

**PhD Dissertation**  
**Department of Environmental Science and Policy**  
**College of Science**  
**George Mason University**

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**Title:** Evaluating the Impacts of Land Cover and Climate Change on Biodiversity at Local, Regional, and Global Scales

**Dissertation Co-Directors:** Dr. David Luther

**Committee:** Dr. Rebecca Forkner, Dr. Cody Edwards, and Dr. José Luís Camargo

**ABSTRACT**

Human activity drives land cover change and climate change, threatening global biodiversity. Most research on this topic evaluates how one species or population responds to a disturbed environment. However, ecosystems are considerably more complex, and changes to one species has implications for other species in the same environment. Therefore, this dissertation evaluates the impacts of land cover change, specifically forest loss and forest fragmentation, and climate change, on biodiversity. The goal is to evaluate the impacts on complex species interactions and widespread biodiversity loss at local, regional, and global scales with an emphasis on the Amazon rainforest.