***POSTDOCTORAL RESEARCH POSITION***
*Forest Structure, Species Distribution Modeling, and Global Biodiversity Footprints*

The [Betts Forest Landscape Ecology Lab](#) in the Oregon State University College of Forestry is seeking a highly motivated postdoctoral researcher to join an innovative project at the intersection of remote sensing, species distribution modeling, global forest management impacts on biodiversity, and mapping of trade-related extinctions. This position offers an exciting opportunity to contribute to cutting-edge research that will inform sustainable forestry practices and global wood trade policies. The candidate will be part of a growing network of scientists internationally seeking to reveal the environmental impacts of global wood flow, with the project directly partnered with University of Cambridge (UK).

# Project Overview

Global wood demand is projected to double by 2050 but forestry is already a major driver of biodiversity loss, threatening over 30,000 species. This project aims to develop a predictive framework for assessing how different forest management systems affect biodiversity at global scales. Building on recent advances in remote sensing and species distribution models (SDMs), the postdoc will lead efforts to model species responses—past and future—to forestry practices spanning major production systems (e.g. clear-cutting, retention forestry, tropical selective logging, plantations, uneven- and even-aged management) and unmanaged forests.

The researcher will collaborate with a growing *Alliance on Global Wood Outcomes*, integrating biodiversity predictions with spatial data on forest structure and global wood trade to produce the most advanced global estimates of extinction risks embedded in current and future wood supply chains. The project will be based at Oregon State University and directly partnered with University of Cambridge (UK).

# Key Research Objectives

### 1. Characterizing Forestry Production Systems

- Analyze global forestry systems using time-series remote sensing data
- Quantify structural dynamics and classify forest management types at scale

### 2. Backcasting Species Distributions

- Develop SDMs across taxa for very many species using large-scale datasets (e.g., eBird, GBIF, as well as in-house datasets)
- Reconstruct historical species-habitat relationships in different managed forest systems, plus unmanaged forests
- Model species responses to historical wood production strategies over broad spatial scales

### 3. Forecasting Biodiversity Impacts of Wood Production

- Model future species responses to alternative wood production scenarios

- Quantify uncertainty and integrate predictions with extinction risk frameworks

The postdoc will work closely with international partners to link biodiversity impacts to species extinction, forest trade and land-use models, generating policy-relevant tools for tracing impacts through international wood flows.

**Optional:** According to the candidate's availability and interests, there is scope for extended collaborative research visits to the David Attenborough Building at the University of Cambridge, UK, a global hub of conservation scientists and environmental non-governmental organisations.

## Key References

Betts, Matthew G., et al. "Forest degradation drives widespread avian habitat and population declines." *Nature Ecology & Evolution* 6.6 (2022): 709-719.

Betts, Matthew G., et al. "Quantifying forest degradation requires a long-term, landscape-scale approach." *Nature Ecology & Evolution* 8.6 (2024): 1054-1057.

Eyres, Alison, et al. "LIFE: A metric for mapping the impact of land-cover change on global extinctions." *Philosophical Transactions B* 380.1917 (2025): 20230327.

## Required Qualifications
• PhD in Ecology, Environmental Science, Computer Science, Remote Sensing, Conservation Biology, or related field
• Experience handling large-scale biodiversity datasets (eBird, GBIF, etc.)
• Experience with cloud computing platforms for large-scale data analysis  (e.g., Google Earth Engine)
• Strong quantitative and computational skills, with experience in R, Python, or similar programming languages
• Familiarity with remote sensing data analysis and GIS applications
• Knowledge of forest ecology and/or biodiversity conservation principles
• Excellent written and oral communication skills

## Preferred Qualifications
• Experience with species distribution modeling techniques (MaxEnt, ensemble methods, etc.)
• Capacity and interest in interdisciplinary work that spans ecology, conservation, computer science, economics and policy.

## Application
• Cover letter describing research interests and relevant experience
• CV.
For full consideration apply by Oct. 15, 2025
Start date: Flexible, but preferably spring 2026
Duration: Two years with possibility of extension

For more information about this position, please contact Prof Matthew Betts [matt.betts@oregonstate.edu] and Dr. Gianluca Cerullo [grcerullo@gmail.com].