PhD Position: Remote Sensing of Species Assembly Dynamics in Tropical Dry Deciduous Forests

Location: University of Guelph (Guelph, ON, Canada), with extensive fieldwork in Madagascar

Funding: Fully funded (stipend and tuition support)

Are you passionate about bridging the gap between core ecological theories and cutting-edge remote sensing technology? The LEMR and GEO labs in the Department of Geography, Environment & Geomatics at the University of Guelph is seeking a highly motivated PhD student to lead an innovative research project that integrates satellite and drone remote sensing with tropical community ecology.

Project Overview

This project aims to uncover how macro-scale environmental variation shapes local lemur species richness, occurrence and interactions within the hyper-diverse, endemic, and threatened dry forests of western Madagascar. The successful candidate will pair high-resolution remote sensing data with intensive ground-based monitoring to investigate how changes to forest structure, composition, and dynamics drive the patterns and processes of species assembly and disassembly.

The research will focus on:

- **Scale effects** — evaluating how micro-habitat variation scales up to influence landscape-level ecological processes.
- **Novel remote sensing tools** — using data from new and emerging satellite missions and UAV platforms to address questions of species assembly/disassembly dynamics.
- **Biotic interactions** — leveraging remotely sensed data to map and infer the deterministic processes driving species assembly/disassembly patterns (e.g., environmental filtering, competition, niche differentiation, species interactions).

This position focussed on advanced computational and data driven modeling and may include rugged, hands-on field ecology. You will have access to existing field data from and may conduct your own extensive field seasons in Madagascar, collecting structural and compositional baseline data, then return to Guelph to translate these field insights into predictive macroecological models using modern remote sensing toolkits (e.g., LiDAR, multispectral satellite imagery, and GIS).

What We Are Looking For

- An MSc (or equivalent experience) in Ecology, Remote Sensing, Geography, Forestry, Environmental Science, or a closely related field.
- Demonstrated strong quantitative skills, with proficiency in R, Python, and standard GIS/remote sensing software.

- Resilience, adaptability, and enthusiasm for conducting rigorous fieldwork in remote tropical environments.
- Evidence of ability to get research grants and scholarships to support field work.
- A strong conceptual grounding in ecological theory.

What We Offer

- A fully funded 4-year PhD package, including a competitive stipend and tuition coverage.
- Access to world-class computational facilities and analytical mentorship.
- Unparalleled international field experience opportunity in a global biodiversity hotspot.

How to Apply

Interested candidates should submit a single PDF containing a cover letter (detailing research interests and field experience), a current CV, and contact information for two academic references to tsteffen@uoguelph.ca by December 1st, 2026.

NOTE:

1. Applicants interested in doing an MSc related to this project should also reach out directly to tsteffen@uoguelph.ca by the deadline.

The University of Guelph is committed to equity, diversity, and inclusion; we strongly encourage applications from underrepresented groups in STEM.