

MS Thesis
Department of Environmental Science and Policy
College of Science
George Mason University

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Defense Date and Time: June 12, 2025, 10:30am

Defense Location: Exploratory Hall Room 3301, and virtually on Zoom

Title: Beating the heat: The potential role of microclimate refugia in buffering Amazonian birds from climate change

Thesis Director: Dr. David Luther

Committee: Dr. Rebecca Forkner, Dr. Jared Wolfe

ABSTRACT

Understory bird populations are declining in tropical rainforests, possibly due to increasingly hot and dry conditions. Microclimate refugia, such as riparian habitats, may buffer species by offering cooler, more humid environments. We tested this hypothesis in the central Amazon by sampling birds using mist nets, physiological measurements, and microclimate data from riparian and plateau habitats in primary and secondary forests. Riparian habitats were consistently cooler and moister, but evidence of preferential use by birds was mixed. Some insectivores and frugivores were more abundant or active there, yet body condition metrics showed no consistent benefits, suggesting limited buffering capacity against climate change.