

# ***Forestry: Supporting Oregon's People, Economy, and Environment***

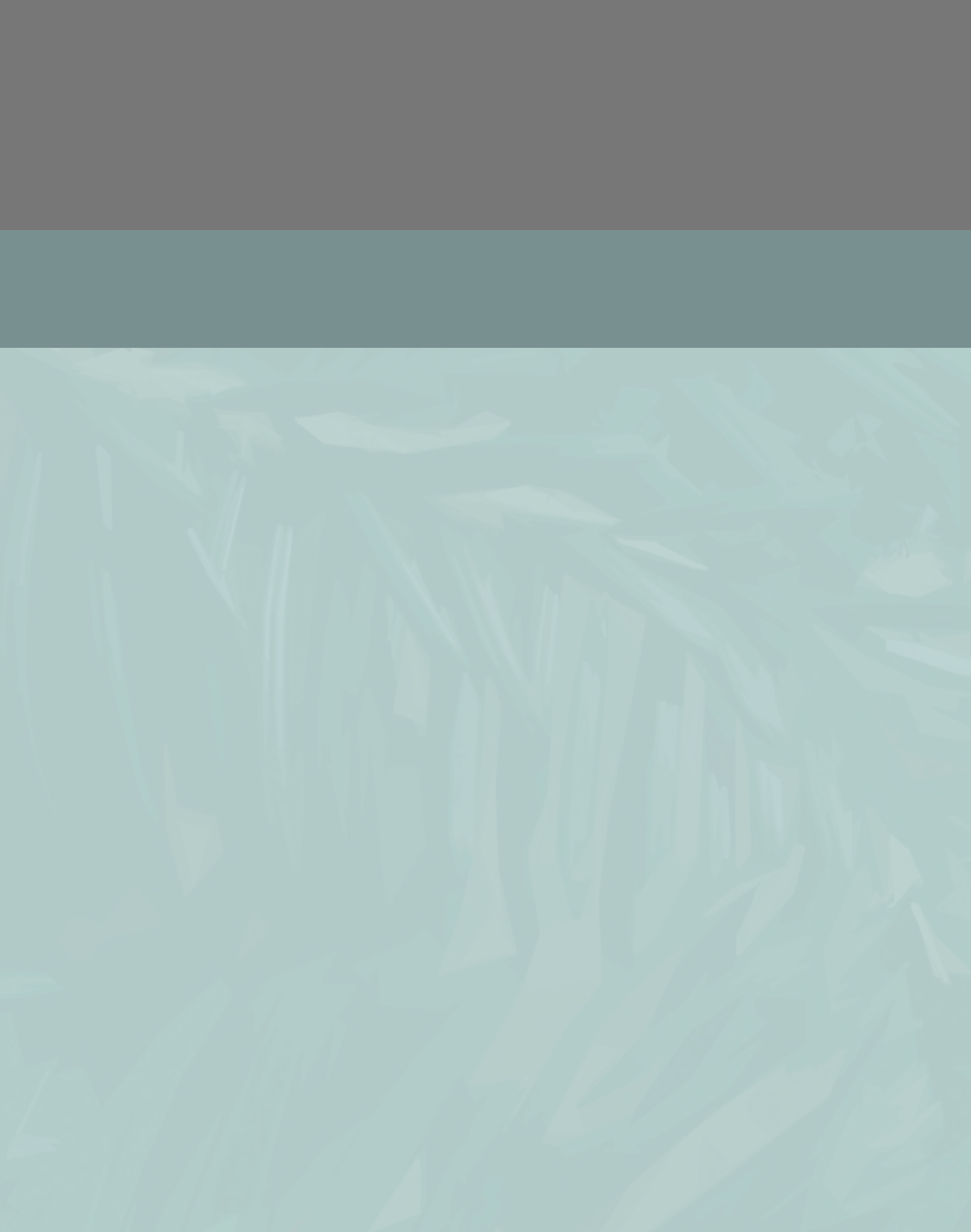
*2005 Annual Update for the  
College of Forestry and the Oregon  
Forest Research Laboratory*





*"New knowledge and improved technology have resulted in continual changes to our teaching, research, and management focus, but one thing has remained constant—sustaining the balanced use of Oregon's natural resources to meet economic, social, and environmental values throughout the state."*

—Hal Salwasser



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# *A Note from the Dean*



**A**s I reflect on the challenges and successes of 2005, I'm struck by the continued optimism, energy, and quest for achievement within the College of Forestry and Forest Research Laboratory. As an institution, we will soon be recognizing our first 100 years of service to the people of Oregon. New knowledge and improved technology have resulted in continual changes to our teaching, research, and management focus, but one thing has remained constant—sustaining the balanced use of Oregon's natural resources to meet economic, social, and environmental values throughout the state. This report provides a brief overview of our efforts this past year.

Educating the next generation of natural resource managers for private and public lands, industry leaders, and environmental scientists remains a core mission. Our world-class faculty and programs are achieving this goal. This fall's enrollment of 624 students is the highest since 1981 and reflects a 5-year growth trend that is up 31%. These students come from both urban and rural Oregon, from over half the states in the country, and from around the world. This enrollment is indicative of the knowledge available here and of the demand for trained professionals in the workforce. I must thank our alumni and friends for helping to achieve this student growth. The cost of education continues to increase, and the students continue to pick up a larger share of that expense as tuition increases offset decreases in state appropriations. Forestry supporters provided over \$700,000 in scholarships and fellowships this year, enabling us to attract and retain marvelous students.

As a land-grant institution, our second core mission is to engage in research and make our findings available to the public, industry, and policymakers at all levels. Four

years of declining or flat state appropriations, coupled with a variety of increases in operating costs, have resulted in faculty vacancies in some key research and extension programs. Despite the staffing shortfalls, we have remained committed to meeting our goals. Hard-working faculty achieved a record \$12.3 million in outside grants and contracts this year. This represents a significant return on the FRL appropriation. These grant expenditures directly support Oregon jobs, and the knowledge gained from such research can have significant economic, social, and ecological impacts in Oregon and across the world.

FRL scientists have also invested their time, energy, and limited endowment resources, either alone or with external partners, into building the foundations of new programs. The Hinkle Creek paired watershed project, the Oregon Wood Innovation Center, and the planted forest productivity initiative are examples of such efforts. Such programs all hold great potential for enhancing and sustaining Oregon's \$13 billion forestry-related economic activities. Our scientists recognize that the knowledge they produce helps to provide more than 85,000 living wage jobs in Oregon, adds economic stability in good times and bad, helps to promote fish and wildlife habitat, and aids in improved water quality.

This annual report is intended to provide a brief overview of the range and depth of efforts by faculty, students and staff. I welcome any questions or requests for additional information on our programs. We are here to serve all Oregonians and to help ensure a dynamic ecosystem that sustains a full array of forest benefits from preservation to production.

*Hal Salwasser*



# Return on Investment

As part of a Land Grant University, the College of Forestry (CoF) is committed to providing Oregonians with timely and pertinent extended education and training, technical assistance, and policy advice. Examples of this commitment include the following:

## Contributing to Oregon's Economy

The Oregon Plantation Productivity and Value Enhancement Program has the mission of increasing the productivity and value of planted forests in the Pacific Northwest. It will conduct research and broker efforts of others to better understand how silvicultural practices interact with inherent site factors to influence productivity, value, and sustainability over rotations. Decision-making tools to help managers maximize productivity and value of their plantations are the ultimate goal. The target is to improve the competitiveness of the Pacific Northwest in the global wood market. A draft business plan is being developed.

Incorporation of smart sensor systems in mechanized harvesters offers step-change solutions for improving wood utilization. Forest Research Laboratory (FRL) scientists are providing the data to improve adaptive control of bucking on harvesters. Results will help to maximize log value recovery, minimize waste, and direct logs

to the most appropriate markets. Improved value recovery of about a quarter of a billion dollars annually is possible in the PNW.

Recent studies have shown that a fully optimized log supply chain could increase product sales revenue by 3–7%. In Oregon, a 5% improvement in sales could yield the Oregon forest industry an additional \$55 million. Research has begun in the FRL to evaluate methods for collecting and utilizing more accurate timber yield data for use in optimizing the log supply chain.

A chapter on "Impacts of Wilderness on Local Economic Development" by an FRL scientist was recently published in the book *The Multiple Values of Wilderness*.

## Becoming a Global Leader

The appointment of John Hayes as Associate Dean for International Programs has brought about expanded focus on international activities, cooperative agreements, international seminars, and a small grants program to assist faculty with research projects and collaboration.

John Hayes, Gary Hartshorn, President, World Forestry Center, and Hal Salwasser created an international forestry seminar, delivered in September 2005.

A virtual video course with German colleagues and a joint degree program for tropical forestry with the University of Queensland in Australia are in development.

## Enhancing Instruction

Ed Jensen was named Associate Dean for Academic Affairs for the College.

Seven new 100–400 level courses have been developed, with the majority offered at Cascade Campus and Wallowa Resources.

A summer field course treating the vitality of rural communities visited Enterprise, Sisters, and Sweet Home. It is part of the Sustainable Rural Communities Provost's Initiative.

The Student Services office and activities contributing to student success were internally reviewed.

A new position has been filled to link teaching, demonstration, and research opportunities to academic programs and to seek and obtain grants and other external funding to support academic use of the College Forests. A database of academic use of the College Forests will be maintained, highlighting how that use has benefited society.

Each year, CoF faculty join with scientists across campus, the USFS, and USGS to promote Geographic Information Systems (GIS) Day at Oregon State University. On November 17<sup>th</sup>, 2004, over 200 4<sup>th</sup>- and 5<sup>th</sup>-graders from local schools were involved in activities around campus, learning how GIS systems and computers are used to create maps and for a variety of other important applications.

## Addressing Regulatory and Environmental Concerns

A model that predicts the spread of invasive plants across the landscape has been developed by an FRL scientist in collaboration with colleagues from the USFS PNW Research Station and Region 6 in eastern Oregon. The model will be used by the Forest Service to estimate expansion rates of invasive plants and to plan control measures.

A collaborative study focusing on land uses within the Calapooia River drainage has shown that nitrate levels in the winter are 49 times higher in the lower, agriculture-dominated areas than in the forested sub-basins higher in the watershed. Water quality in lower elevation sub-basins is only five times higher in nitrate in June, but still illustrates substantial differences in water quality associated with agriculture and forestry land uses and their positions in the watershed.

## Cooperating with Stakeholders

Data collected over 15 years by the Hardwood Silviculture Cooperative are playing a key role in the regional effort to develop new stem-taper and volume equations for the management of red alder stands in the region.

Benefits from the work done and coordinated by the Northwest Tree Improvement Cooperative are being realized on over 5 million acres of Douglas-fir and western hemlock timberland owned or managed by members of the cooperative. The most recently established Douglas-fir seed orchards are predicted, mainly on the basis of the first cycle of breeding, to provide 30–50% improvement in stem volume at age 15, depending on the breeding zone.

The Watersheds Research Cooperative organized the first conference on results from the Hinkle Creek research and demonstration project in Douglas County.

## Providing Public Service

Hal Salwasser frequently provides scientific background to federal legislators regarding the Northwest Forest Plan, Healthy Forest Restoration and forest policy. He is a member and past Chair of the National Commission on Science for Sustainable Forestry.

John Hayes, Associate Dean for International Programs, was invited to give a presentation at the United Nations in New York City in May 2005.

Several faculty in the CoF have prominent roles on national/international research/policy panels.

Steve Hobbs continues to serve as Chair of the Oregon Board of Forestry.

## Strengthening the Scientific Foundations of Forestry

The Oregon Department of Forestry is using results from FRL studies of commercial and precommercial thinning in Douglas-fir forests infected by Swiss needle cast to revise silvicultural guidelines and harvest targets in their Northwest Oregon State Forests Management Plan. The revisions take better account of disease impacts on stand growth and development.

Early results on cold air drainage in small watersheds suggest that chemical analysis of air samples moving down slope at night can be used to predict the physiology of trees on a landscape level. This approach may revolutionize the ability to detect stress in forests caused by climate change or other factors (e.g., disease) well before stressful conditions are obvious from the outward appearance of trees.

Recent work on the distribution of steam amphibians in the Oregon Coast Range, published in *Ecological Applications*, will increase understanding of the habitat ecology of these species and enable resource managers to better identify key habitat attributes for stream amphibians and to develop ecologically sensitive management practices.

An FRL hydrologist is spearheading an OSU effort to establish a major NSF-funded hydrologic observatory in Oregon, focused on the Willamette and Deschutes Basins.

## Developing Software Applications

ORWood.xls, an award-winning Excel-based software program for estimating shrink and swell in wood, has been downloaded by over 1,100 users from around the world.

A geostatistical approach and accompanying computer software developed by an FRL scientist make it possible to analyze complex spatial patterns in stream networks (e.g., abundance of fish populations, distribution of vegetation).

## Encouraging Innovation

The College received 169 grants, agreements, and contracts totaling over \$12 million, up \$2.5 million from last year.

College faculty have prominent roles in four of the successful Provost's Initiatives: Water and Watersheds, Subsurface Biosphere, Ecosystem Informatics, and Rural Communities.

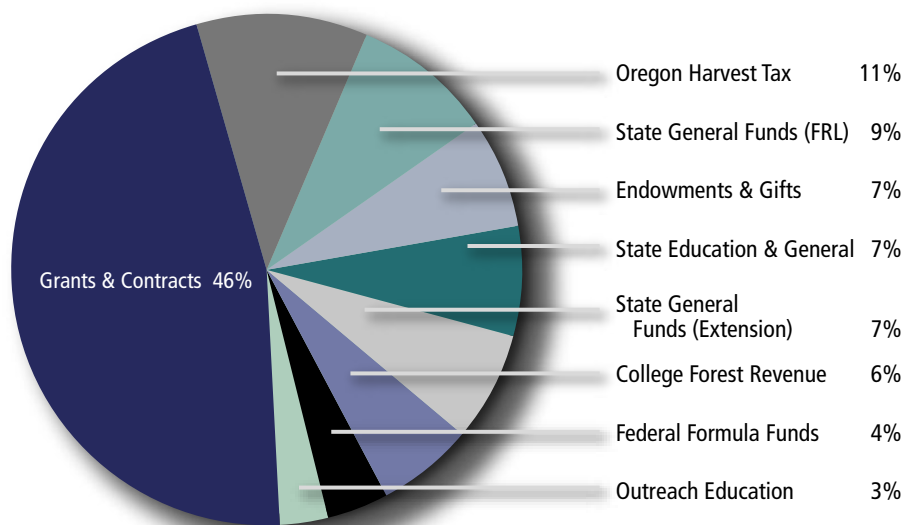
Scott Leavengood has been hired as the director of the Oregon Wood Innovation Center. The Center will provide highly visible access for companies and entrepreneurs to targeted research, technical, and business assistance and extension education relating to new product and market development, technology and process innovation, business and market planning, and economics. The goal is to increase the global competitiveness of Oregon manufacturers.



## College Finance

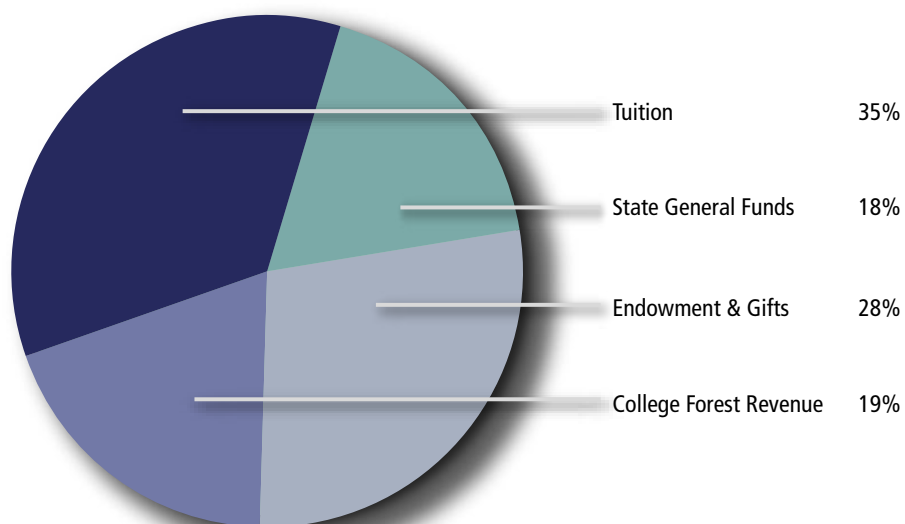
### CoF Total Enterprise

FY2005 Total \$26.1 million



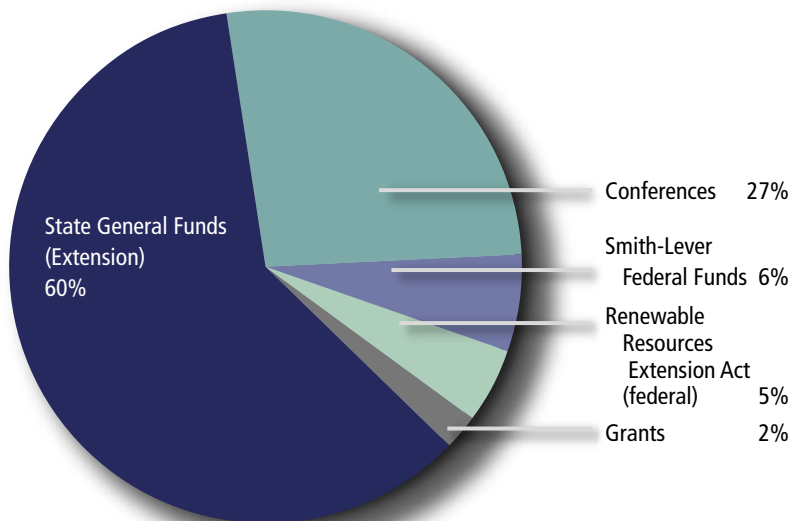
### CoF Education Sources of Funding

FY2005 Total \$3.28 million

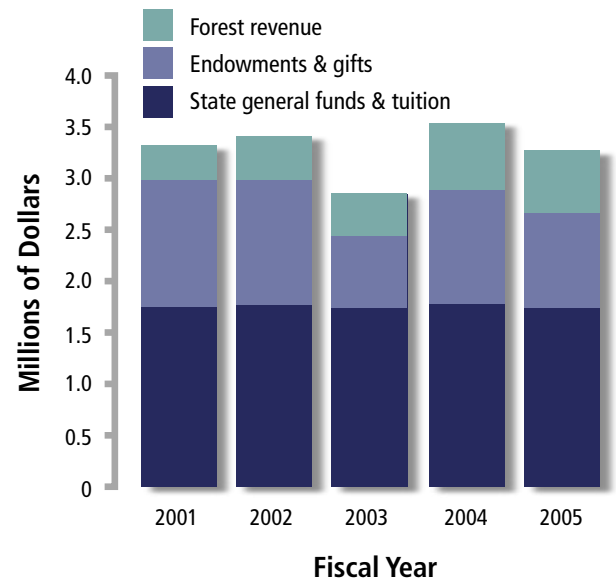


## CoF Extended Education

FY2005 Total \$2.84 million

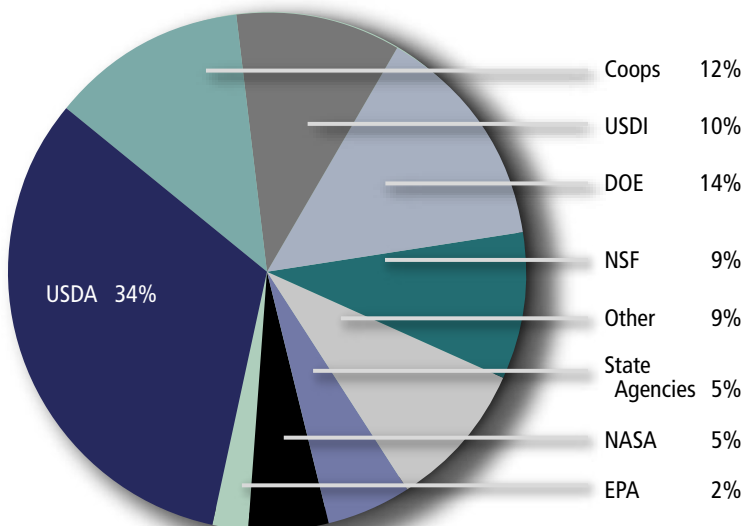


## CoF Education

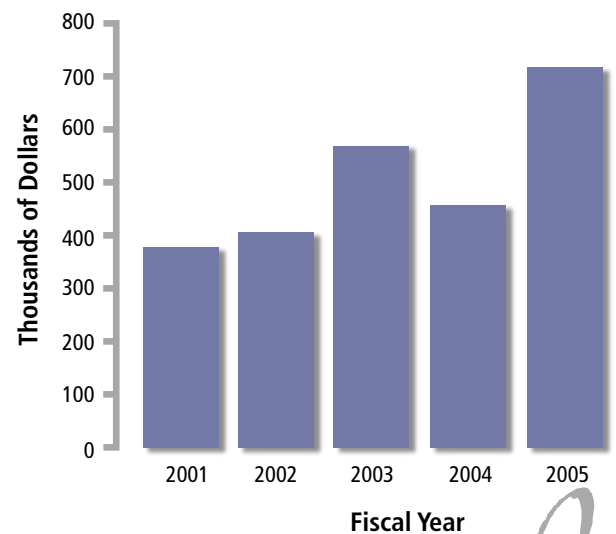


## CoF Grants & Contracts

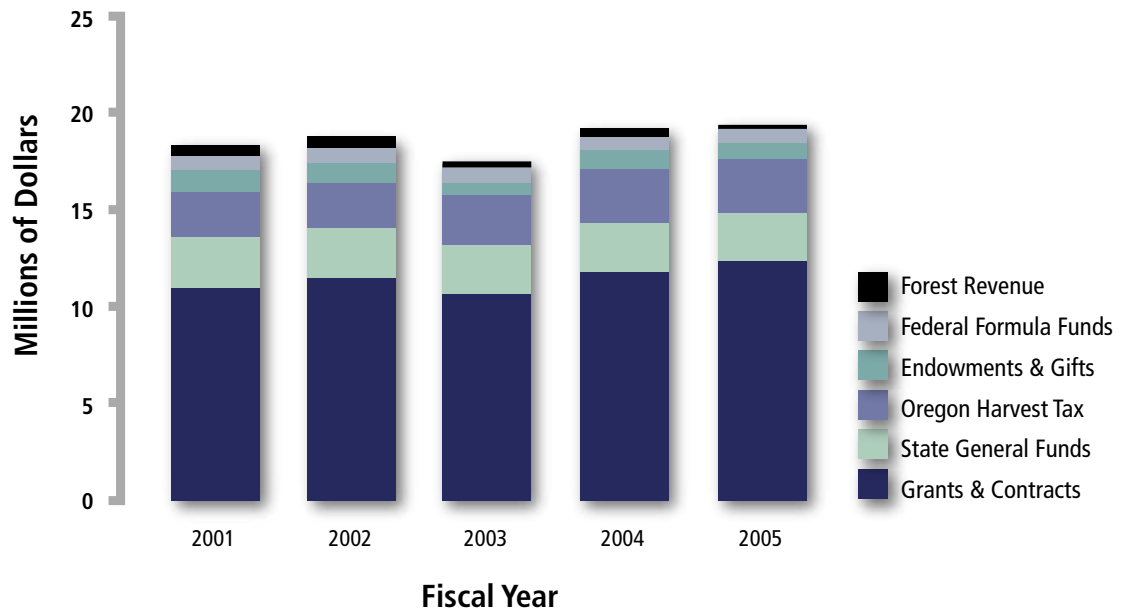
FY2005 Total \$12.3 million



## CoF Scholarships & Fellowships

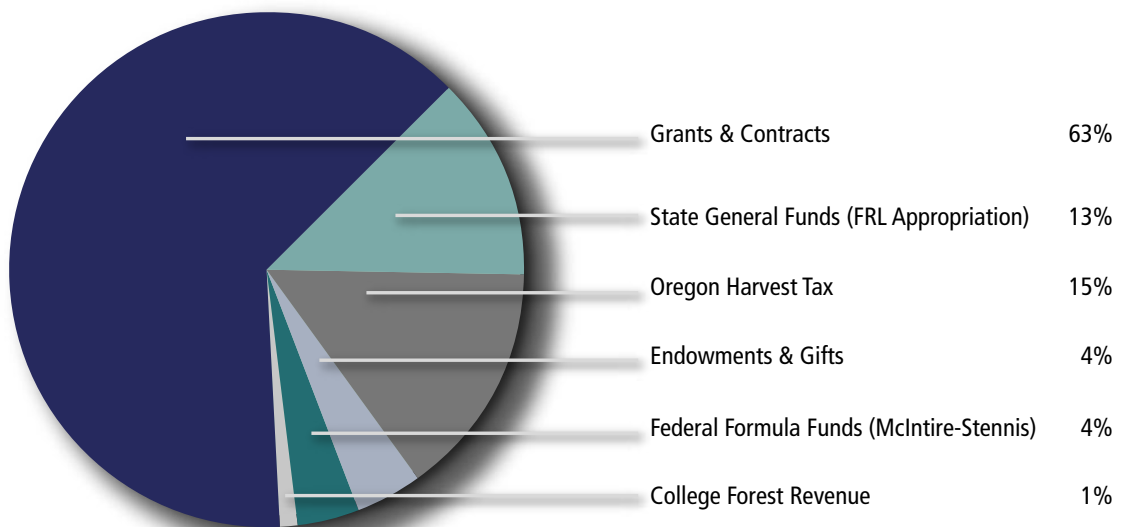


## FRL Total Research



## FRL Sources of Research Funding

FY2005 Total \$19.28 million





# *Features*

# Keeping Water in Oregon's Rivers

## Meeting diverse needs for a vital resource

**T**housands of water enthusiasts take to Oregon's rivers and lakes every year, and these outstanding recreation opportunities contribute millions of dollars to the Oregon economy. So maintaining a plentiful water supply year-round, while fulfilling other water needs such as irrigation, domestic, and industrial use, is critical to the recreational and economic advantages Oregon's waterways provide.

Water has been central to the work of Bo Shelby, Professor of Forest Resources, for more than 30 years. "Whitewater is a common ingredient in many of the projects I've worked on," he says. Those projects have included managing rivers for recreation, navigability studies for court cases, resolution of conflicts over water rights, and relicensing of hydrogeneration facili-

ties. He has completed studies on approximately 100 rivers in the United States, including water rights studies of all of the BLM wild and scenic rivers in Alaska. Recently he received a service award from the USDA Forest Service for contributions to the Snake River Basin Adjudication Project and the Author's Award for the top-ranked article by readers of *Hydro Review*. Shelby has just finished a publication, *Flows and Recreation: a Guide to Studies for River Professionals*, in collaboration with Doug Whitaker and John Ganagemi.

Whitewater isn't just of academic interest to

Shelby; he's often on the water himself. He's even been featured, paired with a "classic river", in *Whitewater Classics* by Tyler Williams. In 1980 Shelby was the second person to run Turnback Canyon on the Alsek River in Canada, a whitewater stretch that the first person to run it called "unpaddleable". A quarter of a century later, he's still on the rivers, helping to ensure they'll keep running for future generations.



# Scent of a Log

## Aroma tagging and other “smart sensor” technologies can make good cents

Recovering maximum value from harvested timber is becoming ever more critical to the competitiveness of the forest industry in the Pacific Northwest. Glen Murphy, Professor of Forest Engineering, has been devising innovative ways to capture the greatest value from every tree felled and to improve utilization by devising sorting methods that allocate logs to the most appropriate markets. He’s especially involved in developing and evaluating novel sensing technologies that can be applied to improve value recovery during harvest, transport, and tracking.

The sensing technologies are applied from tree felling to shipment. Highly sophisticated computerized harvesting equipment incorporating “smart sensors” such as lasers, acoustic sensors, and near infrared technology could allow foresters

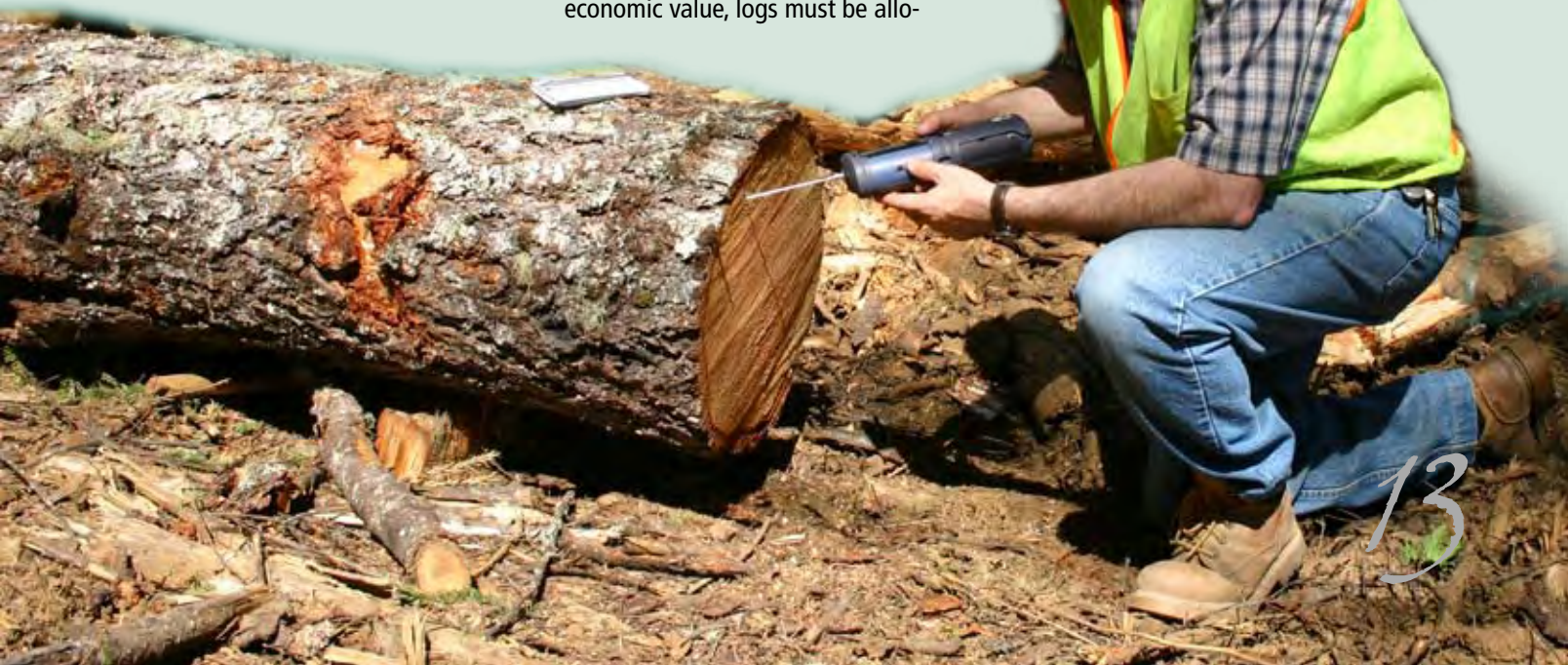
to determine internal and external quality characteristics of each tree during harvest. Murphy has developed an algorithm from these data for optimally bucking stems into logs based on both internal and external quality features; such algorithms previously were limited to external features.

Foresters can also use the information obtained during harvest for adaptive control. “As we’re working our way through the stand, we’re capturing information about the tree,” explains Murphy. “We can use that information to predict how we need to change to better meet market needs, improve productivity, and control costs. So we’re adapting to the stand as we go.”

In order to capture the greatest economic value, logs must be allo-

cated, tagged, and delivered to the right customer. Tagging with bar codes or other methods has proven problematic, so Murphy came up with the idea of identifying logs through combinations of sprayed-on scents, or “aroma tagging”. “With 25 scents, we could uniquely tag 33 million logs,” he says. He is now collaborating with chemists to identify waterproof, long-lasting scents and to test the use of electronic noses to detect them.

Soon new aromas may join those of cedar, fir, and pine in the lumberyard.



# From DNA to MOE and MOR

## How is DNA related to the fibers that strengthen lumber?

**D**ouglas-fir lumber is prized for its stiffness and strength. As cultural and harvest practices change, maintaining those characteristics is critical to maintaining Douglas-fir's market niche.

Glenn Howe, Director of the Pacific Northwest Tree Improvement Research

Cooperative (PNWTIRC), Assistant Director Marilyn Cherry, and their collaborators are investigating the relationship of tree genetics to wood properties, from seed to lumber. Their principal goal is to understand the molecular basis of wood quality in Douglas-fir through genetic dissection of complex traits and to correlate genetic findings with the end

product, wood superior in stiffness and strength. The answers they obtain will help tree growers to produce trees with stiff and strong wood and provide tools to nondestructively identify the best trees before harvest.

On the molecular level, they are working with David Neale and Barnaly Pande at the University of California, Davis, to identify genes that affect wood quality in Douglas-fir. As part of developing and validating rapid, inexpensive methods of nondestructive testing, they are determining wood density by acoustic methods in logs harvested from genetic tests owned by Olympic Resource Management. They are also collaborating with the Stand Management Cooperative at the University of Washington (David Briggs, Director) to use acoustic tools to measure stiffness and strength in standing trees. At the same time, they are analyzing wood properties such as modulus of elasticity (MOE) and modulus of rupture (MOR) in boards from these trees and their parents. They will then be ready to combine the data from the three approaches and establish correlations. One long-term goal is to be able to predict wood stiffness and strength of the progeny from the genes present in their parents. Other collaborators are supporting and lending their particular expertise to this complex, multidisciplinary project, including members of PNWTIRC and the USDA Forest Service Pacific Northwest Research Station.

# Think Globally, Link Globally

## Globalization challenges Oregon's foresters

If we live in a global village, as Marshall McLuhan has it, that village increasingly is supported by a global forest. "Events and trends world-wide affect our forests in Oregon, from their ecology to marketability of forest products," explains John Hayes, Associate Dean for International Programs in the College. "To remain competitive and maintain high quality programs in research, education, and outreach, we need to be well connected internationally."

Under the leadership of Hayes and of Badege Bishaw, Director of International Programs, the College is strengthening international components of all aspects of the College's mission. The College has formal collaborative agreements with 17 institutions in 16 countries, and Col-

lege scientists, students, and educators frequently collaborate with these and a broad set of other institutions across the globe. College activities extend across six continents and diverse locations that include New Zealand, Zambia, Argentina, Russia, Australia, Ethiopia, India, Sweden, Costa Rica, and many other countries.

About 40 international students, mostly graduate students, enroll in the College each year, and a number of domestic students in the College pursue international educational and research opportunities. Among the international programs for students in the College is the OSU chapter of the International Forestry Students Association (IFSA), which was established this fall and is currently the only active chapter in the United States. Hayes and Bishaw are currently

developing pathways to make it easier for College students to include international experience in their education, especially as undergraduates, including international degree options and better articulation of international exchange programs with College curricula.

Having a strong international program is fundamental to maintaining educational excellence in the 21<sup>st</sup> century and to providing College stakeholders with the foundation needed to be successful in an increasingly global environment. International programs being developed and implemented in the College should help maintain the tradition of excellence for which the College has long been known.



# Timber from "Cradle" to "Grave"

## **CORRIM tracks the life cycle of building materials from forest to disposal or recycle**

Most people are aware of the life cycle of plants or animals. As participants in CORRIM (Consortium for Research on Renewable Industrial Materials), Jim Wilson and Maureen Puettmann, Professor emeritus and Research Associate, respectively, in Wood Science & Engineering, have spent much of the past five years analyzing the life cycle of wood products, specifically those used in residential construction, as well as their environmental impact. CORRIM includes participants from 15 institutions, including academic, industry, and government research laboratories.

"We're looking at how to lessen the environmental burden and determining the cost of doing that—environmentally

or economical," says Wilson, vice-president of CORRIM. The first phase of the Consortium's work recently culminated with publication of the report "Environmental Performance of Renewable Building Materials in Residential Construction".

The study examined environmental effects across the entire life cycle of building materials used in homes designed to codes for cold or warm climates. Wood turned out to be the most environmentally friendly building material for use in home construction, compared with steel and concrete. Less total energy is used to manufacture building materials of wood than those of steel or concrete, and much of that energy is derived from a renewable resource. Furthermore, wood used for construction contributes less to global warming; and the wood sequesters carbon, reducing a major agent in climate change.

The data collected have been put into an online database available to the public. Wilson and others are exploring ways of incorporating the data into environmental standards and guidelines for building construction, product purchasing, and manufacturing. "When we originally formed CORRIM in 1998, we thought we would have the data and analyses completed before they were needed," Wilson says. "But the need is accelerating so fast that we're having a challenging time keeping up with all the different needs."

The work of CORRIM is not finished. The next phase expands the geographic regions considered and includes a broader array of criteria, such as forest types, industry types, building designs, and additional materials.



# Faculty and Staff Awards and Honors

**Milo Clausen**, Faculty Research Assistant, Wood Science & Engineering, Dean's Award for Outstanding Performance by a faculty research assistant

**Forest Management Team (Dave Lysne, Carol Carlson, Jordana Chambers, Tom Edwards, Debbie Johnson, Eric Lamfers, Richard Symons, Trisha Wymore, Dave Young)**, Dean's Team Award for Service

**Barb Gartner**, Professor, Wood Science & Engineering, a Fulbright Fellowship for lecturing and research at the Universidad Austral de Chile, Valdivia

**Mark Harmon**, Professor and Richardson Chair, Forest Science, "extraordinary" ranking in post-tenure review

**Yvonne Havill**, administrative/academic assistant, Forest Engineering, Dean's Award for Outstanding Achievement, support staff

**Jeff Hino**, Director, Forestry Media Center, Dean's Award for Outstanding Achievement, support staff

**Inner City Youth Institute (Dave Stemper)**, Instructor, Forest Resources,

coordinator), Annual Diversity Award for Partnership Achievement from the United States Secretary of the Interior

**K. Norman Johnson**, Professor, Forest Resources, named Oregon State University Distinguished Professor

**Beverly Law**, Associate Professor, Forest Science, appointed to the North American Carbon Program Science Steering Group

**Kaichang Li**, Associate Professor of Wood Science & Engineering, with co-authors Svetlana Peshkova and Xinglian Geng, the Archer Daniels Midland/Protein and Co-Products Division, Best Paper Award in engineering/technology

**Fred Kamke**, Professor and JELD-WEN Chair of Wood-based Composites Science, Wood Science & Engineering, elected a Fellow of the Society of Wood Science and Technology

**Joe Karchesy**, Associate Professor, Wood Science & Engineering, a "Salute to Excellence" Award from the Richland,

Washington section of the American Chemical Society

**Scott Leavengood**, Associate Professor of Wood Science & Engineering and Washington County Extension Agent, the 2005 Educational Materials Gold Award of the Association of Natural Resources Extension Professionals (ANREP) for his software, ORWood.xls

**Dan Luoma**, Assistant Professor (Senior Research), Forest Science, Distinguished Alumnus for 2004, Lane Community College, Eugene, Oregon

**McDonald Dunn Planning Team: (Rich Fletcher, Gary Blanchard, Bill Emmingham, John Hayes, Becky Johnson, Debbie Johnson, Norm Johnson, Dave Lysne, Glen Murphy, Mike Newton, John Sessions)**, Dean's Team Award for Service

**Jeff McDonnell**, Professor of Forest Engineering and Richardson Chair in Watershed Science, elected to the International Water Academy

**Claire Montgomery**, Associate Professor, Forest Resources, Dean's Award for

Outstanding Achievement in Advising and Mentoring

**Jeff Morrell**, University Distinguished Professor and Professor of Wood Science & Engineering, elected President of the International Research Group on Wood Preservation and Vice-President of the American Wood Preservers Association

**Steve Radosevich**, Professor, Forest Science, Dean's Award for Outstanding Achievement in Advising and Mentoring

**Hal Salwasser**, Dean, 2004 Environmental Excellence Award, Associated Oregon Industries

**John Sessions**, University Distinguished Professor and Stewart Chair of Forest Engineering, Aufderheide Award for excellence in teaching

**Jay Sexton**, Senior Faculty Research Assistant, Forest Science, Dean's Award for Outstanding Service

**Bo Shelby**, Author's Award for the top-ranked article by readers of *Hydro Review*; Service Award from the USDA Forest Service for contributions to the Snake River Basin Adjudication Project

**Stephen Schoenholtz**, Professor, Forest Engineering, Julie Kliwer Outstanding Mentor Award

**Viviane Simon-Brown**, Associate Professor, Forest Resources, Dean's Award for Outstanding Achievement in Extended and Continuing Education

**Steve Strauss**, Professor, Forest Science, 2005 Aldo Leopold Leadership Fellow; Director of new OSU Outreach Program in Resource Biotechnology

**Trophic Cascades Team** (Bob Beschta, Professor emeritus, Forest Engineering, and Bill Ripple, Professor, Forest Resources), Dean's Team Award for Research

**Jim Wilson**, Professor emeritus of Wood Science & Engineering, elected a Fellow of the Society of Wood Science and Technology

# Departments

## Forest Engineering ([www.cof.orst.edu/cof/fe/](http://www.cof.orst.edu/cof/fe/))

### Accomplishments:

- ❑ Loren Kellogg was named to the Lematta Professorship in Forest Engineering.
- ❑ The department completed a new strategic plan and revised the departmental mission statement, which now reads "Our mission is to develop science, engineering and technical solutions that promote sustainable management of forest, land and water resources to meet society's economic, environmental and social needs."
- ❑ Both undergraduate and graduate student enrollment increased substantially, and all new graduates found employment.
- ❑ Marv Pyles was named editor of the *International Journal of Forest Engineering*. We entered into a one-year collaboration with the University of New Brunswick faculty to maintain publication of the journal and to explore opportunities for the future.

Steve Tesch  
Department Head

## Forest Resources ([www.cof.orst.edu/cof/fr/](http://www.cof.orst.edu/cof/fr/))

### Accomplishments:

- ❑ The Forest Resources Department is a part-

ner in the Sustainable Rural Communities Provost's Initiative, along with the Colleges of Science, Agriculture, and Liberal Arts.

- ❑ The Forest Recreation Resources program has been revised and renamed Recreation Resource Management. The Natural Resource Program also was reviewed.

Jack Walstad  
Department Head

## Forest Science ([www.cof.orst.edu/cof/fs/](http://www.cof.orst.edu/cof/fs/))

### Accomplishments:

- ❑ Forest Science received \$9.1 million in new awards and contracts, the second highest department in the university.
- ❑ Glenn Howe and Keith Jayawickrama led the first major review of genetic improvement programs in Douglas-fir in 25 years, which will be published in *Plant Breeding Reviews*.
- ❑ The entire March 2004 issue of the *Journal of Forestry* was devoted to articles summarizing results of the Plantation Forestry Symposium held in Portland in January 2003 and organized by the College. The papers were edited by Tom Adams, Steve Hobbs, and Norm Johnson, and many of the articles were written by College of Forestry faculty.
- ❑ Holly Barnard, a Ph.D. student in the depart-

ment, was awarded a highly competitive national Ford Foundation Diversity Fellowship.

Tom Adams  
Department Head

## Wood Science & Engineering ([woodscience.oregonstate.edu](http://woodscience.oregonstate.edu))

### Accomplishments:

- ❑ Jim Wilson was the lead author on the report from a multimillion dollar study on the life cycle analysis of wood products used in residential construction. The results of this study are being adopted by the US Government in their procurement practices and by the US Green Building Council. Wilson is one of the editors of an issue of *Wood and Fiber Science* dedicated to this project.
- ❑ John Simonsen played a key role in the development of a National Nanotechnology Research Roadmap that is being used to set the federal research agenda in this area.
- ❑ Bob Leichti's research on the seismic response of log structures is the basis of a draft International Building Code design standard for use throughout the United States.

Tom McLain  
Department Head

# Teaching

## Undergraduate Education

### *Student Demographics (Fall 2004)*

MAJOR: FE 39 FE/CE 29 FM 80 FRR 72 NR 108 ORLT 16 WST 39 Nondegree 13  
SEX: M 277 F 119  
STATUS: Freshman 46 Transfer 74 Returning 276  
RESIDENCE: Oregon 333 Out of state 62 International 1

### *Degrees Awarded, 2004–2005*

#### **Forest Engineering**

##### *Bachelor of Science*

Peter Boone	Joshua Jackson	Jana Butticci	Jacob Groves
Stig Fremstad	Brad Kasenberg	Taylor Fielder <i>Cum laude</i>	Deborah Hill
James Galloway <i>Cum laude</i>	Carl Lehman	Garrett Groth	Adam Kind
Daniel Nicol	Jeremy Marquardt	Deborah Lakey <i>Magna cum laude</i>	Brooke Martin
Kevin Van Cleave	Dustin McCoy	Robert Morgan	Jason Myers
	Blake McKinley <i>Cum laude</i>	Howard Opatowsky	Cristina Nedeia
	Waylon Mobley	Samuel Orcutt	Jonathan Owens

#### **Forest Management**

##### *Honors Bachelor of Science*

Anna Starker <i>Summa cum laude</i>	Lanea Murphy <i>Magna cum laude</i>	Michael Zieker <i>Magna cum laude</i>	Summa cum laude
	Daniel O Leary		Nicholas Reinecker
	Alyssa Shanks <i>Cum laude</i>		Saren Simmons
	Robert Sharp		Kellie Webb-Cox

##### *Bachelor of Science*

Andrew Aasen  
Ryan Allen  
Mark Bond  
Michael Chuko  
Steve Dooley  
Daniel Eide  
Daniel Evans *Summa cum laude*  
Tristan Huff

#### **Forest Recreation Resources**

##### *Bachelor of Science*

James Anderson  
Andrew Austill

#### **Natural Resources**

##### *Bachelor of Science*

Philip Adams  
Michael Braim  
Kyle Couch  
Carlynn Deaver *Magna cum laude*  
Crystal Durbecq  
Benjamin Ervin  
Jenifer George

#### **Wood Science & Technology**

##### *Bachelor of Science*

Erik Culley  
Chad Hurliman  
Andrew Klein  
Michael Rathfon

## Graduate Education

### *Student Demographics (Fall 2004)*

DEPARTMENT: FE 23 FR 39 FS 51 WS&E 34

SEX: M 86 F 61

STATUS: New 36 Returning 111

RESIDENCE: Oregon 50 Out of state 60 International 37

### *Degrees Awarded*

#### **Forest Engineering**

##### *Doctor of Philosophy*

Elizabeth Coulter

Hamish Marshall

Kevin McGuire

Shayla Sharp

##### *Master of Science*

Jesse Abrams

Michael Ahr

Peter Giampaoli

Ryan Gordon

Tad Larsen

Fernanda Pegas

M Danielle Robbins

Jonathan Thompson

John Tokarczyk

Julie Wirth

Thomas Pypker

Daniel Sarr

Gancho Slavov

##### *Master of Science*

Jonathan Beals-Nesmith

Liane Beggs

Margaret Byrkit

Jennifer Hooke

Sarah Lobser

Alexa Michel

Benjamin Rice

Jamison Tuitele Lewis

Jeannette Tuitele-Lewis

##### *Master of Science*

Xiaozhi Cao

Lottie Fallas-Cedeno

Velmurugan Palaniyandi

Dakai Ren

James Rogers

Hartono Saputra

Peter Seaders

Jon Thomas

Kevin White

#### **Forest Products**

##### *Doctor of Philosophy*

Carlos Garcia

##### *Master of Forestry*

Hamish Marshall

#### **Forest Resources**

##### *Doctor of Philosophy*

Christina Kakoyannis

#### **Forest Science**

##### *Doctor of Philosophy*

Scott Bergen

Fen-Hui Chen

Kelly Collins

#### **Wood Science & Engineering**

##### *Doctor of Philosophy*

Malcolm Taylor

Cheng Zhang

# Research

## The Oregon Forest Research Laboratory

**R**esearch at the College of Forestry is conducted through its research arm, the Oregon Forest Research Laboratory (FRL). The research mission of the College of Forestry is to conduct well-coordinated, problem-solving research that provides knowledge for the integrated management of forest resources for multiple values and products that meet society's needs, with special attention to social and economic benefits. Research is conducted by the college's four departments in five general areas: forest regeneration; forest ecology, culture, and productivity; protecting forests and watersheds; evaluating forest uses and practices; and wood processing and products performance. Important research issues being addressed by forestry and forest products scientists include ensuring the sustainability of forest resources, understanding the complex structure and function of forest systems, and ensuring that forest operations and wood products manufacturing are environmentally and socially acceptable and economically feasible.

Oregon law provides that the State Board of Higher Education shall "institute and carry on research and experimentation to develop the maximum yield from the forestlands of Oregon, to obtain the fullest utilization of the forest resource, and to study air and water pollution as it relates to the forest products industries. The purpose of the research is "to aid in the economic development of the State of Oregon" (ORS 526.215, 1961). This research is to be carried out under the auspices of a Forest Research Laboratory at Oregon State University, and the Board of Higher Education is directed to "cooperate with individuals, corporations, associations and public agencies wherever and whenever advisable to further the purposes of ORS 526.215, and may enter into any necessary agreements therefore" (ORS 526.225).

Today all research by College of Forestry faculty is under the umbrella of the Oregon Forest Research Laboratory. College research brought in about \$12.3 million in grant and contract funding in FY 2005, engendering many cooperative and interdisciplinary research projects. Total research funding from all sources was \$19.3 million.

## The FRL Advisory Committee (FY 2005)

### **Bill Arsenault**

Small woodland owner

### **Elaine Brong**

State Director, Bureau of Land Management

### **Marvin Brown**

State Forester, Oregon State Department of Forestry

### **Gary Hartshorn**

President, World Forestry Center

### **Jim James**

Director, Environmental Affairs, Sustainable Forestry, Weyerhaeuser Company

### **Russ McKinley** (Chair)

Manager, Western Oregon Timberlands, Boise Cascade Corporation

### **Jason Miner**

Conservation Director, Oregon Trout

### **Joel Nelson**

Senior Resource Manager, Oregon Region, Plum Creek Timber

### **Jennifer Phillipi**

Rough and Ready Lumber

### **Tom Quigley**

Director, USDA Forest Service Pacific Northwest Research Station

### **Scott Schroeder**

MEGA TECH of Oregon

### **Barte Starker**

Executive Vice President, Starker Forests, Inc.

### **Dallas Stovall**

President & CEO, Bright Wood

### **Ron Stuntzner**

Stuntzner Engineering & Forestry, LLC

### **Bettina Von Hagen**

Vice President Forestry, Ecotrust

# Research Agreements, Contracts, and Grants

**July 1, 2004–June 30, 2005**

## *Forest Engineering*

Kellogg, Loren. Mechanical Fuels Reduction Alternatives to Reduce the Risk of Wildfire and Improve Wood Utilization Within the Warm Springs Reservation. Confederated Tribes of the Warm Springs Reservation. \$136,733. Period: 9/1/04–9/30/06.

McDonnell, Jeffrey J. Hillslope Flow Routing, Contaminant Transport, and Water Uptake in Zero-Order Watersheds Subject to Intensive Forest Plantation Management—Phase 1: Modeling and Monitoring Design. USDA Forest Service. \$114,134. Period: 11/3/04–9/30/06.

McDonnell, Jeffrey J. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$8,242. Period: 10/19/04–10/31/05. Amendment to an existing grant.

McDonnell, Jeffrey J. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National

Science Foundation. \$8,758. Period: 12/1/04–10/31/05. Amendment to an existing grant.

McDonnell, Jeffrey J., and Michael H. Unsworth. Processes of Water Cycling and Streamflow Generation in Semi-Arid Watersheds in Eastern Washington: Understanding Landuse Effect on Water Quantity and Quality. \$80,000. Period: 9/13/04–4/30/08. Amendment to an existing cooperative agreement.

McDonnell, Jeffrey J., and Michael H. Unsworth. Processes of Water Cycling and Streamflow Generation in Semi-Arid Watersheds in Eastern Washington: Understanding Landuse Effect on Water Quantity and Quality. \$15,000. Period: 5/27/05–4/30/08. Amendment to an existing cooperative agreement.

Schoenholtz, Stephen H. Belowground Carbon Dynamics in Ponderosa Pine Plantations along a Site Quality Gradient in Northern California. USDA Forest Service. \$60,000. Period: 7/23/04–7/31/08.

Schoenholtz, Stephen H. Influence of Post-Fire Salvage Logging on Soil Erosion at the Timbered Rock Fire. USDI Bureau of Land Management. \$25,000. Period: 8/1/04–9/30/06.

Schoenholtz, Stephen H. Responses of Litter Decomposition to Post-Harvest Woody Debris Manipulation and Competing Vegetation Control in Western Oregon and Washington. USDA Forest Service. \$20,000. Period: 8/11/04–6/30/05.

Schoenholtz, Stephen H. Riparian Function and Stream Temperature Study. Oregon Department of Forestry. \$22,500. Period: 9/1/04–6/30/05.

Sessions, John. Harvest Scheduling and Economic Analysis Modeling for the Elliott Revision Process, Phase VI. Oregon Department of Forestry. \$50,000. Period: 1/1/05–12/31/05.

Sessions, John. Northwest Oregon Forest Management Plan Decadal Analysis (NWMPDA) Phase II. Oregon Department of Forestry. \$100,000. Period: 4/1/05–6/30/06.

Skaugset, Arne E., III. The Role of Perennial, Non-Fish Bearing Streams in the Temperature and Flow Regimes of Small, Fish-Bearing Headwater Streams During Summer in Western Oregon—Year 3. Oregon Forest Industries Council. \$27,500. Period: 11/5/04–6/30/06. Amendment to an existing agreement.

Skaugset, Arne E., III. Watershed Research Cooperative. Member Cooperators. \$215,500. Period: 7/1/04–6/30/05.

Tesch, Steven D. Center for Wood Utilization Research. USDA Cooperative State Research, Education, and Extension Service. \$257,603. Period: 7/15/04–7/14/06.

## *Forest Resources*

Anthony, Robert G., and William J. Ripple. Predicating Abundance and Demographic Performance of Northern Spotted Owls from Vegetation Characteristics—Part 2. USDA Forest Service. \$19,635. Period: 5/24/05–9/30/06. Amendment to an existing agreement.

Bliss, John C. OFRI Graduate Assistantship. Oregon Forest Resources Institute. \$27,107. Period: 7/1/04–6/30/05.

Hann, David W. Identification and Evaluation of Northern Spotted

Owl Habitat in Managed Forests of Southwest Oregon and the Development of Silvicultural Systems for Managing Such Habitat. USDI U.S. Geological Survey. \$13,381. Period: 8/3/04–12/31/05. Amendment to an existing agreement.

Hann, David W. Re-Analysis of the Diameter Growth Rate and Height Growth Rate Equations in SMC-ORGANON. University of Washington. \$18,842. Period: 12/13/04–9/30/05.

Johnson, K. Norman. Assessing the Ecological Science Basis of Forest Policies and Management. USDA Forest Service. \$153,000. Period: 8/17/04–3/31/07.

Johnson, K. Norman. Evaluating Ecosystem Approaches to Conserving Biological Diversity. USDA Forest Service. \$119,437. Period: 7/21/04–7/31/09.

Johnson, K. Norman, Sean N. Gordon, and Denise Lach. Using Decision Support Systems in Forest Biodiversity Decisions: A Guide for Stakeholders. National Commission on Science for Sustainable Forestry. \$75,000. Period: 9/15/04–9/15/05.

Lindberg, Kreg. Visitor Use Monitoring and Customer Service in the Olympic and Mount Baker-Snoqualmie Na-

tional Forests. West Virginia University. \$2,793. Period: 10/31/04–5/31/05.

Ripple, William J. Aspen Age Structure, Trophic Cascades, and Wolves of the Gallatin Elk Winter Range. University of Wyoming. Prime Funder: USDI National Park Service. \$4,500. Period: 5/1/04–12/31/05.

Ripple, William J., and Robert L. Beschta. Factors Affecting Cottonwood Recruitment in Zion National Park. USDI National Park Service. Amount \$12,000. Period: 5/1/05–6/30/07.

Rosenberger, Randall S. Empirical Estimates of Recreation Values of the National Forests. USDA Forest Service. \$8,500. Period: 7/27/04–12/31/06. Amendment to an existing joint venture agreement.

Rosenberger, Randall S. Empirical Estimates of Recreation Values of the National Forests. USDA Forest Service. \$6,650. Period: 9/10/04–12/31/04.

Rosenberger, Randall S. Evaluating Public Recreation Benefits of National Forests and Wildlife-Induced Changes in Recreation Participation and Values. USDA Forest Service. \$15,000. Period: 6/9/05–4/30/06.

Shindler, Bruce A. Blue River Landscape Strategy (BRLS)—Approaches and

Implementations. USDA Forest Service. \$25,000. Period: 4/7/05–9/30/06.

Shindler, Bruce A., and Eric Toman. A Longitudinal Analysis of Homeowner Adoption, Maintenance, and Support for Fuels Treatment Practices. USDA Forest Service. \$102,894. Period: 6/6/05–5/25/10.

Temesgen, Hailemariam. Analysis of Taper and Slenderness Responses to Sulfur Treatments in Coastal Douglas-fir Stands. Starker Forests, Inc. \$35,478. Period: 4/1/05–6/30/06.

## *Forest Science*

Bond, Barbara J. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$24,451. Period: 10/19/04–10/31/05. Amendment to an existing grant.

Bond, Barbara J., Alan Mix, Elizabeth Sulzman, and Michael Unsworth. Airsheds, Isotopes and Ecosystem Metabolism in Mountainous Terrain. National Science Foundation. \$32,314. Period: 8/15/04–7/31/05

Brunner, Amy M., and Steven H. Strauss. Development and Validation of Sterility Systems for Trees. Department of Energy. \$50,000. Period: 12/20/04–

12/31/05. Amendment to an existing cooperative agreement.

Brunner, Amy M., and Steven H. Strauss. Development and Validation of Sterility Systems for Trees. Department of Energy. \$100,131. Period: 3/5/05–12/31/05. Amendment to an existing cooperative agreement.

Brunner, Amy M., Steven H. Strauss, and Richard Meilan. New Genetic Tools for Modifying Tree Properties to Enhance Sequestration. Department of Energy. \$399,425. Period: 3/15/05–3/14/06. Amendment to an existing grant.

Cazares-Gonzalez, Efren J., and James M. Trappe. Mycorrhizal Fungi in Disturbed Sites at Mt. Rainier National Park. UDI National Park Service. \$20,001. Period: 8/1/04–8/30/05.

Cohen, Warren B., and Daniel J. Hayes. Mapping Regional Carbon Stocks and Monitoring Carbon Emissions from Land Cover and Land Use Change Along the Mesoamerican Biological Corridor. National Aeronautics and Space Administration. \$24,000. Period: 9/22/04–8/31/06. Amendment to an existing grant.

Cromack, Kermit, Jr. Post-Fire Microbial Interactions with Native and Invasive

Non-Native Plants in the Inland Pacific Northwest. USDA Forest Service. \$17,000. Period: 6/3/04–12/31/07. Amendment to an existing cooperative agreement.

Cromack, Kermit, Jr. Structure and Function of Mycorrhizal Mat Communities at the H.J. Andrews LTER (Long-Term Ecological Research) Microbial Observatory. \$23,618. Period: 8/1/04–7/31/05.

Cromack, Kermit, Jr. Structure and Function of Mycorrhizal Mat Communities at the H.J. Andrews LTER (Long-Term Ecological Research) Microbial Observatory. \$25,424. Period: 3/24/05–7/31/06. Amendment to an existing grant.

Ganio, Lisa M. Effects of Disturbance History, Landscape Pattern, and Weather on Wildfire Severity in Southwestern Oregon: Implications for Management of a Fire-Prone Landscape. USDA Forest Service. \$174,820. Period: 6/6/05–3/31/10.

Halpern, Charles B. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$41,155. Period: 10/19/04–10/31/05. Amendment to an existing grant.

Harmon, Mark E. Controls of Autotrophic and Heartrot-Related Respiration in a Western Coniferous Landscape. University of California at Davis. Prime Funder: Department of Energy. \$140,438. Period: 11/24/04–8/31/05. Amendment to an existing research agreement.

Harmon, Mark E. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$505,357. Period: 10/19/04–10/31/05. Amendment to an existing grant.

Harmon, Mark E. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5)—LTER Schoolyard Activities. National Science Foundation. \$26,172. Period: 6/23/05–10/31/05. Amendment to an existing grant.

Harmon, Mark E. Support to Develop Decomposition-Related Parameters for CWD in the Pacific Northwest. USDA Forest Service. \$24,000. Period: 9/5/03–9/30/04.

Harmon, Mark E. Water Quality in Small Streams at the H.J. Andrews Experimental Forest. USDA Forest Service. \$45,552. Period: 10/1/04–10/1/06.

Harmon, Mark E., Barbara Bond, Sherrie Johnson, Julia Jones, and Frederick Swanson. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5)—Supplemental Request for 2004. National Science Foundation. \$110,000. Period: 7/16/04–10/31/04. Amendment to an existing grant.

Hayes, John P. Distribution and Habitat Ecology of Bats in Southeast Alaska, with Emphasis on Keen's Long-Eared Myotis. Alaska Department of Fish and Game. \$233,591. Period: 7/1/04–6/30/07.

Hayes, John P. The Influences of Post-Fire Salvage Logging on Wildlife Populations. USDI Bureau of Land Management. \$299,726. Period: 9/13/04–4/26/09.

Hayes, John P. Landscape Scenario Analysis Project. USDI Bureau of Land Management. \$50,000. Period: 9/13/04–9/30/05. Amendment to an existing cooperative agreement.

Hayes, John P., David E. Hibbs, Judith L. Li, and W. Daniel Edge. The Cooperative Forest Ecosystem Research (CFER) Program. USDI U.S. Geological Survey. \$635,497. Period: 8/9/04–12/31/05. Amendment to an existing cooperative agreement.

Hayes, John P., David E. Hibbs, Judith L. Li, and W. Daniel Edge. The Cooperative Forest Ecosystem Research (CFER) Program. USDI U.S. Geological Survey. \$490,000. Period: 5/17/05–9/30/06. Amendment to an existing cooperative agreement.

Hibbs, David E. Cooperative Forest Ecosystem Research (CFER). Oregon Department of Forestry. \$100,000. Period: 11/9/04–6/30/08. Amendment to an existing cooperative agreement.

Hibbs, David E., and Andrew A. Bluhm. Hardwood Silviculture Cooperative. Member Cooperators. \$38,500. Period: 7/1/04–6/30/05.

Howe, Glenn T. Association Mapping of Adaptive Traits in Douglas-fir. University of California / Davis. Prime Funder: USDA Cooperative State Research, Education, and Extension Service. \$28,000. Period: 7/15/04–7/14/05.

Howe, Glenn T. Association Mapping of Adaptive Traits in Douglas-fir. University of California / Davis. Prime Funder: USDA Cooperative State Research, Education, and Extension Service. \$28,000. Period: 6/21/05–7/14/06. Amendment to an existing sub-contract.

Howe, Glenn T., and Marilyn Cherry. Pacific Northwest Tree Improvement Cooperative. Member Cooperators. \$102,000. Period: 7/1/04–6/30/05.

Jayawickrama, Keith. Northwest Tree Improvement Cooperative. Member Cooperators. \$348,662. Period: 7/1/04–6/30/05.

Johnson, Sherri L. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$25,208. Period: 10/19/04–10/31/05. Amendment to an existing grant.

Krankina, Olga N. Changes in Terrestrial Carbon Storage in Russia as a Result of Recent Disturbances and Land-Use Change 1700-2000. The Woods Hole Research Center. Prime Funder: National Aeronautics and Space Administration. \$20,000. Period: 11/22/04–8/31/05. Amendment to an existing agreement.

Krankina, Olga N. GOF: NERIN Lead Scientist Support. National Science Foundation. \$77,596. Period: 1/31/05–12/31/05. Amendment to an existing grant.

Krankina, Olga N. GOF: NERIN Lead Scientist Support. National Sci-

ence Foundation. \$107,668. Period: 4/27/05–12/31/05. Amendment to an existing grant.

Law, Beverly E. Ameriflux Measurement Network: Science Team Research. Department of Energy. \$355,517. Period: 9/15/04–9/14/05.

Law, Beverly E. Measuring the Effects of Disturbance and Climate on the CO<sub>2</sub> and Energy Exchange of Ponderosa Pine Forests in the Pacific Northwest: Integration of Eddy Flux, Plant and Soil Measurements. Department of Energy. \$94,047. Period: 9/14/04–9/14/05. Amendment to an existing grant.

Law, Beverly E., David P. Turner, and Julie Styles. Synthesis of Remote Sensing and Field Observations to Model and Understand Disturbance and Climate Effects on the Carbon Balance of Oregon and North California. Department of Energy. \$701,717. Period: 9/01/04–8/31/06.

Luoma, Daniel L. Use of Spatial and Temporal Partitioning of Genetic Variation in *Cantharellus formosus* to Model Aspects of Gene Flow in Fungal Populations in Northwest Forests. USDA Forest Service. \$46,000. Period: 5/24/05–8/27/06. Amendment to an existing cooperative agreement.

Maguire, Douglas A. Interactive Effects of Swiss Needle Cast and Commercial Thinning on Douglas-fir Growth and Development on State Forests. Oregon Department of Forestry. \$57,753. Period: 6/8/05–6/30/07. Amendment to an existing agreement.

Mainwaring, Douglas B. Swiss Needle Cast Cooperative. Member Cooperators. \$95,000. Period: 7/1/04–6/30/05.

Newton, Michael, and Amy Eckert. A Rapid Assessment Method for Estimating White Pine Blister Rust Stem Girdling Rates. USDA Forest Service. \$24,500. Period: 4/4/05–9/30/06. Amendment to an existing cooperative agreement.

O'Connell, Kari. Climatic Controls of Tree Mortality. USDI Geological Survey. \$7,999. Period: 7/29/04–5/31/05.

O'Connell, Kari. Effects of Fire Management on Fuels Along Fire Regime and Forest Productivity Gradients in Oregon: Implications for Long-Term Carbon Dynamics. National Aeronautics and Space Administration. \$119,444. Period: 9/15/04–9/14/07.

O'Connell, Kari. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$51,222. Period:

- 10/19/04–10/31/05. Amendment to an existing grant.
- Pruyn, Michele, and Mark E. Harmon. Feasibility of Using Ground Penetrating Radar to Estimate Heart Rot Volumes in Living Tree Stems. National Science Foundation. \$79,178. Period: 9/1/04–8/31/05.
- Puettmann, Klaus J. Effects of Thinning Conifer Plantations on Biodiversity and Development of Late-Successional/Old-Growth Stand Structure: A Literature Review and Model Evaluation. USDA Forest Service. \$111,250. Period: 7/2/04–9/30/06.
- Puettmann, Klaus J. Investigating Vegetation and Wildlife Response to Gaps in Young Plantations. Oregon Department of Forestry. \$181,100. Period: 12/7/04–6/30/07.
- Puettmann, Klaus J. Modeling the Response of Shrubs and Herbs to Changes in Forest Structure and Composition. USDA Forest Service. \$129,000. Period: 7/2/04–9/30/06.
- Puettmann, Klaus J. Vegetation Dynamics and Fire Hazard in Mixed-Species Restoration Plantings in Southwest Oregon. USDA Forest Service. \$8,760. Period: 9/7/04–9/30/05.
- Puettmann, Klaus J. Vegetation Dynamics and Fire Hazard in Mixed-Species Restoration Plantings in Southwest Oregon. USDA Forest Service. \$32,108. Period: 12/15/04–9/30/06. Amendment to an existing joint venture agreement.
- Puettmann, Klaus J., and Shanti D. Berryman. Density Management Study. USDI Bureau of Land Management. \$190,000. Period: 9/16/04–5/27/08. Amendment to an existing agreement.
- Radosevich, Steven R. Invasive Plants Research Program for Blue Mountains Demonstration Area. USDA Forest Service. \$10,000. Period: 7/16/04–9/11/05. Amendment to an existing agreement.
- Radosevich, Steven R. Japanese Knotweed: Population Dynamics in Western Oregon Riparian Areas. USDI Bureau of Land Management. \$13,312. Period: 9/15/04–12/31/05. Amendment to an existing cooperative agreement.
- Radosevich, Steven R. Japanese Knotweed: Population Dynamics in Western Oregon Riparian Areas. USDI Bureau of Land Management. \$3,000. Period: 2/1/05–12/31/05. Amendment to an existing cooperative agreement.
- Radosevich, Steven R. Publication of Literature Synthesis Entitled "Effects of Fire on Nonnative Invasive Plants" in Wildland Fire in Ecosystem (Rainbow Series). USDA Forest Service. \$10,000. Period: 1/1/05–12/15/05.
- Radosevich, Steven R. Rehabilitation of Native Grasslands in the Hells Canyon Area. Montana State University. Prime Funder: USDI Bureau of Land Management. \$2,492. Period: 3/25/05–4/30/05.
- Radosevich, Steven R., and Bryan Endress. Defining Knowledge Gaps of Scale and Mechanisms to Effectively Manage Invasive Plants. USDA Forest Service. \$15,000. Period: 3/1/05–2/15/06.
- Radosevich, Steven R., and John Wells. Verification and Use of a Risk Assessment Model for Exotic Invasive Plant Species. USDA Forest Service. \$87,588. Period: 6/29/04–6/28/05.
- Radosevich, Steven R., and John Wells. Verification and Use of a Risk Assessment Model for Exotic Invasive Plant Species. USDA Forest Service. \$36,872. Period: 4/12/05–12/31/05. Amendment to an existing cost reimbursement agreement.
- Rose, Robin, and Diane L. Haase. Nursery Technology Cooperative. Mem-

- ber Cooperators. \$72,800. Period: 7/1/04–6/30/05.
- Rose, Robin, and Lee S. Rosner. Vegetation Management Research Cooperative. Member Cooperators. \$160,600. Period: 7/1/04–6/30/05.
- Ross, Darrell W., and Kimberly F. Wallin. Natural Enemies of Adelgids in the Western U.S. USDA Forest Service. \$62,000. Period: 9/9/04–6/30/06. Amendment to an existing cooperative agreement.
- Ross, Darrell W., and Kimberly F. Wallin. Natural Enemies of Adelgids in the Western U.S. USDA Forest Service. \$50,000. Period: 5/26/05–12/31/06. Amendment to an existing cooperative agreement.
- Shatford, Jeffrey P., and David E. Hibbs. Low-Growing Plant Research Re-Measurement 2005. Bonneville Power Administration. \$12,500. Period: 3/7/05–9/30/05.
- Sollins, Phillip. Second International Conference on Soil Organic Matter Stabilization Mechanisms. University of California Davis. \$10,000. Period: 6/3/05–11/30/05.
- Sollins, Phillip, Bruce A. Caldwell, Kate Lajtha, and Christopher Swanston. Preferential and Stable Sorption of N- vs. C-Rich Soil Organic Matter on Mineral Surfaces. National Science Foundation. \$59,969. Period: 4/15/05–3/31/06.
- Sollins, Phillip, and Kate Lajtha. Conference on Mechanisms of Soil Organic Matter Stabilization, Monterey, CA, October 9-13, 2005. National Science Foundation. \$14,985. Period: 6/15/05–5/31/06.
- Spycher, Gody. Data Management for DEMO Project. USDA Forest Service. \$4,000. Period: 5/24/04–10/1/05. Amendment to an existing cooperative agreement.
- Strauss, Steven H., Lisa M. Ganio, and Barbara L. Gartner. Efficiency of Activation Tagging for Functional Gene Discovery in Populus. Michigan Technological University. \$229,999. Period: 9/1/04–8/31/07.
- Strauss, Steven H. Field Evaluation of Semi-Dwarfism Through Transgenes for Biosafety of Transgenic Woody Plants. USDA Cooperative State Research, Education, and Extension Service. \$360,000. Period: 9/15/04–9/14/09.
- Strauss, Steven H. Modification of Gibberellin Metabolism to Enhance Productivity, Wood Quality, and Biosafety. Consortium for Plant Biotechnology Research. \$22,816. Period: 9/1/04–8/31/05.
- Strauss, Steven H. Modification of Gibberellin Metabolism to Enhance Productivity, Wood Quality, and Biosafety. Arborgen, LLC. \$12,500. Period: 9/1/04–8/31/05.
- Strauss, Steven H., and Amy M. Brunner. Developing Non-Invasive Nursery Crops. USDA Agricultural Research Service. \$73,171. Period: 9/1/03–8/31/05. Amendment to an existing cooperative agreement.
- Strauss, Steven H., and Amy M. Brunner. Developing Non-Invasive Nursery Crops. USDA Agricultural Research Service. \$32,093. Period: 9/27/04–8/31/05. Amendment to an existing cooperative agreement.
- Strauss, Steven H., and Amy M. Brunner. Genome Enabled Discovery of Carbon Sequestration Genes in Poplar. Department of Energy. \$390,949. Period: 6/15/04–6/14/05.
- Strauss, Steven H., Amy M. Brunner, and Victor B. Busov. OSU-Purdue Center for Tree Genetics. National Science Foundation. \$30,000. Period: 8/1/04–7/31/05.

Strauss, Steven H., and Elizabeth M. Jaeger. Tree Genetic Engineering Research Cooperative. Member Cooperators. \$250,000. Period: 7/1/04–6/30/05.

Swanson, Frederick J. Long-Term Ecological Research at the H.J. Andrews Experimental Forest (LTER5). National Science Foundation. \$12,600. Period: 10/19/04–10/31/05. Amendment to an existing agreement.

Turner, David P. Characterizing Disturbance and Succession in Relation to Forest Carbon Dynamics. USDA Forest Service. \$177,654. Period: 4/27/05–7/31/09.

Turner, David P. Linking In-Situ Measurements, Remote Sensing, and Models to Validate MODIS Products Related to the Terrestrial Carbon Cycle (BigFoot II). National Aeronautics and Space Administration. \$90,918. Period: 8/15/04–7/31/05. Amendment to an existing grant.

Turner, David P. Linking In-Situ Measurements, Remote Sensing, and Models to Validate MODIS Products Related to the Terrestrial Carbon Cycle (BigFoot II). National Aeronautics and Space Administration. \$127,285.

Period: 4/1/05–7/31/05. Amendment to an existing grant.

### *Wood Science and Engineering*

Hansen, Eric N. Evaluation for Latin-American Certified Wood Panels (FSC) in the U.S. and Caribbean Markets. World Wildlife Fund. \$8,700. Period: 6/21/04–10/15/04.

Kamke, Frederick A. Hydro-Thermal Stabilization of Wood-Based Materials. USDA Cooperative State Research, Education, and Extension Service. \$17,175.49. Period: 6/15/05–3/14/06.

Li, Kaichang. Commercial Application of Kymene-Soy Adhesives for Making Plywood Panels. Columbia Forest Products. \$30,000. Period: 7/1/04–12/30/04.

Li, Kaichang. Commercial Application of Kymene-Soy Adhesives for Making Plywood Panels. Hercules, Inc. \$30,000. Period: 7/1/04–12/30/04.

Li, Kaichang. Investigation of Kymene-Soy Adhesives for the Commercial Production of Plywood Panels. Columbia Forest Products. \$30,000. Period: 1/1/05–6/30/05.

Li, Kaichang. Investigation of Kymene-Soy Adhesives for the Commercial Production of Plywood Panels. Hercules, Inc.. \$30,000. Period: 1/1/05–6/30/05.

McLain, Thomas E. Center for Wood Utilization Research. USDA Cooperative State Research, Education, and Extension Service. \$478,406. Period: 7/15/04–7/14/06.

Milota, Michael R. VOC (Volatile Organic Compounds) and HAP (Hazardous Air Pollutants) Recovery Using Ionic Liquids: Various Commercial Cooperators Cost Sharing Contributions. Various Commercial Cooperators. \$15,000. Period: 3/15/05–3/31/06. Amendment to an existing gift.

Milota, Michael R., and Kaichang Li. VOC and HAP Recovery Using Ionic Liquids. Department of Energy. \$50,000. Period: 3/7/05–3/31/06. Amendment to an existing cooperative agreement.

Morrell, Jeffrey J. Assessment of WOCSEN 15 TK as an Anti-Sapstain Treatment. Janssen Pharmaceutica. \$4,517. Period: 1/18/05–8/17/05.

Morrell, Jeffrey J. Utility Pole Research Cooperative. Member Cooperators. \$150,000. Period: 7/01/04–6/30/05.

Morrell, Jeffrey J. Wood Pole Failure Assessment. Electric Power Research Institute. \$6,938. Period: 8/1/04–12/31/04.

Wilson, James B. LCI of Wood Products—A Cradle-to-Gate Analysis and MDF and Particleboard Processing. CORRIM. \$31,000. Period: 8/1/04–9/30/06.

Wilson, James B. LCI of Wood Products—A Cradle-to-Gate Analysis and MDF and Particleboard Processing. CORRIM. \$50,000. Period: 6/13/05–9/30/06. Amendment to an existing contract.

### *Forestry Extended Education*

Bondi, Michael C. Public Forestry Education in the Portland Metro Area: Forest Hikes for the East Side. Oregon Forest Resources Institute. \$19,530. Period: 7/01/04–6/30/05.

Holmberg, Joseph J. Science and the Northwest Forest Plan: Knowledge Gained Over a Decade Conference. USDA Forest Service. \$22,546. Period: 12/10/04–9/30/05.

Holmberg, Joseph J. Science and the Northwest Forest Plan: Knowledge

Gained Over a Decade Conference. USDA Forest Service. \$19,000. Period: 5/10/05–9/30/05. Amendment to an existing cooperative agreement.

Holmberg, Joseph J. Support for the Northwest Forest Plan Science Conference. USDI Geological Survey. \$3,500. Period: 4/15/05–9/30/05.

Holmberg, Joseph J. Transfer of Forest Science Information and Technology Conference. USDA Forest Service. \$5,000. Period: 1/7/05–9/30/05.

Holmberg, Joseph J. Transfer of Forest Science Information and Technology Conference. USDA Forest Service. \$5,000. Period: 5/27/05–9/30/05. Amendment to an existing cooperative agreement.

### *Forestry–Dean's Office*

Johnson, Rebecca L. Inner City Youth Institute Conservation Education Program. USDA Forest Service. \$45,000. Period: 11/18/04–12/31/04. Amendment to an existing challenge cost agreement.

Johnson, Rebecca L. Inner City Youth Institute Conservation Education Program. USDA Forest Service. \$45,000. Period: 4/26/05–12/31/05. Amendment to an existing challenge cost agreement.

### *Forestry Extension*

Bondi, Michael C. The Oregon Garden's Rediscovery Forests: Building on Our Progress. Oregon Forest Resources Institute. \$19,593. Period: 7/01/04–6/30/05.

Fitzgerald, Stephen A. Community Interaction Workshops for Fire Risk Analysis to Support Community Wildfire Protection Plans. USDA Forest Service. \$10,000. Period: 9/17/04–1/31/06.

May, Mary, and Robin Galloway. Natural Resources Career Academy/Work Experience. USDA Forest Service. \$15,050. Period: 1/27/05–9/30/05.

Reed, A. Scott. Landowner Education Program 2004-05. Oregon Forest Resources Institute. \$52,920. Period: 7/01/04–6/30/05.

### *Forestry Communications Group*

Davis, Caryn, Gretchen Bracher, Alison Moldenke, and Sandie Arbogast. Notable Notes research briefs. Oregon Forest Resources Institute. \$10,000. Period: 6/1/04–12/31/04.

### *Forestry Media Center*

Hino, Jeffry C., Mark D. Reed, and David A. Zahler. Media Center Consultant. The

Confederated Tribes of Grande Ronde.  
\$24,239. Period: 11/19/04–8/31/05.

Hino, Jeffry C., and David A. Zahler. Forestry Learning Opportunities for Workers (Project FLOW) Web Site Maintenance and Management. Oregon Forest Resources Institute. \$15,000. Period: 7/1/04–6/30/05.

Hino, Jeffry C., David A. Zahler, and Mark D. Reed. Ecoregion Native Plant and Ecosystem Presentations. USDI Bureau of Land Management. \$35,250. Period: 9/13/04–1/1/06.

Reed, Mark D., and Jeffry C. Hino. Juniper Management Educational Video.

Harney County Watershed Council.  
\$27,630. Period: 3/1/05–6/30/06.

### *Forestry—Research Support*

Hobbs, Stephen D. Technical and Professional Training for the Development of Survey and Other Than Survey Personnel in the Fields of Forest and Rangeland Ecology, Wildlife Biology and System Ecology. USDI U.S. Geological Survey. \$756. Period: 7/16/04–9/30/04. Amendment to an existing agreement.

Hobbs, Stephen D. Technical and Professional Training for the Development

of Survey and Other Than Survey Personnel in the Fields of Forest and Rangeland Ecology, Wildlife Biology and System Ecology. USDI U.S. Geological Survey. \$62,165. Period: 9/8/04–9/30/05. Amendment to an existing cooperative agreement.

Hobbs, Stephen D. Technical and Professional Training for the Development of Survey and Other Than Survey Personnel in the Fields of Forest and Rangeland Ecology, Wildlife Biology and System Ecology. USDI U.S. Geological Survey. \$74,747. Period: 8/1/04–9/30/05. New subagreement to an existing cooperative agreement.

# *Research and Service Cooperatives*

- ❑ **HSC—Hardwood Silviculture Cooperative** (Dave Hibbs)  
[www.cof.orst.edu/coops/hsc/](http://www.cof.orst.edu/coops/hsc/)
- ❑ **NTC—Nursery Technology Cooperative** (Robin Rose, Diane Haase)  
[www.cof.orst.edu/coops/ntc/ntc.htm](http://www.cof.orst.edu/coops/ntc/ntc.htm)
- ❑ **NWTIC—Northwest Tree Improvement Cooperative** (Keith Jayawickrama)  
[www.fsl.orst.edu/nwtic/](http://www.fsl.orst.edu/nwtic/)
- ❑ **PNWTIRC—Pacific Northwest Tree Improvement Research Cooperative**  
(Glenn Howe) [www.fsl.orst.edu/pnwtirc/](http://www.fsl.orst.edu/pnwtirc/)
- ❑ **SNCC—Swiss Needle Cast Cooperative** (Dave Shaw)  
[www.cof.orst.edu/coops/sncc](http://www.cof.orst.edu/coops/sncc)
- ❑ **TBGRC—Tree Biosafety and Genomics Research Cooperative** (Steve Strauss)  
[wwwdata.forestry.oregonstate.edu/tgbb/](http://wwwdata.forestry.oregonstate.edu/tgbb/)
- ❑ **UPRC—Utility Pole Research Cooperative** (Jeff Morrell)  
[www.cof.orst.edu/coops/utlpole/](http://www.cof.orst.edu/coops/utlpole/)
- ❑ **VMRC—Vegetation Management Research Cooperative** (Robin Rose, Lee Rosner) [www.cof.orst.edu/coops/vmrc/](http://www.cof.orst.edu/coops/vmrc/)
- ❑ **WRC—Watersheds Research Cooperative** (Arne Skaugset)  
[watershedsresearch.org/](http://watershedsresearch.org/)

# Other Cooperative Research Programs

- ❑ **CFWUR—Center for Wood Utilization Research** (Tom McLain, Steve Tesch)
- ❑ **CFER—Cooperative Forest Ecosystem Research** (John Hayes)  
[www.fsl.orst.edu/cfer/](http://www.fsl.orst.edu/cfer/)
- ❑ **CLAMS—Coastal Landscape Analysis and Modeling Study** (Norm Johnson, Tom Spies) [www.fsl.orst.edu/clams/](http://www.fsl.orst.edu/clams/)
- ❑ **ERSAL—Environmental Remote Sensing Applications Laboratory** (Bill Ripple)  
[www.cof.orst.edu/cof/fr/research/ersal.php](http://www.cof.orst.edu/cof/fr/research/ersal.php)
- ❑ **FPRL—Forest Photogrammetry Research Laboratory** (Jim Kiser)  
[www.cof.orst.edu/cof/fr/research/fprl.php](http://www.cof.orst.edu/cof/fr/research/fprl.php)
- ❑ **INLAS—Interior Northwest Landscape Analysis System** (John Sessions)  
[www.fs.fed.us/pnw/lagrande/inlas/index.htm](http://www.fs.fed.us/pnw/lagrande/inlas/index.htm)
- ❑ **LARSE—Laboratory for Applications of Remote Sensing in Ecology** (Warren Cohen) [www.fsl.orst.edu/larse/](http://www.fsl.orst.edu/larse/)
- ❑ **The Leopold Project** (Bill Ripple)  
[www.cof.orst.edu/leopold/](http://www.cof.orst.edu/leopold/)
- ❑ **LTEP—Long-term Ecosystem Productivity Program** (Bernard Bormann)  
[www.fsl.orst.edu/ltep/](http://www.fsl.orst.edu/ltep/)
- ❑ **LTER—Long-Term Ecological Research** (Mark Harmon)  
[www.fsl.orst.edu/lter/](http://www.fsl.orst.edu/lter/)
- ❑ **SFP—Sustainable Forestry Partnership** (Rick Fletcher)  
[www.cof.orst.edu/org/sfp/](http://www.cof.orst.edu/org/sfp/)
- ❑ **WPG—Watershed Processes Group** (Gordon Grant)  
[www.fsl.orst.edu/wpg](http://www.fsl.orst.edu/wpg)

# *Extended Education, Outreach, and Support*

- ❑ **College Forests**  
(Dave Lysne, Director)
- ❑ **Forestry Outreach Education Office**  
(Jim Reeb, Director)
- ❑ **Forestry Extension Program**  
(Jim Reeb, Interim Program Leader)
- ❑ **Oregon Forestry Education Program**  
(Susan Sahnnow, Program Coordinator)
- ❑ **Forestry Media Center**  
(Jeff Hino, Director)
- ❑ **Forestry Communications Group**  
(Roger Admiral, Director)
- ❑ **Forest Computing Group**  
(Kathy Howell, Director)
- ❑ **Forestry Business Office**  
(Scott Ferris, Business Manager)
- ❑ **Forestry Maintenance and Project Support**  
(Rand Sether, Director)
- ❑ **Philanthropy and the OSU Foundation**  
(Lisa French, College of Forestry Development Director, OSU Foundation)



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