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Are Current Efforts Sufficient to Ensure Healthy Fish Populations?

BY BOB DANEHY AND
ANDY DOLLOFF

The maintenance and conservation of fish and wildlife populations in landscapes managed for timber production is a contemporary stewardship requirement and a challenge for forest managers. Best management practices (BMPs) have been developed to meet these challenges. Most BMPs were developed starting in the 1970s so the full impact and the success of those BMPs are not fully understood. In the aquatic realm, BMPs have focused on harvest restrictions in riparian zones and on techniques for minimizing sediment from roads and road-stream crossings.

At the American Fisheries Society (AFS) meeting in St. Louis, Missouri, in 2001, a symposium entitled "Reflections on Forest Management: Can Fish and Fiber Coexist?" was convened to address the efficacy of contemporary BMPs. Since 2001, there not only has been considerably more research, but the actions taken in the 1970s have had more time to demonstrate benefits to fish and habitat. To evaluate those developments, another symposium was convened at the 2011 annual



Bob Danehy



Andy Dolloff



PHOTO COURTESY OF BOB DANEHY

A river flowing through a second-growth forest. Note there is little instream structure and buffers are dominated by hardwoods.

meeting of the AFS in Seattle, Wash.

As with the first symposium, the 2011 version was well attended and had speakers from across North America to address the responses of fish populations to contemporary timber harvest practices. The symposium provided updates and new information to assist in ongoing discussions on the effectiveness of existing forest practices regulations. Though debate rages over the role of forest practices in the observed declines of anadromous fish in the PNW and Northeast, there also are concerns in the species-rich waters of the southeast United States and else-

where in North America. Speakers focused on fundamental issues such as the influence of physical factors on aquatic organisms in managed landscapes, applied issues such as the effectiveness of BMPs in various settings across North America, and specific fish responses to management actions.

In this issue a set of short review papers summarizes the symposium. These papers present a broad overview to allow an understanding of how we arrived at the current condition and what challenges remain, and close with

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In This Issue: Reflections on Forest Management: Can Fish and Fiber Coexist?

Healthy Fish Populations

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a question on whether current efforts are sufficient to ensure that fish persist and thrive on managed landscapes. A more comprehensive effort is in development as a book based on the symposium, which will be published by the American Fisheries Society.

Historical context

Human settlement throughout North America depended on forest resources for the development of communities. Exploitation accelerated in the mid- to late-1800s so that by the mid-1900s little of the primary forest remained. The technologies and the mindset of early harvesting are considered crude and destructive when compared to contemporary notions of

stewardship, multiple use, and sustainability.

Logging typically occurred to the edges of streams and streams themselves were primary conveyances for bucked logs from those watersheds. While these practices did not occur everywhere, they have been well documented and those historic practices to a large extent underlay many of the problems we face today. Riparian forests are not able to fully shade streams, and particularly in larger rivers, material removed to allow movement of logs is centuries away from being naturally recruited and large enough to create instream habitat. In addition, roads were constructed both directly in the channels of streams and on or near the floodplains of adjacent rivers to serve as mainline haul roads.

Criticism of these misguided logging practices may seem justified, but early loggers operated under very different circumstances. There were few of the anthropogenic pressures on aquatic systems at the time, so the survival or conservation of fish populations wasn't considered an issue. With history behind us, the challenge that confronts planners, foresters, and biologists today is, given all those past actions, can fish and fiber coexist?

The symposium addressed that. One central theme in the symposium was development, implementation, and evaluation of BMPs. In most jurisdictions in North America BMPs have been in place for about 30-40 years, long enough to have had a significant impact on stream habitats and biota. In commercial landscapes of western Oregon, for example, that means that



PHOTO COURTESY OF BOB DANEHY

A managed forest in the Oregon Cascade mountains with a range of stand ages across the landscape.



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4033 S.W. Canyon Rd. • Portland, OR 97221 • 503-224-8046 • FAX 503-226-2515
 rasor@safnwo.org • annie@forestry.org • www.forestry.org/northwest/westernforester/2013

Editor: Lori Rasor • **Assistant:** Annie Tomlinson

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State Society Chairs

Oregon: Ron Boldenow, 61962 Rawhide Dr., Bend, OR 97701; 541-318-0579; rboldenow@cocc.edu

Washington State: Ellie Lathrop, PO Box 190, Castle Rock, WA 98611; cell: 360-430-3006; office: 360-274-3044; ellie.lathrop@weyerhaeuser.com

Inland Empire: Steve McConnell, Forest Integrity, 1514 E 19th Ave, Spokane, WA 99203; 509-536-1876 (w); 509-868-8277 (c); smc571@msn.com

Alaska: Charles Sink, Director, Enterprise and Trust, Chugachmiut, 1840 Bragaw St., Suite 110, Anchorage, AK 99508-3463; office: 907-562-4155; charlie@chugachmiut.org

Northwest Council Members

District I: John Walkowiak, 3515 Oakmont St. NE Tacoma, WA 98422; work: 360-534-1303; cell: 253-320-5064; johnwa@dor.wa.gov

District II: Bob Alverts, 14569 SW 130th Ave., Tigard, OR 97224; 503-639-0405; balverts@teleport.com

Please send change of address to:
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Next Issue: Wildlife in Managed Forests

trees along streams with riparian buffers are between 30 and 80-100 years (50- to 70-year stand at the advent of riparian protection). Therefore, in those landscapes shade

levels and water temperatures are improving every year.

Is it possible that the broad-scale conservation efforts of federal agencies, the improvements in mainstem

water quality for all land uses, and the forest practices rules with their associated BMPs have provided threatened fish populations some hope for improvement? Or does the legacy of past practices and the continued pressures of expanding human populations render such hopes moot? The symposium explored those possibilities and in the following articles we provide a brief overview of the factors that fish need and the management practices developed to sustain them. ♦

Bob Danehy is Forest Watershed Program manager, National Council for Air and Stream Improvement, in Corvallis, Ore. He can be reached at 541-752-8801 or bdanehy@ncasi.org. Andy Dolloff is team leader for Coldwater Fisheries with the USDA Forest Service Southern Research Station in Blacksburg, Virginia. He can be reached at 540-231-4864 or adolloff@fs.fed.us.



PHOTO COURTESY OF BOB DANEHY

This river shows the effects of earlier harvest practices. The riparian buffer offers little shade and has a large hardwood component. The stream channel lacks complexity because of lack of large wood or other structure.

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Riparian BMPs: A Shift in Thinking?

BY DOUGLAS MARTIN

The importance of forest practices to the conservation of salmon and trout (salmonids) varies by species and region. All salmonids spawn in freshwater, but their duration of residency and dependence on freshwater habitat varies among species.



Pink and chum generally spawn in the lower reaches of streams (usually downstream of forestland), migrate to saltwater soon after emerging from gravel spawning areas (i.e., hours to days), and do not utilize freshwater for rearing. Chinook (king), coho (silver), and steelhead (migrating rainbow trout) utilize freshwater for juvenile rearing ranging from a few months (some chinook stocks) to a few years (e.g., one year for coho, 2-3 years for steelhead). Most trout species such as

cutthroat, rainbow, and bull trout spend their entire lives in freshwater with some having sea-run variants depending on region (coastal versus inland stocks).

The high dependency of certain species on freshwater habitat has resulted in their designation as keystone indicators of habitat quality. For example, bull trout are a keystone species for most interior forests and coho are a keystone species for coastal California and Oregon. The conservation of keystone species and the protection and restoration of their habitat is an important driver of current forest practices regulations. Because shade and large wood supply are important for maintaining cool water and habitat complexity, there is heightened concern about the effectiveness of riparian best management practices (BMPs).

The riparian management zone (RMZ) provisions of modern forest practices regulations are intended to restore and sustain aquatic habitats, ecological values, and aquatic communities over the long-term. Although scientific knowledge informed the development of these BMPs, there is considerable variation in RMZ design (e.g., buffer width, tree retention, canopy cover) depending on such factors as species presence (e.g., fish presence, anadromous-resident), stream size, forest type (moist, dry), and harvest of forest products (private or public forests). Given the variation in BMPs and management objectives there is continuing debate about the effectiveness of modern management schemes to maintain and restore aquatic habitat and keystone species.

The initial findings from several BMP effectiveness monitoring programs were reported at the 2011 Fish and Fiber Symposium (FFS) at the American Fisheries Society annual meeting. In one presentation, Brett Roper reported that monitoring within the Interior Columbia River Basin by the PACFISH INFISH Biological Opinion Effectiveness Monitoring Program is showing trends in habitat conditions over a 10-year time frame that are generally meeting the stated objectives for aquatic conditions on



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federal lands. Roper described that most of the 12 habitat attributes they evaluated were being maintained or improving, although some were improving at a slower rate compared to the reference reaches.

In a multi-year (1996-2006) survey of stream and riparian conditions in British Columbia, Peter Tschaplinski found that BMPs at most sites (87%) were effective at maintaining properly functioning conditions and that the sites with poor conditions were attributed to impacts from road sediment runoff, low riparian tree retention, and harvest-related machine disturbances. In Southeast Alaska, Douglas Martin reported that monitoring of RMZ effectiveness on private timberlands over the past 18 years indicate that overall stream habitat conditions are being maintained (i.e., no distinct positive or negative trends). He noted an increase in wood recruitment due to windthrow at some locations would probably affect the trend and magnitude of habitat response over time.

Other regional-scale assessments of aquatic habitat conditions investigated the effectiveness question. Recent surveys of stream habitat on national forests in western Oregon and Washington indicated generally favorable conditions with the majority of habitat index scores in the moderate (35%) and high (53%) condition ranges, and fewer scores (11%) in the lower index categories. The low scores were primarily attributed to areas with high stream temperature.

The Oregon Department of Fish and Wildlife investigated trends in coho habitat over a 10-year period (1998-2007) among the coastal watersheds of Oregon that included forest and agricultural lands. The trends varied by habitat metric and by sub-region, but there was no significant downtrend in habitat condition across regions. They surmise the lack of a region-wide downtrend may signal a change in trajectory compared with historical conditions, but could not attribute these changes to a particular change in land management because of the mixed land use in the study area.

Another trend analysis by the National Marine Fisheries Service in the Oregon coastal region had more pessimistic findings, concluding there



PHOTO COURTESY OF DOUGLAS MARTIN

Monitoring of riparian management zones in Southeast Alaska indicates that stream habitat conditions are being maintained.

is little evidence for an overall improving trend in freshwater habitat conditions since the mid-1990s. They noted that the legacy of past forest management practices (e.g., splash damming and channel clearing) combined with lowland agriculture and urban development have resulted in a situation in which the areas of highest potential habitat capacity are now severely degraded.

The current findings from research and monitoring show that the effectiveness of modern BMPs is mixed; some reports are optimistic and suggest that habitat is maintained or improving while other reports indicate concerns about persistent habitat degradation mostly from legacy impacts. These differences are not surprising given the wide range of BMPs and the difference in forests and physiography.

BMP effectiveness also depends on the management objective and how-when-where it is applied. For example, retention of old-growth RMZs in new timber harvest areas (e.g., BC, South-

east AK) has a greater potential to maintain ecological functions and aquatic habitat that would not be possible in areas with second- or third-cycle harvest with regenerated RMZs. In the latter case the potential to maintain existing habitat may be feasible in some settings, but the potential to repeatedly recover ecological functions before the next perturbation or to restore degraded habitat is an open question.

At the Fish and Fiber Symposium, John Richardson pointed out that recovery rates vary by process and that sustainable forest management will need to consider the potential changes in resilience and recovery of stream ecosystems. Finally, the effectiveness of regenerated RMZs to restore habitat complexity where the removal of large wood has degraded habitat structure will probably be a long-term (many decades-century) process. Kelly Burnett reported that the loss of key large wood in many Oregon coastal

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streams due to splash damming is limiting the likelihood of natural recovery. Consequently, she recommended that intensive active in-channel and riparian restoration may be essential for habitat recovery in rivers scoured by log drives.

Current policies that prohibit management of riparian stands may not achieve management goals given the diverse conditions in second-growth riparian areas and spatial variability among streams. Several speakers at the FFS discussed the need for more innovative riparian management that is tailored to site-specific conditions, emulates natural forest structure, and could incorporate an active management strategy. Gordon Reeves cautioned that the current regulatory approaches that mandate a single condition as a long-term goal is not consistent with the diverse spatial and temporal characteristic of streams. He recommended a need for management schemes that are more in tune with the way aquatic systems actually change and evolve through time. Along the same lines,

Lee Benda outlined a spatially explicit approach to riparian management that utilizes modern digital models to incorporate variable riparian processes, environmental settings, and watershed disturbance history for the design of alternative management schemes that may be more ecologically effective than standard rules. The restoration of riparian functions in regenerated forests is key to habitat recovery and could benefit from site-specific management. For example, Mark Wipfli proposed a management strategy for augmenting aquatic and fish productivity by maintaining an alder blend (i.e., alder enhances aquatic food production) in regenerated riparian forests in conjunction with a strategy to improve the supply of large wood from conifers. Similarly, Dave Kreutzweiser reported the findings of a pilot program that created patches of early-succession vegetation in riparian stands to simulate fire disturbance for the purpose of increasing shoreline habitat complexity and biodiversity.

Proposals for active management of

regenerated riparian forest to improve ecological functions and aquatic habitat are emerging or being considered for both public and private timberlands. In southwest Oregon, Professors Norm Johnson from Oregon State University and Jerry Franklin from the University of Washington have been working with the BLM to develop plans for forest restoration (includes site-based riparian approaches) that could contribute to both the ecological health and economic benefits from these lands. In California, the state Board of Forestry (Anadromous Salmonid Protection rule; California Forest Practice Rules 2012) authorized the development of pilot projects that will use site-specific information and measures to protect and restore the beneficial functions of the riparian zone in watersheds with listed anadromous salmonids. Monitoring and evaluation is planned for both of these proposals as there is high interest by scientists, managers, and policy makers concerning project effectiveness as well as the feasibility of implementing and managing site-specific prescriptions on a regional scale.

The scientific presentations at the Fish and Fiber Symposium collectively show that contemporary BMPs have minimized the adverse effects of forest practices and are facilitating natural recovery of desired ecological functions. However, recovery rates vary greatly depending on the intensity of past management disturbances and the spatially variable characteristics among streams. Further, there is uncertainty about maintaining the desired ecological functions over time with repeated management disturbances. To address these concerns, many scientists are promoting a shift in thinking from a "protection" mindset (e.g., buffering the stream) to an "ecosystem processes" mindset that incorporates spatially explicit management strategies consistent with the variable nature of streams. ♦

Douglas Martin is owner of Martin Environmental, a research and consulting firm in Seattle, Wash. He can be reached at 206-528-1696 or doug@martinenv.com.




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How Forest Management Affects Fish Habitat

BY TERRANCE W. CUNDY AND
CHARLES H. LUCE

The potential effects of forest management activities on fish and other aquatic organisms are largely driven by changes in physical and chemical cycles. These cycles cumulatively result in cold, clear, complex, and connected stream conditions that provide high quality fish habitat. This article discusses how forest management may affect the primary fish habitat components of streamflow, temperature, large wood, sediment, and chemicals.



Terrance Cundy



Charles Luce

Changes to these cycles anywhere in the watershed may affect fish in a particular reach, but changes in that particular reach or immediately adjacent to that reach are generally more significant than changes far upstream. In addition, in most temperate forest types, most forest management-induced changes are analogs for natural disturbances such as disease, insects, and fire. When forest management-induced changes are evaluated in the context of and contrasted to natural disturbances, observed changes rarely exceed the changes associated with natural disturbances. Best management practices, discussed elsewhere in this issue, are the tools used to reduce, but rarely eliminate, these changes.

Streamflow

Forest harvesting increases streamflow, both total annual runoff (also called water yield) and peak flows. In both cases, increases in flow appear to be proportional to the amount of forest cover removed, though the proportionality changes depending on climate and forest type. A study by Jan Bosch and John Hewlett in 1982 estimated a 40 mm increase in total annual runoff for every 10% decrease in forest cover for conifer forest types. Similarly, peak flow



PHOTO COURTESY OF CHARLES H. LUCE

Road construction should be done strategically to reduce impacts to streams. This road is on the Boise National Forest in the North Fork Boise River drainage.

increases in the Pacific Northwest may be greatest in the 2,000-5,000 foot elevation range where snow is more vulnerable to rapid melt during wet, windy weather after the canopy is removed. The only stand-alone effect of increased water yield is that it simply creates more aquatic habitat. In natural channels, stream depths and widths are almost universally increased with increased flow. Changes to streamflow are inextricably linked to other fish habitat components such as temperature and sediment, which are discussed below.

Another aspect of changed streamflow that is important to fish habitat is the routing of flow-through culverts (or other structures) at stream crossings. While this is not related to changes in flow volume, it deserves attention. Improperly sized or installed stream crossings can affect fish movement within the system. These effects can be positive or negative depending upon the specific situation. In general, where these crossings result in absolute upstream migration barriers, the long-term viability of upstream fish populations is diminished. Conversely, where these crossings provide species-specific barriers, they may increase viability of upstream fish populations; an example of this would be barriers to the upstream

migration of invasive exotics. Recent research shows that cutthroat trout are capable of moving through culverts on slopes up to 8% (no steeper tests were available), but passage success decreases with increasing slope.

Stream temperature

Forest harvesting adjacent to streams increases stream temperatures, with the greatest effects within and immediately downstream of cutting units. Again, the increases in temperature appear to be proportional to the amount of forest cover removed, though highly variable. A study done by Jason Dunham and his colleagues in 2007 showed an average 0.8°C increase in temperature for every 10% reduction in forest cover over mountain streams in Idaho. The biggest change in energy inputs is the increase of direct solar radiation to the stream surface due to shade removal from harvesting the nearby trees. The effects of these temperature increases on fish are not always clear; in some cases the effects may be negative and in others positive. There is, for example, the confounding factor that increased temperature (due to direct solar radiation) may be accom-

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panied by increased primary productivity, and ultimately, fish food. A second factor confounding the effects is the temperature preferences of the different salmonid species and life stages, of which there may be many in any particular stream; in most cases, changes favor some and disfavor others. In almost all cases, temperature increases caused by harvest are reduced relatively quickly downstream by groundwater and tributary inflows and a return to more fully shaded conditions.

Large woody debris

Forest harvesting can change the delivery of large woody debris to streams. Large wood is a key component of fish habitat. Wood creates hydraulic (and therefore habitat) diversity, detains sediment, and provides shade, cover from predation, and a substrate for other aquatic organisms that contribute to fish food. For any particular stream reach, an increase in large woody debris is almost always beneficial to fish.

Forest harvesting can change the input of wood to the stream in a number of ways. Harvesting immediately adjacent to the stream (within one tree length or so) reduces the potential supply of wood to the stream. Where harvesting occurs relatively frequently, such as uneven-aged silviculture, and harvesting is focused on removing weaker trees, delivery of large wood to streams would likely be reduced. However, there is sometimes a compensating effect that harvesting increases the likelihood of windthrow in the retained trees. This windthrow effect can also occur with no harvesting adjacent to the stream, where clearcutting leaves only streamside buffers.

Large woody debris loads to streams could be easily managed during harvesting operations and presents the best opportunity to positively affect fish populations over the fish-bearing stream network. However, forest practices regulations generally encourage the removal of large woody debris incidentally added during logging. At the same time, stream enhancement projects that involve placement of wood in streams require Army Corps of Engineers 404 permits, discouraging intentional additions of large wood. Current practice favors retention of



PHOTO COURTESY OF CHARLES H. LUCE

Large wood plays an important part of the riparian system as shown here on Van Buren Creek on the Nez Perce National Forest in Idaho.

streamside trees so that some of them might contribute to instream large woody debris in the future over direct, deliberate, and assured delivery during forest operations.

Sediment

Forest management activities can increase sediment movement in streams by increasing delivery to the stream and increasing movement of sediment already in the stream. Empirical observations of changes to the sediment budget caused by forest management activities are well documented in the scientific literature. The increased movement of sediment already in the stream is directly linked to the changes in peak flows mentioned previously.

Changes in sediment delivery to streams come from a number of activities and processes. Activities include road construction and use, log skidding, and site preparation. Processes include surface erosion and mass wasting. In general, the surface erosion processes on roads, skid trails, and areas with site preparation contribute fine sediment. Roads, particularly segments near streams and stream crossings, are responsible for most of this fine sediment input. Recent work shows that 90% of road-derived fine sediments come from less than 10% of

the road network, suggesting that strategic application of road treatments could efficiently reduce this forest management impact.

Mass wasting contributes both fine and coarse sediment. Under some conditions the addition of coarse sediment and wood is beneficial to habitat, while under others, it can reduce habitat diversity, as reflected by pools and riffles. Debris flows may be the most devastating mass wasting events, where fish habitat can be virtually eliminated when channels are scoured to bedrock. Habitat only recovers as coarse sediment accumulates back in the channel, and fish populations subsequently recover through refounding from nearby (generally downstream) populations. Mass wasting in forest management is most commonly associated with forest roads, in particular old forest roads built with bulldozers on steep terrain, a practice called "sidcasting." Mass wasting risks can be temporarily increased through forest harvest as well, but again the context of natural disturbance frequency is important to consider. The shorter cycles of forest harvesting, but softer footprint relative to fires for example, generally lead to smaller, but more frequent mass wasting events.

Potential effects of increased fine sediment input on fish include reduced

or changed food supply (macroinvertebrates), reduced feeding ability, and reduced egg-to-fry survival. Of these, egg-to-fry survival has multiple aspects including the sediment size available for redd construction and the filling of fines on top of redds.

The potential effect of increased movement of fine or coarse sediment with increased peak flows is scour of fish redds.

While the potential effects of increased fine sediment on fish are qualitatively logical, empirical evidence from field studies is largely lacking. For example, it is logical that increased fine sediment (turbidity) reduces fish ability to identify and capture food. But suspended sediment concentrations vary over three to four orders of magnitude naturally, under any forest cover condition. So, fish already live with this challenge. To estimate the magnitude of an effect, one needs to compare fish (for this purpose let's use growth as the metric) between low sediment conditions and high sediment conditions with all other factors being equal. The problem of course is that in the real world all the other factors are never equal, making experimental manipulation difficult. Food abundance and quality, inter- and intra-specific competition, predation, temperature, and habitat quality (to name a few) can all vary substantially from stream to stream. And like temperature changes, sediment changes may result in "winners" and "losers" in the fish community in the same stream. For example, increases in coarse sediment may reduce pool habitat that negatively impacts juvenile salmon, but at the same time favors juvenile steelhead.

Chemicals

Chemicals, both pesticides and fertilizers, are important tools in forest management today. While pesticides have a potential for toxicity, fertilizer effects would primarily relate to their effects on the chemical cycling that occurs in streams, just as removal of streamside trees changes the energy cycling in streams.

Under normal operating conditions, toxicity effects from either pesticides or chemical fertilizers are minimal; the introduction of toxic levels of chemicals to waterways only occurs in very rare

accidental spills. In such an event, the presence of migratory life histories and well-connected metapopulations can serve to reestablish populations, just like population recovery after debris flows.

Rules and conditions for normal application are conservative relative to riparian areas because of concerns over potential impacts to fish, and toxicity is not likely to be significant for several reasons. First, toxicity evaluation for fish is almost universally done for legal requirements and therefore the issue is always addressed either in disapproval of the chemical or the use requirements expressed on the label. Second, pesticides are often used only once during the life of a forest stand. Since almost all forest pesticides were developed for use in agriculture where applications are annual and sometimes even more frequent, it is likely that toxicity in the forest setting is minimized.

Nutrient cycling is an important habitat component. For fertilizers, the natural disturbance analog is still applicable. Examples include the stream fertilization that occurs as a result of anadromous fish returns, riparian nitrogen fixation by alders, and the flush of nutrients associated with wildfire. Indirect effects of added nutrients could be positive or negative, depending on context. For example, fertilizers might increase food production and benefit fish. Conversely, too much fer-

tilizer may increase primary production (and ultimately decomposition) to the point where dissolved oxygen becomes depressed, especially in lake environments. Insecticides may alter the prey base for fish, and this may be positive or negative.

Summary

Forests, whether wilderness or commercially managed, are well known for having cool, clear, complex, and connected water, more so than any other land use. As a result, forested streams generally provide the highest quality fish habitat. Even in unmanaged forests, natural disturbances have always led to periodic, dramatic variation. Forest management impacts, in contrast, are usually less severe through intentional design; however, disturbances are more common in time and space. The relative effects of these two different disturbance regimes on fish populations are complex and the subject of ongoing study. ♦

Terrance W. Cundy is manager—Silviculture, Wildlife and Environment, for Potlatch Forest Holdings, Inc., in Moscow, Idaho. He can be reached at 208-883-1668 or terry.cundy@potlatch-corp.com. Charles H. Luce is a research hydrologist for U.S. Forest Service Research and Development in Boise, Idaho. He can be reached at 208-373-4382 or cluce@fs.fed.us.



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The History and Effectiveness of Forestry Best Management Practices

BY GEORGE ICE, CF

Foresters have long recognized the important connections between forests and water. The 1897 Organic Act and the 1911 Weeks Act were both justified, in part, by the need to manage forests to protect favorable stream flows and water quality. Research in the United States to better understand this connection between forests and water goes back more than 100 years to the Wagon Wheel Gap Paired Watershed Study in Colorado. Very early on there was recognition that logging practices such as splash dams, yarding of logs downstream through channels, and poorly constructed and maintained roads that crossed or encroached on streams could negatively impact water quality and fish habitat. The USDA Forest Service, and later universities and private industry, supported and conducted numerous studies to identify ways of harvesting and removing timber from forests while minimizing negative water quality impacts. For more information on the history of this research, see a 2004 paper in *Forest History* by Ice and Stednick on Forest Watershed Research in the United States (<http://tiny.cc/yr4uow>).



The origins of the term Best Management Practice is somewhat clouded. One connection is with the Soil Conservation District movement, initiated by the Soil Conservation Act of 1935. In response to the Dust Bowl Era, this movement promoted efforts to identify practical methods of managing lands to protect watershed functions. In the 1949 *Yearbook of Agriculture*, Craddock and Hursh described “better land-management practices” designed to restore favorable plant cover and soil structure to meet present and future water needs. The 1972 Federal Water Pollution Control Act Amendments (frequently revised and also called the

Clean Water Act) accelerated development of Best Management Practices (BMPs) for forestry.

The Clean Water Act recognized the need to control both point sources (factories, municipal wastewater plants) and nonpoint sources (agriculture, forestry). BMPs were identified as a practical means of addressing the diffuse pollution coming from nonpoint sources. BMPs are defined by the *Dictionary of Forestry* as:

a practice or usually a combination of practices that are determined by a state or other designated planning agency to be the most effective and practicable means (including technological, economic, and institutional considerations) of controlling point or nonpoint source pollution at levels compatible with environmental quality goals.

watershed that has special management practices, such as leaving shade trees or avoiding channel disturbance. These practices are designed to meet watershed management objectives. The question is, how effective are these BMPs in protecting water quality?

The Pacific Northwest has a rich history of research in evaluating the effectiveness of alternative forest practices to protect water quality. The first of these studies, the Alsea Watershed Study conducted from 1957-1972, compared water and fish resource impacts from harvesting with and without buffers along streams. It clearly demonstrated that buffers could minimize water quality impacts such as elevated stream temperatures, sediment loads, and depressed dissolved oxygen concentrations. These findings led to adoption of the Oregon Forest Practices Act



PHOTO COURTESY OF GEORGE ICE

A study conducted by Dale McGreer in Idaho used sediment traps to measure sediment losses from skid trails with different treatments.

In the Pacific Northwest we are familiar with the rules and other watershed protection elements of the forest practices programs that serve as BMPs for forestry. Perhaps the most recognized BMP for forestry is the riparian buffer, riparian management zone (RMZ), or riparian management area (RMA) left around streams to protect channels and provide for both water quality protection and fish habitat needs. An RMA is literally an area of the

in 1971 and guided development of the first rules. These early findings have continued to be bolstered by watershed- and process-based research. Today there are many ongoing studies evaluating BMP effectiveness, including the Watersheds Research Cooperative at Oregon State University, the Washington Cooperative Monitoring, Evaluation, and Research (CMER) program, Mica Creek in Idaho, and state agency monitoring and



PHOTOS COURTESY OF GEORGE ICE

Alternative treatments of forest road cutslopes in Arkansas results in dramatically different erosion potential. Photo on left shows no erosion control while photo on the right shows site with mulch and seeding.

research to further test BMP implementation and effectiveness.

One problem is that there are multiple ways of assessing effectiveness. For water quality the most common way of measuring effectiveness is to estimate the percent reduction in impact compared to an operation without BMPs. For example, BMP effectiveness could be presented as a 90% reduction in sediment generated from a skid trail with BMPs compared to a skid trail where BMPs were not applied. Other measures could include some biological measure of effectiveness or comparison to other reference conditions. Finally, the “practicable” elements may also figure into an effectiveness assessment (i.e., is it cost effective?).

An example of adaptive BMP effectiveness research from another region is a skid trail sediment loss study in Virginia. In Virginia the state BMPs required that skid trails be seeded or mulched after logging to minimize erosion. Foresters were concerned about the cost and environmental impacts (introduced weeds) of bringing mulch to forest sites to cover skid trails. They were also concerned about the effectiveness of seeding. As an alternative, scattering slash on these skid trails was proposed. A study developed by Virginia Technical University used geotextile bags to filter runoff from skid trails treated with different erosion controls, as well as bare skid trails (2010 Master's thesis by Charles R. Wade, *Southern Journal of Applied Forestry* paper in press). The findings showed that mulch and hardwood and pine

slash were all very effective at reducing sediment losses from skid trails (95-98% reduction) compared to bare skid trails. Seeding reduced erosion by 77% compared to bare skid trails. A similar study, conducted decades earlier by Potlatch Corporation in Idaho, also found that slash applied to skid trails could greatly reduce sediment losses. Thus, a practical, economic, and effective BMP has been identified to reduce sediment losses.

BMPs are almost always effective in some situations and ineffective in others. Lopping and scattering slash is not an effective or practical erosion control for active haul roads built on steep slopes subject to landslides. Other BMPs, such as control of sidecast road construction, may be more appropriate for these conditions. When the National Council for Air and Stream Improvement, Inc. develop its *Control and Mitigation Handbook* for forest operations it looked not only at research findings on BMP effectiveness, but also under what conditions practices were ineffective, what complementary practices could improve BMP performance, and the cost of applying a practice.

BMPs are often applied as packages, so skid trails not only have slash applied to the surface, but also have water bars installed, are kept away from riparian areas as much as possible, and are limited to certain slopes. Watershed-scale retrospective studies, where the water quality impacts of contemporary forestry BMP packages are compared to impacts measured

before adoption of BMPs, often find impacts to sediment, temperature, and dissolved oxygen reduced by 90% or more with today's BMPs.

What we now face is a law of diminishing returns, where additional BMPs will provide reduced water quality improvement for the additional cost of applying the BMPs. Some of the most important research today is on the biological relevance of any changes in water quality so that we can determine how much is enough.

Clearly, forestry BMPs can be and are effective. Most state assessments find that when BMPs are applied, water quality impacts are minimized. In February 2012, the Society of American Foresters sponsored a technical symposium in Washington, DC, on Forest Management and Watershed Health. Part of that symposium was a scientific panel with presentations summarizing research on forestry BMP effectiveness. Presentations from that panel can be viewed at www.safnet.org/fp/ts_videos.cfm. At the 2012 Society of American Foresters National Convention in Spokane, Wash., a special session on forest watersheds and the Clean Water Act, including a presentation on BMP effectiveness, was presented. ♦

George Ice, CF, is a forest hydrologist in Alpine, Ore., who recently retired from the National Council for Air and Stream Improvement, Inc. after 35 years with that organization. He can be reached at 541-424-3034 or gice@ncasi.org.

How Much More Can We Expect from Current BMPs?

BY BRIAN SUGDEN

Many mountain streams in the western United States have been affected by forest management activities for 100 years or more. Some of these historic practices included splash dams to transport logs to downstream mills, railroads, and other primary transportation corridors built adjacent to rivers and streams, clearcutting of riparian areas, and tens of thousands of miles of logging roads built prior to consideration of environmental impacts. It is only in the past 20-40 years that forestry Best Management Practices (BMPs) have been widely adopted by states and federal land managers to control impacts on water quality.

As a rule, BMPs are constantly being improved in response to effectiveness evaluations and the transfer of ideas among professionals. Two areas of more recent improvements to many state programs involve stream-side protection (i.e., riparian buffers) and sediment control BMPs for road management. Despite this, there is significant pressure to further strengthen programs in some states. Foresters have begun to rightfully ask if we understand what benefits have already been realized, whether enough time



has passed to fully judge what has been achieved, and whether we have reached a point of rapidly diminishing returns with added conservation.

As is discussed by George Ice in this issue, an ever-increasing body of science is demonstrating the effectiveness of current forestry BMPs at both site and watershed scales. Recent research has found that modern stream buffers maintain temperatures on fish-bearing streams within a degree of pre-harvest condition and large wood recruitment to near-natural conditions. Other research has shown that sediment-control BMPs can reduce erosion and sediment delivery to streams by over 90%. But scientists are just beginning to be able to judge the cumulative benefit of modern BMPs at watershed and landscape scales.

In Washington, the state forest practices regulations were amended in 2001 to require forest landowners to develop Road Management and Abandonment Plans (RMAPs) and implement them within a 15-year timeframe. In the first decade of the RMAP program, 18,475 miles of road were improved and 3,769 fish barrier culverts removed. In Montana, where road BMPs are voluntary, landowners are also actively upgrading old roads to state BMP guidelines in conjunction with ongoing forest management activities. Between 2000 and 2010,

two-thirds of Montana timber harvest projects audited by interdisciplinary teams were judged to have included concurrent road upgrades that reduced overall sediment delivery in the watershed. This primarily relates to eliminating direct delivery of road runoff to streams by installing drivable drain dips or ditch relief culverts on approaches to streams. Similar upgrading of roads to BMP guidelines is occurring across the country in conjunction with ongoing management.

With millions of dollars being spent to upgrade roads, have streams “gotten the memo” on these improvements? With extremely high natural variability in instream conditions and a century of legacy impacts clouding the picture, this is a very difficult question to answer. But well-designed research is underway, being undertaken by a host of state and federal agencies, universities, cooperative partnerships such as the Watersheds Research Cooperative at Oregon State University, the Washington Cooperative Monitoring Evaluation and Research program, and by private landowners as part of fish Habitat Conservation Plans. On federal lands in the upper Columbia River Basin, the Forest Service has installed a network of stream monitoring sites to evaluate trends in habitat and biological conditions. The PIBO Project is conducting repeat sampling at 1,250 sites on a rotating basis every five years. Preliminary results suggest that Forest Service management practices near streams are beginning to improve trends in habitat conditions over the past decade. A recent study by Kara Anlauf and others looked at salmon habitat in coastal Oregon and found that conditions are stabilizing. They conclude:

“The trend results indicate subtle changes in habitat over the monitoring period, reflecting a generally stable condition. This effect could imply a reversal of what was considered a long-term downward trend in aquatic habitat condition. Resource management actions that restore habitat complexity and repair ecosystem processes to promote connectivity of high-quality habitats will maintain this course and produce long-term benefits to salmonids.”



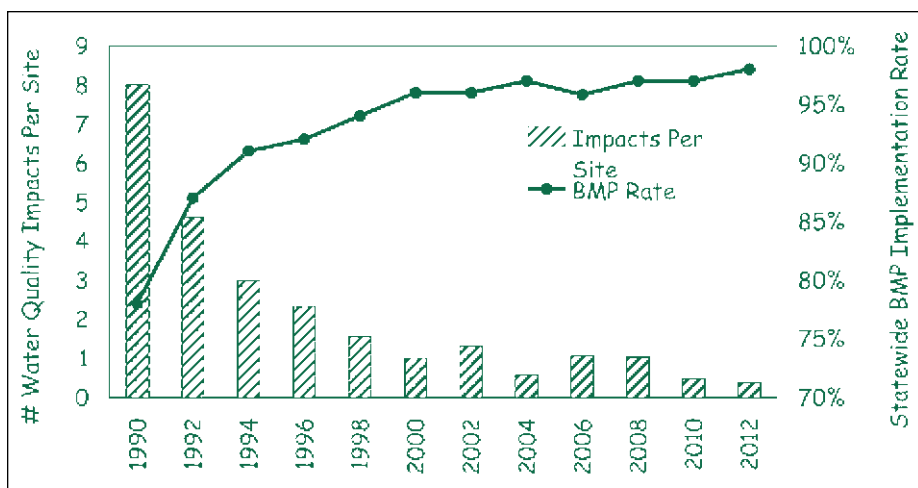
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Source: Montana Department of Natural Resources and Conservation

As statewide BMP implementation in Montana increased from 78% in 1990 to 98% in 2012, observable water quality impacts on logging job sites—such as erosion gullies or sediment delivery to streams—decreased by 95%. To attain the last 2% of implementation would likely be very costly and achieve only a marginal improvement in water quality.

With recovery time lags, the beneficial effects of improved forest management over the past 10-20 years are just beginning to be manifested. This is particularly so with stream shading and large wood recruitment as riparian forests continue to regrow. Evaluating environmental trends at a landscape scale is challenging, but numerous investigations are in progress, and important results will be forthcoming over the next decade. We need to appreciate these effects of current BMPs before major changes to state programs are made.

We do appear to be approaching the point of diminishing returns in many state programs. Road improvements can be cost-effective if done in conjunction with nearby forest management projects or as infrastructure wears out. But requirements to proactively address every road segment or fish passage barrier can be prohibitively expensive and may not make good environmental sense. For example, there may be a ditch on an old overgrown road that is delivering a small amount of sediment to a stream, but if you have to clear six-inch diameter trees along a mile of overgrown right-of-way to reach it, is this a good decision from either an economic or environmental standpoint? You would most likely be better served deferring this improvement until the road would otherwise be opened back up to access a timber harvest. What about a fish

barrier culvert that if corrected would only restore 200 feet of habitat? What about a proposal to add 10 feet to an already wide riparian buffer? The cost of the buffer to the landowner increases linearly with distance from the stream, but the benefits for most riparian functions diminish exponentially with distance from the stream.

A similar argument can be made with regard to BMP implementation. A 2010 review by George Ice and others in the *Journal of Forestry* found that national BMP implementation averages approximately 90% and has continuously improved over previous national reviews. But is 90% good enough? Well, that probably depends on how BMP implementation is measured from state to state.

In 1994, Montana BMP audit teams found that statewide implementation was 91% (similar to the national average today). This same audit found an average of three “water quality impacts” per audit site. These were instances of observable effectiveness issues on the harvest unit—such as an erosion gully on a road or hillslope, or observed direct delivery of sediment to streams. In contrast, the most recent Montana audit in 2012—using the same methods—found an average statewide BMP implementation rate of 98% and an average number of impacts per site of only 0.38. Thus a seven percentage point increase in BMP implementation between 1994-2012 reduced observable site impacts by 87%. Most in Montana would agree that this water quality gain was achieved at a reasonable cost. But to try for compliance of 100% to pursue that last fraction of site-level impact would come at a high cost with only a negligible benefit to water quality.

Chasing these last few percentage points in either implementation or effectiveness is typically very expensive. Research needs to help quantify meaningful nonpoint source loads that protect aquatic systems, rather than chasing the last pinch of dirt. That is, what defines “good enough?” ♦

Brian Sugden is a forest hydrologist for Plum Creek in Columbia Falls, Mont. He can be reached at 406-892-6368 or brian.sugden@plumcreek.com.

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Forest Roads and Clean Water Act Update

BY JAY O'LAUGHLIN

The Clean Water Act (CWA) mandates that the discharge of any pollutant by any person is unlawful, except in compliance with other provisions of the statute. The CWA provides the National Pollutant Discharge Elimination System (NPDES) permit program for pollutants discharged from a "point source"—defined as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel [etc.] from which pollutants are or may be discharged." Litigation by the Northwest Environmental Defense Center (NEDC) challenged the longstanding U.S. Environmental Protection Agency (EPA) position that most silvicultural activities, including forest roads, are



nonpoint sources and thus exempt from NPDES permit requirements.

NEDC v. Brown

The NEDC sued Oregon state forester Marvin Brown in 2006, alleging CWA violations for discharging stormwater from ditches alongside two logging roads in state forests without a permit. In 2007 the federal district court in Oregon found for the defendant. The NEDC appealed to the 9th Circuit Court, which in 2011 held that logging road runoff is subject to NPDES permitting because it either qualifies as a "point source" discharge if channeled through ditches, or it falls under a regulated category of stormwater associated with "industrial" activity. The National Association of Forest Owners (NAFO) and the State of Oregon filed petitions requesting that the U.S. Supreme Court review the 9th Circuit's decision.

EPA rule revision

As a result of *NEDC v. Brown*, the EPA saw the need to clarify its regula-

tions and announced in May 2012 that it was revising the "silviculture rule" because it did not intend for logging roads to be regulated as industrial facilities. The rule-making process was completed on November 30, 2012. The new rule makes it clearer that discharges of stormwater from silviculture activities that require an NPDES permit are limited to "rock crushing, gravel washing, log sorting, and log storage facilities." The new rule attempts to define forest runoff as Phase II stormwater, which perhaps can be managed more flexibly and without permits, but according to NAFO, raises more potential for litigation. Possibly the most significant impact of the new rule, then, is that it will perpetuate litigation in the 9th Circuit. Nevertheless, the EPA maintains its consistent position of 30+ years that stormwater discharges from forest roads can be controlled and addressed effectively with best management practices (BMPs). Such BMPs include grading and seeding road surfaces, and designing road drainage structures to discharge runoff in small quantities to off-road areas that are not hydrologically connected to surface waters. The EPA's new rule interfered with arguments that took place in the Supreme Court.

Decker v. NEDC

In response to petitions to the Supreme Court to review the issues raised by *NEDC v. Brown*—now renamed *Decker v. NEDC*, since Douglas Decker has become state forester—the U.S. Solicitor General argued that the Supreme Court should not be reviewing the case. Nevertheless, in June 2012 the Court granted the review petitions, and oral arguments commenced December 3, 2012, only a Saturday and Sunday removed from the EPA's new rule. The focus of advocates and justices alike shifted from issues they were scheduled to address to the potential effects of the new rule. Chief Justice John Roberts congratulated the forest industry's advocates for obtaining nearly all the relief they had sought, and chastised the U.S. Solicitor General for not informing the Court of



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the impending rule change. A decision by the Court is likely months away.

CWA issues remain murky

It appeared to *Legal Planet* blogger Richard Frank that a working majority of the justices were uncomfortable with the prospect of the 9th Circuit opinion in *Decker* remaining in effect. In response to the justices' questions, the environmentalists' counsel made it clear that a legal challenge to the new EPA regulation would be forthcoming. It seemed obvious to some that although the NEDC will not preserve its win in the 9th Circuit, it's almost equally unlikely that forestry interests will obtain the reversal on the merits that they had been seeking from the Supreme Court.

Forester/attorney Brent Keith, Government Affairs director with the Council of Western State Foresters, attended the Supreme Court proceedings. Based on what happened, he

opined that the Court is likely to dispose of the case without a decision on the merits. One such option would be to vacate and dismiss the case, which would eliminate the 9th Circuit decision as precedent. As a modified version of that option, the Court could also decide to vacate and remand to the 9th Circuit for further proceedings, with instructions to the 9th Circuit concerning the issues to be addressed on remand, such as considering the impact of the EPA's new rule.

It is clear that despite Chief Justice Roberts' congratulations, forestry interests did not escape from regulatory uncertainty. Because the EPA's rule applies nationwide, whatever the 9th Circuit ultimately decides will apply nationwide as well. To relieve such regulatory uncertainty, forestry interests would like to see a bill move through the new 113th Congress similar to the Silviculture Regulatory Consistency Act that died during the

previous Congress.

By the time you read this, the CWA issues pertaining to forest roads will likely remain unsettled. The substantive issue is about keeping human-caused sediment out of water bodies. The arguments about who has authority to make rules for doing so are a secondary but procedurally important concern. Regardless of what the Court decides, foresters have a responsibility to control sediment pollution from forest roads as best they can. The commentary by Kevin Boston in the September 2012 *Journal of Forestry* provides ideas for doing that. ♦

Jay O'Laughlin is professor of forestry and policy sciences and full-time director of the College of Natural Resources Policy Analysis Group, University of Idaho, Moscow. He can be reached at 208-885-5776 or jayo@uidaho.edu.

Wildlife Practical Skills Workshop Scheduled

Come join us for the day to explore tough management issues facing forest landowners, wildlife biologists, foresters, and other natural resource managers. The Wildlife in Managed Forests: Practical Skills Workshop, to be held March 14 at the Linn County Fair and Expo in Albany, Ore., is designed to address a variety of important topics and provide participants with practical tools that can be implemented on various landscapes. Participants will have an opportunity to interact with wildlife

experts and discuss management issues at the breaks.

The cost to attend is \$40 for SAF members. The workshop is hosted by the Marys Peak Chapter and co-sponsored by the Oregon SAF, Oregon Forest Resources Institute, and the

Oregon Chapter of The Wildlife Society. The conference is a fundraiser for the SAF Northwest Office.

A conference registration flyer will be mailed to all Oregon SAF members as well as posted on www.forestry.org.



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Managing healthy elk herds in forestland is one of eight topics that will be presented at the workshop.

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SAF Council Meeting Highlights

BY JOHN WALKOWIAK,
BOB ALVERTS, AND
JOHNNY HODGES

October Council Meeting and Convention

On October 23-24, 2012, SAF Council joined members of the House of Society Delegates (HSD) just prior to the National SAF Convention in Spokane. During the HSD meeting, representatives heard presentations from SAF leadership, staff and committee chairs regarding forest policy, publications, the *Forestry Source*, and dues disbursements.

SAF Policy Chair Robert Malmshiemer of SUNY ESF and SAF Executive Vice President Michael Goergen updated representatives on the lead role that SAF is playing in the Amicus Brief for the US Supreme Court concerning the Northwest Environmental Defense Center (NEDC) vs. Decker forest roads case. This brief is not designed to argue the finer points of law, but rather to explain the scientific basis for the decades of use of Best Management Practices (BMPs) authorized under the Clean Water Act and the relationship between forest roads and their effects on water quality to the Supreme Court Justices. The *NEDC vs. Decker* case focuses on whether forest roads are “point sources” under the Clean Water Act and would require federal permits. SAF was joined by the National Association of State Foresters, Association of Consulting Foresters, and over 40 other organizations in sub-

mitting this brief. The committee also reported that it is currently updating three position statements on Biotechnology, Conservation Easements, and Forest Management and Climate Change.

Budgetary wise SAF is working its way into the “black” thanks to the tiered dues structure, increased advertising, improved returns on investments, and the recent sale of the “Wild Acres” property. The recent Spokane convention was attended by approximately 1,600, providing a profit.

HSD members were introduced to the new non-dues revenue generation efforts led by Council member Bob Alverts. Council approved the formation of the 1900 Founders’ Circle where SAF members can commit tax-deductible contributions of \$1,900 over the next four years to build the Foresters’ Fund and grow SAF’s capacity. The \$1,900 figure corresponds with our founding year, and SAF intends to honor our founding leaders (Pinchot, Graves, Greeley, and others) through this effort. The Foresters’ Fund assets are currently more than \$1.3 million and it funds at least \$30,000 in local grants annually. The goal of the 1900 Founders’ Circle is to grow the Foresters’ Fund by at least \$3 million and double grant money available for new and visionary projects at the local, state, and chapter levels. In addition, Council approved updating information on estate planning and giving through wills and living trusts. This new information has been posted on the SAF website. If you have interest in learning more about



Left to right: Council representatives John Walkowiak, Johnny Hodges, and Bob Alverts.

the 1900 Founders’ Circle or other planned giving options, please contact your Council representative.

Council also heard from consultant Will Novy-Hildesley and Kelly Shearon of Quicksilver Foundry on further development on SAF’s strategic clarity. SAF’s work with Will and Kelly was the next step in helping SAF move from a “good” organization to a “great” organization—one that will attract and retain members and remain relevant in today’s and tomorrow’s changing world. As part of our strategic planning efforts, SAF needed to review its “brand” regarding “who we are, what we do, and why it matters.”

It is important to differentiate between the “brand” and SAF’s mission statement, which remains unchanged. The brand promise provides the sideboards that help an organization create discipline in their decision making as well as whetting the appetites of members to achieve excellence. As a comparison, consider why Southwest Airlines is a great company that has been thriving during the economic downturn and chaos of the airline industry. They know their brand and use it to guide their decision making.

Will and Kelly outlined the following branding strategy for SAF: Thriving forests (the ultimate goal), essential resources (forest and membership benefits), and a strong community (membership and allies). We (SAF) challenge landowners, decision-makers, and society at large to make choices about our forests based on professional knowledge, leading-edge thinking, and a century of practical experience. We seek



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viable pathways forward, balancing diverse demands on our natural resources. We set the standard in forest management, bringing science, best practice and the best people together to actively share the future of the profession. For the greatest good, for the greatest number for the long run, the Society of American Foresters—Evolving Forest Management since 1900.

Stay tuned as the Council and SAF staff work together to utilize the brand to make SAF more valuable to our members and more relevant to society.

December Council Meeting

SAF President Bill Rockwell led his final SAF Council meeting at the national headquarters in Bethesda, Maryland, on December 1-2. Joann Cox began her term as SAF president for 2013 beginning in January.

SAF Fellows Nomination Process

Because of inconsistencies between the various District Fellows Committees (DFCs), the SAF Committee on Public Recognition (CPR) was asked to review the SAF Fellows nomination process. The following recommendations by CPR were approved by the SAF Council. This new structure includes:

1. An endorsement form will replace the letter of recommendation.
2. A set of questions that the DFCs will use during the review process.
3. An evaluation rubric that addresses the Fellow's criteria.
4. A specific set of deadlines for the nomination and entire review process.
5. Individual Council members will become nonvoting members on the DFCs, but will be able to submit an endorsement of the nominations to the CPR.
6. The CPR will ensure each DFC is following both the criteria and due diligence in the review process.
7. The CPR will make the final recommendation to Council in June. The recommendation will include any individual Council endorsement of candidates.
8. Council will make decisions on the recommendations annually at the June meeting.

This new process will begin in 2014; Council members will continue to appoint DFC members each year.

Budget

The operating budget of \$3.4 million was approved for 2013. This budget is estimated to produce a deficit of approximately \$246,000. Due to the many variables in revenue and expenses during the year, it is anticipated this deficit may be eliminated by the end of 2013.

Payments

Timely payment of state and chapter dues has been a continuing problem. Dues will now be paid quarterly within 30 days of the close of the quarter. The \$10,000 payment to state societies hosting the national convention will be made by December 31 following the convention.

Forest Technicians and Rings

The SAF Ring Recognition Program was designed to recognize SAF student members that graduated from an accredited 4+ year program. There is not a similar program for graduates of accredited Forest Tech schools. A working group was appointed to develop a similar program for Forest Tech graduates.

Future Conventions

This year's national convention will be held in Charleston, SC on October 23-26. In 2014 it will be held in Salt Lake City, Utah, in conjunction with the IUFRO meeting, on October 8-11.

Members of the team scouting future convention meeting locations discussed their selection process. They also considered the option of moving the national convention to winter or spring, as well as setting long-term contracts to return to host cities on a regular basis. The goal of both ideas is to reduce costs, but there are many conflicts and issues with these ideas. Additional studies were advised.

The team recommended, and Council approved, the following tentative schedule for national conventions in September, October, or November

of the following years, but much work remains to be done and locations may change:

- 2015 – Baton Rouge, LA
- 2016 – Madison, WI
- 2017 – Louisville, KY
- 2018 – Portland, OR

Broadening Membership

Goal #1 in our current strategic plan is to "recruit forest natural resource professionals to become members in SAF to recognize rewarding opportunities that meet our mission and provide a broader membership base to pursue those opportunities."

Council approved the charter of a task force to "develop an action plan that maintains our core values and to formally recognize as peers natural resource professionals for membership."

One of our state societies has objected to using only the term "forest natural resource professionals" in our strategic plan. They recommended using both "foresters" and "forest natural resource professionals" in the plan.

This led to extensive discussion by Council. The goal of broadening membership in SAF is to recruit other natural resource professionals working in forests that are not foresters. If you have thoughts on this topic, please pass them on to your Council representative.

This Council report is a collaborative effort between District 1 (Washington State, Alaska, and Inland Empire) Council member John Walkowiak; District 2 (Oregon) Council member Bob Alverts; and District 4 (the Intermountain West from Canada to Mexico) Council member Johnny Hodges. John Walkowiak can be reached at 360-534-1303 or johnwa@dor.wa.gov. Bob Alverts can be reached at 503-639-0405 or balverts@teleport.com. Johnny Hodges can be reached at 970-226-6890 or jah.16@live.com. ♦

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Hazen Receives Golden Award



Hank Hazen (right) receives his Golden Member award from Admiralty Inlet Chapter Chair Steve Ricketts at the chapter's annual picnic last summer. The picnic, which happened on the best weather day of the month, drew a good crowd and included several "non attending" or "long absent" members with spouses and family. ♦

PHOTO COURTESY OF GLORIA RICKETTS

Gordon Recognized for 50 Years



John Gordon, Pinchot professor emeritus and former dean, Yale University School of Forestry and Environmental Studies, receives his 50-year golden member award from Portland Chapter Chair Jeannette Griese at the November chapter meeting. Gordon was also the speaker at the meeting, discussing "Forestry in Indian Country: What is Different? An Outsider's View." ♦

Election Results are in

The ballots have been tallied and results are in for national and state elections.

In Oregon SAF, Ron Boldenow, an assistant professor in the Forest Resources Technology Program at Central Oregon Community College, serves as chair for 2013. Dick Powell, a forester with Starker Forests in Corvallis, has been elected chair-elect; he moves into the chair position in 2014. Kathryn Keim, a silviculture forester for The Campbell Group in Seaside, Ore., was elected delegate-at-large. The position statement, Commercial Timber Harvest on Public Lands in Oregon, was approved with a 98% approval rate. The ballot return rate was 33%.

In Washington State SAF, Ellie Lathrop, commercial thinning manager for Weyerhaeuser Company on the St. Helens Tree Farm based in Longview, steps into the chair position. Joe Murray, an inventory and silvicultural forester for Merrill and Ring in Port Angeles, was elected chair-elect and will serve as chair in 2014. The ballot return rate was 28.4%.

Alaska SAF has two-year terms for their leadership. Charlie Sink, director, Enterprise and Trust, Chugachmiut, in Anchorage, is the chair for 2013-2014,

and Brian Kleinhenz, a silviculture and quantitative forester for Sealaska Corporation, was elected chair-elect for the same time period. Maynard Nuss, retired from the state of Alaska, was re-elected executive secretary/treasurer.

In the Inland Empire SAF, Steve McConnell will serve as chair this year. Elections were in process for chair-elect at the time of this writing.

On the SAF national level, Dave Walters was elected vice president; Joann Cox is the president and Bill Rockwell moves into the immediate past president slot. Three Council members were also elected from District 3 (J Lopez); District 6 (Andrew Hayes); and District 9 (Gregory Hoss). John Walkowiak from District 1 (Washington State, Inland Empire, and Alaska) and Bob Alverts from District 2 (Oregon) continue to serve on Council for 2013. ♦



Dick Powell



Kathryn Keim



Joe Murray



Brian Kleinhenz



Maynard Nuss

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Calendar of Events

Harvesting Clean Energy, Jan. 27-29, Corvallis, OR. Contact: Dana Colwell, 253-507-8506, dana.colwell@wsu.edu, <http://harvestcleanenergy.org/events/conference>.

Forest Vegetation Simulator Training, Feb. 4, Vancouver, WA. Contact: Lance David, 970-294-5856, ldavid@fs.fed.us.

12th Annual Foresters' Forum, Feb. 5-7, Coeur d'Alene, ID. Contact: Jennifer Childers, 208-667-4641, jennifer_childers@ifaconsulting.biz, www.consultingforesters.com/foresterforum.

Forest Stand Dynamics Short Course, Feb. 10-15, Eatonville, WA. Contact: Barbara Ruth, 203-432-5117, barbara.ruth@yale.edu.

Understanding GPS and Forestry and Natural Resource Data Collection Techniques for the Field, Feb. 12, Shelton, WA, and Feb. 14, Cottage Grove, OR. Contact: WFCA.

Cable Logging, Feb. 19-22, Corvallis, OR. Contact: FEL.

Oregon Logging Conference, Feb. 21-23, Eugene, OR. Contact: Rikki Wellman, 541-686-9191, www.oregonloggingconference.com.

Unit Planning and Layout, Feb. 25-28, Corvallis, OR. Contact: FEL.

Permitting Strategies in Alaska, Feb. 28, Anchorage, AK. Contact: The Seminar Group, 800-574-4852, info@theseminargroup.net, www.theseminargroup.net.

Forest Health: Identification and Management of Forest Insects and Diseases, March 13-14, Spokane, WA. Contact: WFCA.

Small Log Conference, March 13-15, Coeur d'Alene, ID. Contact: Tom Waddell, 406-546-5977, www.forestbusinessnetwork.com/our-events/slc/.

Wildlife in Managed Forests: Practical Skills Workshop, March 14, Albany, OR. Contact: SAFNWO.

Washington State SAF annual meeting, April 3-5, Lake Chelan, WA. Contact: Andy Perleberg, 509-667-6658, andyp@wsu.edu, www.forestry.org/washington/2013meeting/.

Timber Measurement Society annual meeting, April 10-13, Blaine, WA. Contact: Thelma Alsup, 4alsups@centurytel.net, www.timbermeasure.com/.

Atterbury Timberland Appraisal Seminar, Beaverton, OR. Contact: Diane Sandefur, 503-646-5393, dsandefur@atterbury.com, www.atterbury.com/timberland_appraisal_seminar.html.

Fuel Reduction, April 23-24, Corvallis, OR. Contact: FEL.

Oregon SAF annual meeting, April 24-26, Pendleton, OR. Contact: SAFNWO, www.forestry.org/oregon/2013meeting/.

Washington Farm Forestry Association annual meeting, April 25-27, Pierce County. Contact: WFFA, 360-736-5750, info@wafarmforestry.com, www.wafarmforestry.com.

Mechanized Harvesting Workshop, April 25-26, Corvallis, OR. Contact: FEL.

ESRI Forestry GIS Conference, May 14-16, Redlands, CA. Contact: ESRI

Forestry Group, 909-793-2853, info@esri.com, www.esri.com/events/forestry/index.html.

Western Forest Economists annual meeting, June 23-25, Leavenworth, WA. Contact: WFCA.

Contact Information

FEI: Forest Engineering, Inc., 541-754-7558, office@forestengineer.com, www.forestengineer.com.

SAFNWO: Society of American Foresters Northwest Office: 4033 SW Canyon Rd., Portland, OR 97221, 503-224-8046, annie@forestry.org.

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

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



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We Remember

James Ryan Schindler 1986-2012



Jim was born in the beautiful Rogue Valley town of Medford, Ore. He moved with his parents to Seattle, Wash., where he was educated in the Shoreline School District, graduating from Shorecrest High School. As a participant in the Running Start program, Jim was also able to obtain his Associates Degree from Shoreline Community College along with his high school diploma. He entered the University of Idaho as a junior in 2005. In 2008, Jim graduated from the university's College of Natural Resources with a Masters Degree in Forestry.

Shortly after leaving college, Jim was hired by the Washington State Department of Natural Resources as a forester in the Black Hills District of Olympia where he worked for over four years. He was an active member of the SAF for the past seven years.

In his spare time, Jim loved to mountain bike, snowboard, fish, camp with family and friends, hunt, hike in his much-loved forest and work tirelessly around his house. He recently volunteered to help his neighborhood homeowners association with improvements at their local beach club on Black Lake, where he enjoyed hanging out with his friends in the summer.

Jim is survived by his parents, George and Claudia; his brother, Hank; grandmother, Mary Demmer; and his aunts, uncles, and cousins.

Our Jim will be sadly missed, but quietly remembered every day, always in our hearts.

In lieu of flowers, memorial donations may be made to the Washington Society of American Foresters Foundation, 4033 S.W. Canyon Rd., Portland, OR 97221.

Donald R. Theoe 1939-2012

Donald R. Theoe, SAF member since 1960, passed away on December 18, 2012. He was born on March 31, 1939, in Portland, Ore. Don was 11 when he moved to Seattle in 1950. He graduated from Queen Anne High School in 1957. He earned both BS and MF degrees in Forestry from the University of Washington. Don was an SAF Fellow, Golden Member, and Certified Forester.



Don's career was varied and took him to nearly every state in the union. He held many positions during his long forestry career, including the Charles Bullard Fellow, Harvard Forest; director of Professional Programs, SAF National Office; and numerous positions within the Washington State DNR, including his beloved Forest Stewardship position, which he held until his retirement. For some, assisting family forest owners is a job assignment; for Don it was a calling. Don was a person who actually looked forward to evening and weekend programs so he could reach out to more landowners. Working with WSU Extension, Don helped to develop and launch the state's very first Forest Stewardship Coached Planning Shortcourse.

Don was very active in SAF throughout his career. SAF positions he held included WSSAF Chair (1979-1980), House of Society Delegates Chair (1982), SAF District I Councilman (1988-1990), and a candidate for SAF National VP in 1990. He was named WSSAF Forester of the Year in 1978. Don also wished to help other foresters that have had distinguished careers and as such, his last SAF assignment included serving on the District 1 SAF Fellows Committee. In addition to SAF Don was an active member in many other forestry organizations including the American Forestry Association; Canadian Institute of Forestry; Forest History Society; National Woodland Owners Association; Washington Farm Forestry Association; Washington Tree

Farm Program; Western Forestry and Conservation Association; and Xi Sigma Pi.

Near the end of his career, the American Tree Farm Program recognized him as the National Tree Farm Inspector of the Year. Post-retirement, Don became a forest owner and Certified Tree Farmer and served as the chair of the Washington Tree Farm Program and as president of the Washington Farm Forestry Association. Don and his wife, Florence, were recent nominees for Washington State Tree Farmers of the Year. Don was the epitome of what a dedicated forester should be. He touched the lives of so very many foresters and landowners alike.

A memorial service was held on January 12. The family requests that in lieu of flowers, donations can be made to the American Diabetes Association, 1701 North Beauregard St., Alexandria, VA 22311.

Donald Finney 1927-2012

Local, state, regional, and national timber industry giant Donald Finney, 85, died peacefully at the Ketchikan Pioneers' Home on July 12 in Ketchikan, Alaska, with family and friends at his side.

Mr. Finney was born June 17, 1927, in Riverside, Calif. He graduated high school in Riverside and joined the Navy at the age of 16, serving in the Pacific theater during World War II. He attended college in Riverside and then transferred to the University of Idaho to study forestry.

He traveled to Southeast Alaska during the summers and worked at the old Homestead Dairy on South Tongass and at the Ketchikan Spruce Mill. He often said that he fell in love with Alaska the summer of 1948 and he knew that he would settle there. He met his future wife, Helen Yaw from Sitka, when he was at Idaho and she was attending nearby Washington State University. The pair graduated in 1951 and married that year in Sitka, where Don went to work for the US Forest Service.

During the 1950s, Don worked as a timber cruiser and logging engineer for Ketchikan Pulp Co. on Prince of Wales Island before moving to the new logging camp site at Thorne Bay in 1961.

The Finneys moved to Ketchikan in 1963 when Don became the logging manager for Ketchikan Pulp Co. He was very active in timber politics at the state and national level and served as the manager of Forestry and Government Affairs for Louisiana-Pacific when they took over the local mill. Don was chairman of the board of the Alaska Chamber of Commerce, president of the Alaska Loggers Insurance

Exchange, director of Alaska Loggers Association, and served on the advisory committee of the Joint Federal-State Land Use Planning Committee for Alaska.

In the early 1980s, Don joined U.S. Borax as the manager of its Quartz Hill molybdenum mine project. He was still active in mining and timber politics, and "he and Helen advocated tirelessly for the industries," his family writes.

Their public service in the interest of the state was recognized by the Alaska State Chamber of Commerce, which named them Alaskans of the Year in 1983. Don went on to serve as the general manager of the Alaska Loggers Association for five years—now the Alaska Forest Association—until he retired in 1992. He stayed involved with the industry in retirement and served on several industry boards and advisory committees.

The Finneys settled on Kauai, Hawaii, as their favorite winter vacation spot and spent time there nearly every year. Don's hobbies included hunting, fishing, scuba diving, and being on the water or in the woods.

He was preceded in death by his wife Helen.

The family requests memorial donations to the Society of American Foresters Dixon Entrance Chapter, which organizes local service projects and sponsors a scholarship for forestry students at the University of Alaska Fairbanks. Donations may be sent to the chapter at PO Box 23613, Ketchikan, AK 99901.

David "Dave" Thomas 1918-2012

A joint memorial service was held for David P. Thomas and Geraldine A. Thomas on September 13. Mr. Thomas died peacefully in his sleep on August 25, 2012, and his wife Geraldine Thomas died in her sleep September 16, 2011, at Sheldon Park assisted living in Eugene, Ore.

Born in Wasco, Ore., on July 7, 1918, Dave Thomas' family moved to Astoria, Ore., in 1926 and then to Seattle in 1931 where he went to high school.

He joined Boy Scout Troop 151 in 1931 and earned the rank of Eagle Scout. As a lifelong scout, he served in various volunteer positions. He received the Silver Beaver Award.

David received a bachelor's degree of forestry in 1941. His forestry career was interrupted when he volunteered for the U.S. Naval Reserve Midshipman Training School in June of 1941. He was commissioned Ensign in September and ordered to the carrier USS Lexington. December 7, 1941, he was west of Pearl Harbor with a

carrier task force assigned to delivering scouting planes to Wake Island. He saw action in Pacific engagements at Rabaul, Salamaua, Lae, Tulagi, and the Battle of the Coral Sea. As a Lexington survivor of the Battle of the Coral Sea, he was subsequently assigned to the battleship USS Nevada, on which he saw action at Attu, in the North Pacific; at Utah Beach and Cherbourg in the Normandy Campaign; at Toulon and Marseilles, in the invasion of Southern France; and more action back in the Pacific at Iwo Jima, Okinawa, and Jaluit.

He married Geraldine Alaire Culross after a nine-year courtship dating back to their junior high days. They had three sons: Larry, Jeffrey, and Glenn.

After receiving his master's degree from the University of Washington in 1947, he served three years on the faculty of the New York State College of Forestry at Syracuse University before returning to the University of Washington in 1950 as an assistant professor of forestry.

At the UW over the next 37 years, he advanced to professor of forest resources. David served in various administrative positions as director of the Institute of Forest Resources, associate dean of forestry, and chairman of the department of forest management. His focus was on undergraduate instruction, counseling, and the administration of special programs.

Upon retirement from active service on December 31, 1983, he was honored by the Board of Regents with the title of professor emeritus of Forest Resources. David served the state of Washington on the technical advisory committee to the Forest Practices Board that drafted the first administrative code for the Forest Practices Act. He was subsequently appointed by Governor John Spellman to serve a three-year term on the Forest Practices Appeals Board.

He was active in the Society of American Foresters throughout his career. He served as chair of the Washington State SAF and was honored by the national body by election to the status of Fellow. David was a member of the University Lions Club and served a term as president. He taught high

school Sunday school at the Green Lake Congregational Church and sang in the choir.

In lieu of flowers, charitable donations can be sent to University Congregational United Church of Christ memorial fund at 4515 16th Ave NE, Seattle, WA 98105-4201 or a charity of the donor's choice.

William "Bill" Barzler 1923-2012

William Jennings Barzler, 88, of Lake Oswego, Ore., passed away October 27, 2012. Born November 5, 1923, in Brooklyn, New York, Bill moved from Brooklyn to Schenectady, NY, where he graduated from high school.

After high school, Bill attended Syracuse University for one year and then was called to duty in the Navy for WWII. After his honorable discharge from the Navy Bill returned to Syracuse where he completed his degree in forestry.

With Bill's love of the great outdoors, he moved to Washington state to begin his career in forestry. In 1952 he married Dolores Eisenhardt in Longview, Wash., where he began working for International Paper Co.

While living in Longview, Bill and Dolores welcomed their children William and Bonnie. Bill was then transferred to Eugene, Ore., where they had their third child, Rebecca. Bill was transferred back to Longview in 1973, where they lived until 1977. In 1977 Bill and Dolores moved to Lake Oswego, where Bill worked in the downtown Portland office of International Paper Co. until his retirement in 1983. Bill's pursuits included owning a 120-acre tree farm and participating in the SAF. His hobbies included hiking, geography, fishing, hunting, camping, and traveling.

Memorial contributions may be made to the Lake Grove Presbyterian Church located at 4040 Sunset Dr., Lake Oswego, OR 97035. ♦



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Policy Scoreboard

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

OSAF Pesticides Position Updated and Approved; More Updates in 2013. The OSAF Executive Committee recently approved an updated position statement on "Using Pesticides on Forest Lands." The core position, which is the

short summary paragraph highlighted at the top of the document, was modified only slightly. Changes in the background material also were relatively minor. However, a notable new USGS report on pesticides and land use sources in the McKenzie River basin is now listed and mentioned in the text. Also added to the reference list is the chapter on chemicals in OFRI's "Oregon Protection Laws Illustrated Manual." Oregon has seen renewed interest and concern about pesticide use on forestlands, and the updated position could be very useful in helping OSAF respond to bill proposals during the 2013 state legislative session and other policy initiatives that may arise.

In the coming months, the OSAF Policy Committee will review and update three other position state-

ments that are scheduled to expire: Salvage Harvesting, Clearcutting, and Active Management to Achieve and Maintain Healthy Forests. All of these positions remain very timely and important given ongoing concerns related to wildfires and forest health, and negative perceptions of clearcutting. The latter issue also has been renewed by the recent western Oregon BLM's pilot projects that include "regeneration harvests." All OSAF members are encouraged to review these and other position statements (www.forestry.org/oregon/policy/position/) and use them to articulate a professional perspective when discussing forest resource issues with people outside the profession. Contact: Paul Adams, OSAF Policy chair, 541-737-2946; paul.adams@oregonstate.edu. ♦

Rombach, Tokarczyk and Starkers Honored by Forestry Center

The World Forestry Center inducted SAF leaders Jim Rombach and Bob Tokarczyk into the Forestry Hall of Fame located in the Center's Discovery Museum last September.

Jim Rombach spent his working career at Weyerhaeuser Company where he successfully led numerous projects in the West. Probably his most challenging job was operational planning for all aspects of the Mount St. Helens' volcanic disaster and Weyerhaeuser Company's successful recovery and reforestation—now a showplace of Douglas-fir forestry.

In 1995, Jim became director of Forestry for Weyerhaeuser Western Timberlands, encompassing more than 2.3 million acres in Oregon and Washington. He held this position until his retirement in August 1998.

Bob Tokarczyk's career was with Region 6 of the US Forest Service and involved assignments on ranger districts in Oregon and Washington. He was the forest supervisor on the Gifford Pinchot National Forest when Mount St. Helens erupted. The salvage and rehabilitation of the area were successfully completed under his guidance.

Both Jim and Bob are involved in SAF state and Portland Chapter activities.

Oregon SAF members Bond and Barte Starker, longtime owners of Starker Forests, Inc., were inducted into the Forestry Hall of Fame Memorial Gallery last April. The brothers, both graduates of Oregon State University's College of Forestry, oversee the management of the company's 80,000 acres of timberland in western Oregon. They are well-known throughout the Pacific Northwest for service to the forestry industry and the public.

In 1971, the World Forestry Center established a unique tradition to honor those who have significantly contributed to advancing sustainable forestry and/or advanced forest products world-wide. An elite collection of biographies of 201 influential people are located in the black walnut chests on the second floor of the museum. ♦

PHOTOS COURTESY OF RICK ZENN



Jim Rombach (left) and Bob Tokarczyk (right) were recently honored at the World Forestry Center as Forestry Hall of Famers.



Bond (left) and Barte Starker were inducted into the Forestry Hall of Fame at the World Forestry Center in April.

SAF Fellows: Call for Nominations for 2013

Under the procedures established by the SAF Council, the District Fellows Committees (DFC) in District 1 and 2 are accepting SAF members to be honored with the designation of Fellow in the Society. SAF honors those members that have provided outstanding contributions to the Society and to the forestry profession. Details on the criteria and nomination forms may be found at the SAF website at www.safnet.org/about/fellows.cfm.

The District Fellows Committee reviews nominations and makes recommendations to our respective SAF Council representative, who moves the nomination forward to the National SAF Council. The SAF Council approves or rejects the nomination of a member to SAF Fellow. The SAF National Council representative for District 1 is John Walkowiak and Bob Alverts represents District 2.

Voting District 1 is comprised of the Alaska SAF, Inland Empire SAF, and Washington State SAF. Committee members for 2013 are Jo Ellen Force and David Baumgartner (Inland Empire); Paul Maki (Alaska); and Don Hanley and Chuck Lorenz (Washington State). Voting District 2 is composed of members from the Oregon Society. Committee members for 2013 are Jim Rombach, Ann Forest Burns, John Herbst, Blair Moody, and John Bell.

The nomination process timeline is established so that the Fellows elected in 2013 can be honored and recognized at the 2013 national convention. Nomination packets are to emphasize SAF volunteer activities and exemplary action, sustained leadership, and

advancement of the forestry profession in at least one of the following areas: application of forestry, education, public policy, research, or technology transfer.

District 1 nominations should be submitted to Don Hanley, DFC chair, by email to don@wirechief.com. District 2 nominations should be submitted to John Bell, DFC chair, by email to johnbell@proaxis.com. All nominations are due February 22, 2013. Nomination materials should consist of a bio-sketch for each of the two evaluation areas: 1) SAF volunteer activities; and 2) exemplary action, sustained leadership, and advancement of the forestry profession (see national instructions). The District Fellow Committees will review the nominations and make recommendations to the SAF Council Representatives by March 31, 2013.

Nomination packets must contain all of the following documents:

1. A consent form signed by the nominee to verify the nominee has been informed of and consents to the

nomination, and to confirm members of the District Fellow Committee presenting the nomination.

2. Three letters of recommendation in support of the Fellow nomination.

3. A completed biographical and professional information form.

4. A recent 5" x 7" or 3" x 5" electronic photograph of the nominee.

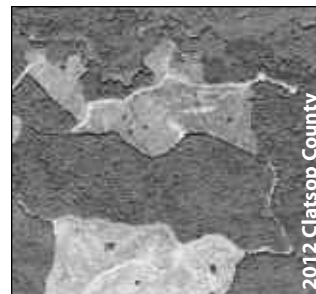
The leadership of our Societies and the District Fellow Committees look forward to continuing the tradition of SAF Fellows that come from our representative areas. Please consider nominating a deserving colleague. Not sure if someone is a Fellow? Go to the SAF website under member's only directories, Fellows, and browse the complete list of SAF Fellows. Contact Don Hanley or John Bell at the emails above if you have questions concerning the nomination process—the committees will work with you to get it all completed. ♦

Article originally prepared by Chuck Lorenz and updated by Don Hanley and John Bell, September 2012.

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