light to reach the understory, thinning usually brings about a flush of growth of herbaceous plants, grasses and shrubs. Grasses and herbaceous species in the understory of thinned stands can provide a source of high-quality forage for ungulates. The flush of herbaceous plants and grasses also provides an abundant and stable source of food and hiding cover for many species of small mammals and for birds that nest or forage on the ground. Increased growth of shrubs provides improved protective cover for both ground-dwelling and shrub-dwelling animals as well as improved foraging and nesting habitat for many birds. In many cases, the increased radiation to the understory triggers production of flowers and fruits. This provides a source of food for hummingbirds, thrushes and many species of small mammals that is virtually absent in similar unthinned stands.

Multi-storied and multi-species stands

Thinning also promotes increased growth of shrubs and regenerating trees. Together these structures increase vertical layering and plant species diversity, especially in westside forests. Increased vertical layering of vegetation results in greater quantity and more varied habitat for foliage-dwelling birds. Multi-species stands provide a more varied and abundant source of seeds, mast and insects than do single-species stands. Deciduous trees within conifer forests are "hotspots" of diversity. Some species (e.g., black-headed grosbeak, downy woodpecker) occur or are most abundant only in areas containing patches of hardwoods. For birds, some species selectively place their nests in deciduous trees (e.g., dusky flycatcher, warbling vireo).

"Openness" of the canopy

For some species, the simple act of creating more space between trees can improve habitat. Some species of flycatchers require a combination of a tall perch and open air space to feed. The Hammond's flycatcher, western wood-pewee and olive-sided flycatcher are so particular in their habitat requirements that they are typically absent, very rare or restricted to edges of most single-storied closed canopy forests. Hammond's flycatchers are

abundant and western wood-pewees and olive-sided flycatchers sometimes occur in young thinned stands. Some species of bats are more active in thinned than in unthinned stands. Open air space in thinned stands allows bats ample room to maneuver for foraging. Some species of wildlife respond positively to thinning and are likely responding to an increased abundance in their insect prey. For example, many species of bats, hairy woodpeckers and red-breasted nuthatches respond positively to thinning despite the fact that thinning often results in a reduction in abundance of their primary nesting/roosting sites (snags). It is believed that increased use of thinned stands for these species is in response to increases in food abundance.

Eastside forests

As a result of years of fire suppression, dense multi-storied stands are now more abundant in dry pine-dominated forests than they were historically. Thus, in contrast to westside forests, heavy thinning is often used to remove young understory trees to improve conditions of the stand and to reduce fuel loading. Effects of thinning are not well studied in eastside forests. However, species of wildlife that occur primarily in open pine forests such as the white-headed woodpecker are likely to benefit.

Negative effects of thinning

Not all species respond positively to thinning. As noted above, species that require high canopy cover (e.g., Hutton's vireo, Pacific-slope flycatcher, red-backed vole) or specialize in foraging in the forest canopy (e.g., golden-crowned kinglet and hermit warbler) typically decline in abundance immediately following thinning. Reductions in abundance of these species are likely due to a direct loss of habitat or perhaps to more subtle causes such as increased rates of depredation or changes in microclimate due to loss of protective cover. Although it is suspected that habitat quality will improve over the long term for these species, repeated thinning or thinning over large areas may result in significant and longer-term declines for these species.

Because thinning reduces competition between trees, tree death due to suppression mortality is lower in thinned than in unthinned stands. Thus, natural recruitment of snags into thinned stands will likely be limited to natural disturbances such as disease (e.g., root rot), pests (e.g., bark beetles) and wind. Snags are a critical resource for most species of cavity-nesting birds and many species of small mammals. Without active creation of snags, species that rely on snags are likely to be negatively affected by thinning in the long term.

Similarly, long-term recruitment of downed wood is likely to be negatively impacted by thinning due to the corresponding lack of tree death. Although thinning may result in an initial recruitment of downed wood to the forest floor in the form of logging debris or due to wind throw, active management may be necessary to provide adequate amounts of downed wood for wildlife over the long term.

Long-term implications of thinning

To date, research has been limited to examination of the immediate to mid-term (approximately 25 years post thinning) effects of thinning. Overall, effects of thinning seem to persist up to at least 25 years after thinning is completed. Some species, however, do show a change in response within this time frame. For example, red-backed voles declined in abundance immediately after thinning, but were found to be equally abundant and to have better reproductive success in stands thinned 7 to 24 years previously than in similar unthinned stands. Long-term effects of thinning (beyond 25 years post-harvest) or effects of repeated thinning entries have not been studied.

Management implications

Overall, commercial thinning seems to have positive to neutral effects on wildlife. Of those species responding negatively to thinning, many are expected to demonstrate a recovery or reversal in response, eventually becoming more abundant in thinned than in unthinned stands. These species (e.g., Pacific-slope flycatcher, varied thrush) are often abundant in older forests and are expected to respond positively to enhancement of stand structure in young stands. For species that utilize snags and downed wood, however, active management may be required to provide these structures in thinned stands.

All thinned stands are not equal with regard to wildlife habitat. Degree of response of overstory trees, regenerating trees, shrubs and herbaceous plants will depend on level of thinning (how much is removed) and whether multiple thinning entries are conducted over the long term. If thinning is very light, little change in stand structure may be observed. Moderate thinning may result in a change in stand structure, but the response may be short-lived unless repeated entries are made to maintain presence of light to understory plants. Degree of response of wildlife, both positive and negative, will thus be influenced by level of thinning (light to heavy) and frequency of repeated entries. ◆

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One Good Maple

BY GARY SPRINGER

Over the years I have noticed that when clearcutting or clearing land for conifer reforestation purposes, most foresters and landowners cut down their big, scattered hardwoods and then chip or pile and burn them if they have no log value.

Twenty years ago I had some mostly open ground with big scattered maples growing on it that I wanted to convert to a conifer plantation. Instead of cutting the maple, I girdled and killed them, left them standing, and then planted my Doug-fir seedlings right under them. I discovered that the standing dead maple took up almost no space and didn't really interfere with the conifer growth because they no longer put out much shade. Also, as they began to decay they provided great bird roosting and nesting habitat for cavity users. A few of the maples eventually rotted off and fell over, mashing one or two conifers, but most of them stood for at least 15 years and provided important habitat that wouldn't otherwise be there. A few are still standing after 20 years and the fir trees are now above them.

PHOTO COURTESY OF GARY SPRINGER

This is one of Gary Springer's "good" bigleaf maples on the Springer Tree Farm in Corvallis, Ore. It is about three feet in diameter at its base and you can see the old axe marks where it was girdled. Before it was planted, the surrounding area was understocked and had widely scattered bigleaf maple and Douglas-fir trees growing on it. This maple was fully occupying a good quarter of an acre of ground and had no sawlog value. It would have made about three cords of very hard-earned firewood out of it, so it had some value there, but it had great value as a wildlife snag. When this picture was taken, the tree had been dead about 15 years and was a popular hawk perch and had been a home for woodpeckers and other cavity nesters who followed them. The fir growing next to the maple was around eight years old at the time. It took three years for the maple to completely die, so the fir got off to a slow start and was smaller than seedlings planted further from the maple. Today, the fir in the picture has overtopped the snag and is growing well. The old maple is still standing and still being used by wildlife.

By looking at things a little differently than I had in the past, I was able to turn an undesirable "nuisance" tree into a public resource at very little cost and without impacting my own goals. ◆

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SAF and Wildlife Meeting Held

BY FREDERICK C. HALL

The Oregon Society of American Foresters held a joint symposium with the Oregon Chapter of The Wildlife Society in Bend, Ore., February 9-11, 2004. More than 150 foresters and wildlife biologists gathered to discuss options for enhancing wildlife habitat through silvicultural practices. Discussions dealt with integrating wildlife habitat objectives with forest management planning, historical stand conditions compared to current and desired conditions, and the effect of silvicultural treatments on wildlife.

Old forests tend to have diversity in tree size, age and decadence, which enhances wildlife diversity.

As the percentage of older forests in the Pacific Northwest has decreased from about 60 percent in the late 1880s to less than 20 percent today, many wildlife biologists are concerned over loss in habitat. In addition, many stands today are relatively small in diameter, are growing slowly in diameter (stagnated), and are not developing as fast as the self-thinning concept suggests. In other words, they are not developing into multi-structured stands, a phenomenon clearly illustrated in many talks.

It was proposed that active stand management is the key to enhancing wildlife habitat in these forest types. Various silvicultural treatments involving either thinning or modified regeneration cutting where the leave trees are programmed for indefinite retention as legacies were described.

Thinning was the primary topic of discussion. Some thinning prescriptions were directly aimed at creating trees that could become legacies. Other treatments were directed at creating snags and dead trees by topping, girdling or injecting with pathogens.

Consensus among both silviculturists and wildlife biologists was not **if**, but **how**?

An array of wildlife species was considered such as amphibians, birds, bats, small animals, carnivores and ungulates. Twelve of 28 papers given in the silviculture section dealt with response of wildlife to various cutting treatments. If dense, stagnated stands were treated, most wildlife species were reported to respond positively. If more open stands were thinned, many wildlife responded positively and some negatively, but in no case was any species extirpated due to treatment.

Finally, social aspects of silvicultural wildlife enhancement were discussed in some interesting papers. Several dealt with treating stands to be more fire resilient. For example, reducing multi-storied stands to simpler structure and raising the crown height of smaller trees were felt important to reduce fire crowning potential, but seemed to have negative effect on wildlife habitat.

Another set of social considerations discussed opportunities to be able to treat stands, all the way from preventing court appeals, to stewardship contracts, forestland certification, landowner cooperation and formal state-federal-private agreements.

This symposium clearly illustrated how closely we are operating together in the forestry-wildlife environment. ◆

Frederick C. Hall Ph.D., is owner of PlantEcol NW, LLC, in Portland, Ore. He can be reached at 503-285-8729 or Fred_C_Hall@plantecolnw.com. He is a member of SAF and The Wildlife Society.

DecAID Advisor: A Tool for Managing Snags, Down Wood and Wood Decay in PNW Forests

BY BRUCE G. MARCOT, GRANT GUNDERSON, KIM MELLEN AND JANET L. OHMANN

Past tools for modeling and setting guidelines for snag and down wood management have been based on theory, professional judgment, models of wildlife species use as habitat and empirical data. However, recent studies reveal that guidelines for amounts of snags and down wood on national forests of Washington and Oregon may have been lower than the new field data on use by wildlife. Wildlife studies also show that decayed wood elements consist of more than just snags and down wood and that decayed wood provides habitat and resources for a wider array of organisms and beneficial ecological processes than previously recognized. Thus, there is a need for a new approach to describe and advise on appropriate sizes and amounts of wood decay elements for forest ecosystem management.

Enter DecAID Advisor, a web-based planning tool and advisory system that presents a synthesis of research data on wildlife use of wood decay elements and inventory data on snags and down wood in forests of Washington and Oregon. DecAID means "decayed wood advisor and decision aid" and is the result of five years of work by an interagency team of nine specialists in wildlife, forest inventory, ecology, entomology and fungi.

The intended audience for DecAID includes forest managers, forest planners, wildlife biologists and silviculturists who need to either identify target size and amounts of snags and down wood (and other wood decay elements) to meet objectives for wildlife or forest ecosystem management, or who need to determine the extent to which existing snag and down wood targets will meet these objectives. Additional users of DecAID may include forest entomologists and pathologists, or others interested in learning about insects and pathogens associated with wood decay elements. Anyone can access and freely use DecAID at http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf. The interface is very simple and requires little computer expertise.

PHOTO COURTESY OF BRUCE G. MARCOT

Wood decay elements in forest ecosystems include more than just standing snags and down logs.

DecAID is a statistical synthesis of published scientific literature, research data and databases on wildlife, insects and pathogens, and forest inventory. The data synthesis is presented at several "tolerance" levels (akin to confidence levels) with expert interpretation to help forest managers assess and determine appropriate types, sizes and amounts of wood decay elements needed to meet wildlife and forest condition objectives.

Information presented on wildlife use of wood decay elements is from empirical research studies, and information on snag and down wood amounts under natural and current conditions is based on forest inventories, research studies and other sources. Forest inventories used in DecAID include the Current Vegetation Survey (CVS), Forest Inventory and Analysis (FIA) and Natural Resource Inventory (NRI). DecAID also includes much information on forest insects and pathogens, based on empirical studies, CVS, NRI and FIA inventory data, and expert understanding of occurrence and ecology of insects and pathogens by forest condition.

Using DecAID Advisor

DecAID provides information by 10 wildlife-habitat types that are combinations of forest vegetation types and geographic distributions (e.g., westside lowland conifer-hardwood forest in the western Washington cascades) and three structural condition classes (open canopy, small/medium trees and larger trees forest conditions). For each wildlife-habitat type, DecAID first presents a narrative summary on wildlife, forest inventory, insects and pathogens, fungi, and other aspects of wood decay elements and their management considerations. From there, the user can "drill down" to many further levels to view data summaries, detailed data tables and literature citations.

DecAID summarizes wildlife use data as "cumulative species curves," which display sizes and amounts of snags and down wood used or selected by each wildlife species or species group, according to field studies. The tolerance levels are essentially percentages of observed wildlife population levels (see Figure 1). The inventory data are also presented at the same tolerance levels and describe the distribution of forest area by dead wood abundance classes in unharvested plots (a proxy for natural range of variability) and in the entire landscape (both harvested and unharvested plots). Information on forest insects and pathogens is presented in narratives and tables that summarize basic

life history information and occurrence in the inventory plots. Further narratives describe fungi and ecosystem processes of wood decay.

Watershed and landscape scale planning

Using DecAID for a particular forest type is straightforward, although the wildlife species lists and inventory levels describe general conditions of a forest wildlife-habitat type and structural condition class, rather than specific, stand-level predictions.

Using DecAID at a watershed or landscape scale with multiple forest types and structural condition classes is more involved. Maintaining (and defining objectives for) an adequate level and mixture of wood decay elements at these broader spatial scales, such as in watersheds, can be a challenging task for any forest land manager. To plan for dead wood over time, the manager may need to link to other models of stand growth and disturbance dynamics.

USDA Forest Service Pacific Northwest Regional Office is currently developing a procedure for using DecAID to help with assessments of snags and down wood at the watershed scale. This work in progress includes some general guidelines:

- analyze each watershed individually;
- use data from ecology plots within plant association groups, series or sub-series to estimate existing snag densities;
- stratify stands and ecology plot data by stand history and condition (e.g., old clearcuts, recent clearcuts, fires not salvaged, fires salvaged and areas of significant insect mortality);
- use the snag inventory data to develop distribution histograms for snag densities that can then be compared with those in DecAID for unharvested and all conditions to determine how well current conditions meet desired wildlife-use and overall conditions; and
- use the Forest Vegetation Simulator model with the fire and fuels extension to project future snag density and compare these predictions to the DecAID inventory histograms to determine potential effects of fire on snag amounts.

Cumulative species curves for snag/tree dbh (cm) used for nesting or denning in relation to snag size for 30%, 50%, and 80% tolerance levels in the Westside Lowland Conifer-Hardwood Forest Wildlife Habitat Type, Larger trees Structural Condition Class.

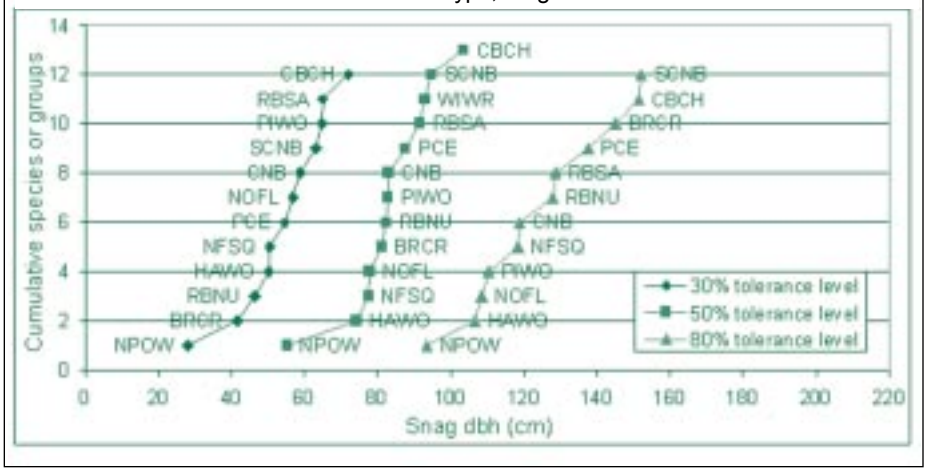


Figure 1. One example of the wildlife data summarized in DecAID Advisor. These are "cumulative species curves" that depict snag dbh used or selected by wildlife (e.g., CBCH = Chestnut-backed Chickadee) at three tolerance levels (percentages of the wildlife population). For instance, the upper left CBCH point on the 30 percent tolerance curve means that about 30 percent of the observed numbers of birds of this species, in this wildlife habitat type, would be provided by snags about 70 centimeters (28 inches) dbh. Other graphs display wildlife use and inventoried levels of snag (and down wood) densities.

Considerations beyond DecAID

DecAID does not explicitly model stand growth or landscape dynamics. Also, it is not a snag and down wood decay simulator or recruitment model, nor a wildlife population simulator or a substitute for analyzing wildlife population viability. At present, DecAID does not address wood decay elements in aquatic or riparian environments.

Decision-makers can use DecAID to learn how close they may be to meeting specific objectives, to help craft specific objectives for sizes and amounts of snags and down wood, and to learn about potential implications for other aspects of wood decay elements such as potential response by forest insects and pathogens.

For example, DecAID has provided a tool to help national forest personnel manage dead wood habitat in a manner that more closely mimics natural conditions. Previous to DecAID, snag prescriptions called for an average number of snags to be left across a planning area with some allowance for clumping. Data in DecAID indicate that snags and down wood occurred in densities that vary greatly across the landscape. Using these data, mosaics of varying densities that match the inventory data can be prescribed.

DecAID provides data that make possible analyses of fires and other snag-producing events in context of larger scales. The relationship of these "pulses" of high-density snags to overall snag densities in the larger landscape is crucial to understanding where and how much timber salvage is appropriate to meet specified objectives for maintaining or restoring wildlife habitat and natural stand conditions. Recent large fires on several national forests have been analyzed in this manner. ◆

Bruce G. Marcot, Ph.D., is a research wildlife ecologist for USDA Forest Service, Pacific Northwest Research Station in Portland, Ore. He can be reached at 503-808-2010 or bmarcot@fs.fed.us. Grant Gunderson is Regional Wildlife Program leader, and Kim Mellen is regional wildlife ecologist, both for the Pacific Northwest Region, USDA Forest Service, in Portland. Grant can be reached at 503-808-2972 or ggunderson@fs.fed.us, and Kim can be reached at 503-808-2677 or kmellen@fs.fed.us. Janet L. Ohmann is research forest ecologist, USDA Forest Service, Pacific Northwest Research Station in Corvallis, Ore. You can reach her at 541-750-7487 or johmann@fs.fed.us.

Silvicultural Management of Spruce-tip Weevil Infestation in Red Alder and Sitka Spruce Stands

BY LYLE ALMOND

Sitka spruce *(Picea sitchensis)* is an ecologically vital, economically desirable and culturally important component of the Pacific Northwest's coastal temperate rainforest. In this unique coastal maritime zone, Sitka spruce's enormous growth rate makes it the largest spruce on Earth and the third tallest tree in the Pacific Northwest.

Sitka spruce and its primary pest, the spruce-tip weevil *(Pissodes strobi)*, have successfully coexisted for millennia. However, with the advent of intensive single-species plantation management in the 20th century, the spruce-tip weevil population has exploded to epidemic proportions, reaching such high levels of infestation that regeneration commitments have even begun shifting away from Sitka spruce production altogether.

Spruce-tip weevils require certain conditions of temperature and humidity for feeding and oviposition. These activities are inhibited when low temperatures prevail around spruce terminals growing in dense, shaded stands. A Sitka spruce stand cannot sustain viable weevil populations in environments where heat accumulation is insufficient for completion of larval development.

While other means have failed to adequately control spruce-tip weevil damage, a silvicultural approach to integrated pest management is necessary to allow the continued use of spruce for reforestation. Using hardwood overstory trees, principally red alder, in a mixture with Sitka spruce in the understory, will alter microclimate conditions.

PHOTO COURTESY OF LYLE ALMOND/INSET PHOTO COURTESY OF DAVE POWELL, www.insect.images.org

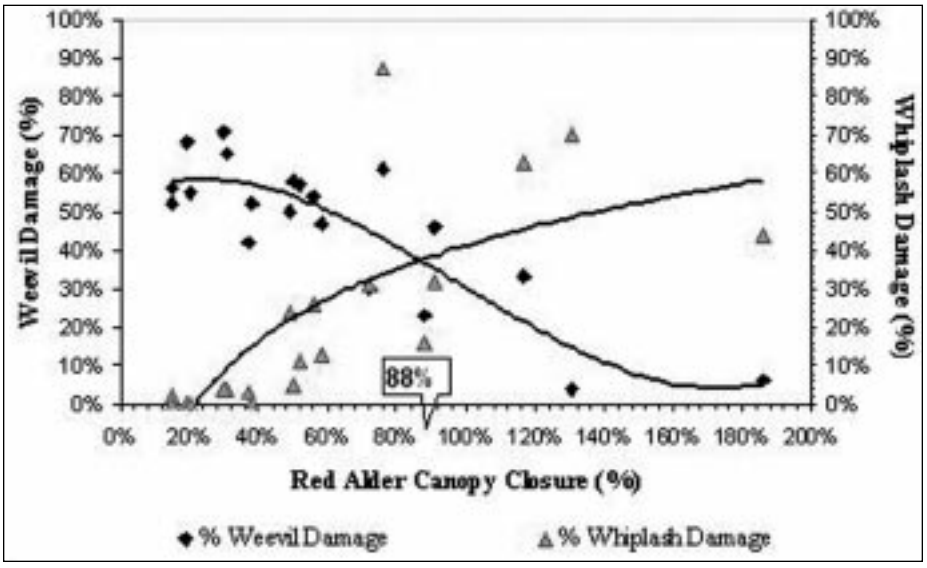
The classic shepherd's crook formed on Sitka spruce as the result of weevil attack. Inset photo: Sitka spruce weevil

I examined what effect overstory shade might impose on spruce-tip weevil damage using 20 quarter-acre plots in a stand planted with Sitka spruce in 1986 at Merrill and Ring's Pysht Tree Farm on the North Olympic Peninsula. During the intervening years, red alder seeded naturally and became a vigorous component in the stand.

While a statistical analysis of total canopy closure by all tree species within these research plots resulted in a poor linear relationship (r^2=0.0626), compelling evidence of a conspicuous, well-defined degree of linear association emerged when all tree species were removed from the model except red alder. Regression analysis comparing the amount of red alder canopy closure with the severity of weevil damage resulted in a coefficient of determination of r^2= 0.7301. This means that approximately 75 percent of the change in weevil infestation could be explained solely by the density of the red alder canopy closure ($p<0.001$).

An overstory of dense red alder may substantially reduce levels of spruce-tip weevil infestation, but this is often at the cost of whiplash damage to spruce terminals by red alder branches as spruce trees attempt to emerge through the red alder canopy. Proposed management practices should maximize the growth potential of the site by reducing spruce-tip weevil damage while diminishing the hazard of whiplash damage from red alder as Sitka spruce begins to replace the alder in the overstory. Superimposed linear trends between the effect of increasing levels of canopy closure on reduction of spruce-tip weevil attack and progressive whiplash damage intersected one another at a red alder canopy closure of 88 percent. This means that an optimal level of 88 percent red alder canopy closure will best minimize both weevil attack and whiplash damage to Sitka spruce under a nurse-tree shelterwood system.

Within all proportional mixtures, the unweeviled spruce component consistently comprised 25 percent of the proportional density in the research plots. Using this guideline, an initial planting density of 680 TPA (510



Regression trends for degrees of both weevil damage and whiplash damage superimposed to identify a target level of red alder canopy closure best suited for optimal development of Sitka spruce terminal growth.

red alder, 170 Sitka spruce) thinned from below to a stocking level of 120 TPA red alder at age 15 will maintain the 88 percent target for canopy closure. It is around this age that red alder's rate of incremental growth begins to significantly decline, relinquishing resources back into the environment to be taken up by Sitka spruce as it begins to emerge into the red alder canopy.

A higher initial density of 1,200 TPA (900 red alder, 300 Sitka spruce) will accelerate early height growth, but will also involve greater expense, both in terms of planting costs and in additional thinning costs. An initial thinning of red alder between five and seven years will be necessary as canopy closure exceeds the recommended 88 percent closure value, followed by a subsequent thinning at 15 years of growth.

At an even lower density of 435 TPA (325 red alder, 110 Sitka spruce), thinning of red alder may not be required at all. Although larger volumes can be achieved on short rotations of 15-25 years or less, increased deterioration of red alder wood quality and the greater risk of weeviling to Sitka spruce may impose severe grade reductions in log quality. Timber production, however, may not be the primary objective for managing mixed stands of Sitka spruce and red alder.

Mixed stands are generally more resilient than pure stands to many forest health problems. In addition, stratified mixtures such as alder and spruce are usually more productive since growing space is better optimized. Mixed alder-conifer forests contain a greater diversity and biomass of understory vegetation, an important source of deer browse. Finally, the abundance and diversity of insect and bird species in mixed-species stands is significantly greater than in pure, monospecific stands. For the objectives of wildlife management and ecosystem development, the benefits gained by managing stratified mixtures of red alder and Sitka spruce may outweigh their potential use as sources of timber production.

There is burgeoning interest in managing even-aged stratified tree mixtures such as red alder and Sitka spruce. Small landowners, in particular, are seeking innovative ways to utilize a smaller land base for multiple and more diverse management objectives. Not the least of these is to shorten the timber rotation and increase the amount of economically desirable red alder. When the red alder is removed, it leaves behind a legacy of well-developed, weevil-resistant spruce trees for further long-term forest growth and expansion. Under this cropping system, a third shade-tolerant species, such as western redcedar, could be interplanted under the spruce that has been released to ensure the flow of wood on a perpetual yield.

Developing silvicultural methods that are congruent with the natural ecological compatibility between red alder and Sitka spruce will lead to increased commodity production in an environmentally beneficial manner. This will ensure that Sitka spruce is once again managed as a highly desirable and valuable species for reforestation. ◆

Lyle Almond is a forester with the Washington Department of Natural Resources stationed in Forks on the Olympic Peninsula. He can be reached at 360-374-9433 or lylealmond@olypen.com.

OSAF Annual Meeting Huge Success

BY MARY SMELCER

Over 150 people attended the OSAF 2004 Annual Meeting hosted by the Siskiyou Chapter at Southern Oregon University in Ashland. The theme of this year's conference, Forest Research, Practices, and Products: *Strong Roots—Strong Future,* featured outstanding presentations on past, present and future perspectives from leading scientists, land managers and forest products experts from across the country.

The venue of notable speakers, including Hal Salwasser, dean, College of Forestry, OSU; Mark Rey, Under Secretary for Natural Resources and the Environment, USDA; John Sessions, OSU; and others attracted a lot of interest from students and local environmental interest groups. Additionally, interest in the conference speakers, the topics and current forestry issues attracted a high level of media attention. This conference may well have exceeded all other OSAF annual meetings for the amount of media coverage, including a showing of civil disobedience from some individuals attempting to disrupt the meeting!

In addition to a full agenda, the conference organizers worked with the university and others to participate and support several other educational opportunities for Southern Oregon University students, community members and interest groups. Letters of appreciation and several guest editorials were written in appreciation of the educational opportunities provided, including a facilitated discussion and debate between Dominck DelaSala, World Wildlife Fund, and John Sessions, OSU professor of Forest Engineering, on fire effects, salvage and restoration. Especially appreciated was the chance for students and interest group members to have a specially arranged meeting with Mark Rey. ◆

Mary Smelcer is the chair of the OSAF Annual Meeting Public Relations Committee. She can be reached at 541-618-2440 or mary_smelcer@blm.gov.

PHOTO COURTESY OF JOHN PRENDERGAST

The Foresters' Fund was a resounding success with over $4,605 raised. The proceeds will be split between the national Foresters' Fund and the Oregon SAF Foundation.

PHOTO COURTESY OF BRIAN SCHLAEFLI

District 1 Council member Darrel Kenops (left) talks with SAF President John Beuter and his wife Jill during a break at the Oregon SAF annual meeting.

PHOTO COURTESY OF JOHN PRENDERGAST

Current Central Oregon Chair Stu Otto (right) accepts the Chapter Achievement award from John Herbst on behalf of chapter members.

PHOTO COURTESY OF JOHN PRENDERGAST

One hundred thirty-six members (not including exhibitors, speakers and guests) attended the 2004 Oregon SAF annual meeting in Ashland.

Armitage Named Forester of the Year

Several awards were presented to deserving Oregon SAF members at this year's annual meeting in Ashland. Master of Ceremonies and Awards Chair Jim Rombach and Oregon SAF Chair John Herbst made the presentations during the dinner awards banquet.

Bill Peterson was presented with a Past Chair award for his service in 2003.

PHOTO COURTESY OF JOHN PRENDERGAST

George Ice (right) is congratulated by John Herbst for receiving the OSAF Research award.

A basic foundation for SAF is science, so the OSAF Research award is especially noteworthy. This year's award in Research was presented to George Ice of the National Council of Air and Stream Improvement (NCASI), based in Corvallis. He was cited for his long and active involvement with SAF and past and current research on watersheds, hydrology and non-point sources of pollution. This includes approaches to protecting water quality as part of Total Maximum Daily Load (TMDL) assessments under the federal Clean Water Act. George has also been active in testing the effectiveness of forest practices rules and Best Management Practices (BMPs) in protecting water quality. He works at both the state and national level and has provided technical support on policy issues for National SAF. George is currently the subject area representative for Forest Ecology/Biology on the SAF Forest Science and Technology Board.

Receiving the Tough Tree award was Paul Bell of the Oregon Department of Forestry and the Capital Chapter. Paul was nominated by the Emerald Chapter for his outstanding performance in effectively combining four county fire protection districts in the last year; and providing professional performance in difficult and dramatic personnel situations including an extreme fire year and working with thousands of landowners in his area of responsibility.

PHOTO COURTESY OF JOHN PRENDERGAST

Tough Tree award winner Paul Bell (right) accepts award from John Herbst.

PHOTO COURTESY OF JOHN PRENDERGAST

Lifetime Achievement award winner John Christie (left) receives a Ken Brauner print from State Chair John Herbst for his service to SAF.

Tillamook-Clatsop Chapter member John Christie was presented with the OSAF Lifetime Achievement award. John was recognized for his decades of ongoing SAF and professional contributions, of which Jim Rombach noted is expected to continue. John is a Charter member of his chapter, a leader in the Oregon Small Woodlands Association, an active tree farmer, an educator at the local community college and an energetic professional who works with the local media. He is an outstanding citizen and SAFer.

Congratulations to the Central Oregon Chapter for being honored with the Chapter Achievement award. The chapter was especially noted for their active support of the state society, a GAIN in membership, sponsorship of major fire education workshops for local governments/publics and SAF members, support to the Central Oregon Community College and active policy/legislation/letter writing at the local level.

PHOTO COURTESY OF BRIAN SCHLAEFLI

Forester of the Year Steve Armitage and wife Deb display his hand-crafted award.

Steve Armitage of the Siskiyou Chapter and with the Bureau of Land Management in Medford, was named Forester of the Year. He was recognized for his outstanding performance in leading a "team effort" for active forest management and fuels reduction in the Ashland/Ruch area. His leadership resulted in over 20,000 acres of thinning and 10,000 acres of fuel reduction that were significant in helping achieve a fire-resilient forest and performing federal land management goals. He was specifically cited for his "sheer intensity and perseverance" in working in difficult and challenging situations that was essential in achieving forest management objectives. In his spare time, Steve also chaired the Siskiyou Chapter in 2003 and was the general chair of the 2004 state annual meeting.

Congratulations to all recipients and thanks for contributing your talents to SAF. ◆

Wildlife the Focus of WSSAF Meeting

Wildlife and Forest Management was the focus of the Washington State SAF annual meeting held in Port Angeles, Wash., May 12-14.

Hosted by the Admiralty Inlet and North Olympic Chapters, 89 attendees, plus speakers, exhibitors and guests, listened to an excellent program on forestry and wildlife issues, including panel discussions about SAF's role in the policy decision process and roles of various landowner classes and their interactions.

The field tour theme on Friday was "Wildlife Response to a Managed Forest," and included stops at sites to discuss the effects of different stand conditions on elk, inoculation of trees to develop cavity nesting sites, management for biodiversity and forest products under the DNR's HCP, and balancing issues and outcomes.

The awards banquet was held Thursday evening, along with entertainment by photographer Ross Hamilton.

Newly elected SAF Fellows were announced and recognized: B. Bruce Bare, South Puget Sound Chapter; Pat McElroy, Southwest Washington Chapter; and Winton Wefer, North Puget Sound Chapter.

This year's new Golden Members were also announced: Harry Anderson, Morrie Boles, Verner Schmidt and Bill Truax of the Southwest Washington Chapter; Frank Deckebach, North Olympic Chapter; Ted Nelson of the South Puget Sound Chapter; Harold Strobel, Jr. of the North Puget Sound Chapter and George Thomson of the Admiralty Inlet Chapter.

Capping off the awards banquet was the announcement of the Forester of the Year award to Karen Temen. This award recognizes members who have made significant contributions to the WSSAF and to professional forestry. Karen has been an active member of SAF since 1990. Her involvement in the Southwest Washington Chapter in recent years has included Foresters' Fund chair, secretary, chair-elect, and in 2003, chapter chair. For the past three years she has organized the December chapter meeting, which includes a dinner and silent auction to benefit the Children's hospital through "Log a Load for Kids." Last year over $2,000 was raised at this event. Karen also helped organize the 1998 and 2004 WA/OR SAF Leadership conferences and the 2000 annual WSSAF meeting. In each of these roles, Karen's hard work, charisma and dedication to SAF have resulted in quality events and enthusiastic participation by SAF members.

In addition to her involvement in SAF, Karen volunteers locally with Hope for Horses, which provides an opportunity for handicapped kids to ride horses. She is also active in fundraising for cancer research through events such as "Relay for Life." She is a graduate of the Washington Agriculture and Forestry Leadership Program (Class XXII). ◆

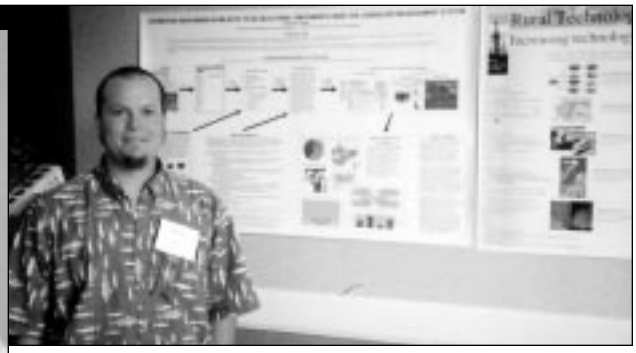


PHOTO COURTESY OF HANK KIPP

Kevin Ceder of the Rural Technology Initiative at the UW stands next to his poster, one of ten that was displayed at the WSSAF annual meeting.

PHOTO COURTESY OF HANK KIPP

Karen Temen receives the Forester of the Year award from Dave Malsed, the 2002 recipient of this distinguished award.

PHOTO COURTESY OF HANK KIPP

Longview Chapter members Patrick Allen (holding myrtlewood bowl), Ellie Lathrop and Eric Wisch accept the Chapter of the Year award from Pete Heide (left).

PHOTO COURTESY OF HANK KIPP

WSSAF Chair Pete Heide (left) congratulates Winton Wefer on being elected an SAF Fellow.

PHOTO COURTESY OF HANK KIPP

Dave Yates, Joe Heller and Winton Wefer (left to right) check out the Foresters' Fund items at the WSSAF annual meeting.

Calendar of Events

UNIVERSITY-SPONSORED EVENTS

Course	Dates	Sponsor	Location
Balancing Ecosystem Values: Innovative Experiments for Sustainable Forestry	August 15-20	OSU	Portland, OR
Red Alder Management and Processing	August 28	WSU	Skagit/Whatcom County
Commercial Thinning Field Day	September TBA	WSU	Island County
Introduction to ArcView 3.2 and the Use of GIS Workshop	September 19-21	UW	Eatonville, WA
The Basics of Accurate Forest Land Appraisal	October 4-8	OSU	Corvallis, OR
Ponderosa Pine: Management, Issues and Trends	October 18-21	OSU	Klamath Falls, OR
BEHAVEPlus, Fuel Models, and FARSITE Workshop	November 16	WSU	Spokane, WA
FCCS Fuel Characteristic Classification Systems Workshop	November 16	WSU	Spokane, WA
FRCC Fire Regime Condition Class Workshop	November 16	WSU	Spokane, WA
NEXUS Workshop	November 16	WSU	Spokane, WA
Mixed Severity Fire Regimes: Ecology and Management Symposium	November 17-19	WSU	Spokane, WA
How to Dry Lumber for Quality and Profit	December 6-9	OSU	Corvallis, OR
Fundamental Training and Applications of the LMS Workshop	December 8-10	UW	Mt. Vernon, WA

OTHER EVENTS

Family Forest Field Day, September 18, Bob and Lynette Falkner Tree Farm, Frances, WA, National Tree Farmers of the Year. Contact: Steve Gibbs at steve.gibbs@wadnr.gov.

Productivity of Western Forests: A Forest Products Focus, September 20-23, Olympia, WA. Contact: WFCA.

Who Will Own the Forest? Globalization and Consolidation Effects on Forests, September 21-23, Portland, OR. Contact: Angie DiSalvo at 503-488-2137; conferences@worldforestry.org; www.worldforestry.org/conferences.

Joint SAF/CIF Annual General Meeting and National Convention, October 2-6, Edmonton, Alberta. Contact: SAF National Office at 301-897-8720 or www.cif-saf-2004convention.org/natcon/.

Water Quality: What's Running Through Your Forest? workshop hosted by OSAF Coos Chapter, October 13, Southwestern Oregon Community College, Coos Bay, OR. Contact: Tod Haren at todh@odf.state.or.us.

Professional Timber Cruising, October 20-21, Beaverton, OR. Contact: Atterbury Consultants.

GPS for Mobile Professionals, October 27, Beaverton, OR. Contact: Atterbury Consultants.

Threatened and Endangered and "Imperiled" Plant workshop, cosponsored by SAF Northwest Office and WFCA, November 3, Holiday Inn, Wilsonville, OR. Contact: WFCA.

Native Plants, December 14-17, Eugene, OR. Contact: WFCA.

Joint OSAF/WSSAF Leadership Conference, January 15-16, 2005, Hood River Inn, Hood River, OR. Contact: Sue Bowers at 541-895-5549 or sbowers@epud.net.

Inland Empire, Oregon and Washington State SAF Tri-state Annual Meeting, April 13-15, 2005, Lewiston, Idaho. Contact: Terry Shaw at 208-885-7452 or tshaw@uidaho.edu.

Contact Information

OSU: OSU College of Forestry Outreach Education Office, Peavy Hall 202, Corvallis, OR 97331-5707; 541-737-2329; http://outreach.cof.orst.edu/.

WSU: Extension Meeting Management and Program Support, Washington State University, P.O. Box 646230, Pullman, WA 99164-6230; 509-335-2811.

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

Atterbury Consultants: 3800 SW Cedar Hills Blvd., #120, Beaverton, OR 97005; 503-646-5393; jaschenbach@atterbury.com; www.atterbury.com.

UW: Rural Technology Initiative, University of Washington, Box 352100 Seattle, WA 98195; (206) 543-0827, www.ruraltech.org/training/.

Send calendar items to the editor, *Western Forester,* 4033 SW Canyon Rd., Portland, OR 97221; fax 503-226-2515; rasor@safnwo.org. The deadline for the September/October 2004 issue is August 16, 2004.

We Remember

Larry Hoffman
1952-2004

Larry Hoffman, 51, long-time active SAF member and employee of the Oregon Department of Forestry, passed away June 5 in The Dalles, Ore. He died while taking the Work Capacity Test, a government fitness test for crews who battle wildfires. He was about two-thirds of the way through the test when he collapsed. Fellow employees trained in emergency aid rushed to his assistance, and an ambulance took him to the hospital within 10 minutes, to no avail.

He is survived by his wife, Karen Hoffman and his daughter, Teri.

Born in Detroit, Michigan, he was raised and graduated high school in Detroit and then attended Michigan Technological University and received his bachelor's degree in forest practices. He moved to Idaho to attend the University of Idaho, graduating with a master's in silviculture.

Larry began his career with the Oregon Department of Forestry in May 1976 when he was hired as a service forester in the Klamath-Lake District. He transferred to the Astoria District in 1978 to accept a management forester position. His next assignment took him to the other side of the state, and in 1979 he filled a forest practices/service forester slot in the Pendleton Unit. Then in 1987 he accepted a service forester job in the Prineville Unit. Two years later he was promoted to protection unit forester for The Dalles Unit, the position he held until his passing.

Larry helped direct crews against the 2002 Sheldon Ridge wildfire that threatened more than 200 homes in The Dalles. In 2003, he worked with multiple agencies to put out the Herman Creek blaze that threatened homes in Cascade Locks.

While serving in The Dalles, Mr. Hoffman was affectionately dubbed the "Detroit Kid," having grown up in the suburbs of Detroit. Fellow employees said Larry was devoted to his family, friends and forestry and was respected for his expertise in predicting the behavior of wildfires and investigating their causes. He will be remembered by his co-workers as a conscientious, hard-working professional who always went the extra mile to safeguard the forest resource. He enjoyed the outdoors, golf, anything to do with computers, reading and traveling.

Larry was very active in the Oregon Society of American Foresters. His energy, intelligence, innovation, wit and organization skills were a key to the success of the 2002 annual meeting held in La Grande, where he served on the meeting's executive committee. He also served as Columbia Gorge Chapter chair. His commitment to professional forestry and forestry education at the chapter and state levels were of significant service to the Society. Because of Larry's strong interest in forestry education, the Columbia Gorge Chapter of OSAF has initiated development of a Larry Hoffman SAF Forestry Scholarship Fund. For details, contact chapter chair Ole Helgerson at helgerso@wsu.edu.

A memorial service for Larry was held June 11 and included a pipe and drum corps from Tualatin Valley Fire and Rescue, an honor guard from the state fire marshal's office and a procession of fire engines from around the state.

Ralph Flowers
1929-2004

Ralph Flowers, bear damage control specialist, recently died following a short illness. Mr. Flowers had an encyclopedic knowledge and understanding of the American black bear, *Ursus americanus,* and applied that knowledge to better Pacific Northwest wildlife and forest management. The Washington State Society of American Foresters approved the following resolution at the WSSAF annual meeting.

Resolution

Ralph Flowers, the Bear Man, died Easter Sunday 2004, aged 75 years. The forestry profession has lost a quiet but irreplaceable resource. Flowers knew more about forests and the animals within them than most people will ever hope to know. His career as an animal damage control specialist spanned 50 years, taking bear damage control technology from leg-hold traps and hound hunting to a sophisticated damage identification system and targeted feeding program that nearly halted tree damage in targeted areas without lethal removal. The program is a model of forest and wildlife management, admired and studied worldwide by forest and wildlife managers.

Ralph was more than a woodsman. He authored three books; he was an artist, a carpenter, wood carver, taxidermist and more, all with a high school education and an insatiable thirst to learn. We are richer for having had Ralph among us; we are poorer for his departure. Those whose lives he touched will miss him, personally and professionally.

Therefore be it resolved: Washington State Society of American Foresters recognizes and honors Ralph Flowers for his contribution to Pacific Northwest forest and wildlife management.

Be it further resolved: that Ralph Flowers is hereby inducted as an honorary member of the Washington State Society of American Foresters to honor this most humble and visionary man.

Unanimously adopted by WSSAF on the 14th day of May 2004 at Port Angeles, Washington.

Frederick Rosmond
1915-2003

Fred Rosmond died July 15, 2003, in Olympia, Wash. He was raised on a dairy farm and attended schools in Oakville and Montesano, Wash. He earned a degree in logging engineering from the University of Washington School of Forestry in 1939. At the UW he lettered in boxing. He had been a reserve officer in the Coast Artillery; however, during World War II he was activated into the Anti Aircraft Artillery.

In 1945, Fred and his family moved to Forks, Wash., where he and his two brothers built and operated Rosmond Brothers Lumber Company until they sold the business in the early 1980s.

Mr. Rosmond served on the Clallam County Board of Education and was the Peninsula College's longest-serving trustee from 1971 through 1986. He was also active in the American Legion, Society of American Foresters, Forks Congregational Church and Toastmasters.

Mr. Rosmond's passion all his life was trees, and his yard in Forks, where he lived until his passing, includes trees he started from seeds collected while in college and in his travels. His favorite was his redwood tree, now 125 feet tall.

Conrad Shalland, Jr.
1928-2004

Conrad Shalland, a long-time member of the SAF Central Washington Chapter, died on April 22.

Connie, as he was known to most, was born in Indianapolis, Indiana, in 1928. He graduated from Purdue University in 1948 with a degree in forestry.

He married his high school sweetheart Joanne Reed in 1948. They jumped on a train heading west for his first job as a young forester at the Klamath Indian Reservation, working for the Bureau of Indian Affairs. They lived at the Klamath Indian agency in Oregon for years, where they had two daughters. The family moved to Toppenish, Wash., in 1961.

Mr. Shalland retired as the forest manager of the Yakama Indian Reservation for the US Bureau of Indian Affairs in 1979. They continued to live in Toppenish until their move to Seattle in 1988.

Robert Sward
1949-2004

A memorial service was held February 28 for Bob Sward of Springfield, Ore., who died February 10 of complications from leukemia. He was 54.

Mr. Sward was born in Kalispell, Montana, in 1949. He graduated from Flathead High School, attended Western Montana College and served in the Army Reserve. He lived in Kalispell and Dillon, Mont., before settling in the Springfield, Ore., area 31 years ago.

He was employed as a land manager for Giustina Land and Timber Co. He was involved in the Boy Scouts and served as a quartermaster with the Sea Scouts, and he served on the Oregon Trail Council.

Lawrence Gangle, Sr.
1912-2003

Lawrence Gangle, 91, of Waldport, Ore., died August 15, 2003, of age-related causes. He was born in 1912 in Washougal, Wash. In 1939 he graduated from what is now Oregon State University College of Forestry. He was employed by the USDA Forest Service, private timber companies and BLM. He retired in 1975.

Following retirement, he planted and maintained a small tree farm on the Alsea River. He was a regular attendee of Fernhopper's Day. ◆

Coos Chapter to Host Water Quality Class

"Water quality: What's running through your forest?" is the title of a one-day workshop sponsored by the Oregon SAF Coos Chapter on October 13 at the Southwestern Oregon Community College in Coos Bay.

The workshop will focus on the impacts of forest management on water quality and the effects that water quality issues have on forest management in Oregon, specifically southwest Oregon. Presentations on policy, strategies, practices, projects and research will be included. Speakers will include representatives from industrial and non-industrial forestry, state and federal agencies, and Oregon State University.

Both SAF CFE and OPL (Oregon Professional Logger) credits will be available.

Registration materials will be mailed out to SAF members located in southwestern Oregon later this summer. For more information or to make sure you receive registration information, please contact Tod Haren at todh@odf.state.or.us. ◆

Symbols Offered at Council

BY ANN FOREST BURNS

Council's June 4-5 meeting at Wild Acres was an opportunity to dust off our entomology. Although the torrential rains kept the noise down somewhat, the sounds and sights of the 17-year cicada outbreak will be long remembered. A few of us also saw fireflies for the first time. My childhood imaginings of fireflies winking through the night did not include them emerging as they do from the grass like little flames. It is a charming sight.

We were greatly disappointed that President John Beuter's health did not allow him to travel to Maryland. Vice President John Helms (CA) presided at the meeting, using notes and suggestions sent to us by John Beuter as a strong guide to keep us on track. Darrel Kenops (District II-OR), HSD Chair Nancy Peckman (WA), Gary Nakamura (District III-CA and HI) and I completed the Left Coast contingent.

Both Executive Vice President Michael Georgen's report and the reports from each Council District show that strategic planning and partnerships with other groups play an important role as we strive to use limited resources, particularly volunteer time, efficiently. The Community Wildfire Protection Plan, available for your use and distribution, is the product of a successful partnership with federal agencies and associations. The future of the forest products industry and the role of foresters in that future was the subject of a presentation to Council by guest and long-time SAF member Rich Lewis, president, Forest Resources Association. The 2005 Forest Service Centennial promises opportunities to help in celebration of our history and build toward our future.

As part of our discussion of this year's successful Leadership Academy, we talked about aspects of the forestry profession important to foster within SAF. Building on Lee Spradlin's (District VIII) use of worn work boots to symbolize the field forester, other members of Council shared items that symbolize something important about foresters. Gary Nakamura offered a pair of pruning shears: the forest is like a rose bush; if you want the flowers, you have to be willing to manage actively and to make hard decisions. Ann Camp, Forest Science and Technology chair, added a Zuni bear fetish to the top of her computer monitor to remind us that there are a number of ways of knowing a forest. John Kotar, District V, brought his daughter's play cell phone to remind us that the forester of tomorrow will be a masterful user of cutting-edge technology, constantly increasing both our efficiency and our knowledge base. Don Bell, District XI, offered an apple to symbolize the need to take the forestry message into the schools at the earliest possible age to develop appreciation of forest management and attract the best future foresters. Marlin Johnson, District IV, used a Forest Service badge to remind us of the continuing need to manage our federal lands wisely and actively. Communications Chair Rachel Billingham suggested that a complex Leatherman tool she carries can remind us that every member and every aspect of forestry is valuable and that the loss of any part reduces the overall effectiveness and value of the whole. This discussion will continue at our December meeting.

Certified Foresters® now number 3,093. A study guide for both the CF® and CFA® exams is expected to be published late this year. Both exams will be offered on paper at the Edmonton convention and electronically at a number of sites throughout the country. Proctoring and the need to reliably verify exam taker identity continues to prevent in-home or in-office examinations via personal computer internet connection.

Staff reports of preparations for the Edmonton convention make us look forward to our time there. If you have not yet registered for the Edmonton convention, I hope you will set the reading of this article aside and do so **now**. The chance to meet jointly with the members of the Canadian Institute of Forestry/Institut forestier du Canada is a once in a decade opportunity. The educational component of the convention promises to be very strong. Opportunities to have fun will abound, as well.

In order to reduce costs, Council will meet three, rather than the usual four, times in 2005. This change is in line with the recent limitation on travel for such standing committees such Forest Science and Technology and Forest Policy.

Our discussion of election of Fellows continues. Beginning in 2005, each state or division will be limited to one new Fellow per year. The Committee on Professional Recognition is being asked to audit the Fellow election process and to recommend to us whether the current cap (5 percent of members) should be retained. Darrel and I invite your thoughts.

Despite the rain, we did take the opportunity to entertain congressional and agency staff Saturday evening. The rain did let up somewhat. We enjoyed excellent barbecue thanks to chef and Past President John Heissenbuttel.

Later that evening, at the urging of Nancy Peckman and under the able guidance of Gary Nakamura, Darrel and I joined colleagues from Missouri and West Virginia in a (long) walking tour of the newly opened World War II memorial, the Lincoln monument and the Vietnam War memorial. The fellowship and reflection made us glad to be Americans, as well as foresters, in our lovely national capitol.

Council's December meeting will be in Portland, Ore. Council meetings are open to all, so if you have always wondered how we do what we do (or just think our meetings sound like a lot of fun), plan to be with us in Portland December 3-5. We plan to show off the Left Coast. Send me your ideas on how best to do just that. ◆

Ann Forest Burns is District I Council representative, serving the Washington State, Inland Empire and Alaska societies. She can be reached at 206-522-5942 or aforestburns@msn.com. Darrel Kenops is District II Council representative and can be reached at 541-741-3466 or dkenops@comcast.net.

Policy Scoreboard

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

2004 Oregon Ballot Initiative Petitions Reach Deadline. The likelihood that two forestry related initiatives will appear on the November 2004 Oregon ballot should be clearer as the July 2 signature submission deadline passes. Both are statutory measures, which require 75,630 valid signatures to qualify for the statewide ballot. The 78,000 signatures for Initiative Petition #120 submitted on May 24 were not enough to initiate signature verification, but more signatures were expected by the July deadline. As of early June, signatures had not been submitted for Initiative Petition #56 and little is known about the status of this petition campaign.

Initiative Petition #120 has been called the "50-50 Plan," as it would require 50 percent of the Tillamook-Clatsop State Forests to be managed for "old-growth timber restoration" and the balance for timber production. It would override the management plan for these forests adopted in 2001 by the Board of Forestry. Instead, the initiative would require the heads of three state university biology departments to appoint a technical team whose recommendations would be used to craft a new plan with measures for permanent old-growth preserves on 50 percent of the land area. Initiative Petition #56 "requires, defines sustainable timber harvest practices and organic pest controls on state and private forestland." The chief petitioner of #56 was a co-petitioner for Measure 64, and #56 retains some language and emphasis of the latter, including major restrictions on clearcutting and chemical pesticides.

The text and status of Initiative Petitions #56 and #120 can be found at the Secretary of State's website at www.sos.state.or.us/elections/other.info/irr.htm. Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@oregonstate.edu.

OSAF Continues Work on New and Revised Position Statements. The OSAF Policy and Legislation Committee continues to work on some new and updated position statements, which will add to the four adopted in 2003 (i.e., Active Management to Achieve and Maintain Healthy Forests; Salvage Harvesting; Clearcutting; Using Pesticides in Forests). Because old-growth forests remain an important, ongoing issue, a position statement on this topic has been drafted. The nature and complexity of this issue presents some major challenges, however, and thus the process for refining and adopting this position is expected to span several months. OSAF's statement on "Fish and Riparian Forests" was extended through December 2004, but an update of this 1998 statement is expected by this date. A new topic that is being considered for a position is biomass energy from Oregon's forests, given the limited attention now given by decision makers and the public to this unique opportunity.

Members are encouraged to use OSAF's current position statements to help convey their professional forestry views to key decision makers and the interested public. All of these statements are on the OSAF website (www.forestry.org). Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@oregonstate.edu.

Idaho Pilot Project Proposal Gets a Hearing. The Public Lands and Forests Subcommittee of the Senate Energy and Natural Resources Committee met on March 24 to hear testimony on several bills including the Clearwater Basin Project Act (S. 433). If passed, the bill would provide for collaborative forest management on the Clearwater and Nez Perce National Forests in Idaho through the creation of an advisory committee to assist in the development and prioritization of projects on these forests. No action has been taken on the companion House version (H.R. 835) of the bill. Contact: Jay O'Laughlin, IESAF Policy chair, 208-885-5776; jayo@uidaho.edu.

Western Governors Association creates Forest Health Advisory Committee. The Western Governors Association (WGA) has played an instrumental role in developing the 10-year implementation strategy for the National Fire Plan. The WGA remains committed to improving the wildfire situation and has formed an advisory committee with several members from each of the western states. The initial meeting was held in March in Reno, NV. Contact: Jay O'Laughlin, IESAF Policy chair, 208-885-5776; jayo@uidaho.edu.

Update: President's Healthy Forests Initiative. The U.S. Forest Service website (www.fs.fed.us/projects/HFI.shtml) is a good source for keeping up to date on the many policy activities associated with the President's Healthy Forests Initiative, including the Healthy Forests Restoration Act signed into law in December 2003. An interim field guide for implementation of the HFI & HFRA was published in March 2004 and is available at www.fs.fed.us/projects/hfi/field-guide/. Contact: Jay O'Laughlin, IESAF Policy chair, 208-885-5776; jayo@uidaho.edu.

Update: Stewardship Contracting. The Forest Service and BLM have issued final guidance to their field offices on how to develop, implement and monitor stewardship contracts and agreements. Through broad-based community public and community involvement, stewardship contracting is intended to achieve key land-management goals that improve, maintain or restore forest or rangeland health; restore or maintain water quality; improve fish and wildlife habitat; reestablish native plant species and increase their resilience to insect and disease; and reduce hazardous fuels that pose risks to communities and ecosystem values through an open, collaborative process. Stewardship contracting authority includes agreements with nonprofits, best-value contracts, designation by description, end results and goods for services. The guidance document, fact sheet, Q&As, and other information can be accessed online at www.fs.fed.us/forest management/projects/stewardship/handbook/index.shtml. Contact: Jay O'Laughlin, IESAF Policy chair, 208-885-5776; jayo@uidaho.edu. ◆

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