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Preliminary Analysis of Habitat Use and Home Range Size in a Long-Lived Ectotherm Vertebrate

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Habitat loss and fragmentation have been shown to restrict movements by creating barriers of unusable matrix in a home range. Invasive species disrupt landscape structure and may impact the degree to which movement occurs, which could potentially impact genetic variability and species fitness. Research on long-lived ectothermic vertebrates may provide insight into conservation and management practices for imperiled species regarding habitat diversity, resource requirements, and population dynamics. To investigate environmental factors that influence movement patterns and habitat use, we have conducted a radio-telemetry study on Eastern Box Turtles (*Terrapene carolina*) since 2013. The study site, a 31-hectare plot in the Northeastern Piedmont region of Georgia, is composed of mixed hardwood-pine uplands, mesic and upland areas dominated by Chinese privet (*Ligustrum sinense*), beaver-created wetlands, and human maintained areas. To date, we have radio-tracked 36 turtles which we locate by homing 1-6 times per month, with an average of 60 radiolocations (range: 1 to 184) per turtle. Upon location, each turtle's microhabitat use was assessed in a 1.5-meter plot by quantifying understory vegetation and other local habitat features. Minimum convex polygons (MCPs) were used to estimate annual home ranges, which we compared to microhabitat use. Although further data collection and analysis is needed, preliminary analyses show that across multiple years there

was a negative trend present between proportion of microhabitat composed of privet and home range size (R between 0.2 and 0.7).