

CURRENT RESEARCH 2009

Oregon Forest Research Laboratory

FORGING

new SYNERGIES

Oregon State
UNIVERSITY

OSU

College of Forestry

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Oregon State University's Forest Research Laboratory is the forestry research arm of the State of Oregon. It was established by the Oregon legislature in 1941. The mission of the Oregon Forest Research Laboratory is to conduct well-coordinated, problem-solving research that enables management and use of Oregon's forests for multiple values and products that meet society's needs, with special attention to social and economic benefits.

The Laboratory's research provides information to improve the forest-related decisions of those who use, own, operate, or are otherwise affected by management of the forests of the Northwest and the products and services these forests provide. The Laboratory's research results are used by many—private landowners, state and federal land-managing agencies, wood processing firms and workers, legislators, environmental agencies and interests, and others. Thus, Laboratory research affects virtually all Oregonians because of the importance of forests to them and to their state's economic health.

This directory is designed to help users of the Laboratory's research identify the scientists and their current research projects. It is organized by the Laboratory's five research program areas: Forest Regeneration; Forest Ecology, Culture, and Productivity; Protecting Forests and Watersheds; Evaluating Forest Uses and Practices; and Wood Processing and Products Performance. Several special or integrated research programs and facilities are also described at the end of the research listings. Following each scientist's name is a departmental code, and, in some cases, one or more program acronyms, to help you contact the scientist for information about his or her work or opportunities for cooperation.

Code Departmental Information

FERM Forest Engineering, Resources & Management
 (541) 737-4952
 (ferm.forestry.oregonstate.edu)

FES Forest Ecosystems & Society
 (541) 737-2244
 (fes.forestry.oregonstate.edu)

WSE Wood Science & Engineering
 (541) 737-4257
 (woodscience.oregonstate.edu/)

Current Research 2009 is also available at
www.cof.orst.edu/cof/research/CR2009.pdf

College Forests

The College of Forestry has access to several major forest properties dedicated to research and education. The College Forests comprise the McDonald, Dunn, Blodgett, Cameron, Marchel, Oberteuffer, Rams Dell, and Spaulding forest properties, totaling about 14,000 acres. Gifts to the College of Forestry, they are managed by the College for enhancement of education and research.

H. J. Andrews Experimental Forest

The 16,000-acre H.J. Andrews Experimental Forest on the Willamette National Forest is administered by the USDA Forest Service. Research is jointly managed by OSU and the Pacific Northwest Research Station under a Long-term Ecological Research Program sponsored by the National Science Foundation.

Forest Regeneration

Michael Adams[†] (FES)

WRC

Amphibian ecology; conservation biology; aquatic ecology

John Bailey (FERM)

Stand dynamics; two-story management; multi-aged systems; post-fire restoration

Stephen Fitzgerald (FERM)

Post-fire regeneration

Temesgen Hailemariam (FERM)

Regeneration imputation models; estimation of regeneration and spatial distributions from aerial information

Everett Hansen (FES)

Integrated forest protection; diseases of seedlings and mature stands; roles of pathogens in forest ecosystems; forest mycology

Dave Hibbs (FES)

HSC

Director, Hardwood Silviculture Cooperative (HSC); hardwood and general silviculture: species choice, seed source, species mixes, density and competition management, growth

Glenn Howe (FES)

PNWTIRC

Program leader, Pacific Northwest Tree Improvement Research Cooperative (PNWTIRC); quantitative, physiological, ecological and molecular genetics of forest trees; gene conservation; tree improvement; seed orchard management

Keith Jayawickrama (FES)

NWTIC

Program leader, Northwest Tree Improvement Cooperative (NWTIC); genetic improvement of productivity, wood quality, and product value; breeding and testing strategy; production of genetically improved planting stock

Doug Maguire (FERM)

CIPS

Director, Center for Intensive Planted-forest Silviculture (CIPS); regeneration under variable-retention harvesting; mixed species silviculture; uneven-age silvicultural systems; intensive plantation silviculture

Mike Newton (FERM)

Vegetation management; competition dynamics; interactions among conifers, associated vegetation, and wildlife damage; ecosystem rehabilitation; high-latitude reforestation; riparian rehabilitation

Klaus Puettmann (FES)

Regeneration dynamics, vegetation management, mixed species management, restoration ecology

Steve Radosevich (FES)

SF

Program leader, Sustainable Forestry (SF); integration of biological and social sciences for natural resource management; plant community dynamics of forest ecosystems; Douglas-fir/red alder associations; interspecies competition; huckleberry restoration

Robin Rose (FERM)

NTC, VMRC

Director, Nursery Technology Cooperative (NTC) and Vegetation Management Research Cooperative (VMRC); nursery management and reforestation of conifers and hardwoods, whole-plant physiology; seedling nutrition; agroforestry; international reforestation

Stephen Schoenholtz^s (FERM)

Afforestation and reforestation of disturbed sites; restoration ecology and management

David Shaw (FERM)

SNCC

Forest protection; Swiss needle cast; root diseases in young stands; integrated pest management

Brad St. Clair* (FES)

Genetics of adaptation; gene conservation; tree improvement; quantitative and population genetics; integration of genetics and silviculture

Steve Strauss (FES)

TBGRC

Program leader, tree biotechnology; genomics and biosafety technology for transgenic poplars; Douglas-fir molecular breeding; public communication on biotechnology-derived trees and crops

Steve Tesch (FERM)

Reforestation; site preparation; management of competing vegetation

Forest Ecology, Culture, and Productivity

Michael Adams[†] (FES)

Amphibian ecology and conservation; headwater stream and pond conservation

John Bailey (FERM)

Stand dynamics, structural development, and sustainable forest management; old-growth structure and multi-aged management; thinning strategies and intensive density management; long-term site productivity in Douglas-fir plantations; restoration and management of fire-dependent forest ecosystems

Matthew Betts (FES)

Landscape ecology, animal behavior, forest management effects on animal demography, ecological thresholds, species distribution modeling

Badege Bishaw (FES)

Agroforestry, social forestry, and international forestry, especially in Ethiopia and South Africa; sustainable forestry and natural resources

Bryan Black (FES)

Forest disturbance history; dendrochronology; linkages between marine and terrestrial ecosystems; applications of dendrochronology to growth increments of aquatic organisms

Barbara Bond (FES)

Age-related changes in growth and physiology of trees and forest stands; ecohydrological processes in small watersheds; using cold-air drainage systems within small watersheds to investigate physiological processes within watersheds; impacts of exotic forest plantations on water resources in Patagonia

Mike Bondi (FES)

Christmas tree fertilization, long-term productivity, and genetics; uneven-age and even-age management of Douglas-fir; natural and artificial regeneration systems

Jim Boyle (FERM)

LTEP, LTER

Long-term forest productivity; sustainable forestry

Efren Cazares (FES)

Ecology of mycorrhizal fungi; ectomycorrhizal diversity; mycorrhizal ecology of plant establishment; taxonomy of mycorrhizal fungi; rhizosphere biology

Warren Cohen* (FES)

LARSE

Remote sensing applications in ecology; landscape ecology; regional characterizations of forest disturbance and regeneration

Kermit Cromack, Jr. (FES)

LTER

Forest ecosystem studies; nutrient cycling in forests; role of mycorrhizae; influence of ecosystem disturbance on soil carbon and nitrogen resources

Stephen Fitzgerald (FERM)

Silvicultural systems; old-growth ponderosa pine management; stand development in east-side forests; uneven-aged management in dry-site forests; fuel reduction strategies

Rick Fletcher (FERM)

Christmas tree genetics, fertilization, and disease management; agroforestry

Lisa Ganio (FES)

Hierarchical analysis methods for data from multiscaled ecological systems; development of spatial statistics methods for use in stream network systems

Mathias Goeckede (FES)

Top-down modeling approach to estimate regional carbon balance of Oregon and Northern California; optimization of a model-data fusion scheme utilizing atmospheric transport modeling

Matthew Gregory (FES)

Regional-scale vegetation mapping; 3-D visualization of forest ecosystems; geographic information systems

Andrew Gray* (FES)

LTERR

Forest succession and structural development; ecosystem response to disturbance; natural regeneration of conifers; understory vascular plant communities

Bob Griffiths (FES)

LTERR

Effects of disturbances, microclimate, and vegetation on nutrient and carbon cycling and trace gas flux in forest soils; biology and chemistry of mycorrhizal mat communities

Temesgen Hailemariam (FERM)

Imputation and generation of tree lists, stand structures, and spatial distributions; estimation of tree crown attributes and terrestrial carbon sequestration; methods to relate forest productivity and diversity to aerial information

Everett Hansen (FES)

Integrated forest protection; diseases of seedlings and mature stands; roles of pathogens in forest ecosystems; biology and management of laminated root rot, cedar root disease, and sudden oak death; forest mycology

Mark Harmon (FES)

LARSE, LTERR

Log and snag decay processes in forests; nutrient cycling; effects of forestry on carbon stores; ecosystem modeling

Dave Hibbs (FES)

HSC

Community ecology; hardwood ecology and silviculture; riparian-area ecology; roles of disturbance, including fire; diversity, ecology, and management of mixed-species communities; temperate and tropical forests

Manuela Huso (FES)

Statistical models used in studies of wildlife habitat ecology; conservation biology; influence of forest landscape pattern on vertebrates; riparian-area ecology; diversity, ecology, and management of mixed-species communities; decomposition of coarse woody debris; ecosystem modeling; snag phytochemistry; scale effects

- Loren Kellogg (FERM)** CFWUR
Harvesting young stands; mechanized harvesting; alternative silvicultural systems; fire biomass utilization and fire hazard reduction; harvesting and silviculture system interactions
- Olga Krankina (FES)** LARSE
Forests and forestry in Russia; remote sensing of forest cover; forest disturbance and regeneration; decomposition of coarse woody debris; effects of forestry on carbon stores; ecosystem modeling
- Barbara Lachenbruch (WSE)** CFWUR
Ecophysiology of woody plants; functional morphology; stem physiology
- Chal Landgren (FERM)**
Christmas tree genetics and disease management
- Bev Law (FES)**
Influence of climate, management, and age on ecosystem processes contributing to carbon, water, and energy exchange with the atmosphere; autotrophic and heterotrophic respiration from soils, and response to environment; remote sensing of vegetation structure; scaling methods for regional analysis of net ecosystem productivity
- Daniel Luoma (FES)** LTER
Ecology and taxonomy of mycorrhizal fungi; biodiversity of ectomycorrhizae and ectomycorrhizal fungi in natural and managed forests; plant community ecology
- Doug Maguire (FERM)** CIPS
Director, CIPS; growth and yield; mechanistic models of tree growth; stand development, growth, and yield; crown structure and dynamics; responses of ground vegetation to stand structure and silvicultural treatments; DEMO (Demonstration of Ecosystem Management Objectives)
- Kate McCulloh (WSE)**
Whole plant physiology; long-distance transport in plants; hydraulic architecture of plants; water-use efficiency
- Frederick Meinzer* (FES)**
Tree physiology; forest canopy processes; plant ecophysiology; tropical forest and savanna ecophysiology
- Dave Myrold (FES)**
Nitrogen cycling in forest soils; Frankia and actinorhizal symbiosis; soil microbial communities
- Ron Neilson* (FES)**
Climate change; biogeography; ecosystem modeling;

ecotones; dynamic general vegetation modeling; fire modeling and forecasting

Mike Newton (FERM)

Vegetation management technology; habitat management; long-term productivity; western hemlock, red alder, and shrub competition; young-stand growth; development of mature stands; bedrock as a tree-growing resource

Janet Ohmann* (FES)

Forest landscape ecology; forest community ecology; regional biodiversity characterization and mapping; forest ecosystem management

Steven Perakis[†] (FES)

LTERR

Biogeochemistry and ecosystem analysis; forest nutrient cycling and nutrition; plant-soil interactions; watershed studies; stable isotopes

Klaus Puettmann (FES)

Stand dynamics, thinning and density management, impact of forest management on productivity and biodiversity, mixed species management

Bill Ripple (FES)

LP, ERSAL

Remote sensing of forest resources; geographic information systems; landscape ecology; aerial photo interpretation; wildlife ecology; fire ecology; retrospective studies of forest landscapes; aspen ecology; ecological effects of wolf restoration

Dave Shaw (FERM)

SNCC

Ecology of forest insects and diseases; dwarf mistletoes in managed and unmanaged stands; interaction of fire, dwarf mistletoe, and wildlife; biodiversity of heartrot fungi and their relationship to cavity-nesting vertebrates

Stephen Schoenholz[§] (FERM)

Forest soils and hydrology; biogeochemistry; wetland ecology

David Smith (WSE)

Biomass utilization and fuel reduction strategies

Jane Smith* (FES)

LTERR

Biological and functional diversity of forest fungi; impacts of fire and ecosystem disturbance on soil microbial communities; microbial interactions with native and nonnative invasive plant species

Phil Sollins (FES)

LTERR

Soil organic matter stabilization; biogeochemistry; soil formation processes; plant-soil relations; tropical ecosystems

Tom Spies* (FES)

CLAMS

Landscape ecology; ecosystem analysis; plant community ecology

Fred Swanson* (FES)

Landscape ecology; ecosystem management; geomorphology; forest hydrology

John Tappeiner (FERM)

Ecology and management of shrubs and hardwoods; stand growth; silvicultural systems; thinning and management of young stands for wood and biodiversity; development and growth of old-growth stands

Steve Tesch (FERM)

CFWUR

Forest engineering-silviculture interactions; ecology and management of interior mixed-conifer forests

Jim Trappe (FES)

Taxonomy and ecology of mycorrhizal fungi, especially truffles

David Turner (FES)

Spatially distributed modeling of forest biogeochemistry; application of remote sensing for characterizing canopy leaf area; development of carbon budgets at the stand, landscape, regional, and national scales

Dick Waring (FES)

Assessing potential and actual forest production across broad landscapes using remote sensing, GIS, and simplified process model; biodiversity

Protecting Forests and Watersheds

Paul Adams (FERM)

CFWUR

Effects of timber harvesting and forest roads on erosion, site productivity, and water quality and quantity; forest watershed management methods, planning, and policies

Heidi Albers (FES)

Modeling and analyzing spatial aspects of land trust and government land conservation decisions; economics of protected area management in developing countries; analyzing policies to reduce wildfire risk; forest fragmentation and roads; invasive species

John Bailey (FERM)

Wildland fire hazard, fuels reduction, and forest health restoration; post-fire forest restoration; riparian restoration

Bob Beschta (FES)

Forest and range hydrology; water quality and land use; stream temperatures; large wood and channel

morphology; influences of large herbivores on riparian plant communities; trophic cascades

Kermit Cromack, Jr. (FES)

Long-term impacts of forest management on soil; influence of ecosystem stress on susceptibility to forest pathogens and pests; effects of fire on forest ecosystems; evaluation of forest soil resources and stream chemistry in forest watershed ecosystems

Lisa Ganio (FES)

Hierarchical analysis methods for data from multiscaled ecological systems; development of spatial statistics methods for use in stream network systems

Bob Griffiths (FES)

Terrestrial-aquatic interactions; watershed management influences on stream sediment organic matter

Temesgen Hailemariam (FERM)

Forest biometrics and measurement; change inventory; evaluating windthrow risks and impacts of silvicultural systems; hybrid forest growth-and-yield-modeling; inventory and monitoring forest resources

Everett Hansen (FES)

Integrated forest protection; diseases of seedlings and mature stands; roles of pathogens in forest ecosystems; biology and management of laminated root rot, cedar root disease, and sudden oak death; forest mycology

Sherri Johnson* (FES)

LTER

Forest stream interactions; biogeochemistry; effects of disturbances on aquatic ecosystems

Kate Lajtha (FES)

Biogeochemistry of small watersheds; soil organic matter dynamics; nitrogen cycling in terrestrial and estuarine ecosystems

Doug Maguire (FERM)

CIPS

Effects of Swiss needle cast on growth and crown dynamics

Jeffrey McDonnell (FERM)

Watershed science; hillslope hydrology; isotope tracing; runoff processes; hydrological modeling

Mike Newton (FES)

Evaluating impacts of plant pests; ecological roles of conifers and nonconiferous species; impacts of vegetation management on water quality; herbicide environmental chemistry; animal damage impacts and management; buffer design and function

- Steven Perakis[†] (FES)** LTER
Biogeochemistry and ecosystem analysis; plant-soil interactions; forest nutrient cycling and nutrition; watershed studies; stable isotopes
- Marvin Pyles (FERM)** CFWUR
Slope failure mechanisms; road drainage; stream hydraulics and hydrology
- Bill Ripple (FES)** LP, ERSAL
Remote sensing of forest resources; geographic information systems; landscape ecology; aerial photo interpretation; wildlife ecology; fire ecology; retrospective studies of forest landscapes; aspen ecology; ecological effects of wolf restoration
- Darrell Ross (FES)**
Forest entomology; bark beetle ecology and management; bark beetle pheromones; host-tree defense mechanisms; natural enemies; ecology and management of regeneration insects; hemlock woolly adelgid; hazard/risk rating; silvicultural control; integrated forest pest management
- Ron Reuter (FES)**
Restoration ecology; impacts of juniper woodlands management on watershed processes; forest and range soils; landscape ecology
- Stephen Schoenholtz[§] (FERM)**
Water quality and forest land use; ecology and management of forested wetlands and riparian areas; stream habitat
- David Shaw (FERM)** SNCC
Director, Swiss Needle Cast Cooperative (SNCC); forest health and protection; biology and impacts of invasive species; herbivory
- Arne Skaugset (FERM)** CFWUR, WRC
Director, Watersheds Research Cooperative (WRC); forest hydrology; watershed management; slope stability; forest roads; cumulative watershed effects
- Phil Sollins (FES)** LTER
Soil organic matter stabilization; temperate and tropical ecosystems; soils; nutrient cycling; modeling; landscape analysis
- Jack Walstad (FERM)**
Wildland fire; integrated forest protection (lessened involvement, because of emeritus status)
- Dick Waring (FES)**
Development and application of stress indices to forested landscapes

Michael Wing (FERM)

Visibility analysis, geographic information systems (GIS); remote sensing

Evaluating Forest Uses and Practices

Gail Achterman (FES)

State and federal forest management and policy; integration of science into public policymaking; collaborative process design and facilitation; administrative and judicial review of federal land management decisions

Darius Adams (FERM)

Forest economics; modeling and analysis of national and regional forest products markets and timber supply; economics of sequestering carbon in forests; econometrics; forest policy

Paul Adams (FERM)

CFWUR

Soil compaction and disturbance from forest operations, including mechanized systems; forest practices policies on private and public lands, and related soil and water effects

Heidi Albers (FES)

Land and biodiversity conservation economics; ecological-economic models for policy analysis; modeling and analyzing spatial aspects of land trust and government land conservation decisions; decision analysis to promote forest health in the face of risk; economic analysis of forest management policies to address wildfire risk; forest fragmentation and roads; invasive species

Ralph Alig* (FERM)

Land-use economics; landowner behavior; land cover changes; land conservation economics; economics of sequestering greenhouse gasses through land-use changes

John Bailey (FERM)

Long-term stand development following various silvicultural approaches; influence of silvicultural practices on stand structure, biodiversity, habitat and sustainability

John Bliss (FES)

Private forest policy; forest-based rural development; natural resources sociology

Mike Bondi (FES)

Using low-power radio technology to communicate forestry messages

Rick Fletcher (FERM)

SF

Forest certification; sustainable forestry

Lisa Ganio (FES)

Influence of study design and statistical scaling issues in large-scale, long-term silvicultural studies

David Hann (FERM)

Modeling dynamics of tree and stand development; creation of management information systems

Eric Hansen (WSE)

CFWUR

Forest products marketing; environmental marketing; innovation management and new product development; corporate responsibility

Manuela Huso (FES)

Statistical models used in studies of the influence of silvicultural practices on growth and yield, biodiversity, wildlife habitat, and stream temperature

Royal Jackson (FES)

Forest history; cultural resource management; ecotourism

Norm Johnson (FES)

CLAMS

Forest planning; harvest scheduling; timber supply; forest policy on public lands

Barbara Lachenbruch (WSE)

Effects of silviculture and environment on wood quality; understanding the physiological effects of such changes; effects of growth rate on wood properties

Kreg Lindberg (FES)

Visitor price-responsiveness and economic impact of nature/ecotourism; inter-visitor conflict in natural areas; economic and social impacts of tourism

Claire Montgomery (FERM)

Natural resource and forest economics; economics of biodiversity; housing markets; forest policy

Glen Murphy (FERM)

CFWUR

Production analysis; log scanning; value recovery; harvest scheduling and management; facilities planning; supply chain management

Mark Needham (FES)

Natural resource based recreation; social psychology of natural resources; human dimensions of wildlife/ fisheries; norms and standards for resource and recreation management; carrying capacity and crowding; specialization, risk, trust, conflict; tourism/ ecotourism; survey and quantitative methods.

Mike Newton (FERM)

Yields of forests managed in various even- and uneven-aged strategies; influence of silvicultural systems on stream productivity; evaluation of long-term outcomes for silvicultural systems; comparative analyses of reforestation systems

Klaus Puettmann (FES)

Influence of silvicultural practices on growth and yield, biodiversity and wildlife habitat

John Punches (FERM)

CFWUR

Product potential of small-diameter timber; the Internet as a forest products marketing and communications tool

Marvin Pyles (FERM)

Cable system mechanics

Randall Rosenberger (FES)

Valuation of natural resources; meta-analysis; benefits transfer; health benefits of recreation

David Shaw (FERM)

SNCC

Forest health and protection; using silviculture to solve forest health problems; impacts of silviculture on disease and insect pests

Stephen Schoenholtz^s (FERM)

Forest management effects on nutrient cycling, carbon dynamics, soil physical properties, and long-term productivity; criteria and indicators of sustainability; assessment of BMP effectiveness; use of forests for waste applications

John Sessions (FERM)

CFWUR

Wood transportation; optimal bucking practices; timber harvest scheduling; timber supply; scheduling of silvicultural practices; harvest planning

Bo Shelby (FES)

In-stream flows and recreation; river management; monitoring impacts on wilderness; evaluation of new forestry practices

Bruce Shindler (FES)

Human dimensions of ecosystem management; public agency-citizen interaction; wildland recreation management issues

Viviane Simon-Brown (FES)

Intelligent consumption; environmentally responsible consumer decision making; fair, open, honest public process; sustaining collaborations

John Tappeiner (FERM)

Ecology and management of shrubs and hardwoods; stand growth; silvicultural systems

Jo Tynon (FES)

Qualitative and quantitative inquiry into natural resource-based recreation and tourism issues; understanding how crime and violence on public recreation lands affect recreationists' decision making and participation patterns

Michael Wing (FERM)

Visibility analysis; geographic information systems (GIS); remote sensing

Wood Processing and Products Performance

Charles Brunner (WSE)

CFWUR

Optical scanning; secondary processing

David Butler (WSE)

Operations research, statistics

Jim Funck^s (WSE)

CFWUR

Scanning technology; process control; process modeling; primary and secondary manufacturing; computer-aided manufacturing, plywood

Rakesh Gupta (WSE)

CFWUR

Timber engineering and mechanics; structural engineering; mechanical properties and behavior of wood and wood-based composites

Fred Kamke (WSE)

Wood-based composites design, manufacture, and performance; wood-adhesive interactions; heat and mass transfer in wood products; modeling wood-based composite manufacturing process

Joe Karchesy (WSE)

CFWUR

Forest products utilization; natural products chemistry of polyphenols and terpenoids; discovery of new bioactive compounds from forest resources for use in agriculture, medicine, and protection of human health

Barbara Lachenbruch (WSE)

CFWUR

Relationships between wood anatomy and wood properties

Scott Leavengood (WSE)

Director, Oregon Wood Innovation Center (OWIC); best practices in quality management for achieving innovation performance; applied research in quality and process control methods in the wood products industry; commercialization of underutilized species

Robert Leichti^s (WSE)

Mechanics of wood materials, fasteners, durability

Kaichang Li (WSE)

Development of formaldehyde-free wood adhesives from renewable natural resources; interfacial chemistry of wood-plastic composites; development of new paper additives from renewable natural resources with biological methods

Tom McLain (WSE)

CFWUR

Timber engineering; structural mechanical connections

Mike Milota (WSE)

CFWUR

Moisture, heat, and stress relationships during wood drying and use; monitoring, control, and reduction of process emissions

Jeff Morrell (WSE)

CFWUR

Preservative treatments; biological control; processes of decay; performance of wood-based materials

Lech Muszyński (WSE)

Mechanical performance of solid wood, wood-based, and hybrid wood-plastic composites; empirical data for modeling; integrated experimental methods; multiscale characterization of wood and other biobased particulate composites; advanced imaging techniques

John Nairn (WSE)

CFWUR

Analytical and numerical modeling of deformation and fracture of wood and wood composites; fracture mechanics of wood and wood composites; natural-fiber composites; effects of residual stresses; failure of coatings; interfacial adhesion

Maureen Puettmann (WSE)

Life cycle assessment; environmental analysis of wood production; wood preservation; carbon storage in wood products

Jim Reeb (WSE)

CFWUR

Value-added forest products manufacturing; process modeling and operations research

John Simonsen (WSE)

CFWUR

Cellulose nanocrystal composites; wood-polymer composites; wood preservation; environmental fate of wood preservatives

Jim Wilson (WSE)

CFWUR

Life cycle assessment; environmental performance of wood products; performance of wood building materials; wood-based composites; nondestructive testing

Affiliations of courtesy faculty

* USDA Forest Service, Pacific Northwest Research Station

† USGS-BRD Forest and Rangeland Ecosystem Science Center

‡ Environmental Protection Agency

§ Other

Special and Integrated Research Programs

AmeriFlux Research Network

A coordinated network of ~100 long-term research sites in the Americas for quantifying and understanding the role of the terrestrial biosphere in global climate change. The network aims to quantify variation in carbon stocks and carbon dioxide, water vapor, and energy exchange with the atmosphere, and understand its causes at relevant temporal and spatial scales. The AmeriFlux Science Chair, research synthesis group, and site intercalibration group are located at Oregon State University; the data management group is at Oak Ridge National Laboratory.

(<http://public.ornl.gov/ameriflux/>)

CFWUR: Center for Wood Utilization Research

A research center focusing on developing new wood products, enhancing processing and harvesting systems, and other strategies to add value to the western forest resources

(woodscience.oregonstate.edu/USDASpecialgrant.php)

CLAMS: Coastal Landscape Analysis and Modeling Study

Develops tools to understand patterns and dynamics of ecosystems such as the OregonCoast Range and to analyze the ecological, economic, and social consequences of forest policies of landowners in the region

(www.fsl.orst.edu/clams/)

CIPS: Center for Intensive Planted-forest Silviculture

A research and development center addressing the interactive effects of genetics, silviculture, protection (from insects, disease, and animal damage), competition, nutrition, and soils on the productivity, health, and sustainability of intensively-managed, planted forests.

(www.fsl.orst.edu/cips/)

ERSAL: Environmental Remote Sensing Applications Laboratory

Develops and applies remote sensing and Geographic Information Systems (GIS) technology for the study of forest lands and related natural resource problems. Research topics include landscape ecology, remote sensing of plant cover, forest landscape patterns, and wildlife habitat.

(www.cof.orst.edu/cof/fr/ersal.php)

HSC: Hardwood Silviculture Cooperative

Research and technology transfer program on the ecology, reforestation, and stand management of Northwest hardwood species, especially red alder

(www.cof.orst.edu/coops/hsc)

LARSE: Laboratory for Applications of Remote

Sensing in Ecology

Conducts basic remote sensing research, translates remotely sensed data into mapped ecological information, and fills the gap between remote sensing and ecological sciences (www.fsl.orst.edu/larse/)

LEMMA: Landscape Ecology, Modeling, Mapping and Analysis

Conducts research in spatial modeling of forest composition and structure by integrating remotely sensed, environmental, and field plot data to understand controls on regional vegetation patterns and to support landscape planning and analysis.

(www.fsl.orst.edu/lemma)

LP: Leopold Project

Continues the work Aldo Leopold started on topics that intersect forestry and wildlife science and ecosystems. Leopold is a prime example of the usefulness of working across disciplines to solve complex natural resource problems. The Leopold Project is our way to put formal emphasis on the multidisciplinary approach to the study, wise use, and conservation of natural resources.

(www.cof.orst.edu/leopold)

LTEP: Long-Term Ecosystem Productivity Program

A program with the goal of increasing understanding of processes that control the long-term productivity of the land in order to support sustainable ecosystem management

(www.fsl.orst.edu/ltep)

ILTER: Long-term Ecological Research

A long-term program of research at the HJ Andrews Experimental Forest, with major funding from the National Science Foundation, the Forest Service, and OSU. LTER is discovering fundamental ecological relationships in managed and natural forests and incorporating them into forest management strategies.

(www.fsl.orst.edu/lter)

NTC: Nursery Technology Cooperative

Research program on nursery management and seedling production and performance, emphasizing reforestation planting systems

(ntc.forestry.oregonstate.edu)

NWTIC: Northwest Tree Improvement Cooperative

Oversees and coordinates cooperative tree breeding in coastal forests from California to British Columbia; provides data analysis and data management services for the same; provides expertise in tree breeding and genetic improvement to members

(www.fsl.orst.edu/nwtic)

OWIC: Oregon Wood Innovation Center

Research, technical assistance, training, and technology transfer to improve the competitiveness of Oregon wood products firms through fostering innovation in products, processes, and business systems.

(owic.oregonstate.edu)

PNWTIRC: Pacific Northwest Tree Improvement Research Cooperative

Genetics and tree improvement research program aimed at increasing the efficiency and effectiveness of operational tree improvement program

(www.fsl.orst.edu/pnwtirc)

SF: Sustainable Forests Partnership

A research and outreach partnership integrating social and biological aspects of forestry research into strategies for the long-term management of forests for multiple values. Current projects involve a nationwide assessment of forest biodiversity, web-based virtual tours of sustainable forestry practices, a study of forest fragmentation, and a certificate program in sustaining human and natural systems. Partnership involves four OSU colleges and two other universities.

(www.cof.orst.edu/org/sfp)

SNCC: Swiss Needle Cast Cooperative

Investigates possible causes and remedies for attack of the fungus *Phaeocryptopus gaeumannii* in coastal Oregon Douglas-fir forests

(www.cof.orst.edu/coops/sncc)

TERRA-PNW

A long-term program of research throughout Oregon, Washington, and California on the ecological responses of terrestrial ecosystems to natural and human-induced changes. The research is funded by multiple agencies including NASA, the U.S. Department of Energy, NOAA, and USDA. The understanding of mechanisms controlling ecosystem processes is being incorporated in process models that are applied at the landscape to regional scale using multiple scales of observations.

(<http://wwwdata.forestry.oregonstate.edu/terra/>)

TBGR: Tree Biosafety and Genomics Research Cooperative

Studies tree genetics and breeding through gene-transfer-based biotechnology

(www.cof.orst.edu/coops/tbgrc)

UPRC: Utility Pole Research Cooperative

Seeks to improve the performance of wood in utility systems through improved specification, better

inspection techniques, and development of safer remedial treatments for in-service poles
(www.cof.orst.edu/coops/utilpole)

VMRC: Vegetation Management Research Cooperative

Research program on vegetation management, focusing on plant competition, vegetation control, and early growth of forest stands

(www.cof.orst.edu/coops/vmrc/home.htm)

WPG: Watershed Processes Group

An interdisciplinary research group studying linkages among physical and biological processes and human activities, with particular focus on the steep, forested landscapes of the Pacific Northwest

(www.fsl.orst.edu/wpg)

WRC: Watersheds Research Cooperative

Facilitates research on the environmental effects of intensive forest management on water quality, fisheries, and aquatic habitat

(<http://watershedsresearch.org/>)

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www.forestry.oregonstate.edu