Forests and Water

What scientists know and what they're learning

Also in this issue:
Goodbye to Dean Brown
We've been actively engaged in research on water resources since the late 1950s."

This issue of Focus on Forestry features Pacific Northwest forests and water; specifically, the research our faculty are doing to better understand the relationships between our forests and water resources, and particularly how our water resources are affected by the practices we employ to manage our forests.

As a forest hydrologist myself, I'm proud of the leadership role played by our faculty in this important area, and I'm happy to report that it's not a new topic for us. We've been actively and continuously engaged in research on water resources since the late 1950s, when College faculty began working on the Alsea Basin Logging and Aquatic Resources Study. This study not only crossed several disciplinary lines, but it was highly cooperative, engaging scientists and managers from the forest industry and state and federal resource agencies. That cooperative, interdisciplinary spirit continues in the water-related research we do today, which takes place all over the state.

Results from the work being done by College scientists provide the public, resource managers, and policymakers with sound, science-based information. We have many faculty serving on scientific teams at the Governor's request, assisting in developing policies for salmon restoration, riparian management rules, and landslide evaluation. The continuing demand for their expertise in the policy arena attests to our success in meeting this important need.

I'd like to close this column on a personal note. As many of you know, I recently announced my plans to retire this August. It's been a very great honor to serve this outstanding College for 33 years, and as Dean for the past 10 years. Our students, faculty, and staff are second to none, and we enjoy incredible support from alumni and friends. To all of you who have made our College what it is today, I extend my sincere appreciation. I'm especially grateful for your unwavering support and your many kindesses shown to me in my deanship. I ask that you provide the same support to my successor.

George Brown
Dean
College of Forestry
Oregon State University
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WATER: It covers a lot of territory

Water-related research is looking at large landscapes over long periods

Water. It is everywhere in the physical environment. Our Earth's landforms owe their shape in large part to the movement of water, and water is the primary constituent of all living cells.

Water represents many powerful forces, not least the power of nature, manifested in sometimes-frightening ways: floods that wash out bridges, and landslides that crush homes.

Because water is vital to our lives, people care about it. They worry about having enough good water to support human communities. They worry about keeping watersheds in a suitable condition for the fish and other wildlife that depend on them for survival.

They also worry about whether managed forests can furnish both high-quality water and healthy fish and wildlife populations in our watersheds. For these reasons, a lot of forestry research, at OSU and elsewhere, is devoted to the role of water in forests.

Connections

Scientists who study water-related topics are increasingly interested in how water relates to our broader environment—its landscape and ecological connections. They want to better understand how water processes in forests shape river channels and hillsides, how they influence the growth of trees and other plants, and how they affect the life cycles of salmon and salamanders. They want to know how these processes themselves shape, and are shaped by, the needs and desires of human communities.

Like water itself, this research covers a lot of territory. More and more, it tends to look at large landscapes over long periods. Tools like geographic information systems, satellite imaging, and powerful computers are helping to provide new ways to conduct large-scale studies. And faithful measurements of research plots over the years are yielding ever richer sets of data for scientists to work with.

This research is shedding light on such urgent questions as how well fish can handle disruptions in their habitat (answer: they have persisted in an environment of periodic natural catastrophes, but there are limits beyond which they won't thrive), and whether logging and roadbuilding increase the likelihood of landslides (probably, but not as much as some people think).

It is helping citizens and lawmakers grapple with tough issues. How much do forest practices influence flooding? Sediment? The amount of water in streams? Careful research, says Paul Adams, helps people probe the simplistic conclusions, the plausible explanations...
The public has the misconception that we’re still in the Dark Ages. In fact, we’ve learned a lot.”

—Paul Adams

that are sometimes wrong or at least misleading.

“The public has the misconception that we’re still in the Dark Ages on the problems facing our watersheds,” Adams says. “In fact, we’ve learned a lot, and we’re already applying that knowledge to prevent most problems of the past.”

Streamside management

Starting about four decades ago, forestry research at OSU began to move toward the long-term, landscape-level studies that are coming to be of great interest to scientists today. The Alsea Basin cooperative watershed study, begun in 1959, was the first in the Northwest to combine measures of water quality, stream-channel habitat, and fish response to logging across several watersheds.

The study compared the effects of complete clearcutting and hot slash burning on nearly an entire basin—the accepted practice of the day—with those of clearcutting three separate patches of 40 to 65 acres each in another basin, leaving 50-to-100-foot stream buffers. Measurements in both basins were compared with those taken from an untreated control basin.

The study sites were three small watersheds in the Alsea River drainage, about 10 miles from the Oregon coast. The work was done by agency and OSU scientists, including a young forest hydrologist named George Brown (please see profile of Dean Brown on page 14).

The Alsea study was innovative in many ways. It prescribed seven years of information-gathering before any logging was done. Measurements were taken for seven years afterward, producing relatively long-term data on the effects of logging on fisheries.

Concurrent watershed research on the Andrews Experimental Forest, a cooperative OSU-Forest Service research forest on National Forest land east of Eugene, was already looking at the effect of logging on erosion and water runoff. The Alsea study extended this work by
How much is enough?

Researchers are looking at what happens to woody debris in streams (below) over time and refining their prescriptions for how much is needed.

becoming the first in the Northwest to look at the impacts of logging on fisheries.

Changing forest practices

More importantly, the Alsea study results were the first to influence Oregon forest practices in a major way. The study found a five-fold increase in sediment in the stream after intensive logging and slash burning. The suddenly unshaded streams also became too warm for fish to thrive.

These findings were instrumental in justifying the 1971 Forest Practices Act and subsequent rules, which called for leaving a strip of streamside trees and other riparian vegetation to “buffer” the negative effects of logging on the stream. Riparian buffer strips have been an important regulatory tool for protecting streams ever since.

The considerable volume of stream research conducted since the Alsea study has revealed more about what makes for good fish and wildlife habitat in and along streams. Some of it has contradicted earlier, seemingly commonsense policy.

For instance, during the 1960s and 1970s, loggers often were required to remove logs and branches that fell into streams during logging operations, along with wood that had accumulated naturally. It was thought that too much wood in the stream channel would block fish from swimming upstream to spawn.

There was indeed quite a bit of logging-related debris in many Oregon streams at the time, and people were also worried that it would wash out bridges and cause flooding during major storms. In addition, there was some concern—stemming from other Alsea Basin findings—that large quantities of decomposing plant material used up the dissolved oxygen in the water, stealing it from the fish and other aquatic life.

So it was not uncommon for fisheries agencies to require loggers to clean the streams with cable yarding equipment or even bulldozers. Often they removed even the woody debris that was already in a stream before the area was logged.

Then OSU scientists, including Hank Froehlich, a now-retired Forest Engineering professor, as well as fisheries biologists Jim Sedell and Stan Gregory, pointed out that streams in unmanaged forests were full of chunks of wood, big and small. And the fish seemed to thrive in these streams.

These observations, and subsequent studies that proved them right, turned forest practices around. Now it’s not unusual for loggers to drop logs and stumps into streams that are judged to lack sufficient woody debris. Some management objectives call for logging alder (carefully) from streambanks in order to establish conifers, which make larger-sized, longer-lasting woody debris when they eventually die and fall into a stream.

Recent research is also showing that some of the large wood now lying in streams did not fall in from the immediate streambank, but entered the stream in landslides from steep terrain farther upslope. This finding is helping managers refine strategies for leaving trees in places where they will achieve the most effective environmental benefits.

The book is not yet closed on woody debris. There are undoubtedly differences in function between a 700-year-old log that fell into a stream in 1915 and a 100-year-old log that was placed there last year after a harvest operation. There’s still uncertainty about how much woody debris is enough, where in the stream it does the most good, and what its precise effects are on fish and other aquatic life.
Today's research is forcing a rethinking of the common notion that landslides and floods are always "bad." Northwest forests are dynamic and unstable places. Large swaths of trees were periodically flattened by wildfires, floods, and windstorms before humans arrived on the scene.

For people, landslides and floods can be inconvenient and occasionally tragic—washing out roads and bridges, and sometimes taking human life. For fish and other wildlife, they can thoroughly disrupt habitat functions in some locations.

Nevertheless, these events are part of the pattern of large and small disturbances that gives the Northwest forest its essential character. The fish and wildlife species living in these forests are adapted to surviving and thriving in a dynamic landscape, where major disturbances come and go in a recurring though irregular fashion.

The February 1996 floods brought flood and landslide issues into sharp focus. "These are natural events happening in a managed landscape," says Fred Swanson, Forest Service geologist and courtesy professor in the Forest Science Department, "and they vividly illustrate how complex are the watershed and ecosystem responses to floods, especially floods in steep, forested landscapes."

Swanson is a team leader at the H.J. Andrews Experimental Forest, which is managed jointly by the Forest Service Pacific Northwest (PNW) Research Station and the Willamette National Forest, with OSU as a research cooperator. College of Forestry scientists are collaborating with Forest Service scientists and others in many studies on the Andrews.

College scientists serve on salmon team

Five OSU faculty members, including two from the College of Forestry, are serving on a seven-member scientific panel that oversees salmon recovery efforts in Oregon, efforts collectively known as the Oregon Plan.

The OSU team members are John Buckhouse of the Department of Rangeland Resources; Stan Gregory of the Department of Fisheries and Wildlife; Katy Kavanagh, a Forestry Extension and Forest Resources faculty member; Logan Norris, head of the Department of Forest Science and chair of the team; and William Pearcy of the College of Oceanic and Atmospheric Sciences.

The team, which reports to the state legislature, is assessing the scientific credibility of conservation efforts by state agencies and groups of local citizens. Its members act as peer reviewers of agency land management plans and the plans of local watershed councils. Its findings will amount to an ongoing scientific review of the Oregon Plan.

Other team members are Wayne Elmore of the Bureau of Land Management and Jim Lichatowich, a private consultant.
The floods, Swanson says, have inspired new studies and new looks at long-term sets of data. Partly because of its political currency, forest hydrology—the study of how water behaves in a forested environment—is undergoing “a quantum step” in sophistication, he says. “Our ability to understand the inner workings of a watershed is greater than ever before.”

Even so, scientists still can’t say for certain which flood and landscape effects are wholly natural and which ones are influenced by forest management, and how much they are influenced. Studies on how logging and roadbuilding affect high water flows in streams, for instance, have been conducted by disparate methods in several quite different watersheds, leading to varying conclusions that have sparked vigorous scientific debate.

It all comes back to complexity—the tangled web of causes and effects in a natural system that has been heavily influenced by human activity. The complexity can be bewildering, making it tempting for nonscientists, especially, to simply throw up their hands. Says Swanson, “There’s a tendency to conclude that the world is so complex that we can’t regulate practices and assign responsibility. But science is saying, ‘Let’s go on to the next step. Let’s try to disentangle the complexity with new studies.’”

Swanson was one of six team members on a study conducted jointly by OSU, the Forest Service, and the City of Salem to determine why such massive quantities of sediment flowed down the flooded North Santiam River in the spring of 1996, during and after major storms. The sediment prompted water bureau managers to shut down Salem’s municipal water-treatment system for eight days.

Logging and roads in the National Forest watersheds in the upper North Santiam basin seemed to some to be the obvious cause. Yet the study, which used X-ray and electron microscope analysis to “fingerprint” soil particles in stream water and determine their origin, challenges that assumption.

Smectite clays, the smallest of the clay-mineral particles, are common in unstable soils in the Cascades. Because they settle slowly, smectite clays are also the main constituent of the most persistent turbidity in streams, and the cause of many water-quality problems.

The North Santiam study found that much of the smectite clay responsible for the turbidity came from the bottoms, or “toes,” of ancient, large, deep-seated landslides in many places in the watershed. “This indicated that natural erosion processes and identifiable source areas were major contributors,” says Swanson. Roadcuts and smaller, shallower landslides in steep areas also contributed some clay, but in smaller concentrations.

The timing of the sediment’s flushing down the river was complicated by releases of water from Detroit Lake, which acted as a catch basin for silt. Water released through Detroit Dam over the few weeks after the flood carried sediment still suspended in the lake waters.

Finally, the team concluded, the first flush of sediment probably came mostly from sources below the dam, where many human influences, not only logging, have made a heavy imprint on the landscape.

“Overall, this study improved our understanding of the inner workings of the watershed,” says Swanson. “We can use these findings to identify the kinds and locations of remediation or regulation practices we need, and to provide a technically sound foundation for public discussion.”
Signal and noise

"The natural signals from the Northwest forest landscape are very noisy," says Marv Pyles, professor of Forest Engineering and one of four College of Forestry authors of a special report to Oregon Governor John Kitzhaber on forest practices and landslides, prepared in the aftermath of the 1996 floods.

"Landslides are aperiodic and unpredictable, and they happen in the absence of human activities," he says. "We are usually powerless to know whether a particular landslide would have occurred had there been no management in the vicinity. We have a number of widely varying historical averages for landslide activity, but they don’t help in predicting specific events."

Does forest management—logging and roadbuilding—increase landslides? The science is not quite so emphatic as some of the opinions in the popular media, Pyles says. "Our highest-quality data say yes, but the data are so variable that it’s not a profound yes. Logic and reason and physics suggest that the changes we make in the forest landscape contribute to instability. But we can’t put a watershed-wide, forest-wide, or state-wide number on it."

Pyles and his team, which included Forest Engineering professors Paul Adams, Bob Beschta, and Arne Skaugset, looked at on-the-ground survey results to get an accurate picture of where slides have occurred, how much earth was moved, and where it landed.

Most other landslide inventories used only aerial photos, yielding an incomplete picture, Pyles says. "From the air, you can’t see many of the natural landslides that occur under forest cover. So these don’t get counted." And that makes the link between logging and landslides look stronger than it really is, he says.

The state legislature, in response to public concern, gave the Oregon Department of Forestry authority to temporarily ban logging on areas identified as high-risk for slides, and where a slide might endanger human life. "It’s important, though, for the public to recognize that the hazard exists even in the absence of forest management," says Paul Adams. "Logging may increase the risk, but the risk is there to start with."

A good home for fish

Some dirt in the water is not a bad thing for anadromous fish, those salmon and trout species that grow to maturity at sea but return to their native rivers to spawn. In fact, the particular mix of soil particles in a river may be one of the signals that lead fish back to their native streams.

Excess sediment, however, or sediment in the wrong places or at the wrong times, is not good for fish. It’s one of the several factors that contribute to the degradation of habitat for anadromous fish in the Northwest, and the subsequent decline of their populations.

What’s to blame for this decline?
People don't realize how variable these forests are."

—Dave Hibbs

The list is long: dams, buildings, roads, parking lots, urban and suburban life, historical overfishing, today's commercial and sport fisheries, hatchery operations, predators, forestry, farming, ranching, mining, manufacturing—all the human activities that fall under the heading of "development." Natural temperature cycles in the ocean also play a large role, as do predators and diseases.

Given the many interlocking factors, how should society minimize the negative effects of logging and other development? Scientists agree that the quality of fish habitat is crucial. In streams flowing through Northwest forests, good habitat means lots of large woody debris—not only dead wood in the stream today, but standing live trees to fall in at some time in the future. It also means streambanks bearing conifers, hardwoods, and shrubs in some optimal or at least adequate mix.

Exactly what such a mix should look like, however, is a matter of some debate. "People often don't realize how variable these forests are, in both space and time," says Dave Hibbs, a Forest Science professor and expert in streamside hardwoods. "In unmanaged forests, as you move up and down the stream, you run into all kinds of conditions—conifers, hardwoods, shrubs, old trees, young trees, no trees. It's a very patchy set of vegetation patterns that shifts around through time. Whether you manage or whether you leave the forest alone, things are changing all the time."

Some scientists call for leaving streams alone as much as possible to repair themselves. "The first step is to stop doing whatever is causing the damage," says Bob Beschta, a forest hydrologist and Forest Engineering professor. "This is called passive restoration—letting nature heal itself."

Others (including Beschta, sometimes) advocate a more active approach. We've already noted one example: studies conducted by College scientists are looking at the effects of logging alders out of the streamside area and regenerating conifers there.

The big picture

Whatever measures are chosen, whether active, passive, or some mixture of the two, managers are increasingly considering an ecosystem-wide perspective, one that focuses on the connections among processes across the landscape.

Problem is, no one knows exactly how to do that. Science offers a lot of information about discrete pieces of the landscape—stream reaches, riparian areas, stand-size patches of forest, snags where woodpeckers live. But until recently there was very little knowledge about how all these pieces fit together, how seemingly unrelated events are linked across miles of ground or decades of time.

Now, satellite landscape imaging and powerful computers are broadening the view. They are offering a wall-to-wall picture of the current conditions of a given landscape, clues about how each part affects the other parts, and ways to predict the landscape's various potential futures.

A cooperative research program dubbed CLAMS (Coastal Landscape Analysis and Modeling Study) is pioneer-
Fling open the doors—
The Lab is done!

Eighteen months of planning and construction will finally bring years of dreaming to a close in April. At the same time, the doors to Richardson Hall, the completed Forestry and Forest Products Research Lab, will be thrown open. An idea that began over five years ago is now solidified. The stairwell stands tall, the rebar holds firm, and the wood beams are displayed proudly.

From the outside, glass will enclose the stairwells, revealing the wooden cases. The brick exterior is accented with wood beam overhangs and a bank of windows. Inside, a large barn door leads to the research bay with a kiln and a lumber-testing area complete with tensioning cables. On the third floor, facing south, is a greenhouse with a separate, secure insect-rearing facility. The walls and beige paint will soon hide a maze of copper plumbing and electrical wiring.

The dream has been made possible by the contributions of many people. Former Senator Mark Hatfield was instrumental in securing $10 million in federal appropriations. Another $3 million came from private, corporate, and foundation sources. And a bequest of timber land from Kaye Richardson added a vital $24 million to the project, and gave a name to the new Laboratory.

Soon the busy crew members will be gone and replaced with Forest Science and Forest Products scientists. Then, the dream of the new Richardson Hall will be fulfilled daily.

Forestry alums will get a sneak preview of the new Laboratory on Fernhopper Day, May 15. Mark your calendars now.

—S.H.

Starkers pledge

Starker Forests, Inc., of Corvallis has pledged $250,000 toward the silviculture laboratory and the extended education classroom in the new Forestry and Forest Products Manufacturing Research Lab.

The gift supports projects dear to the hearts of Bond and Barte Starker, president and executive vice-president, respectively, of the family-owned company. "We wanted to support the silviculture lab because silviculture is the primary tool of active management to improve the productivity and yield of the forest, whether that be measured in timber or other forest values," says Bond Starker. "It's a principal, basic activity in forest management."

As for extended education, says Starker, "We think it's a valuable part of the school's overall mission. We're interested in getting knowledge out to practitioners, getting it applied out there on the ground."
1929
Lorance Eickworth, FM, Coos Bay, OR. "I read 'Connections' and thought I would add a little bit to it. I graduated in forestry in 1929, just in time to meet the big Depression. My first job was in a box factory at 28 1/2 cents per hour, but any job was welcome. My next job was with Evans Products Co. as a time-study engineer at $2.50 per day. In 1934 I quit Evans, and with the help of another fellow started the Oregon Pacific Co., selling mill, logging, and marine supplies. In 1943 I sold out to my partner and went back to Evans Products Co. as a material control engineer. Evans, by the way, manufactures battery separators out of Port Orford cedar. In 1948 I quit Evans a second time, took the state real estate exam, and sold real estate until I retired in 1964. I am staying at the Ocean Crest Nursing Home with a bad case of arthritis. I will soon be 94 years old."

1942
Joe Jaeger, FM, Jefferson City, MO. A new training academy for state park employees has been named in honor of Joseph Jaeger. The first session of the Joseph Jaeger Academy of State Parks was held in October at the University Forest near Poplar Bluff. The academy is designed to improve training and educational opportunities for employees within DNR's Division of State Parks. As its longest tenured director, Jaeger guided the state park system toward improved professionalism and needed expansion. Beginning with his appointment in 1955, Jaeger oversaw the development and operation of the state park system for nearly 17 years.

1948
Gordon Borchgrevink, FP, Medford, OR. "Ten years now I've been retired from Medford/Medite Corporation and still keeping busy with house remodeling, golfing, and county forest resource committees. Some travel as time allows. Not a motor home devotee at all; we like great hotels, motels. That's vacationing for us. Sold my forest land five years ago due to hip problems. Have had three replacements on same side in 20 years but I still get around the golf course pretty well, thanks to golf carts. Looking forward to 50th anniversary class reunion."

1951
Val Don Hickerson, FM, Bandon, OR. "Dear Fellow Fernhoppers: It has been some time since I've been in contact with all of you. Nearly ten years since I went to the last Fernhopper Day. Good to see pictures in the latest newsletter of Clarence Richen, for whom I worked in the '50s, and Marv Rowley, who was several years ahead of me in school. I do get to OSU occasionally to witness the Beavers go through another losing season with the constant hope for success. Both our oldest son, Jess, who still lives in Corvallis, and daughter, Leslie, are OSU alumni, and our son Hans graduated from Crescent Valley High School.

"After retiring from the Air Force in 1974, there have been many activities. The forest-related ones include retailing my Christmas trees in Tucson in 1977-78 and hauling them from the Olympic Peninsula to a sorting yard in 1979 while managing a small forest tract near Rainier, Washington. The latter was traded in 1980 for the 40 acres of timberland near Bandon, Oregon, which is now my residence. Good to be back in my native state. Believe me, this size parcel takes about all my time, especially since I do nearly everything myself. My forestry skills have been augmented by falling, bucking, and loader operation, high climbing, road building, pond development, building construction, firewood sales and delivery, backhoe work, brush picking, surveying, serving on OSWA board, and everything else imaginable. Makes me think back on how easy it was with Crown Zellerbach and the State Forest Protective Association. The current "boss" is much more demanding than the others were.

"As a seven-year-old I witnessed the Tillamook Burn, and later, in the 1940s, I helped fight several fires. Trees I helped plant as a Boy Scout and Crown forester in Clatsop County are now ready for harvest. Some are visible from Highway 26 when approaching Seaside. I go there often to visit my sister and school friends and to attend high school reunions. Kind thoughts to all of you."

1958
Richard D. Zechentmayer, FM, King City, CA. "After 42 years of public service, I retired from the U.S. Forest Service. My last day of regular, scheduled work was January 2, 1998. My career started on the Willamette National Forest. I moved on and through the Umpqua and Deschutes National Forests before transferring to the Los Padres National Forest in Region 5. On the Los Padres, I served as project planner following the 1977 Marble Cone wildfire. After completing the Marble Cone project in 1979, I remained on the Monterey Ranger District as staff officer in wilderness, recreation, lands, minerals, resource planning, public affairs, and Ranger District administration. My wife Mary Lou and I will stay in the King City, California, area. As a city councilman, I continue to remain active in city, county, and regional affairs."
Mahlon Hale, FM, Bend, OR. “After 38 exciting years with the U.S. Forest Service, I retired and am living in Bend. The outdoor recreation here is great, although now lots of people are coming here to live and congestion is a problem. I particularly enjoyed working 15 years at the Bend Pine Nursery prior to retirement because of the challenges of designing a tree inventory system, writing contracts to contract out about 75 percent of our work, and the challenge of learning how to grow seedling trees and process tree seeds. At age 67 I still enjoy bicycle touring, hiking in the Cascade Mountains, and cross-country skiing. Recently I have developed some health problems that have slowed me down but not stopped me. I am looking forward to having more fun with folks my own age (and stamina)!”

1959

LeRoy Johnson, FM, Bishop, CA. “It now appears I am added to the list of "cancer survivors." On my birthday last year I had a radical prostatectomy and it appears I’m clean of the disease. If you want a life of leisure, don’t retire! I’m busier now than when I was employed full-time: teaching, volunteer fire chief, historical research, writing, organizing historical conferences, HOST program at Mammoth (yes, free skiing), and exploring the mountains around Bishop, California.”

1962

N. Earl Spangenberg, FM, Stevens Point, WI. “I am a professor of forestry and water science at the University of Wisconsin at Stevens Point. I was recently elected president of the American Water Resources Association, a national organization that includes nearly 4,000 members around the country.”

1967

Tod Files, FM, Boardman, OR. “I enjoyed another tour of duty on Madison Butte Lookout, Heppner Ranger District, Umatilla National Forest. There were a few more fires this year, as well as a 5,000 acre underburn 6-10 miles from the tower. We also had an ongoing timber sale along the road to the tower, as well as the archery hunters. I haven’t had so much fun since I was a 17-year-old fire suppression crew member for the Washington State Department of Natural Resources in 1961. The district fire management officer is also a Fernhopper.

“My painting of the tower at sunset drew $160 last fall before the paint was dry, so the lookout contract spins off ideas and income beyond its season. I’m currently working on a watercolor of Madison closed up for the winter and shrouded in a snowstorm.”

Dale Stennett, FE, John Day, OR. “I’m still working for D.R. Johnson Lumber Co. in the John Day—Prairie City area. Thanks to management changes a year ago, I went from logging manager to pencil-pushing gopher boy. But I’m still in wood products and thankful for it. Impeach you-know-who and get rid of Al Gore so forestry may be practiced. We are trying to survive instead of leading the charge. Speak up!”

1969

Bill Dryden FM, Boise, ID. “Last fall I became the director of public and private timber affairs for Boise Cascade. Seeking workable solutions to regulatory and environmental issues that affect our timber supply is the challenge. Sue and I remain in Boise, where she spends many days as a substitute teacher in the local high schools. Rachel is finishing up her junior year at Whitman College with a six-month overseas study in Austria. Seth will graduate from Boise High School in May and head off to college this fall. Closing in on thirty years since graduation! I will be looking for my 1969 classmates at Fernhopper Day. Job well done, George Brown.”

1972

Brad Toman FM, Hillsboro, OR. “I continue to work for the Oregon Department of Revenue with the
administration of the Forest Products harvest tax and the Western and Eastern Oregon privilege taxes. There have been many changes over the years with timber taxes and probably more to come. I have a daughter attending OSU as a senior with a double major—art and math. I also have a son attending OSU, a freshman in mechanical engineering. Two great things happened in the fall of '98: a resounding defeat of Measure 64, and the Beavers won the football Civil War game! Way to go, Beavers."

1975

Pat Downing, FRR, Monroe, OR. "After graduating from OSU, I taught forestry first at Scio High School, then at Philomath High School. During the summers I worked as a contract timber cutter. In 1983, while continuing my teaching, my wife Suzie and I started Downing's Gym in Corvallis. (I was a competitive Olympic lifter in college, starting the OSU Weightlifting Club with Geno Houston. Dr. J.P. O'Shea was our advisor.) I needed a good place to continue my training, although we got so busy it was hard to find time to work out! After ten years of teaching, I quit to work at the gym full time, taking summers to continue cutting. In 1996 we converted our gym to Gold's Gym and are still at our current location on SW Third in Corvallis. I still work as a timber cutter, but now I cut full time. My wife Suzie and sons Mike and Josh oversee the management of the gym. We have three sons: Ty (27) graduated from OSU in '93 as a photojournalism major, now lives in Portland as a freelance photographer; Mike (22) is married and works full-time at the gym; Josh (20) is a sophomore at Western Oregon University. This job is perfect for him. He’s training hard to play football at WOU in '99. We work with a lot of OSU students at the gym, and most of our employees are students. This term we have a Forestry graduate student as an employee, Shorna Broussard."

Carlton Yee, FE, Bend, OR. "In October 1998 my wife and I moved to six miles outside of Sisters. We have seven peaks in our front yard (including the Three Sisters and Broken Top) and the view is worth a million dollars—or more. We chose Central Oregon because we love the climate, activities, and energy of the area. We are definitely glad to be leaving mildew and new-age homeless hippies behind in Arcata. I am going to retire at the end of next academic year and am commuting on weekends to Humboldt. Living in Bend, I hope to get back to OSU more frequently now."

1983

Pamela Matson, FS Ph.D., Berkeley, CA. Pam Matson was named an OSU Alumni Fellow in October. One of three university alumni to receive the award, she was honored at the Alumni Fellows Award dinner and recognized at the homecoming football game.

In 1983 Matson was the first woman to earn a doctoral degree in the College’s Forest Ecology program. In 1995 she was awarded a prestigious fellowship from the John D. and Catherine T. MacArthur Foundation. She is a professor of ecosystem ecology at the University of California at Berkeley.

1993

Kaz Yamaguchi, FR, Sapporo, Japan. "To Dean Brown: I’m very happy to hear that the College of Forestry is getting bigger and better."

1995

Greg Vandegrift, FRR, Palm Beach Gardens, FL. "I haven’t spoken or written to anyone since graduation, March 1995. As of now, I live in West Palm Beach, FL, as a wholesale representative for Northland Corporation, a distributor of hardwood lumber. I just started and enjoy it very much. My education through the Forest Products department is coming in use daily, something I thought wouldn’t happen. Good luck and success with the new building."

Order your Annual Cruise

The 1998-99 College of Forestry Annual Cruise yearbook is under way! The 1996-97 Cruise won a national SAF award for student publications. This year's staff is looking forward to another great book.

To reserve your copy now, contact Alex Dunn at 541-737-4670, or order by e-mail at annualcruise@cof.orst.edu.

Order now! For just $20 you can stay in touch with student life here at the College, get your name listed as a sponsor, and help students out with a great activity.

Mark your calendars for two very special events

Fernhopper Day 1999 is set for Saturday, May 15. Fernhoppers will be the FIRST members of the public to tour OSU's new Forestry Research Laboratory, Richardson Hall.

Just 15 days later, official dedication ceremonies for Richardson Hall will be held on Thursday, May 27, at 1:30 p.m., in the west courtyard of the new Laboratory, located just off Jefferson west of 30th. Guided tours will begin at 3 p.m.

Just a note: Dedication ceremonies for the Valley Library renovation are set for the next day, Friday, May 28. Stay for two days, and see two wonderful facilities.
ing a landscape-level study of the Coast Range. CLAMS scientists are using satellite images, along with information about current conditions on the ground and the intentions of landowners, to build computer models projecting how the nature and timing of various management strategies might play out on the watersheds of the Coast Range over the next 100 years.

The models will predict not only how the trees and other vegetation will look at various points in space and time, but how their distribution will likely affect fish and wildlife habitat, recreational opportunities, and the area’s economy.

It’s an ambitious goal, says Norm Johnson, professor in the Forest Resources department and a lead researcher with CLAMS, a joint effort that includes the PNW Research Station and the Department of Forestry. With its rugged landscape, checkered history of natural disturbance, complicated ownership patterns, and disparate effects of past land management, the Coast Range is about as varied as a landscape can be. This variability makes it difficult to trace meaningful patterns and connections.

“We’ve had some practice at projecting outcomes of various management strategies for the whole landscape, but only in the aggregate over time,” says Johnson. “Now we have the capability of simulating the spatial distribution of these activities across the landscape.”

Results of each simulation are displayed on maps showing what the forests of the Coast Range might look like at various points in the future, if certain management choices were set into motion today.

Variations in the watershed maps show changes in habitat conditions for certain wildlife species over time and changes in the amount and distribution of older forest over time. Other func-
These maps seem to draw people into the analysis. People can place themselves in the landscape."

—Norm Johnson

The CLAMS maps, says Norm Johnson, are not only powerful discovery tools for scientists; they are learning tools for policymakers and the public. An important objective of CLAMS, he says, is to make it possible for people to discuss the outcomes of alternative policies before they are adopted. “These maps seem to draw people into the analysis. They create a high level of interest—people can place themselves in the landscape, and envision what the outcomes of various policies might look like. That makes the maps a great tool for joint learning.”

And the more educated and involved people are, says Johnson, the more likely it is that they’ll act in an informed and deliberative way to craft a sound, long-term public policy. “My hope,” he says, “is that our work will lower the level of rhetoric and increase the level of understanding for all of us.”

For Oregonians who care about the natural environment—who care about the web of water that binds us and future generations together with the rest of our natural world—such an understanding would seem to be a dandy place to start.

COPE closes with major conference

The Coastal Oregon Productivity Enhancement Program, a major cooperative research program focused on Coast Range forest resources, ended a successful 12-year run with a January symposium titled “Forests and Streams of the Oregon Coast Range: Building a Foundation for Integrated Resource Management.”

More than 500 people attended the two-day conference at OSU. They heard presentations from more than 40 COPE researchers, including a score from the College of Forestry. The scientists spoke on such widely varying topics as the natural history of the Coast Range ecosystem, logging aimed at improving stream habitat, thinning of young-tree stands to cultivate older-forest characteristics, and the social and economic implications of changing land-use patterns.

“COPE has given us a new vision of the coastal forest, one that emphasizes the role of disturbance and diversity in shaping the landscape,” said Dean George Brown in his closing remarks. “It’s forced us to think outside the box in terms of what that means for management.”

As Associate Dean for Research in 1987, Brown was instrumental in getting COPE organized. The project has been a joint effort among OSU and federal and state agencies, local governments, and private businesses. Its mission is to provide information to managers and the public on how to deal with the timber, fish, wildlife, and other resources of the Coast Range in an integrated manner.

COPE research findings are being compiled into a major book titled Forest and Stream Management in the Oregon Coast Range, to be published in the fall of this year.
Peter Wakeland '95 is a man who's worn many hats. He's a forester overseeing timber sales for the Confederated Tribes of the Grand Ronde. Before that, he was an OSU Forestry student who graduated in 1995 with a bachelor of science degree in forest management. He even dabbled as a pool cleaner and a beverage salesman. Now this everyday man will wear another hat: as the Mark O. Hatfield Congressional Fellow.

As the Grand Ronde tribe's first fellow in Congress, he will work in Sen. Ron Wyden's office for nine months starting in January.

For Wakeland, 36, the fellowship is one step closer to fulfilling a dream of working in Washington D.C., as a liaison between Native Americans and Congress. This isn’t the first time he’s been in the capital; as a student at OSU, he served as an intern at the Office of Legislative Affairs. That experience fueled a desire to make a difference. “I really became aware that policies have just an unbelievable effect, a real tangible effect, on people’s lives, sometimes good, sometimes bad,” said Wakeland, who is Umpqua Indian. “The best people, the real leaders, could make a difference. It’s become a passion that I don’t want to see people hurt by bad policymaking.”

The selection committee, made up of the Grand Ronde Tribe, Wyden’s staff, and Hatfield’s representatives, believe they have the right man for the job. The hope is that Wakeland will come back to the tribe with information on issues that might affect the lives of Native Americans, said Amber Russell, a spokeswoman for the Spirit Mountain Casino, which is sponsoring the nine-month fellowship. “He really embodies what we believe the fellowship is all about, which is public service and integrity,” Russell said.

The fellowship allows a Native American to serve as a staff member for one of the seven members of Oregon’s Congressional delegation. The placement will rotate to the office of a different member each year. Spirit Mountain Casino will provide $55,000 from its community funds for the fellowship winner’s salary and travel expenses.
Not a farmer after all

But like his farmer mentor, George Brown has shaped his life around a deep sense of stewardship for the land

Surveying George Brown’s life and career, one is somehow not surprised to learn that his first vocation was farming. Brown has carried a good farmer’s conservation ethic into his scholarship, his teaching, and his leadership of one of the largest forestry research institutions in the country.

Brown is now on the eve of retirement—he’ll step down as Dean of the College of Forestry next August. His career, distinguished in both research and academic leadership, has borne the ethic of pragmatic stewardship that he brought with him from his Midwestern boyhood.

Like a good farmer, he’s worked hard to protect and build up the resource for which he’s responsible—whether it be a research agenda, an academic department, or a whole College with a full range of teaching, research, and outreach responsibilities.

Thrifty and hardworking

Growing up in west-central Missouri, Brown had farming relatives, but his parents were town people. During one memorable summer of his teen-age years, he worked for an elderly farmer, a thrifty, hardworking German immigrant whose conservation ethic shaped and nurtured Brown’s own.

“He instilled in me the importance of resources in serving humankind,” says Brown. “He was proud to be a farmer because he saw himself as part of the system that provided food for hungry people.”

A moustrap mind ... Above, George Brown at work as a research assistant for the PNW Research Station in the mid-1960s.
This vision carried with it "a deep sense of stewardship for the land," says Brown. This farmer was among the first to invest in environmental improvements, such as terracing hillsides and planting streambanks with grass to prevent erosion. "He was a conservationist in every sense of the word, although he'd never have called himself one," says Brown. "But his philosophy, and the way he lived it in his life's work, planted the seed that led me to forestry."

In his early adolescence, Brown read everything he could find about farming. When he got to high school he enrolled in a vocational-ag course. But he came to realize that farmers need land, buildings, machinery, tools. "I just didn't have the resources." Reluctantly, he looked for another way.

His search led him to Colorado State University, where he earned a bachelor's in forest management in 1960. At college he became acquainted with Bob Dils, a professor who was building a brand-new program in forest watershed management, the first in the United States.

He wanted Brown to study with him. Brown was eager to do it. Here was a new opportunity to follow a conservation path. "Bob Dils was a very inspirational leader for me," Brown says.

Dils remembers his former student with fondness and respect. "I was delighted when George decided to go into the watershed program," he says. "He was one of the better students I had in 23 years of teaching. He had a lot of native intellectual ability, and a natural inquisitiveness. But he also had a stick-to-itiveness—he wasn't one to quit halfway through anything. He was cheerful, considerate of others—he had a winning personality."

His fellow students remember him a gregarious man with a quick, keen intellect. "He had a mousetrap mind," says Jim Krygier, a fellow grad student who was on sabbatical from the Forestry faculty at Oregon State. "He grasped ideas very quickly and easily, but more than that, he had the rare capability of focusing on solutions."

Jim Meiman, now retired Dean of Colorado State's graduate school, shared a student office with Brown. "He had a lot of diverse interests," Meiman recalls. "He read Eastern philosophy. He liked
Leadership. The new Forestry Research Laboratory, now named Richardson Hall, will be a lasting legacy of Brown's leadership. Here he is with project superintendent Tim Carpenter in the building's almost-finished west courtyard. Across, making a point in a presentation with Forest Science professor Steve Strauss.

Brown had a lively personality and a love of people. He was a lot of fun to be around."

After getting his master's in 1962, Brown spent two years with the 3rd Armored Division in Germany. Returning home, he called his old friend Jim Krygier, who was back in Corvallis, building a forest hydrology research program at Oregon State.

Krygier invited Brown to come to Corvallis and work with him on a major new study of logging and watersheds in the Oregon Coast Range. Krygier had landed some grant money for his part of the Alsea Basin Logging and Aquatic Resources Study, as it was called. He wanted George Brown working with him, designing studies that would help in the devising of an "energy budget" that could be used to predict stream temperatures under a variety of circumstances.

"Our goal was to get a truer understanding of the energy factors influencing stream temperature," Krygier says. "We were building a framework for looking at stream temperatures that was different, more complex, than the work that had been done before. I knew it would take a lot of creativity to put the ideas and the tools together for this research. And I knew George Brown had the right capabilities."

So Brown came to Corvallis in 1964 and began working with Krygier. (Please see the cover story, beginning on page 4, for more about the Alsea Basin study.) That year he began work on his doctorate in forest hydrology. He completed the program in two years, working 18-hour days and 7-day weeks.

Just as he finished, Krygier fell ill, and Brown was asked to take over Krygier's teaching and research duties at the School of Forestry. "I agreed to do it, expecting to be here for only a couple of years," Brown says.

After Krygier recovered, however, Brown stayed on, teaching in the Forest Management department and then becoming head of the Forest Engineering department in 1973, under then-Dean Carl Stoltenberg.

"He showed a great administrative ability," says George Jemison, who joined the Forestry faculty in 1970 after retiring as Forest Service deputy chief for research. "He had a diplomatic way of presenting his point of view, and he was always generous and kind."

Jemison and Brown, who's some 30 years younger, struck up an immediate and close friendship. "All my life I've been an ardent fisherman," Jemison says. "George had a driftboat, and he and I spent many a day drifting the rivers of Oregon, fishing for salmon and steelhead."

During these excursions the two friends often talked over problems of watershed management and timber harvesting, Jemison says. "And in addition to these intellectual moments, George always took over the chores of launching the boat, rowing, pulling the anchor, cleaning the fish (if any), and toting them back to the car. What a guy!"

By the mid-1970s, Brown was a firmly transplanted Oregonian. He served as Forest Engineering department head until 1986, when he was promoted to Associate Dean for research. He became Dean in 1990, when Carl Stoltenberg retired.

Policy-focused research

He stayed, he says, because Oregon State is a place where a scientist can feel the positive impact of research on the practice of forestry. "This is the place where policy issues of regional and national significance get hammered out," he says.

The Alsea Basin study, conducted in the early 1970s, marked the beginning of the College's role as a center for policy-focused research. Earlier studies here and
I'm a pragmatist. I like to see things used.

elsewhere had looked at logging's impacts on floods and erosion. But the Alsea Basin study was the first to cross over into the biological realm by documenting the effects of forest practices on fish habitat.

It was, in fact, an early environmental-impact research project, and its findings led directly to Oregon's ground-breaking Forest Practices Act and its subsequent regulations, which included rules for leaving buffer strips to shade streams in logged areas.

The Alsea study was "a classic blending of fundamental and applied research," Brown says. "We did basic studies on energy balance in streams, and these led into more-applied research, which led in turn to changes in forest policy."

As Dean, Brown has worked to bring that marriage of theory and practice into the programs of the Forest Research Lab, the College's research arm. It appeals, he says, to the good farmer in him: "I'm a pragmatist, and I like to see things used."

Building up the soil

Brown became Dean at a low moment, financially speaking, for the College. A property-tax-reduction initiative took effect in Oregon nine months after his appointment, and all state agencies were feeling its impact. OSU and other state universities had to tighten their teaching budgets.

Also, harvests on federal forests were severely curtailed after the northern spotted owl was listed as threatened under the Endangered Species Act in 1990. Because FRL research is funded partly from harvest taxes, research budgets also felt the pinch.

Brown began a vigorous fundraising program to supplement the College's state and federal funding. When he became Dean, the College's endowment of gift money stood at $6 million. Today it is about $60 million. "Our successful development program tells me that people see us as a good investment," Brown says. "They're investing their fortunes in the future of this College."

Private gifts have provided significant improvements in the College's programs. The almost-completed new Research Laboratory was made possible by a 1993 bequest of land worth $24 million. That same bequest, from the late Kaye Richardson, funds three endowed chairs, one each in Forest Science, Forest Engineering, and Forest Products, as well as an endowment to support teaching. A fourth endowed chair, in family and private forestry, was created by a 1995 gift from Elizabeth Starker Cameron of Corvallis.

"These endowed chairs have allowed us to recruit nationally and internationally recognized teachers and scientists, and they in turn attract top-quality graduate students," says Brown. "These gifts have added significantly to the excellence of the faculty we have right now."

College faculty appreciate his leadership, says Bart Thielges, Associate Dean for Research and Brown's second-in-command. "He deals well with people at all levels. He's always helpful, honest, and frank in his interactions, and he never dodges tough issues." As a result, he says, faculty morale is high. "We've had very little attrition due to resignations or early retirements."

For his own part, says Thielges, "it has been a great pleasure to work with him. He always made me feel he and I were truly a team."

Another of Brown's key accomplishments is the College's vigorous outreach to its various clients, including small-woodland owners, industry and public-agency land managers, and legislators and policymakers. He even was featured in a television spot on management practices to protect streams, produced by the
Kudos to faculty and staff

Dean **George Brown** recently recognized several faculty members for outstanding achievement.

**Stephen Hobbs**, professor in the Department of Forest Science, was recognized with a Dean’s Award for Outstanding Achievement at the December faculty and staff awards dinner. Hobbs was honored for his exceptional leadership in managing the COPE program (Coastal Oregon Productivity Enhancement), a major, OSU-Forest Service cooperative fundamental and applied research effort to improve understanding and management of Oregon Coast Range forest and stream ecosystems. COPE is winding up 12 years of research this year (please see COPE, page 12).

**Steven Strauss**, Forest Science, also received a Dean’s Award for his international leadership in the field of forest genetics and genetic engineering, including garnering $4.7 million in grant funding and organizing the College’s largest research cooperative, directed at genetic engineering of hybrid poplar. The cooperative has national and international industrial membership.

Also recognized with a Dean’s Award was Associate Dean **Bart Thielges** for his heavy involvement, mostly behind the scenes, in the planning, financing, and construction of Richardson Hall, the new Forestry and Forest Products Manufacturing Research Laboratory, scheduled for completion in April.

Faculty members who helped Oregon policymakers with landslide, salmon, and fish-habitat issues were also recognized with Dean’s Awards. Honored were:

- Governor John Kitzhaber’s landslide team—Forest Engineering professors **Paul Adams, Bob Beschta, Marv Pyles, and Arne Skaugset**—for their expertise and hard work in developing a white paper for the governor on landslides and forest practices;
- **Dave Hibbs**, Forest Science professor, who advised the Board of Forestry and the National Marine Fisheries Service on historic patterns of streamside vegetation and implications of managing riparian areas to enhance fish habitat; and
- **Logan Norris**, Forest Science professor and department head, and **Katy Kavanagh**, Forestry Extension faculty member and assistant professor in the Forest Resources department, for their continuing service on the Governor’s Independent, Multidisciplinary Science Team, which oversees the implementation of the Oregon Plan for Salmon and Watershed. The goal of the Oregon Plan is the recovery of depressed salmon and steelhead populations in Oregon.

**Katy Kavanagh**, Clatsop County Extension faculty member and assistant professor in the Forest Resources department, and **Bill Emminingham**, Extension specialist and professor in the Forest Science department, received a 1998 Search for Excellence Award at the annual OSU Extension Conference held on campus in September. They were recognized for their leadership in developing a video-based long-distance course, “Practi-
cal applications of uneven-aged management.” Also cited for contributions to the Extension program were Mark Reed, senior instructor in the Forestry Media Center, and OSU’s Sustainable Forestry Partnership.

Also at the conference, Mike Reichenbach, Extension forester in McMinnville, received a Newer Faculty Award for excellence in Extension programming. Katy Kavanagh and Renee Bunch, Clatsop County Forestry program assistant, were also recognized for their peer-reviewed poster, “Using COPE information to deliver research-based information to communities and watershed councils.”

Dave Hibbs, professor in the Forest Science department, has been selected to serve as the first non-French associate editor of Annals of Forest Science, a publication of the French National Institute for Agricultural Research (INRA).

Norm Elwood was one of several Extension Service faculty recently honored by the Agricultural Communicators in Education (ACE), an international professional society. Elwood and his colleagues received a gold first-place award for their newsletter “Communicate!”

John Garland, professor in the Forest Engineering department, was honored for his publication, “Timber harvesting, how we see it.” The publication was designated an Outstanding Extension Forestry Publication for 1998, one of five so recognized in the United States. The award, which recognized Garland’s innovative use of photographic manipulation, was presented by the National Woodland Owners Association and the Natural Resources and Environment Division of USDA’s Cooperative State Research, Education, and Extension Service.

Forestry jobs Web site available to alumni

A College Web site featuring announcements for seasonal and entry-level permanent forestry jobs is now open to College of Forestry alumni as well as students. Jobs may require a bachelor’s degree or up to five years’ experience, or both. Access to the site is restricted to OSU Forestry students and alumni. E-mail Connie Patterson at patterse@ccmail.orst.edu with your name and graduation year. She will e-mail you the Web address.

A new intern at Focus

Sarah Hucka, a junior in Forest Recreation, has joined the Focus on Forestry staff for winter term as assistant editor to Gail Wells. The job is a writing internship for Sarah and will help her achieve her minor in writing. Sarah is excited at the prospect of gaining experience in writing and becoming more familiar with the College of Forestry.

-S.H.
Dean

College's Forestry Media Center.

The TV spot, sponsored by the Oregon Forest Resources Institute, was played on television stations statewide, making Brown's face a little more familiar to the public. "He does a heck of a good job in front of a camera," says co-producer Jeff Hino. "Even if he does need cue sheets," he adds with a grin.

In the midst of all these administrative responsibilities, Brown always has time for the students. "Despite the fact that more than 80 percent of the College's activities, and thus corresponding expenditures are focused on research," says Bart Thielges, "George has always been a very student-oriented Dean. Not all deans here or elsewhere are willing to make the time commitment required to work with undergraduate students."

"It's very true," says Sarah Hucka, junior in Forest Recreation Resources, who tells a story as an example. "Somehow George heard that I play the piano, and the other day he stopped and talked to me about it. I don't know how he learned that, but I appreciate how he takes the time to get to know us as individuals."

Our outreach contributions span the whole gamut.

An active retirement

Brown is looking forward to an active retirement. "I expect to be busy, but it'll be my schedule of busy," he says. Among many other things, he'd like to travel, go fishing once in a while (with good friend George Jemison and others), and work with children. "I've often thought it would be great fun to teach little kids to read."

He also intends to volunteer his time in professional service—perhaps advising lawmakers on forestry matters, perhaps helping conduct research in the College of Forestry. And he's looking forward to spending more time with his wife, Joan. The Browns have two grown daughters.

One thing he vows not to do is "get in the new Dean's hair," he says. "I'll help, but only if asked."

Most likely there'll be no need. Most of his colleagues and friends agree: George Brown has been a good steward to the College of Forestry. He's protected its resources, expanded its markets, improved its facilities, built up its soil. He's leaving this farmstead in good order.