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FOCUS ON FORESTRY

OREGON STATE UNIVERSITY
COLLEGE OF FORESTRY

AUTUMN 1999

THE MAGAZINE FOR THE FRIENDS AND ALUMNI OF THE COLLEGE OF FORESTRY



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hybrid poplars

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Experimental Forest

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sunny festivities

FROM THE DEAN



Greetings from your interim Dean. I'll be serving in that capacity for the next few months as our search committee continues its work in recruiting a new Dean for the College of Forestry. We will keep alumni and friends of the College informed of our progress in these pages, and I hope to be able to announce the hiring of our new Dean soon.

As you'll read in this issue of *Focus on Forestry*, things are going well here at the College and the University. In a welcome and long-overdue move, the Oregon legislature came through with a budget increase for the Oregon University System (OUS). Legislators voted \$108.8 million increase above current services, meaning what it would take to fund the system at today's levels. The increase—coming after a decade of flat support—includes a 25-percent boost in the state-funded component of our Forest Research Laboratory budget.

And Richardson Hall is up and running after a splendid dedication ceremony in May. We're very proud of our beautiful new research laboratory building, and I hope you'll come and visit it the next time you're on campus.

The issue of *Focus* is full of other good stories. I hope you'll enjoy reading about an aspect of forestry that few are familiar with—the cutting-edge work we're doing here at the College on genetic engineering of hybrid poplar. As you'll see, the future of genetic engineering holds both problems and promise. In addition, we've profiled two of our most distinguished faculty—one at the early stages of a promising career, the other preparing to retire after a long and productive life as a scholar and teacher.

As always, there's a lot going on here at the College of Forestry. We hope our endeavors make you proud, and we hope you'll keep in touch.

Best regards,

A stylized, handwritten signature in dark ink, appearing to read 'Bart'.

Bart A. Thielges
Interim Dean
College of Forestry



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Focus on Forestry is published three times each year (Fall, Winter, Spring) by the Oregon State University College of Forestry. Our goal is to keep Forestry alumni and friends informed about the College of Forestry and its many activities and programs.

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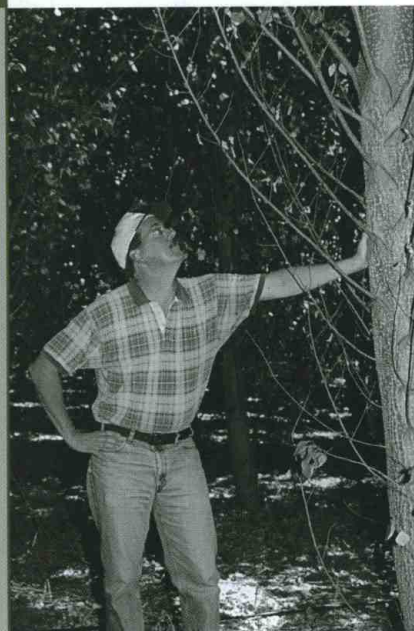
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OREGON STATE
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COLLEGE OF
FORESTRY



On the cover: A hybrid poplar plantation reaches for the sky near Wallula, Wash. Above, Larry Miller, research supervisor for the Boise Cascade Corporation plantation, surveys one of the speedy trees—they average 10 feet of growth in a year. Genetic engineering holds out hope of rapid improvement of these trees, but many hurdles remain.

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Desert Forestry

DRY LAND, DRIPPERS, AND DNA

Driving east from Portland along Interstate 84, you notice the fir trees thinning out as the sheer walls of the Columbia Gorge begin to flatten. Around The Dalles, the landscape is gentler, rolling, frosted with sage and desert grasses. The conclusion seems simple: you have left tree country behind.

bred to grow fast, thrive on water and fertilizers delivered through 18,000 miles of irrigation plumbing and 24 million drip emitters.

Cultivated from genetically identical cuttings, hybrid poplars grow like gangbusters—an average of 10 feet a year for six or seven years. Then they're cut down with a mechanized harvester and ground up for pulp, and new cuttings are planted to take their place.

"I never thought my forestry education would lead me here," says Potlatch's Jake Eaton (FM '82). Eaton is plant materials manager for this intensively cropped, short-rotation tree farm, which covers 35 square miles of central Oregon desert.

Companies like Potlatch, Boise Cascade, and Fort James have been farming hybrid poplar for more than a decade now, east and west of the Cascades. Such intensive cultivation represents forestry at its most high-tech.

And the tech promises to get higher as genetic engineering comes onto the scene. Tweaking the genes of these trees holds the

promise of quickly improving their performance by adding such traits as resistance to herbicides and insect damage.

Other transgenic—that is, genetically altered—plants have already passed stringent government requirements to become part of the commercial cornucopia of America's farms. According to a July editorial in the journal *Science*, more than 40 percent of this country's corn, 50 percent of its cotton, and 45 percent of its soybeans planted this year will be genetically modified, "reducing the use of chemical pesticides by millions of pounds," the author notes.

Transgenic versions of potatoes also are here—some of them grown just a few miles from the poplar plantations of Oregon's eastside desert. "We're eating transgenic French fries right now," says Steve Strauss, Forest Science professor and director of OSU's six-year-old Tree Genetic Engineering Research Cooperative, known by the ungainly acronym of TGERC.



Jake Eaton of Potlatch Corp. examines leaves of one of the company's hybrid clones Potlatch hybrid poplar plantations cover 35 square miles of north-central Oregon desert.

So the ocean of trees west and south of Boardman comes as something of a shock. Acres and acres of light-green poplar saplings, identical in height, identically spaced one from the next, flashing the bright undersides of their leaves in the stiff Gorge breeze.

This sandy, coarse, desiccated ground might seem an inhospitable place to grow a forest. But these poplars, intensively cross-

THIS SANDY, COARSE, DESICCATED GROUND MIGHT SEEM AN INHOSPITABLE PLACE TO GROW A FOREST.

But trees are still a genetic-engineering work in progress. Poplars are the first forest tree species to be considered as a potential transgenic commercial crop. And right now they remain just that: potentially commercial, says Larry Miller, research supervisor for Boise Cascade's hybrid poplar plantations, which cover about 18,500 acres (on both company-owned and leased lands) within a 50-mile radius of its pulp and paper mill at Wallula, Wash.

"Eventually we hope to grow them operationally," he says. "But that's a difficult road right now. A lot of issues have to be resolved first."

Potlatch and Boise

Cascade got into the hybrid poplar business in the early 1990s, when logging cutbacks on federal lands seemed to portend a dwindling supply of wood fiber for paper manufacturing. To supply its pulp mill at Lewiston, Ida., Potlatch was buying residual wood fiber from sawmills that were dependent on federal timber. "Potlatch

wanted an insurance policy," says Jake Eaton. "So we started to look at hybrid poplar."

The investment for both companies has come to millions of dollars. "We will have put in over \$50 million before we ever see a chip," says Eaton, whose company will begin harvesting in January of 2001. Boise Cascade's plantations are already furnishing between

various spacing trials, and also with pruning of the trees, to produce high-quality, knot-free wood.

Boise Cascade and Potlatch are charter members of TGERC, paying yearly dues of \$25,500. They also support TGERC's research by planting and monitoring tests of genetically engineered trees. Two examples: trees that are unfazed by a herbicide shower, and trees that kill chewing bugs.

Keeping weeds down is critical for fast growth of poplars. Using genes acquired from Monsanto Corp., TGERC scientists have altered certain poplar clones—genetically identical hybrids—to make them resistant to glyphosate, one of the most widely used (and most environmentally benign) herbicide chemicals. Glyphosate, also made by Monsanto, is best known by its trade name of Roundup-R™.

Normally, poplar plantations are weeded by cultivating between the trees, which can damage the drip tubes and the trees themselves. Weeds around the resistant trees can be sprayed, and if a little chemical gets onto the tree, there's no harm done. Commercial use of the herbicide-resistant trees could mean cheaper, more effective weed control.



The cottonwood leaf beetle feeds heavily on poplar trees. Mid-page, Larry Miller shows leaves chewed to the ribs by beetle larvae. Genetically engineered insect resistance holds the promise of controlling insects with far less use of chemical pesticides.

Desert Forestry

Trees in other test plots have been altered by genes from a bacterium, *Bacillus thuringiensis*. Bt, as it's known, has been marketed to organic farmers for years as a nonchemical insect repellent and insecticide.

Poplars are very susceptible to damage from the cottonwood leaf beetle, whose larvae chew on the leaves and the terminal leader—the tree's topmost stem. TGERC scientists have taken the gene that makes the Bt bacterium toxic to insects and incorporated it into the tree's own genetic library.

The Bt becomes part of the very tissue of the leaf, killing bugs that take a nibble. (The transgenic potatoes now being grown com-

regulations on using transgenic plants, even in test plantings. Any use of genetically engineered plants is overseen by the federal Animal and Plant Health Inspection Service (APHIS), an agency of the U.S. Department of Agriculture, or the U.S. Environmental Protection Agency (EPA).

The main worry is that transgenic trees will interbreed with those of the same species in the wild. To minimize this risk, TGERC is studying how genes "flow" from one population into another in nature. They're also working on developing trees that don't flower; sterility would eliminate the risk of interbreeding.

Another potential problem is that pest-resistant trees may inadvertently kill nontarget insects, or that pest insects will evolve and become immune to the effects of Bt. TGERC is studying the genetics of leaf beetles and working with entomologists to help determine the extent of these risks, says TGERC's Steve Strauss.

Public acceptance may be another roadblock. "That's why TGERC's research is so important," says Eaton. "We won't use any plant material operationally if it could harm the environment. Potlatch

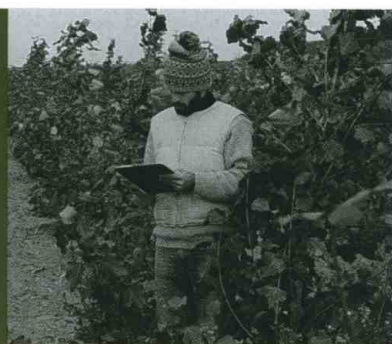
has a responsibility to maintain the quality of the environment."

Neither he nor Miller, however, has seen the kind of hysteria surrounding genetically altered plants that seems to exist in Britain and Europe (please see "Vandalism," next page). "This is farm country," says Miller, "and people tend to have realistic attitudes about agricultural issues. They stress the positive traits of transgenic products—such as the fact that you can use less insecticide, which is both cheaper and better for the environment."

Miller and Eaton praise TGERC for its solid science and its practical focus. "When we were approached by OSU five years ago, we signed on right away, and we've been there all along," says Miller. "We support them with our dues and our field trials, and they support us with their research."

Says Eaton, "That group is outstanding. They're top-of-the-line scientists with an international reputation. TGERC gives us a very big bang for our buck."

Below, TGERC geneticist Rick Meilan takes data from a study plot.



"WE WON'T USE ANY MATERIAL OPERATIONALLY IF IT COULD HARM THE ENVIRONMENT."

—JAKE EATON

mercially also have been altered with Bt to make them resistant to the Colorado potato beetle.) Eventually such trees could be grown with much less use of chemical insecticides.

There are strict environmental

VANDALISM, DEMONSTRATION STARTLE SCIENTISTS

Steve Strauss, Forest Science professor and director of the Tree Genetic Engineering Research Cooperative (TGERC), got a blunt encounter with public opposition to his work while attending a meeting of genetic engineering experts at Oxford University.

The conference, called Forest Biotechnology '99, was disturbed by demonstrators organized by a British group called GEFF, which stands for Genetic Engineering Free Forests. Protesters danced, chanted, and beat drums to signal their opposition to genetic alteration of trees.

A more sinister event took place the evening before the conference began, when vandals scaled a fence and destroyed two test plots of transgenic trees in Berkshire, an hour west of London. It was the U.K.'s only field trial of transgenic forest trees.

Public panic about genetic engineering seems to be higher in the U.K. at the moment than in the United States, Strauss says. That may stem from Britain's recent and tragic encounter with bovine spongiform encephalopathy, or BSE—mad cow disease—transmitted to humans in tainted beef.

"That episode had nothing to do with genetic engineering," says Strauss, "but it's become linked in

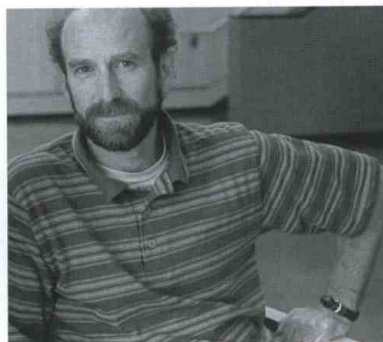
people's minds with high-intensity agriculture, and with mistrust of regulatory agencies. The authorities told the people that BSE wasn't a problem, and they were wrong."

Public opinion in the United States is nowhere near as hysterical, he says, and public trust of regulatory agencies seems higher. Still, many people still have unreasonable fear of genetically altered crops.

Such fear is unfounded, he says. "I'm not saying this technology is risk-free. Nothing is risk-free. But the regulations for assessing the risk are stringent, and for the most part they are sensible. The government demands detailed studies showing that these plants are unlikely to harm humans or the environment. The belief that transgenic crops are turning up in the marketplace without in-depth scientific review is absolutely wrong."

Apart from safety concerns, he says, some people are opposed to genetic engineering because of the commercial nature of it. Strauss has been confronted by opponents who believe genes shouldn't be patented—that they should be free and in the public domain. He's argued with people who say there's something wrong with a company such as Monsanto Corp. selling a herbicide and also the genes that make trees resistant to that herbicide.

A case in point: a March editorial in the *Capital Press*, a farm newspaper published in Salem,



"NOTHING IS RISK-FREE. BUT THE REGULATIONS ARE STRINGENT, AND THEY'RE SENSIBLE."

Ore., publisher Mike Forrester took Monsanto to task for aggressively protecting its patents on genetic materials, saying that violates the spirit of free sharing of agricultural research techniques. The company's actions, wrote Forrester, threaten "the traditional ag experiment process in U.S. universities."

Strauss respectfully disagrees. "Companies like Monsanto, where we acquire some of our genetic material, take a great financial risk by spending a lot of money on research. They do it because they hope for a large payoff, and patents guarantee that they're the main beneficiary of the research they undertake. Without patent protection, most of this research would not get done."

Steve Strauss,
director of OSU's
Tree Genetic
Engineering
Research
Cooperative.

FEATURES

HIGH MARKS FOR THE ANDREWS . . .

Scientists studying forests, soils, and streams as part of the long-term ecological research (LTER) program at the H.J. Andrews Experimental Forest received praise from a review panel of the National Science Foundation, the program's main funding agency. In a July report, the panel commended the LTER program especially for its work on the ecological links between forests and streams, and for the usefulness of its science in helping to solve forest management problems.

"It was a good report card," says Art McKee, director of the research program. "They were full of praise, and we're satisfied that we're mostly on track. I was pleased that they felt we strike a good balance between basic and applied science, and that we've developed a good relationship with resource managers."

The H.J. Andrews is a research station in the Oregon Cascades, administered jointly by OSU and the Forest Service. It is one of 21 National Science Foundation-sponsored long-term ecological research centers in the United States, and the site of several influential studies

on the workings of the temperate conifer forests of the Northwest.

About 40 scientists from 13 OSU departments are on the team, conducting research on forest geology, soils, streams, trees and other plants, wildlife, fungi, and insects, as well as the social and economic aspects of forest management.

The good review helps assure that the Andrews program will continue to be funded. The NSF provides about \$600,000 a year in funding, and the Forest Service provides about \$500,000. OSU provides about \$100,000 in direct funding and another \$250,000 in the form of faculty salary for research, McKee said.

. . . AND A NEW BOOK, TOO

A new book by science writer Jon Luoma, *The Hidden Forest*, tells the various stories of the diverse scientific team probing the ecological workings of the H.J. Andrews Experimental Forest.

Subtitled "The biography of an ecosystem," the book details research

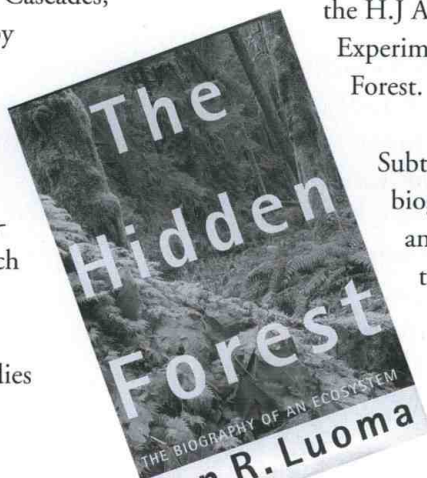
on hillslopes and landslides, soil organisms, fungi, decomposition processes, red tree voles, and other Andrews topics.

Along the way, the author discusses the evolution of forestry philosophy and practice and describes the changing attitudes of Americans toward nature. Readers of *Focus on Forestry* will encounter several familiar names among the scientists profiled. 228 pp. Henry Holt & Co., 1999.

RULING HALTS TIMBER SALES

A U.S. district judge ruled in August that federal land-management agencies failed to adequately survey for 77 species of little-known and rare forest plants and wildlife before offering timber for sale. The ruling, from Judge William Dwyer, has stalled 47 timber sales on federal forests in Oregon, Washington, and California.

The species at issue include slugs, snails, salamanders, mushrooms, mosses, and lichens that are not on the federal endangered or threatened list, but whose habitat needs are not well known. Forest Service officials say they are working to comply with endangered species law despite several years' worth of budget cutbacks.



FEATURES

FORESTS AT THE MILLENNIUM

What does forest sustainability look like? What forest policies will achieve it? What questions should we be asking about our forests, and do we have the tools to find the answers?

These were the big questions raised at a September conference at OSU titled "Oregon's Forests at the Millennium." The conference, sponsored by the Oregon Board of Forestry and the OSU College of Forestry, featured scientists and policy experts who assessed the current state of knowledge about the environmental, social, and economic sustainability of Oregon's forests.

Assessments were made in seven key areas: biodiversity, production capacity, forest health, soil and water conditions, global carbon cycles, socioeconomic benefits, and legal and economic issues. These categories follow criteria developed for forest sustainability at the 1992 United Nations conference on environment and development in Rio de Janeiro.

The criteria do not themselves define sustainability, said state forester Jim Brown in his opening remarks. "Rather, they set forth the information that must be on the table in order to have the conversation about sustainability."

The one-day symposium featured updates of ongoing research projects in timber availability, wildlife habitat, stream and soil conditions, economic and recreational trends, and patterns of land-use change.

Researchers also showed new tools for answering large-scale questions about forest management. These included OSU's CLAMS project, which predicts future forest conditions in Oregon's Coast Range under a variety of policy scenarios. Also featured was a model developed by Darius Adams, professor of Forest Resources, that predicts future harvesting levels and resource conditions on private forest lands.

More information is needed in every area, the researchers agreed. "And yet the state of our knowledge gives us reason to be optimistic," says Bart Thielges, interim Dean of the College. "We have a pretty good idea of what questions we should be asking, and we either have or are developing the tools to begin to answer them."

Reports from the conference constitute the Board of Forestry's "First Approximation Report," so called because it is a first approximation of sustainability on Oregon's forest lands. The report will be incorporated into the 2001 revision of the Forestry Program for Oregon, the board's ongoing strategic plan.

BUDGET NUMBERS ARE UP

The budget picture at OSU hasn't been this bright in years. Oregon's colleges and universities got a \$108.8 million increase above "current services"—meaning what it would take to fund Oregon University System (OUS) at today's levels.

That's not quite the \$116 million over current services that OUS asked for. But it's a sight better than the treading-water allocations of the past decade, says Kevin McCann, who handles governmental relations for OSU. "We took a decrease in '91, '93, and '95. In '97 we were granted a flat budget—enough to cover inflation only. This has been a long time coming."

While it's not yet known what OSU's overall share will be, the new budget includes a \$12.8 million initiative to boost funding for Oregon's Extension Service, Agricultural Experiment Station, and Forest Research Laboratory. All these service units are based at OSU.

The FRL's increase brings the state-funded component of FRL research from \$4 to \$5 million. The FRL suffered a budget cut of \$200,000 in 1997, and several cuts were made between 1991 and 1995.

This biennium's welcome increase will be targeted at research projects in improving forest health and productivity, reducing the environmental impact of forest operations, forecasting forest resources, and finding causes of and remedies for Swiss needle cast.

The OUS budget also includes \$5 million to improve faculty recruiting and retention, another \$5 million to expand engineering education, and a tuition freeze worth \$15.3 million.

OUS has switched to a new funding mechanism in which state support is directly tied to student enrollment. In addition, colleges and universities have to meet certain standards in quality, student access and retention, and cost-effectiveness, among others.

The budget boost, says McCann, is a legislative vote for the greater accountability and decentralized administration that's come under the new system. It also, he says, shows Oregon's willingness to invest in higher education as a tool for statewide economic development.

S/F

WHO-WHAT-WHEN-WHERE

STAFF/FACULTY

10

A. Scott Reed, Associate Dean for extended education at the College, received the 1999 Technology Transfer and Extension award for his leadership at the state, regional, and national levels. Reed leads a nationally recognized Forestry Extension program, which provides 40 to 50 workshops and short courses yearly. He has been on the College faculty since 1990.

Darius M. Adams, natural-resource economist and professor in the Forest Resources department, received the 1999 Award in Forest Science for his career contributions over 25 years to the field of forest economics. Adams has developed econometric models that can be used by scientists, managers, and analysts to better understand and predict how timber availability, market forces, and policy alternatives relate to one another. He has been on the College faculty since 1995.

Both professors were honored at this year's annual Society of American Foresters convention, held in Portland in September. The national SAF makes seven awards yearly; two others are given in alternate years. Reed's and Adams' awards bring to 14 the number that College of Forestry faculty have captured since 1971. Past SAF—honored faculty are **George Jemison**, **Steve Hobbs**, **Rick Fletcher**, **John Garland**,

Steve Tesch, **George Bengtson**, **Jack Walstad**, **Carl Stoltenberg**, **Bob Buckman**, **Jim Trappe**, **Ed Jensen**, and **Mike Newton**.

Ed Jensen was selected by the OSU Faculty Senate to receive the Elizabeth P. Ritchie Distinguished Professor Award recognizing excellence in teaching. The award was presented at University Day, Sept. 16. Jensen joined the College faculty in 1976.

Barbara Bond, assistant professor in the Forest Science department, received this year's Emerging Scholar Faculty award from the OSU chapter of Phi Kappa Phi honor society. She joined the College faculty in 1992.

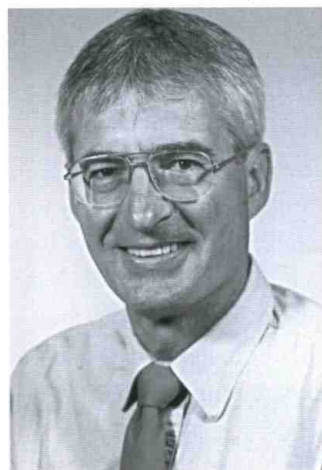
John Bliss, professor of Forest Resources, has joined the *Journal of Forestry's* editorial board for a three-year term. He will be responsible for papers published in the *Journal* in the area of social sciences. Bliss joined the College faculty in 1998 as the first professor to hold the Starker Chair in Private and Family Forestry.

Chris Maguire, assistant professor in the Forest Science department, was elected to a three-year term on the board of directors of the American Society of Mammalogists. Maguire's research focuses on wildlife habitat relationships in forest ecosystems. She joined the College faculty in 1996.

Ann Rogers, cultural resource manager for the Research Forests, has been appointed by Oregon governor John Kitzhaber to the Oregon Historic Trails Advisory Council. The council sets priorities for interpretation, preservation, and promotion of Oregon's historic and prehistoric trails.

Steve Daniels, associate professor in the Forest Resources department, is leaving the College to take the position of director of the Western Rural Development Center in Logan, Utah. Daniels will guide and coordinate research and Extension outreach activities relating to natural-resource and economic-development issues in the rural West. Daniels, who joined the College faculty in 1989, conducts research on social issues related to natural-resource use and policy, including studies on collaborative decisionmaking.

Katy Kavanagh, assistant professor in the Forest Resources department, is leaving to join the faculty of the University of Idaho College of Forestry, Wildlife, and Range Sciences. She will teach and conduct research in silviculture and develop continuing education projects. Kavanagh got her doctorate in OSU's Forest Science department. She joined the College faculty in 1989 and has been with Forestry Extension for the past five years.



Scott Reed,
Darius Adams

A

ALUMNI NEWS

Lebanon tree farmers **Bert '40** and **Betty Udell** have become the first tree farmers in the United States to receive a Green Tag Forest certification. Green Tags are given to those timber landowners whose management practices meet certain standards for sustainability. Certification is conferred by the National Forestry Association in cooperation with the National Woodland Owners Association and the Association of Consulting Foresters. The Udells are active among Oregon small woodland owners and have won many awards for outstanding forest management.

Harry Chase '50, Seattle, Wash. "It may be time I let my old

classmates know what I have come to after 50 years. I am still living in Seattle with Lori, who worked my way through college and takes me traveling with her. I retired from Weyerhaeuser in '86, where I had spent the final 12 years or so doing the technology and helping to start up the first OSB mills. After that I consulted some and tended our apple orchard in Chelan until '95, when it was leased out. Then as a sort of exclamation point, we spent a year in Portugal and Europe. We are ongoing volunteers for International Executive Service Corp. We had an extended time serving in Central America and, last spring, in St. Petersburg, Russia, with a fledgling timber company trying to get some

integrated harvesting, lumber, and product operations going. A great bunch of confounding guys. It takes a lot of heart to work in Russia, but the need is compelling. We continue to provide some technical, market, and business support.

"Beyond this, we travel some, sail a little, and try to hold our four scattered children and grandchildren in a somewhat functional state. Would love to hear from our old Fernhopping friends."

Larry Merriam '58 has written and published a history of the effort to protect the Three Sisters Wilderness. A 52-page softcover book with color photos, its title is

Saving Wilderness in the Oregon Cascades: The story of the Friends of the Three Sisters. To order a copy, write to Ed Sullivan, Friends of the Three Sisters, 973 Northridge Ave., Springfield, Ore.

IN MEMORIAM

George A. Leslie '39, July 16, in Pebble Beach, Calif.
Donald B. Malmberg '47, Aug. 3.
Walter Geren '40, July 25.
Duane G. Spriggs '56, June 25, in Prairieville, La.
Richard P. Summers '82 (M.S.), July 30, in Salt Lake City, Utah.

E

FROM THE EDITOR

GAIL WELLS

NEWS, VIEWS, AND MUSINGS

Our old friend **Bob Lindsay '43** and his wife **Helen** stopped in on a warm July day. Over lunch, Bob shared with us a sheaf of papers from his student days—a meticulous recording of his daily expenses when he was a student more than 55 years ago. Here are some of the entries: Board & Room: \$19.34. Fees & Dues: \$10.25. Supplies: \$3.88. Health: \$0.20. Clothing: \$1.58.

At the bottom of the page, Bob wrote: "Total = \$41.65." This

figure covered the entire month of November 1939.

A column titled "Social Life" deserves mention. In 1939-40 Bob spent a total of \$21.84. By 1941-42 the figure had tripled. "The reason is simple," said Bob with a smile. "Helen had come into my life."

NOT JUST A PRETTY FACE

By now you have surely noticed that *Focus on Forestry* has undergone a facelift. After almost 10

years with the same look, we thought it was time to jazz up the packaging a little.

But we haven't forgotten that it's what's inside that counts. We hope to keep bringing you thoughtful feature stories, lively profiles of our Forestry faculty and alumni, and timely news briefs.

The new format allows us more flexibility in our coverage. For one thing, we hope to feature news from Forestry alumni in every

issue, not just once a year. So please, keep us informed about your life and times. You may write to *Focus* at 001 Peavy Hall, College of Forestry, Oregon State University, Corvallis, OR 97331. Or call the editor at 541-737-4241 with your news. Or send an e-mail: wellsg@cof.orst.edu.

P

NOTEWORTHY PEOPLE

PEOPLE

When Mark Harmon was in grade school, science struck him as a wondrous adventure. His teacher—wise to the jaded cool of sixth-graders—liked to wow the kids by pouring acid into bowls of sugar and creating puffy black

“As Richardson Chair, I see an opportunity to give our program some attention, direction—give it a push.”

boluses of carbon, or blowing up aquariums with hunks of sodium.

“I knew I wanted to be either a secret agent or a scientist,” says Harmon. “The science won out.” True, but Harmon’s investigations have more than a whiff of secret-agentry to them. He’s spent his career finding clues in things most people take for granted or dismiss as uninteresting: rotten logs and dead trees, just to name two. “As a scientist,” he says, “you have to be careful not to assume that what you’re looking at is the only thing that’s important.”

The clues he seeks are pieces of the puzzle of how natural systems work. How a fire-scarred landscape recovers its life functions. How stream ecosystems respond when native and nonnative fish are competing for the same resources. How plants live and die together in a forest.

Now Harmon has a chance to help OSU pull these pieces together to work on the grand puzzle of how whole landscapes function. In August he was named to the Richardson Endowed Chair in the Department of Forest Science.

Funded by a 1992 bequest of forest land from Kaye Richardson of Falls City, Ore., the professorship calls for Harmon to develop a program in ecosystem and landscape-ecology research and teaching.

OSU, says Harmon, is already strong in the disciplines that make up landscape ecology: forest genetics, plant physiology, autecology (how a particular organism interacts with its environment), geology, hydrology, wildlife biology, remote sensing, modeling of landscape functions.

“We’re studying big questions, and we’re poised to provide international leadership in landscape ecology,” he says. “As Richardson Chair, I see an opportunity to give our program some attention, direction, coordination—give it a push and make it work even better.”

Harmon grew up in Cochrane, Mass., an outdoors-loving boy who wondered about things like how a compost pile turns a mass of dead leaves into something else entirely (and then produces worms for fish bait), and why the lakes near his home lost their clarity and became

a murky algal soup in the span of his childhood.

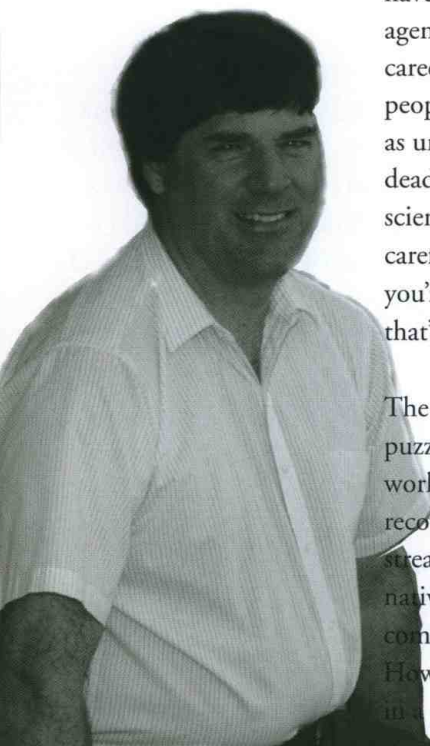
He graduated from Amherst College with a biology degree in 1975. A summer job at Glacier National Park inventorying potential wildfire fuels, and then a job in the Great Smokies helping on a fisheries study, deepened his interest in ecology.

When a wildfire swept through the Smokies in the summer of 1976, Harmon decided to observe how the landscape recovered. A visiting forestry professor showed him how to take samples and apply the proper scientific controls.

“The Smokies was where I learned about ecosystem work,” he says. “It was a time when a lot of research was blossoming in national parks, especially the kind of studies that you could apply directly to a management problem.”

That fall he entered the University of Tennessee’s ecology master’s program. The fire project became his thesis, and he encountered two scientists working on modeling of ecosystems at the Oak Ridge National Laboratory. Their classes in ecosystem modeling opened Harmon’s mind to the larger-scale possibilities of ecosystem research.

The site of wartime nuclear weapons research, Oak Ridge had subsequently been established as an ecosystem study site under the



MARK HARMON

International Biological Program (IBP), a worldwide, basic-research initiative funded, in the United States, by the National Science Foundation. The Andrews Experimental Forest in western Oregon was also named an IBP site.

"These larger ideas were beginning to surface in the IBP and all over," Harmon says, "especially the idea of a team approach to research. That was a new way of thinking for scientists—that not everything had to be done within a department."

About this time Jerry Franklin, then a Forest Service ecologist (and later the chief architect of the ideas that came to be called New Forestry), paid a visit to the Smokies. He and Harmon got to talking, and Harmon ended up following Franklin to Oregon, becoming his doctoral student at OSU, and hiring on at the Andrews Experimental Forest as a research assistant.

The year was 1980, a fertile time for forest ecosystem research in the Northwest. The Andrews team was moving away from a focus on post-harvest regeneration and into more-basic investigations of geologic, hydrologic, and biological processes of forests.

Early on, Harmon got an audacious assignment: Begin a 200-year-long study of how trees decompose. Two hundred years

was an unheard-of length of time for a study, but this one had to be that long; rotting trees take their own sweet time.

Harmon had to sell the project to a highly selective community of funding organizations for whom a five-year project counts as long-term research. Harmon puts it this way: "I had to sell soap to people who didn't want to buy soap." But he did it—writing enough successful research grants to secure the project for the past 15 years and into the indefinite future.

It was just the sort of bold science that Harmon's mentor liked best. "Jerry was a great inspiration," he says. "He believes in integrative science, and he knows about a lot of things. Because of him, I'm a generalist, and I'm not afraid to try something new."

The decomposition study is also the sort of science that blurs the boundary between "basic" and "applied" research. Global climate change was beginning to get people's attention, and some were proposing to scrub the air of carbon, a "greenhouse gas," by cutting down slow-growing older trees and replacing them with fast growing, carbon-absorbing seedlings.

"We said uh-uh, no, not a good idea," says Harmon. In a controversial 1990 paper published in the journal *Science*, Harmon, Franklin, and OSU plant physi-

ologist Bill Ferrell showed that cutting the old trees would release quantities of stored carbon into the air, as decomposition worked its inevitable will on the dead wood and the products made from it.

"It's not how fast trees grow, it's how much they store," Harmon says. "If you take away something that stores a lot of carbon, like big, old trees, and replace it with something that stores a little, the difference has got to be going into the atmosphere."

The paper showed how the most esoteric-seeming research can inform urgent social questions. And that is just the way it's supposed to be with the science led by the three OSU Richardson Professors. (The other Richardson Endowed Chairs are in Forest Engineering and Forest Products; those professors aren't here yet). Research that looks past what meets the eye, collects clues, and makes not-always-intuitive connections.

"I like to learn things," Harmon says simply. "The natural tendency is for people to say, 'Well, I'm not really interested in that.' If you can get past that narrow view, then you can do the most fulfilling science in the world."

Harmon had to pitch his long-term decomposition research to a skeptical community of funders—"I had to sell soap to people who didn't want to buy soap."

RESEARCH

PLAN FOR SUSTAINABILITY ON FEDERAL FORESTS, SAYS PANEL OF SCIENTISTS

Sustainability—in *all* its aspects—should be the “overarching objective” in planning for management of national forests and grasslands. That’s the opinion of a 13-member panel of scientists headed by Forest Resources professor K. Norman Johnson.

The committee, which also included Forest Engineering professor Bob Beschta, was convened in December of 1997 to provide scientific and technical advice to the Forest Service on managing its forests and grasslands. The panel’s report, “Sustaining the people’s lands: Recommendations for stewardship of the National Forests and grasslands into the next century,” was presented to Agriculture Secretary Dan Glickman in May.

Its findings will be used by Forest Service planners as they draft rules for carrying out the provisions of National Forest Management Act (NFMA) and the National Environmental Policy Act (NEPA), the two laws that govern management on national forests.

The rules are used by forest managers to develop plans for the nation’s 150 national forests. Most of the national-forest management plans are up for revision in the next couple of years. The

committee’s recommendations will guide decisions about where and how managers design a timber sale, carry out a grazing lease program, or site a campground.

The committee’s mission, says Johnson, was not to write the rules, but to offer a generation-long framework of concepts to guide rulemaking and planning.

The panel made 12 major recommendations. The first was that the Forest Service should recognize ecological, economic, and social sustainability as being the “overarching objective” of National Forest stewardship. “The concept of sustainability is old,” wrote Norm Johnson in his summary of the report, published in the May issue of the *Journal of Forestry*. “[I]ts interpretation and redefinition in this report should be viewed as a continuation of the attempt by Gifford Pinchot and others to articulate the meaning of ‘conservation’ . . .”

Another recommendation said the agency should recognize that many towns rely on National Forest resources for their “economic, social, and cultural sustenance,” and urged planners to “take generous account of compelling local circumstances.” The committee also urged more flexibility for local managers, coupled with independent evaluation of the effectiveness of their management.

The report called for a collaborative planning approach, recommended that scientists be involved, urged that plans be understandable by the public, and advised that “budget realities” be integrated into planning. One suggestion was to charge more for recreation, noting that “Finding stable funding sources to support stewardship remains among the agency’s greatest challenges.”

STREET CRIME IN THE WOODS

Three women disappear from Yosemite National Park, and their bodies are later found in an adjacent national forest. Two Oregon park rangers are shot, and one killed, at Oswald West State Park. A woman park employee cleaning bathrooms is abducted, raped, and released three days later.

These tragic incidents all happened in the past few years, and people remember the frightening headlines. Do such reports scare people away from wildland recreation areas? That’s what Joanne Tynon, assistant professor in the Forest Resources department, wants to know.

An expert in wildland recreation management and nature-based tourism, Tynon has teamed up with Deborah Chavez, a research social scientist at the Pacific Southwest Research Station of the U.S. Forest Service, to find out how prevalent such incidents are,

THE REPORT URGES PLANNERS TO “TAKE GENEROUS ACCOUNT OF COMPELLING LOCAL CIRCUMSTANCES.”

how park managers are dealing with them, and whether they make a difference in people's recreational choices.

In a series of visits and interviews, Tynon and Chavez found that recreation managers believe urban-style crime is a growing problem in wildland recreational areas. The managers cited incidents ranging from arson, vandalism, and illegal dumping to domestic violence, satanic-cult and extremist-group activity, theft, suicide, and murder.

Tynon and Chavez have pulled together a six-member team to conduct a more rigorous survey of criminal activity at parks and recreational sites across the country. After that's done, Tynon says, the team will survey people who visit wildland recreational sites to determine how crime in the woods affects their vacation plans.

PLANTED FORESTS ESSENTIAL FOR WORLD SUSTAINABILITY, SAYS NEW BOOK

In Senegal, they provide fuelwood and forage for cattle. In Nepal, they're cultivated to protect watersheds. In Scotland and Denmark, they restore trees to a landscape that has been treeless for hundreds of years.

Planted forests—grown from tree seedlings planted on once-forested

or unforested landscapes—actively contribute to the world's biological, economic, and social sustainability. That is the message of a forthcoming book describing the role of planted forests worldwide.

Planted Forests: Contributions to the Quest for Sustainable Societies, new from Kluwer Academic Publishers, is a comprehensive look at the biology and management of afforested and reforested landscapes.

Planted forests often don't get the respect they deserve, says co-editor Jim Boyle, Forest Resources professor and an expert in forest soils. "Sometimes you hear quibbling over whether a given area of planted trees is really a 'forest.' However you resolve the semantics, planted forests are a significant and necessary presence on the landscape worldwide, both as a source of wood fiber and as a land conservation strategy."

As the demand for wood increases with developing economies and expanding populations, Boyle writes in the book's introduction, "we simply cannot meet the world's demands for solid wood, wood pulp, fuelwood, and other forest values from naturally growing native forests alone. We're dependent on planted forests."

These forests, says co-editor Katy Kavanagh, range widely in complexity, from monocultures to diverse ecosystems. "We acknowledge that they will never replace native forests," writes Kavanagh, until recently a professor at the College (she's just joined the University of Idaho faculty). But their potential to complement natural woodlands "lends optimism for future forest management."

Planted Forests had its beginnings in a 1995 international meeting held in Portland, Ore. Its 31 chapters deal with planted forests in temperate and tropical regions and developed and developing nations.

The book, which costs \$225, may be ordered from the OSU bookstore, 541-737-1505, or from Kluwer Academic Publishers, PO Box 358 Accord Station, Hingham, MA 02018; tel. 781-871-6600.

Interim Dean Bart Thielges and Dean Sambas Sabarnurdin sign a Memorandum of Agreement linking the forestry faculties of OSU and Gadjah Mada University, Yogyakarta, Indonesia. The pact will facilitate academic and research activities, including faculty exchanges. Faculty of both universities are currently cooperating on a genetic conservation program for certain endangered tropical hardwood species, funded by the Indonesian Ministry of Forestry and the Japanese government through the International Tropical Timber Organization (ITTO).



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FUNDRAISING

FUNDRAISING

6



Becky Cole, the new President of the OSU Foundation, explains the recent changes in OSU's fundraising programs.

Dear Friends of the College of Forestry,

I welcome the opportunity to provide you with an update on the status of our fundraising programs at Oregon State University and particularly, the College of Forestry.

In July, 1999, the fundraising programs at OSU were consolidated into one organization. Professional and administrative staff charged with generating and managing private gifts made to OSU were brought together under one structure known as the Oregon State University Foundation. For the most part, the good work of these people continued, but in other areas, the emphasis on building endowed scholarship funds, endowed chairs and professorships for the colleges, and investing in new programs, has been greatly expanded.

The professional development officers that had responsibility for the colleges now are part of the new OSU Foundation. Lisa Mattes, in the College of Forestry, will continue to represent the College much as she did in the past. She will continue to build partnerships with donors, generate goodwill on behalf of the college, and educate as many new friends as possible about the College of Forestry and OSU.

The College of Forestry enjoys a rich and successful history with the many friends and donors who have expressed their philosophical and financial support in the past. The College has been the beneficiary of many wonderful gifts evidenced by passing through the hallways and noticing the naming plaques on doorways and laboratories.

The Foundation is proud to be able to continue to build on the powerful philanthropic traditions that have been built in the College of Forestry, and we're committed to continuing to tell the exciting story of both this College and our great University.

Thanks to all the many friends of the College of Forestry and for the wonderful things that have happened as the result of your investments. We're looking forward to many additional years of rewarding partnerships with each of you.

Rebecca S. Cole
President
OSU Foundation

"I'D LIKE TO ACCUMULATE A MILLION-DOLLAR GIFT TO FORESTRY."

AN OLD FRIEND, A NEW GIFT

Jack Morgan of Corvallis has given the College of Forestry a 1.5-acre building lot in Madrona Estates, the housing development he built near the Research Forest in the northwest hills of Corvallis. The lot's value is estimated at \$90,000.

The gift is Morgan's second to the College. In 1993 he gave a 17-acre parcel of undeveloped land adjacent to McDonald Forest,

worth \$679,000. "I'd like to accumulate a million-dollar gift to Forestry," he says. "I probably won't get there—I'm at the tail end of my logging and real-estate career. But I'd like to give it a try."

Morgan attended the School of Forestry at OSU in 1946-47, after serving in the Marine Corps during the second World War. He went on to work as a logger and a log scaler. In 1963 he and a

brother-in-law started a logging business, Cully & Morgan. The firm and its successors cut and logged timber within a 100-mile radius of Corvallis for almost 35 years, using technology ranging from cat skidders to high-lead to skyline.

During this time Morgan also built up a real-estate development business. He's now mostly retired.

NEWS BRIEFS

CURRENT EVENTS

SEEING THE FOREST AND THE TREES

A traveling show of photographs, paintings, sculpture, and multimedia images with forestry-related themes, on display at OSU during September, will be at the Tillamook County Creamery through October and at the Bend City Hall through November.

The exhibit, sponsored by the OSU Forestry Extension Program, is titled "Seeing the Forest: Art about Forests & Forestry." It illustrates Oregonians' diverse views of forests and forest-related issues in the State, says Brad Withrow-Robinson, Benton County Extension forester and one of the coordinators of the exhibit.

"Using art to explore issues is a new educational approach for Forestry Extension," he says. "The project's objective is to teach people about the number and complexity of forestry issues and to challenge viewers to consider different viewpoints."

He hopes the exhibit will become an annual event, with more pieces of art in a wider range of media, and a travel schedule that takes in more Oregon towns.

STUDENTS COMMENDED FOR SALMON PLAN

Four students majoring in Forestry or Natural Resources were part of a group from OSU to win "Best

Presentation" award at a Seattle natural resources conference. They took the honor for their draft plan to restore salmon populations in the Alsea Basin.

Dawn Anzinger, Sara Ashkannejhad, Jessica Leahy, and Eric Watrud worked with 13 other OSU students to draft a salmon-restoration plan to enter in a student competition organized by the Environmental Protection Agency and other government agencies dealing with environmental issues.

The students' plan calls for a combination of education, marketing, and regulation to restore salmon populations in the Alsea Basin. Among their suggestions: create a statewide salmon education program for k-12 schools, quiz anglers on their ecological knowledge before issuing fishing licenses, and create TV and newspaper ads with celebrities encouraging people to help protect the salmon.

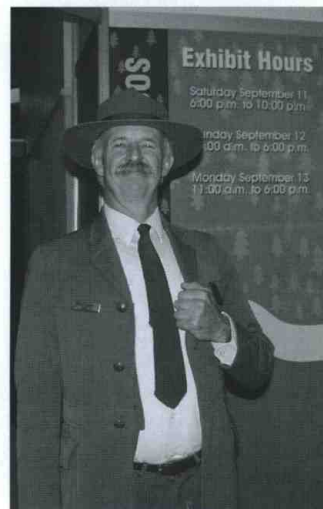
SAF MEETS IN PORTLAND

More than 1,200 filled the Portland Convention Center on five glorious mid-September days to attend the 1999 Society of American Foresters annual convention. The gathering was filled with general-session talks on

forestry past, present, and future, including an address from Oregon governor John Kitzhaber. Participants also enjoyed a student quiz bowl, alumni gatherings, working group sessions, and tours of Oregon's coast, mountains, wine country, and the Columbia River Gorge. The conference was hosted by the Oregon and Washington SAF state societies.

Some SAF members took hammer in hand to help frame a duplex being built in an adjacent parking lot. The project, undertaken with Portland Habitat for Humanity, is part of the SAF's Forests for Humanity project, highlighting the relationship between forests and people. The home will soon be moved to a Portland neighborhood to provide housing for two families.

Highlights of the conference for this correspondent were the keynote address by astronaut, engineer, and doctor Mae Jemison; national awards conferred on two College faculty (please see page 10); and the presence of nearly 437 students, the largest contingent ever. Our own College of Forestry student SAF members were very active, coordinating the student Quiz Bowl and the job fair, among other things.



Above, Jim Overbay '56 shares a conversation at the 1999 SAF national convention in Portland. Below, Gifford Pinchot was everywhere in evidence, in spirit at least.

P

NOTEWORTHY PEOPLE

PEOPLE

The discipline of ecology—concerned with the web of relationships among organisms within an environment—seems like a good place to go looking for a scientist who has spent his career discovering relationships.

“I realized it was a gift to be able to put ideas together in ways others couldn’t immediately visualize.”

Dick Waring’s 35 years of discovery have ranged all across the disciplinary map. In the process, collaborating with his own students and colleagues from other fields, he has greatly enriched the library of known natural relationships upon which the science of ecology is built.

He’s helped quantify the link between the composition of a plant community and the physical qualities of its site, between the total area of leaves on a tree and the rate at which that tree puts on sapwood, between the growth rate of a tree and its vulnerability to insect attack, between the light qualities of a satellite image of a forest and how fast that forest is able to photosynthesize.

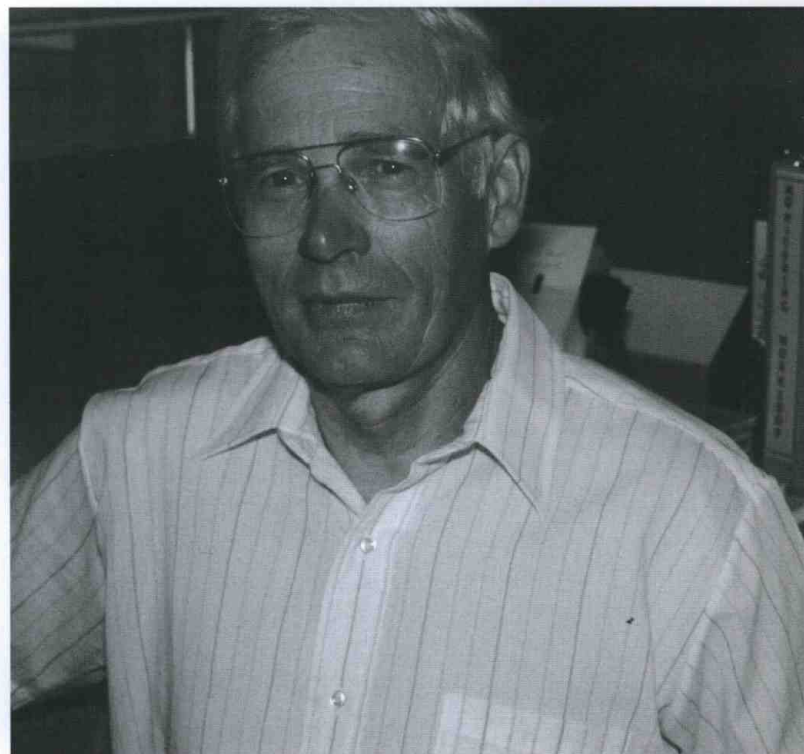
And on to larger relationships. How a forest’s sum of growth, death, and decomposition pro-

cesses relates to how much biological matter there is in the forest at any given moment. How changes in photosynthesis across a landscape relate to levels of gases in the air, and how these in turn relate to changes in climate.

Ecology turned out to be the environment in which a daydreaming, woods-loving boy from the Midwest found his niche. Waring was a good student in high school, sometimes challenging his teachers’ interpretations by looking at

“Everything I picked up, I looked at a little differently from most people. I finally realized that it was a gift to be able to put ideas together in ways that others couldn’t immediately visualize.”

Such links aren’t always easy to express logically, says Waring. “You have two accepted ideas, and everybody knows them, and then you put them together in a new way, and there’s this ‘aha’ feeling of synthesis.”



things in a different way, envisioning links of meaning nobody else could see.

“Being left-handed gave me a tremendous advantage,” he says.

The oldest child of a wholesale lumber dealer in Glen Ellyn, Ill. (his fraternal twin was born a few minutes later), Waring was drawn to forestry early in life. A summer job on a reforestation research

DICK WARING

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project in northern Minnesota awakened him to the challenge and satisfaction of research.

Studying for his doctorate in botany and soil science at the University of California at Berkeley (he received it in 1963), Waring did his dissertation work in northern California's redwood country. Working with an ecologist, a plant physiologist, a taxonomist, and a soils expert, he investigated the links between certain "indicator" plants and the moisture, temperature, and soil conditions in their environment. "My Ph.D. dissertation represented my first leap across fields," he wrote in a recent journal article about the challenges and rewards of cross-disciplinary work.

In 1970 he was one of a three-scientist team to lead the ecosystem analysis program on the Andrews Experimental Forest, funded by the newly created International Biological Program. The Andrews crew included more than 100 people from 10 departments at OSU, as well as several scientists from the Forest Service PNW Experiment Station, led by Jerry Franklin—later to become known as the guru of New Forestry.

Process modeling was the hot topic. By processing the right information about water, sunlight, and nutrients on any number of sites, a model could predict how a

forest would behave under a wide variety of conditions. Modeling had the potential of moving the field of ecology a quantum step forward.

However, a model is only as good as the information it's fed. Scientists were collecting "a mountain of data," but not all of it was useful. Waring and his colleagues knew they needed more-focused ways to ask the critical questions, to quantify the significant links among processes.

And so, again, Waring worked with colleagues from other disciplines, doing experiments that determined how water flow through a tree was related to the cross-sectional area of its sapwood, and how that was related to leaf area, and how that was related to the uptake of carbon dioxide by forests.

In 1989 Waring was tapped to lead a project for the National Aeronautics and Space Administration. Called OTTER (Oregon Transect Terrestrial Ecosystem Research), the project used state-of-the-art remote sensing to estimate climate and forest conditions. An important goal was to find out whether the next generation of earth-orbiting satellites might be able to predict changes in forest growth. He and doctoral students Barbara Bond and Beverly Law, both now on the Forest Science faculty, quantified important links

between the information from satellite images and the canopy structure and photosynthetic capabilities of forests on the ground.

Waring has taught and guided many graduate students. "He is an intrepid teacher," says Bill Emmingham, also on the Forest Science faculty, who studied under Waring for both his master's and doctoral degrees. "He hypothesizes, investigates, and teaches, all at the same time, and he brings the student along on the journey." In 1995 Waring was named OSU Distinguished Professor, the first at the College of Forestry.

At least one former student has become well-known. Pamela Matson, now a professor at Berkeley, received a MacArthur Foundation "genius grant" in 1995, and last year was named an OSU Distinguished Alumna. The rest may never see their names in newspaper headlines, Waring says, but all are practicing productive science, establishing links, building bridges, making ecology richer, broader, and more useful every day.



For his exemplary research and teaching, Dick Waring carries the title of OSU Distinguished Professor.



OSU President Paul Risser and Dean George Brown cut the ribbon swathing the front door of Richardson Hall. Below, Senator and Mrs. Hatfield and the almost-tardy plaque.

RICHARDSON HALL LAUNCHED UNDER SUNNY SKIES

Richardson Hall, the College of Forestry's new research laboratory, was dedicated under unseasonably sunny skies in a public ceremony in May. About 400 people watched as OSU President Paul Risser and Dean George Brown wielded oversize scissors, cutting a wide red ribbon swathed across the front door.

Earlier in the day, the west courtyard of Richardson Hall was dedicated as the Mark O. Hatfield Courtyard. The surprise ceremony included the unveiling of a plaque bearing Hatfield's likeness. Hatfield was being honored as a policy leader in natural resources and for his role in securing \$10 million in federal appropriations for the laboratory.

At the time, the Dean was recovering from a less pleasant surprise. A few days before, he'd been informed that the Hatfield plaque had been unaccountably misplaced in shipping. A new one would have to be poured, and it might not be ready in time for the ceremony.

But to Brown's great relief, the 80-pound bronze plaque arrived on the very morning of the 27th. "Have you ever been in Pittsburgh, Senator?" Brown asked after the plaque was unveiled. Hatfield nodded, puzzled.

"Well," said the Dean, "that's where your plaque was this time yesterday."

The Richardson Hall dedication was followed on Friday by dedication of the remodeled and expanded Valley Library.

STARKER LECTURES BEGIN

Four visiting scholars will speak on the theme "Natural resources in a material world," in the College's annual Starker Lecture series. They are:

A.J. Bolton, BioComposites Centre, University College of North Wales. Oct. 14.

Dan Kemmis, Center for the Rocky Mountain West, University of Montana, Missoula. Oct. 28.

Ted Strong, former director of the Columbia River Inter-Tribal Fish Commission. Nov. 4.

Nancy Langston, professor of forest ecology and management at the University of Wisconsin, Madison. Nov. 18.

Lectures are at 4 p.m. in Stewart Auditorium, Peavy Hall, on the OSU campus. They are free and open to the public.

AUTUMN 1999

THE MAGAZINE FOR THE FRIENDS AND ALUMNI OF THE COLLEGE OF FORESTRY

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