

**Department of Forest Ecosystems and Society
Global Change Strategic Hiring Plan**

V1 draft for departmental input at March 10th 2021 Department Meeting

Overview

Our global challenge is to support thriving social and ecological systems on a chaotic, increasingly crowded, and warming planet, and healthy forest ecosystems are central to meeting this challenge. The Department of Forest Ecosystems and Society seeks to build its faculty community to contribute to the research, teaching, and service-outreach necessary to support evidence-based mitigation and adaptation to global change. We are a multi- and inter-disciplinary department with expertise spanning a wide range of forest-relevant topics including collaborative governance, ecology, genetics, recreation, ecophysiology, and conservation. As a department, we have identified the following faculty positions as priority areas for growth in the context of building capacity for our Global Change Strategic Hiring Plan.

The following list is divided into three categories for internal department discussions.

- **Category 1** is a list of hiring priorities for which we feel there is a direct connection to teaching needs and/or opportunity to leverage existing College priorities and research opportunities.
- **Category 2** is a list of hiring priorities linked to anticipated retirements and research gaps in the next five years.
- **Category 3** is a list of hiring priorities for which we feel there is critical need from a research perspective but without direct connections to existing teaching needs, but for which we feel the OSU Foundation might help us fill important lines relevant to our Global Change strategy.

Positions presented in no particular order.

Category 1

Forest carbon cycle science. Our planet is facing a climate crisis, and the carbon cycle is at the heart of this issue and intertwined with all aspects of global change. Potential research areas for this position could include, e.g., forest carbon-climate feedbacks, biodiversity-carbon cycle interactions and global change, and carbon cycling through above and below-ground processes. Preferred candidates will have expertise in forest carbon cycle science and employ a variety of methods, including some combination of ecosystem-atmosphere flux and carbon cycle process measurements, satellite remote sensing, and process-based ecosystem modeling at a variety of spatial and temporal scales.

This position would provide teaching capacity for:

- FES 527 (Forest carbon analysis for assessments & policy agreements)
- MNR 550 (Climate change impacts on forest ecosystems – eCampus)
- MNR/FES 536 (Carbon sequestration in forests)
- FES 240 (Forest biology)
- Additional possible undergrad NR course on ecology and biophysics of Natural Climate Solutions could be developed.

Policy and economics of forest-based climate solutions. As communities, organizations and governments embrace nature-based solutions to mitigation and adaptation planning, there is a

need to produce robust policy and economic analyses of potential strategies. For example, there is a lot of work that has come out pointing out the C storage importance of large, old trees, and conserving those trees and stands would also have large biodiversity and recreation co-benefits. This goes beyond simple carbon accounting, to include financing options for environmental services more broadly, and even policy options and economic analysis for resilient ecosystems in the face of global change (mitigation and adaptation). This position would complement a research focus on carbon, and a renewed focus on ecosystem services, policy, and economics.

This position would provide teaching capacity for:

- FES 500 (Market tools for managing GHG emissions – eCampus)
- FES 527 (Forest carbon analysis for assessments & policy agreements)
- SNR 521 (Economics of sustainable natural resource – eCampus)
- MNR 511 (Intro to sustainable natural resources – eCampus – generally needs an economist co-instructor)
- Additional possible undergrad NR course on economics and policy of Natural Climate Solutions could be developed.

Indigenous and local perspectives on land & ecosystem management. Indigenous peoples and local communities often experience disproportionate impacts of global change. But they are also at the forefront of learning and adaptation to changing landscapes, with a rich and historical knowledge of the land and ecosystems. This position could be open to research areas including traditional ecological knowledge (TEK), ethnobotany, ethnoecology, and Indigenous rights. Ideally this position would be a mix of TEK and political ecology/Indigenous rights and institutions, where the candidate has interests in blending western scientific approaches and TEK.

This position would provide teaching capacity for:

- NR 202 (Natural resource problems and solutions)
- FES 485/585 (Consensus and natural resources)
- FES 520 (Posing researchable questions)
- MNR 511 (Intro to sustainable natural resources -eCampus- co-instructor on social aspects)
- Additional possible slash class(es) could be developed on TEK (high demand from students across campus).

Forest Entomology and Ecology. Insects are in decline globally and serve as the base of the food web for many species, as well as being pollinators contributing to broader ecosystem services. However, insect-driven declines in forests are also accelerating, so we need to know more about how to prevent/slow future outbreaks of native and exotic insects including e.g., Emerald ash borer, hemlock adelgid, mountain pine beetle. This position would provide a research focus on conservation ecology and forest health related to insects.

This position would provide teaching capacity for:

- FES 412/512 (Forest entomology)
- Potentially other courses: plant/insect interactions, chemical ecology, IPM, foundations of insect ecology, and a new course on insect declines/biodiversity/conservation
- Could teach a variety of forest biology, dendrology, ecology, restoration classes as needed

This position has the potential to be a co-hire with ODF with a portion of a non-TT position being in CoF (similar to Paul Ries's position). Could include ideas to link with big data, e.g., taxonomic auto-identification with machine learning.

Notes: The arrangement for co-hire could be that we pay 50% of salary to teach ½ time and ODF employed the other 50% of the time. So the financial savings would be paying for half a line, which might be more in lines with our actual teaching needs. For additional (beyond FES 412/512) classes, discussed with Jeff that none of these classes are currently required in any degree program, so it would be important for us to see if partners across campus would want them in degrees/programs like HORT, BPP, IB. Developing new classes comes at a tradeoff when we have existing classes we can't cover.

Category 2

These positions would be anticipated as high priority in the window of 2-5 years with upcoming retirements.

Tree Genetics in the Context of Global Change. With accelerating climate and herbivore stressors on trees, as well as a ballooning global demand for timber and interest in nature-based C sequestration, one option is to utilize cutting-edge genetics techniques to breed trees that are more resistant and resilient to global change stressors. By being able to grow more wood on smaller areas, this potentially frees up land where conservation can be prioritized or ecological forestry can be done. This position would provide a research focus on tree genetics in relation to environmental stressors, and potentially have links to supporting established Co-ops.

Urban forestry and ecology. Urban forests are important elements of natural climate solutions, carbon cycling, biodiversity, ecosystem services, and responses to global change.

This position would provide teaching capacity for:

- FES/HOR455/555 (Urban forest planning, policy and management)
- FES/HORT 350 Urban Forestry
- FES 565 Urban Forestry Leadership
- FES 506 Urban Forestry Capstone

Notes. Currently, urban forestry is a large program entirely run by one person: Paul Ries. Might be opportunities to develop connections with Portland State where there is interest from an Associate Dean to develop connections in this area between PSU and Portland-area governments and non-profits and the CoF. Troy and Chris met with him a couple of years ago. Seems like a natural fit as well for the expanding OSU presence in Portland.

Category 3

These positions are opportunities we think are important areas of research but would likely need support from donors and so work through OSU Foundation for support.

******This is a good place to make a pitch for positions you'd like to see! Please feel free to send ideas and rationale/details to the Strategic Hiring Plan committee, via Meg Krawchuk (meg.krawchuk@oregonstate.edu)*

Forest mycorrhizal ecology. Plant-fungi mycorrhizal associations play an important role in processes and patterns of biodiversity, biogeochemical cycling, and climate change effects on forest ecosystems.

Notes: With two soil ecology/C types in the leadership (i.e., Tom and Jeff) we can lobby for someone to replace that critical area.

Tree-ring science for global change. Need to broaden this out to a wide call that could include topics of drought/stressors, fire, carbon, biogeochemistry, archaeology?

Agroforestry. Forest food/nutrition/wellbeing focus, integrated with forestry components, highly integrative social and ecological aspects. Local to global.

Notes: There are only two classes, neither of which is required, so we should collectively decide whether that's an area we want to emphasize. But it has excellent potential.

Your ideas? xxxxxx