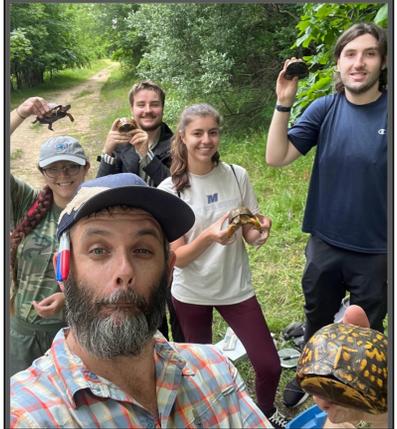


# Tracking Movement Patterns and Habitat Use of Eastern Box Turtle (*Terrapene carolina*) Populations in a Suburban Multi-Use County Park

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## Introduction

- Eastern Box Turtles (*Terrapene carolina*; hereafter EBT) are a species of special concern in New Jersey
- The study area is a multi-use suburban county park in Monmouth County, New Jersey
- Human modifications to the environment are difficult for EBT to navigate through
- Our goal is to investigate EBT spatial ecology within an environment that restricts their movement



## Methods

- An initial group of 23 EBT were found via human effort with an accompanying working scent dog
- 15g radio transmitters were affixed to the EBT, which were radio-tracked bi-weekly with locations marked with a GPS
- All incidentally found EBT had their morphology documented and locations marked with a GPS
- Home ranges were calculated using Minimum Convex Polygon estimates which create polygon areas whose borders surround interior points using angles less than 180 degrees

# Despite cramped conditions, the Eastern Box Turtle, a declining species, is thriving in suburban New Jersey with over 130 individuals identified and tracked individuals using up to 123,543.1 m<sup>2</sup>

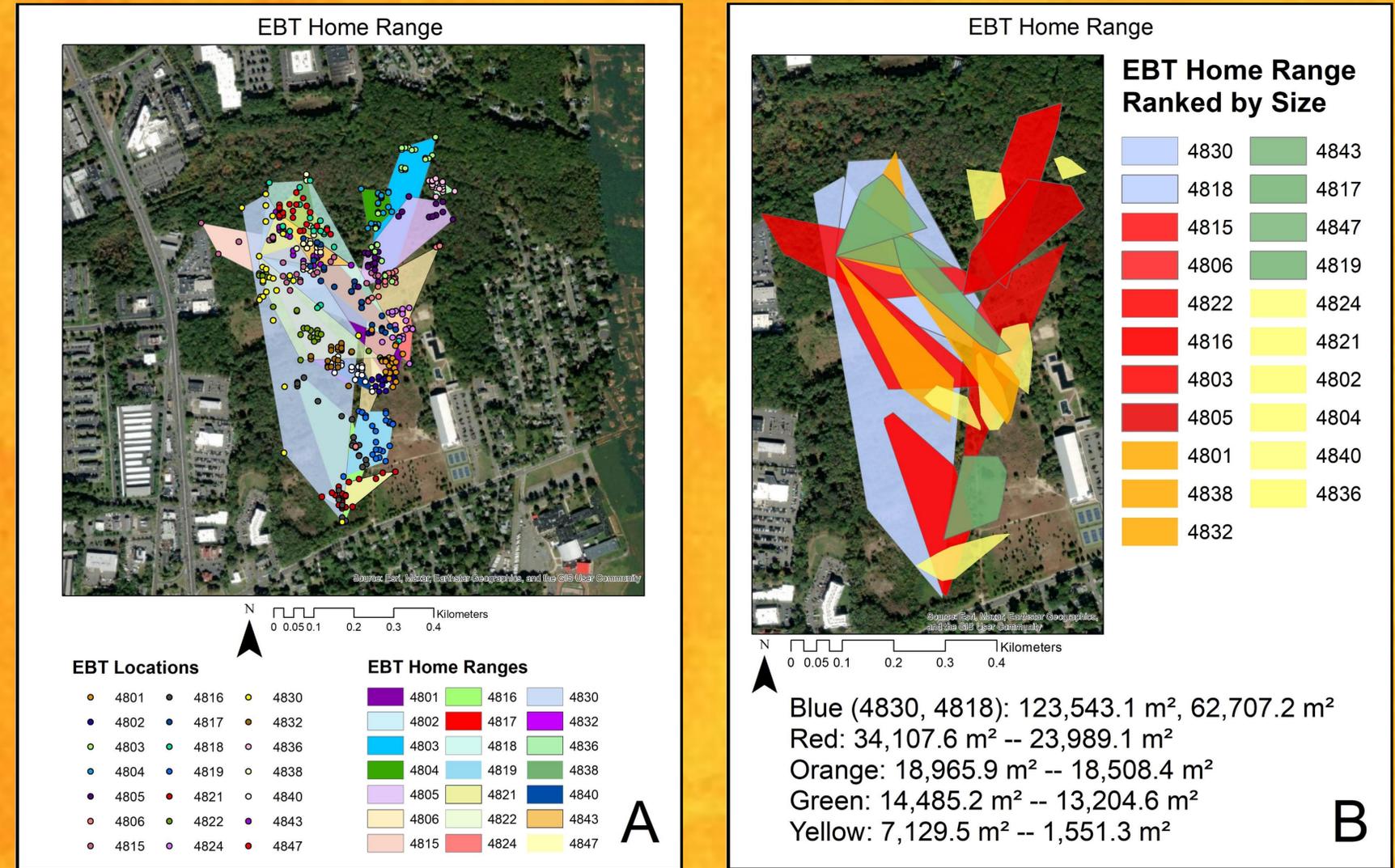


Figure 1: Radio-tracked Eastern Box Turtle GPS locations and preliminary home ranges (100% Minimum Convex Polygons) (A); and radio-tracked Eastern Box Turtle home ranges ranked by size (B) within a Monmouth County, New Jersey park.



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## Results

- Average Home Range Across Turtles: **23,888.5 m<sup>2</sup>**, Range of **122,963 m<sup>2</sup>**
- Average Home Range of Male EBT: **15,842.9 m<sup>2</sup>**, Range of **32,556.3 m<sup>2</sup>**
- Average Home Range of Female EBT: **31,202.6 m<sup>2</sup>**, Range of **119,340.9 m<sup>2</sup>**
- Largest Home Range: **4830** with **123,543.1 m<sup>2</sup>**
- Smallest Home Range: **4836** with **1,551.3 m<sup>2</sup>**
- Average Number of Locations per tracked turtle: **25.2 points**
- Total Turtles: **135**
- Tracked Turtles: **21**
- Male to Female Ratio: **63 Males / 54 Females / 16 Juveniles / 2 Unknown**
- Number of Incidentals: **115**
- Largest Max Carapace Length: **153.86 cm**; Heaviest EBT: **722.20 g**
- Smallest Max Carapace Length: **41.59 cm**; Lightest EBT: **11.9 g**



## Discussion

- The smallest home ranges are found on the East side of the park extending from North to South
- The second smallest home ranges stay in the North of the park with one outlier (4819) in the South
- The largest home ranges are found only on the West side of the park, with 4830 extending from far North to far South, and 4818 staying up North
- The female home range average is nearly double that of the male average, indicating that females may travel more than males
- EBT home range studies provide conservationists a deeper understanding of their spatial use patterns which can encourage better conservation strategies in the future