Gopher Tortoises Movement Patterns within Zoo Miami's Pine Rockland Ecosystem

Brianna Chin[1,2], Johnathan Iglesias[1], Dr. Steven Whitfield[2]

[1]Undergraduate student at Florida International University 11200 SW 8th St, Miami, FL 33185

[2]Conservation and Research Department, Zoo Miami, 12400 SW 152nd Street, Miami, FL 33177

Abstract

The Gopher Tortoise (*Gopherus polyphemus*) is a keystone species in ecosystems where it occurs and is native to the southeastern United States. South Florida's subtropical climate and its unique communities of flora and fauna differ from much of the range of the species – though few studies have examined tortoise biology in the southern end of the species' range. We studied movement patterns of Gopher Tortoises within a critically endangered pine rockland ecosystem surrounding Zoo Miami (Miami-Dade County). We equipped eight tortoises, six female and two males, with radio-transmitters and followed them for a period of ~1 year and used Global Positioning System (GPS) devices to mark tortoise locations, which we processed in Quantum Geographical Information System (QGIS) software. We used location data to determine each tortoise's minimum home range and overlap, weekly travel distance, and number of burrows used. Female and male tortoises used an average of 2.75 and 4 burrows, respectively. Females tended to have a larger home range (0.926-3.86 ha) but moved shorter distances (8.56-12.3 m) per week compared to the males who had a small home range (0.734 ha) yet moved, on average, 49 m per week. Information from this project will help conservation biologists and wildlife understand space use and habitat requirements for tortoises in pine rocklands ecosystems. In addition, minimum home ranges allow us to predict if the habitat can support a future increase in the species population.