

FERM Department at a Glance

January 2017

The Forest Engineering, Resources and Management (FERM) Department was formed in 2008 with the reorganization of the College of Forestry from 4 to 3 departments. We adopted as our mission: *“To develop, communicate, and teach the science and engineering necessary for sustainable management of forest, land, and water resources to achieve economic, environmental, and social objectives.”* FERM operates with an annual budget of \$3.7 million and an endowment base of nearly \$14 million.

FERM Faculty – FERM has been actively recruiting and filling faculty positions in the last 5 years. We now number 23.5 resident faculty – 14.5 hired in 2012 or later. FERM faculty comprise:

- 18 Teaching & Research faculty and 5.5 Extension Specialists;
- 5 Professors, 5 Associate Professors, 10.5 Assistant Professors, and 3 full-time Instructors;
- plus 2 active emeriti.

We are also home to 5 Extension Field Personnel and 6 College or University administrators. Socio-demographics of resident faculty:

- Country of origin: USA (15), Chile (2), Canada (1.5), Colombia, Ethiopia, Finland, South Korea, Romania, Spain
- PhD: OSU (7), UWA (3), UBC (2), UAlb (1.5), Columbia, UBarcelona, UC Berk, UCO, UFL, UGA, UID, MITech, VTech
- Race/Ethnicity: White (17.5), Other (6)
- Gender: Male (18.5), Female (5)

Educational Programs – FERM offers Bachelor of Science degree programs in Forestry (accredited by SAF – Society of American Foresters), Forest Engineering (accredited by SAF and ABET – Accreditation Board for Engineering and Technology) and the double degree in Forest Engineering and Civil Engineering (also accredited by SAF and ABET). The Forestry B.S. has 3 options: Forest Management, Forest Operations Management (which includes coursework for a Business minor), and Forest Restoration and Fire (soon to be certified by Association of Fire Ecology). We recently implemented a Professional School for these degrees and admitted our first class of Pro School juniors in Fall 2013. Total FERM undergraduate enrollment is currently 227, with 91 in the Pro School as juniors or seniors. We graduated 43 in AY 2016.

FERM administers the Sustainable Forest Management (SFM) graduate degree program and FERM faculty also advise graduate students in Water Resources, Applied Economics, Civil Engineering, and the on-line Masters of Natural Resources program. Current enrollment is SFM (54), MNR (9), other (10). We graduated 13 students in AY 2016. FERM faculty support roughly 2/3 of our students on graduate assistantships – mostly research.

FERM faculty teach 52 undergraduate, 14 stand-alone graduate, and 14 online classes with a normal teaching assignment of 10-12 quarter credits per year.

Research – FERM faculty conduct research programs in: Forest Operations Planning and Management, Forest Policy Analysis and Economics, Forest Biometrics and Geomatics, Silviculture, Fire, and Forest Health, Forest Watershed Management, and Engineering for Sustainable Forestry.

FERM is home to 4 research cooperatives – Center for Intensive Planted-forest Silviculture (Doug Maguire, Director), Swiss Needle Cast Research Cooperative (Dave Shaw, Director), Vegetation

Management Research Cooperative (Carlos Gonzalez-Benecke, Director), and Watershed Research Cooperative (Jon Souder, Director). Members pay a total of \$940,000 per year in dues and contribute research sites, personnel, and additional revenue via grants and contracts.

FERM faculty submitted \$6.6 million in external research grant proposals and received \$3.7 million in awards – in addition to \$0.5 million in internal grant awards – in Fiscal Year 2016. FERM faculty report 70 refereed journal articles and at least 40 other scholarly works in 2015. Just a few of our many FERM research highlights:

Focus on Wildland Fire – Wildland fire is constantly in the headlines these days. That’s because fires are bigger, more destructive, and more costly to contain than in any time since records have been kept. FERM faculty research addresses forest fire fuels management and monitoring, wildland fire use, silviculture for fire-prone forested landscapes, fire impacts soil nutrients, forest hydrology, and water quality, the interactions of insect outbreaks and wildfire, and the use of unmanned aerial vehicles for real-time fire monitoring.

Focus on Biomass Utilization – There are compelling reasons to study the feasibility of biomass utilization – including its potential to reduce forest wildfire hazard, stimulate investment in forest-located rural communities, reduce foreign oil dependency, reduce carbon emissions from energy production, and increase agricultural soil productivity. FERM faculty research addresses biochar use to reduce forest wildfire hazard, sequester carbon and increase agricultural productivity, the potential for market-driven demand to fuel investment in biomass processing facilities and provide employment in forest-located rural communities, potential price-driven biomass supply for woody biomass delivered to a centrally-located aviation biofuel facility, biomass removal impacts on long-term stand productivity and soil nutrients, and the use of LIDAR and Landsat data to improve forest growth models that predict biomass yield.

Focus on Worker Safety – Logging is by far the most hazardous occupation in the U.S. Logging fatalities per worker day outnumber those in any other occupation by an order of magnitude. FERM faculty are looking for ways to get harvest workers off of steep slopes where most fatal accidents occur by investigating the feasibility, safety, and cost-effectiveness of cable-assisted steep slope logging systems in PNW forests.

Forestry and Natural Resources Extension – FERM is an active partner with OSU’s Forestry & Natural Resources (FNR) Extension Program, providing the academic home for seven statewide Extension Specialists and four FNR Field Agents. Active work areas include Silviculture; Forest Economics, Management, and Policy; Forest Watershed Management; Christmas Tree Production and Marketing; Forest Health; and Timber Harvesting and Forest Operations. FERM Extension faculty have active roles in many long-standing Extension projects and programs such as the Master Woodland Manager Program, Citizens Fire Academy, Pest Scene Investigators, Oregon Forest Pest Detectors Network, Backyard Woodlands, and the Basic Forestry Short Course.