

# Seized Box Turtle Outcomes

## **NJDEP Fish and Wildlife**

Endangered and Nongame Species Program

Brian Zarate, Principal Zoologist

Jim Angley & Colin Osborn, ENSP Seasonals

## **In Coordination With:**

Bureau of Law Enforcement

Bureau of Land Management

Office of Fish and Wildlife Health and Forensics





**Turtles are a highly threatened and highly vulnerable taxonomic group.**



**Illegal collection of turtles is a true conservation crisis.**



**The Collaborative to Combat the Illegal Trade in Turtles.**



Addressing a  
Critical  
Conservation  
Threat with a  
*Call to Action*

**Amphibian & Reptile Conservation Committee**

Chair: David Golden (NJ)

Vice-Chair: Becky Gwynn (VA)

Date: March 27, 2024

Time: 3:00 pm-5:00 pm CDT

89th North American Wildlife & Natural Resources Conference














































TBD

Grand Rapids, MI





## General comparison of reproductive potential among big-game species in Ontario

Year	Snapping Turtle	Black Bear	Moose	White-tailed Deer
0				
1				
2				 
3			 	 
4			 	 
5			 	 
6		 		
17	 	  = 25	   = 681	  = 912

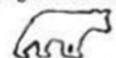
Note this chart does not take mortality into consideration.


This chart was developed by the OMNR Black Bear Technical Team in 2005 based on an original idea by George Kolenosky.

Snapping Turtle column was added by the Ontario Multi-Species Turtle Recovery Team in 2008.

Please note that up to 1400 eggs need to be laid by a snapping turtle before one offspring reaches maturity. This may not occur until year 50.

 = young of the year

 = sexually immature

 = sexually mature

Ontario Ministry of Natural Resources 2008.

# Strategic Plan

## Areas of Focus

01

Strategic Partnerships

02

Human Dimensions

03

Confiscation and Repatriation

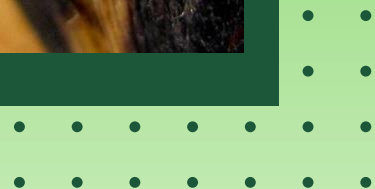
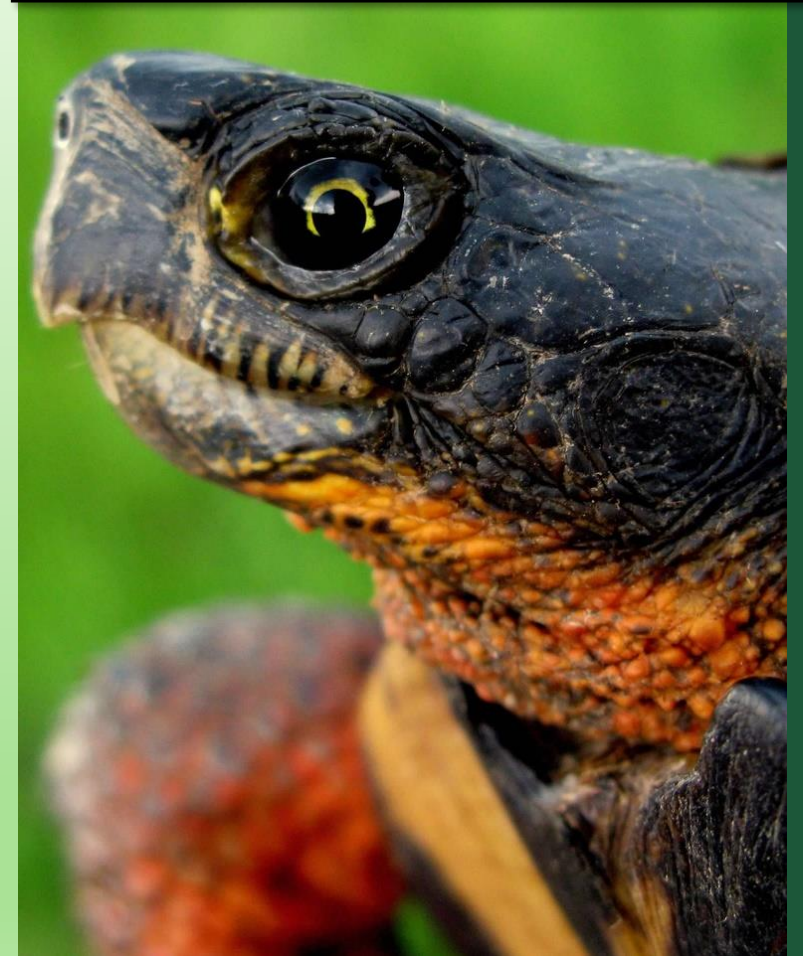
04

Model Legal Framework

05

Law Enforcement and Information  
Tools

- Feb 2024: Midwest Illegal Turtle Trade Workshop Summary
- Feb 2022: Northeast Illegal Turtle Trade Workshop Summary



# Law Enforcement and Information Tools

## Goal Summary

Provide Law Enforcement professionals with information and tools to understand the illegal turtle trade and utilize existing resources, laws, and regulations.

## Example Objectives

- Develop and provide law enforcement with interdisciplinary tools and resources.
- Increase intelligence, information sharing, networking, and training related to turtle trafficking.
- Understand how wildlife trafficking overlaps with other criminal activities (crime convergence) and how it may be applicable to turtle trafficking.

# Confiscation and Repatriation

## Goal Summary

Build capacity and secure dedicated resources to accommodate confiscation and repatriation or permanent placement of turtles

## Example Objectives

- Develop a network of dedicated facilities with sufficient resources to care for confiscated turtles.
- Explore the feasibility of establishing an information sharing network to facilitate data collection, data sharing, and resource sharing in confiscation and repatriation efforts



# Project Goals and Objectives:

Protocols, Procedures, and Decisions for managing seized turtles, determining conservation outcomes, and investigating the release of seized turtles.

# Seized Eastern Box Turtles

- Location A

- 36 Box Turtles – Summer 2023
- 2 Box Turtles – Fall 2023
- 3 Box Turtles - Various

- Location B

- 54 Box Turtles – Various
- ~ 100 Box Turtles - LAX

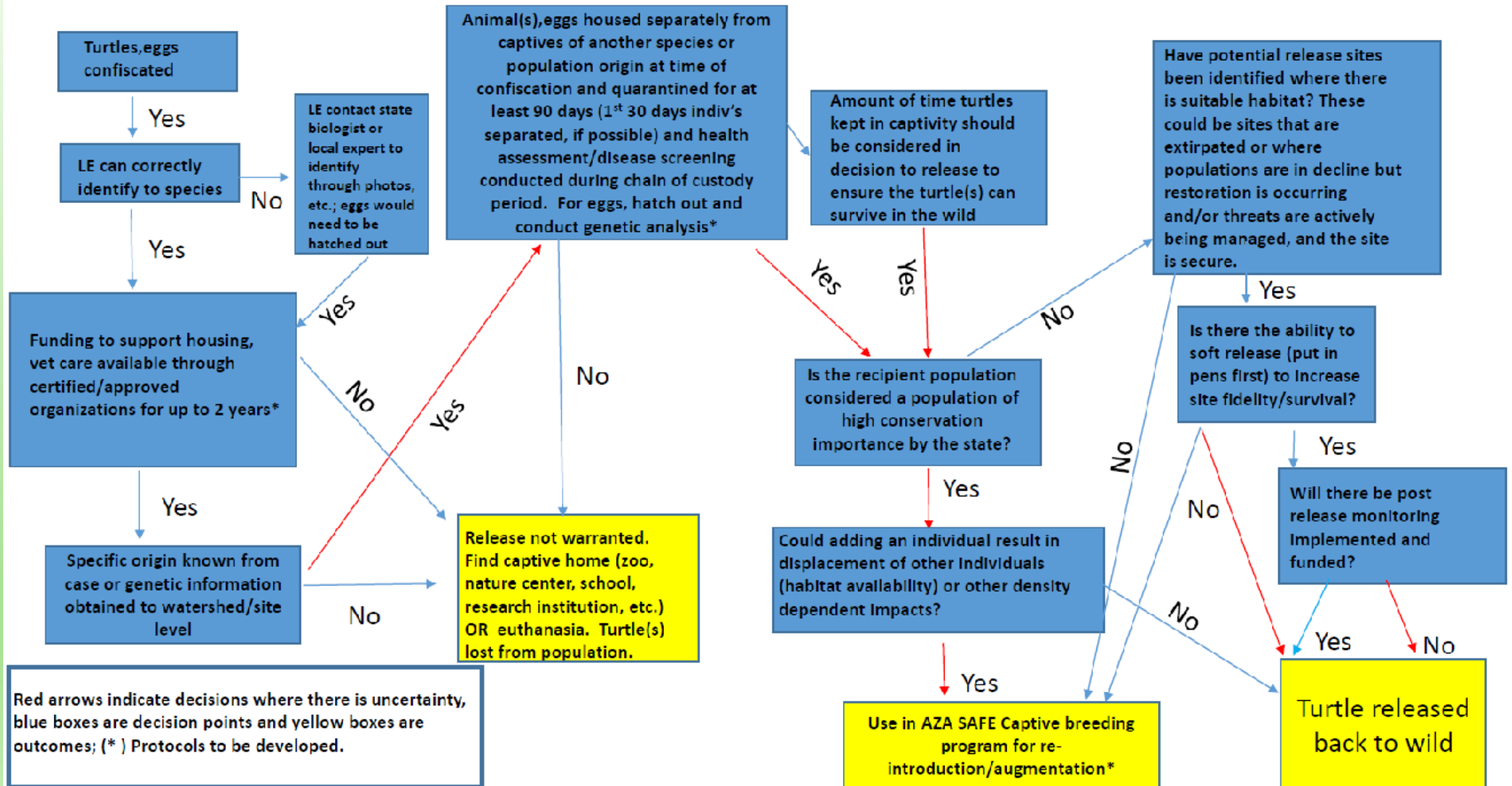


72 Turtles Being Considered for Release on August 5

History of turtles may be significant factor in release outcome, short and long-term!

Few(er) studies on release of seized box turtles.

# It's Complicated



# Release Considerations

- Health and Condition
  - Survivorship Estimate: Diet, mobility, safety
  - Health Assessments: Herpesvirus, Mycoplasma, Adenovirus, Ranavirus\*
- Genetics
  - Origin, “Ownership”
- Release Location
  - Proximity for Monitoring, Habitats, Current Management, Extant Population
- Monitoring
  - Soft/Hard Release, Objectives
- Adaptive Response
  - Turtles Moving, Health Concerns

# Health and Condition

- Survivorship Estimate: Diet, mobility, predator defense
- Health Assessments: Herpesvirus, Mycoplasma, Adenovirus, Ranavirus\*

Eastern box turtle	R23-923	F	418	223	Severe Deformities



# Health and Condition

- Survivorship Estimate: Diet, mobility, safety
- Health Assessments: Herpesvirus, Mycoplasma, Adenovirus, Ranavirus\*
  - AZA SAFE American Turtle: Program Plan, USFWS CSWG
  - Serial Sampling: Summer 2023, Spring 2024, Fall 2024 – into 2025 funding dependent

Species	Sample	Herpesvirus PCR Result	Adenovirus PCR Result	Mycoplasma PCR Result	Ranavirus qPCR Result
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Mycoplasma sp., identical to previously reported from Emydids (Palmer et al, 2016)	Negative
Eastern Box Turtle	Oral/Cloacal Swab 6/30/2023	Negative	Negative	Negative	Negative

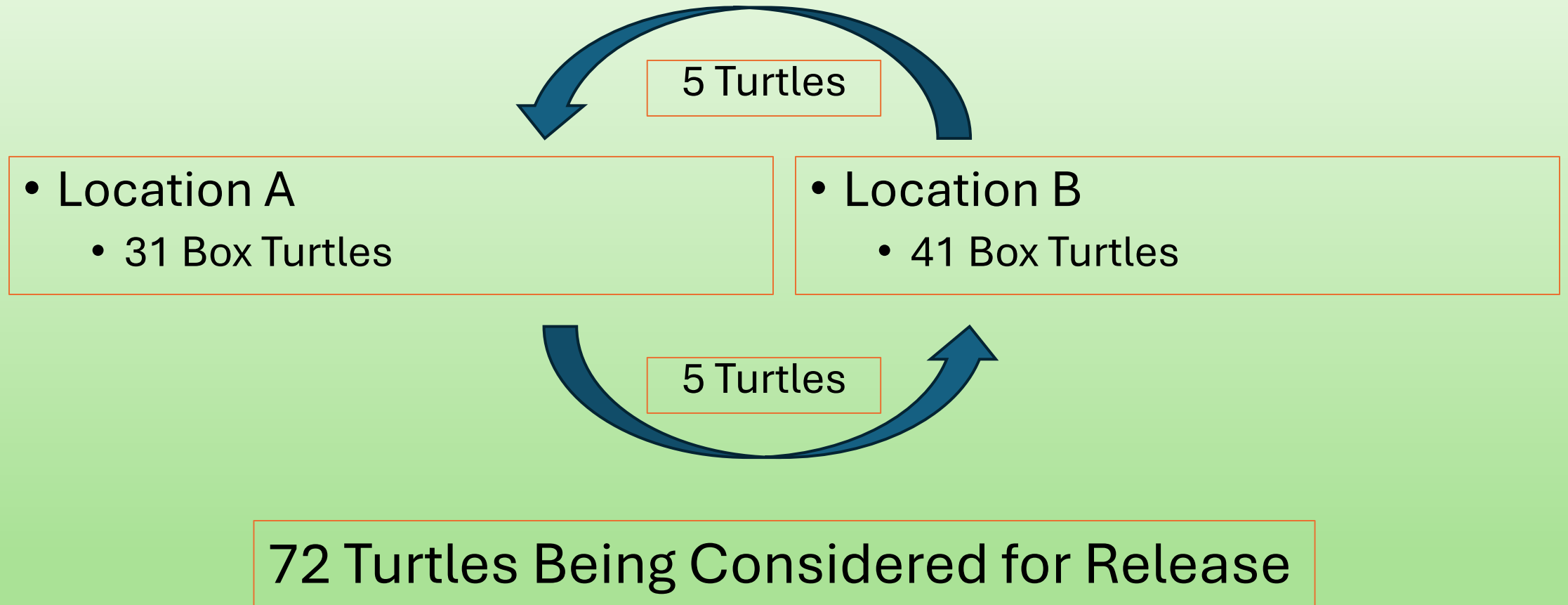


**ZOOLOGICAL MEDICINE  
DIAGNOSTIC LABORATORY**

**COLLEGE OF VETERINARY MEDICINE  
UNIVERSITY OF FLORIDA**

April Childress, Manager   Robert "Oz" Ossiboff, DVM, PhD, DACVP, co-director   James F.X. Wellehan, Jr. DVM, PhD, DACZM, DACVM, co-director

# Health and Condition



# Release Considerations

- Genetics

- “The lack of genetic differentiation may be from habitat that was once nearly contiguous across the Eastern US which caused Eastern Box Turtles to act like a single population, or may be because Box Turtles have been moved by humans for ceremonial, nutritional, and now husbandry purposes (Gillreath-Brown and Peres 2018). Regardless, our results indicate that, even from MA to VA, Eastern Box Turtles are remarkably genetically similar.... Given the low overall differentiation, this is not a failure of the methods, but instead an indication that there is little historical population structure across wide areas of the Eastern US in this species. Adding healthy confiscated individuals back into suitable areas may help bolster a population, will not likely disrupt historical population structure, and is unlikely to lead to outbreeding (Frankham et al. 2011; Bell et al. 2019; Fitzpatrick et al. 2023).”

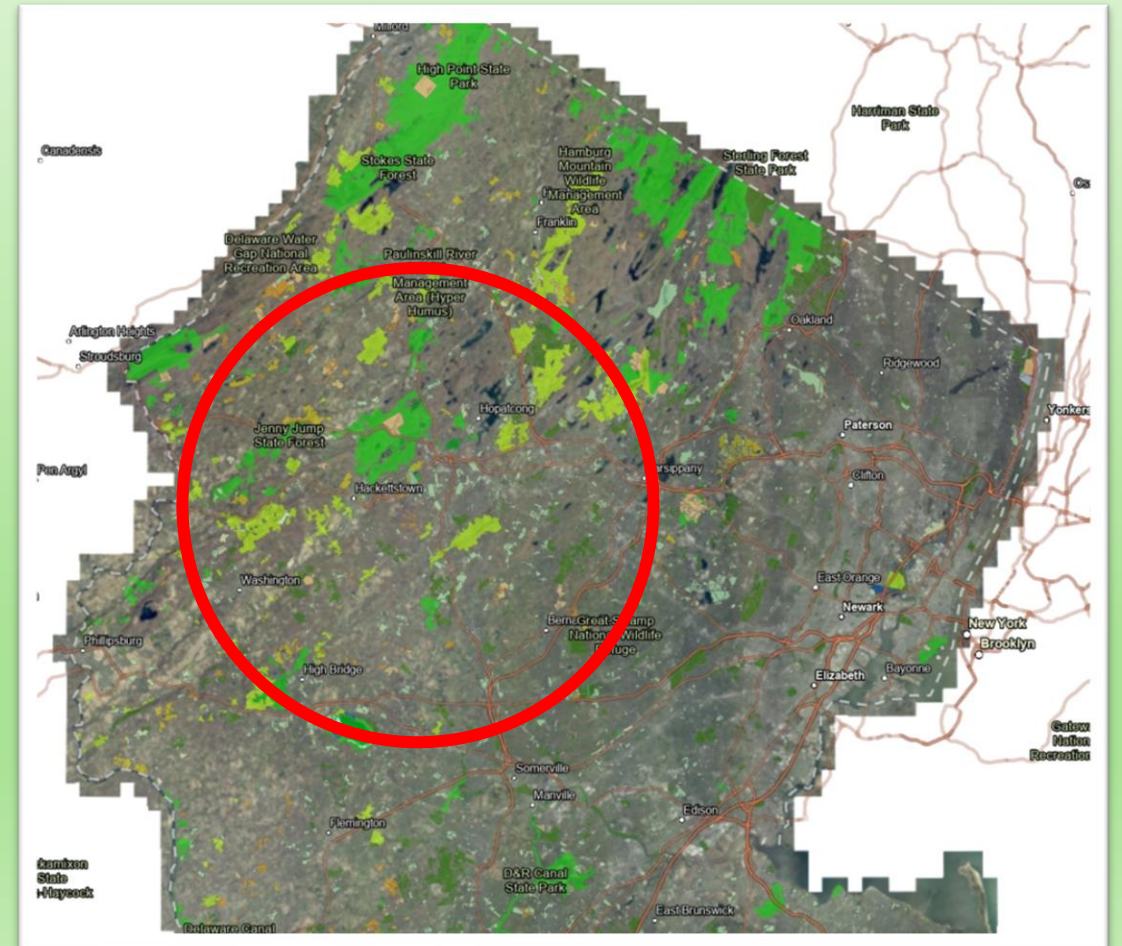
Identifying Confiscated Box Turtles Using Next Generation Genomic Sequencing, June 2023, Report prepared by:  
Alexander Krohn Ph.D and JJ Apodaca Ph.D., Tangled Bank Conservation

# Release Considerations

- Release Location

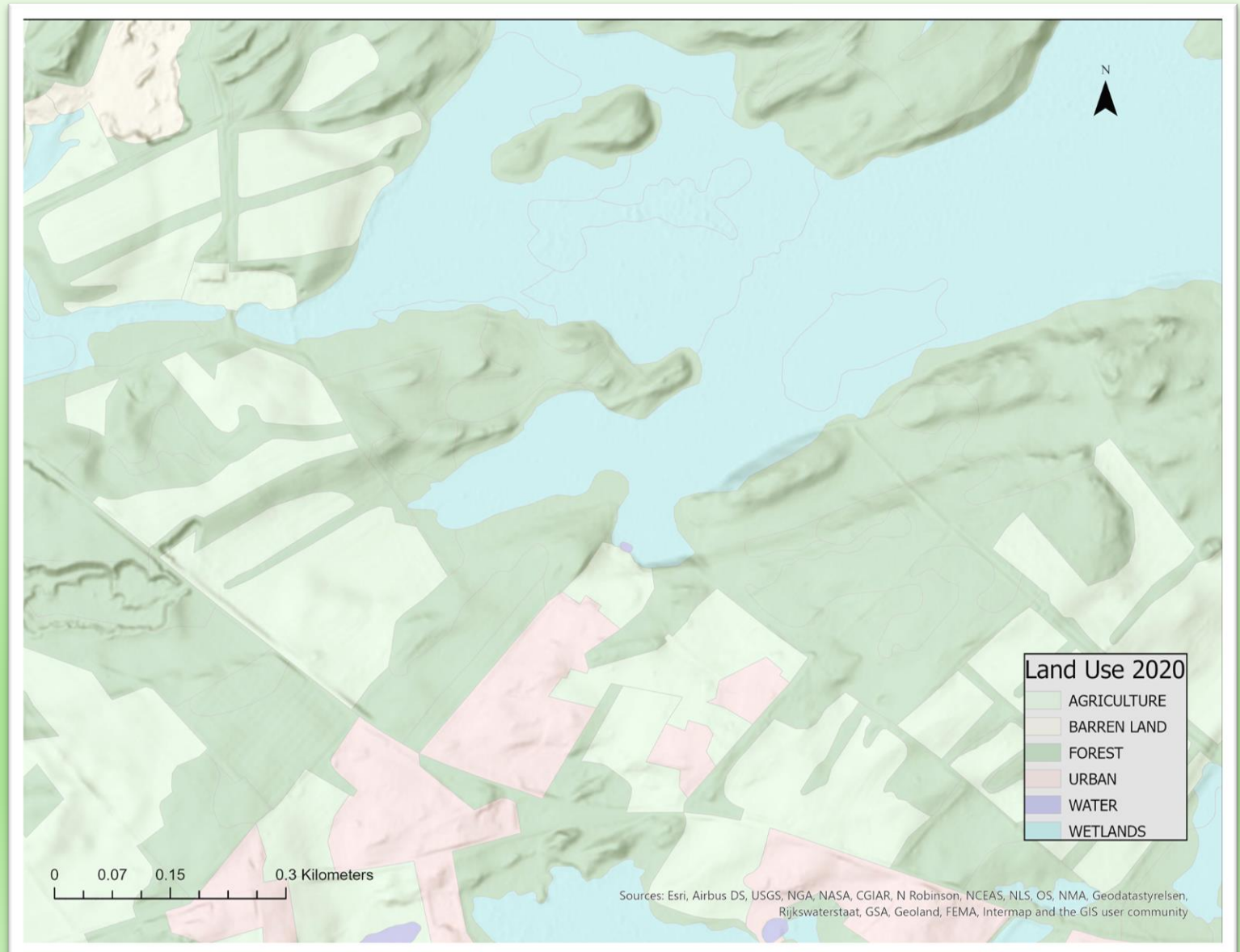
- Proximity for Monitoring, Habitats, Current Management, Extant Population

- ~ 1-hour drive time or less
    - Preserved land, large, distance from urban
      - 360,000+ acres of WMA
    - Forest cover, Wetlands (open and closed), Early successional fields
      - Monocrop, hay, pollinator, etc.
    - What do we know, what can we learn about existing population?



# Release Considerations

- Release Location
  - State WMA
  - > 700 hectares
  - Habitat diversity
- Box Turtle Life History
  - Home Range Size
    - ~ 3 hectares (7.4 acres)
    - Highly variable
  - Density
    - <1 – 6 turtles/ha
    - NJ Example (unique)
      - 70-hectare property
      - 300 turtles
      - ~ 4 turtles/ha



# Release Considerations

- Release Location
  - What is the current or future management of lands turtles may encounter? ———> Coordination with Bureau of Land Management



# Release Considerations

- Release Location
  - Extant Population: What do we know, what can we learn about existing population?
    - No current records in Biotics
    - Feature Area Surveys:
      - May 1, May 15, May 16, June 7
        - No turtles detected
  - Population Augmentation

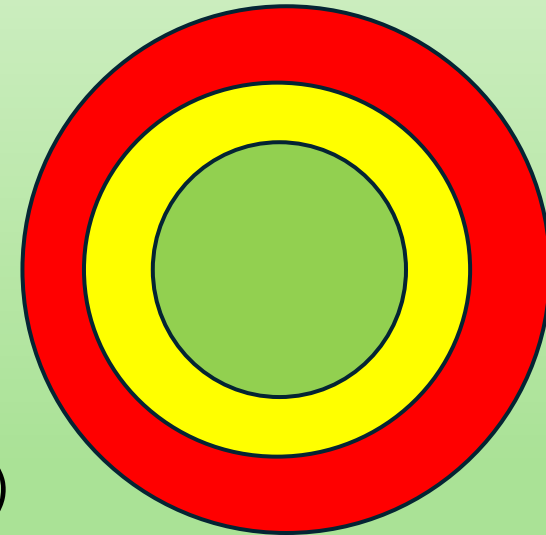


(Predated) Box Turtle Nest Found July 29



# Release Considerations

- Monitoring: Soft/Hard Release, Objectives
  - Hard Release – August 5 and 26, 2024
  - All turtles will be radiotracked until ~ April/May 2026
    - Released and wild-encountered
  - Tracking daily (~ first 2-4 weeks+), then weekly (or so)
  - Objectives:
    - Released turtles integrate into existing population
      - Reproductive monitoring
    - “Acceptable” survivorship of released and resident turtles
    - Settling time of released turtles
- Adaptive Response: Turtles Moving, Health Concerns
  - Red-zone relocations (roads, private lands, inaccessible habitats)
- Ongoing health assessments of released and residents
  - October 7-9



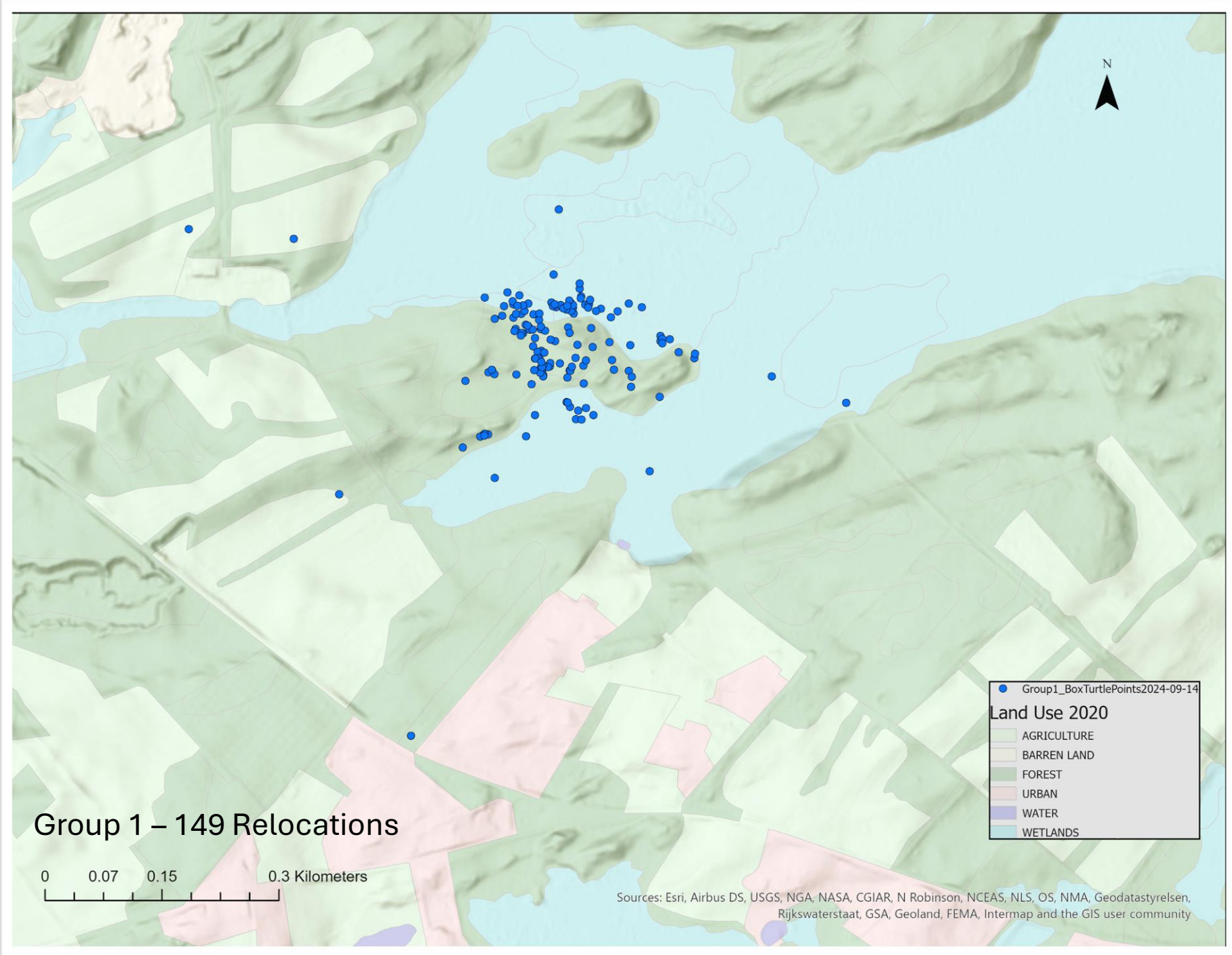
## 68 Turtles Released

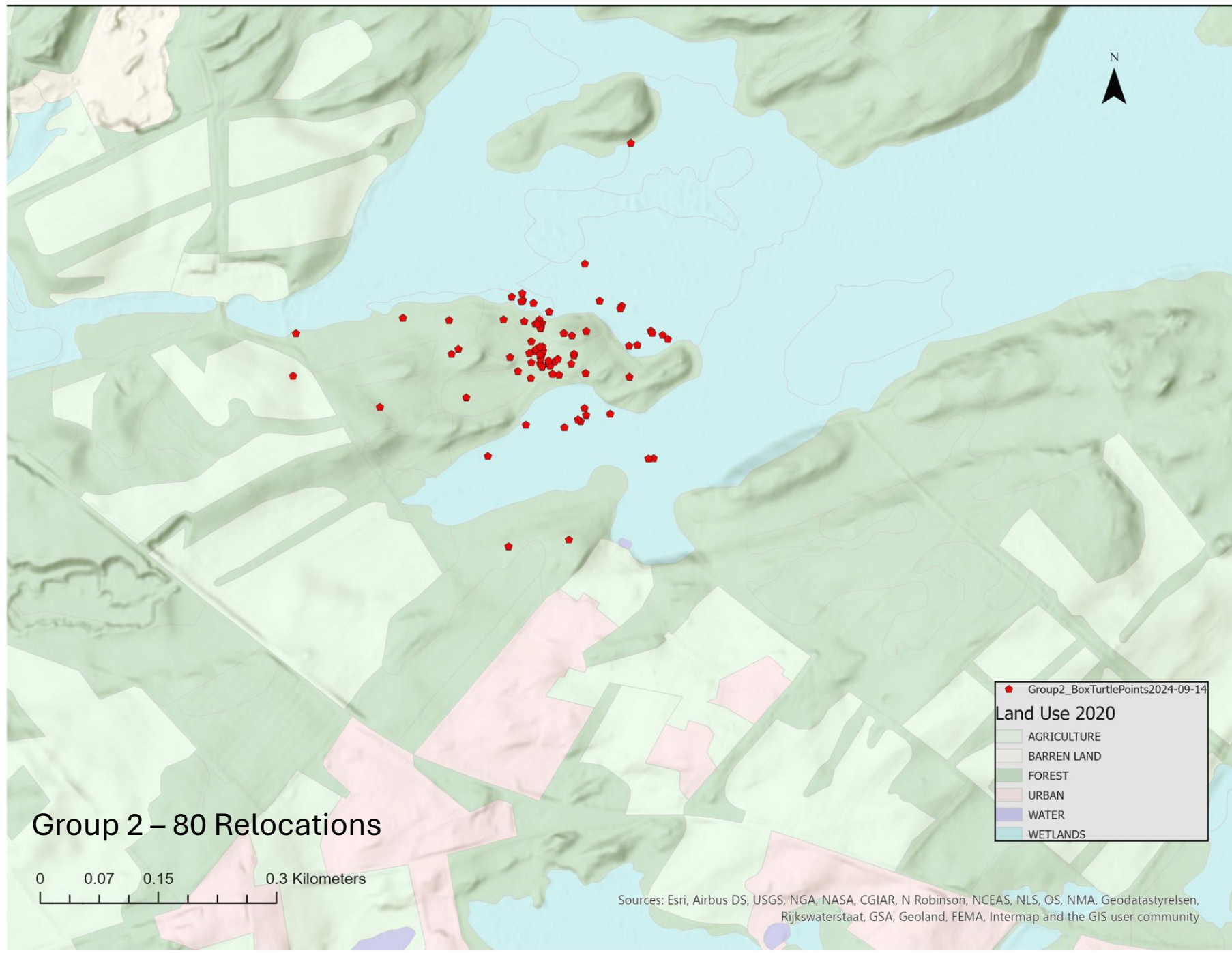
- Group 1 – August 5 (30 turtles)
- Group 2 – August 26 (38 turtles)
- 65 Active as of Sept. 20
  - 1 potential transmitter failure
  - 2 dead turtles (Sept. 5)
    - Unknown COD



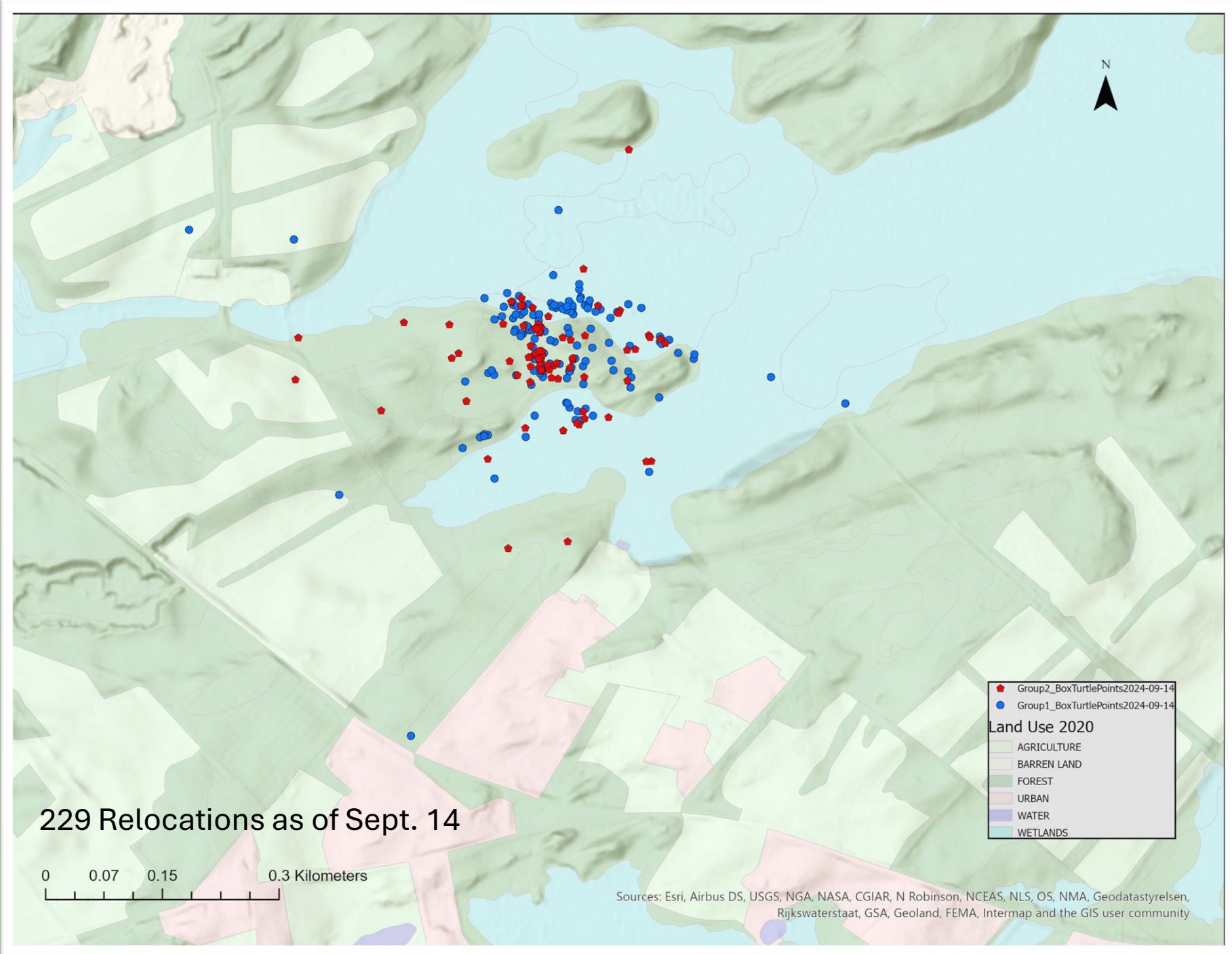


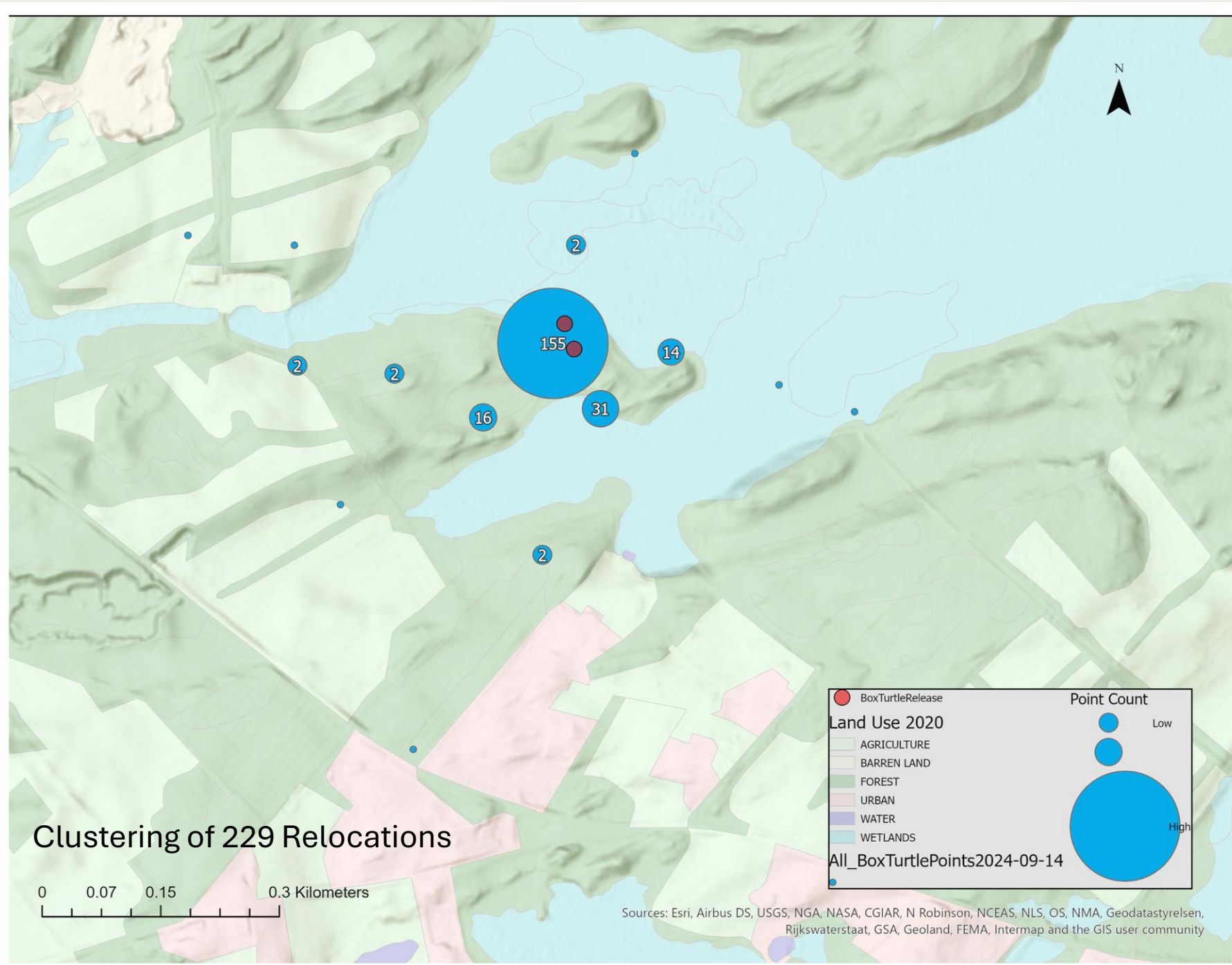




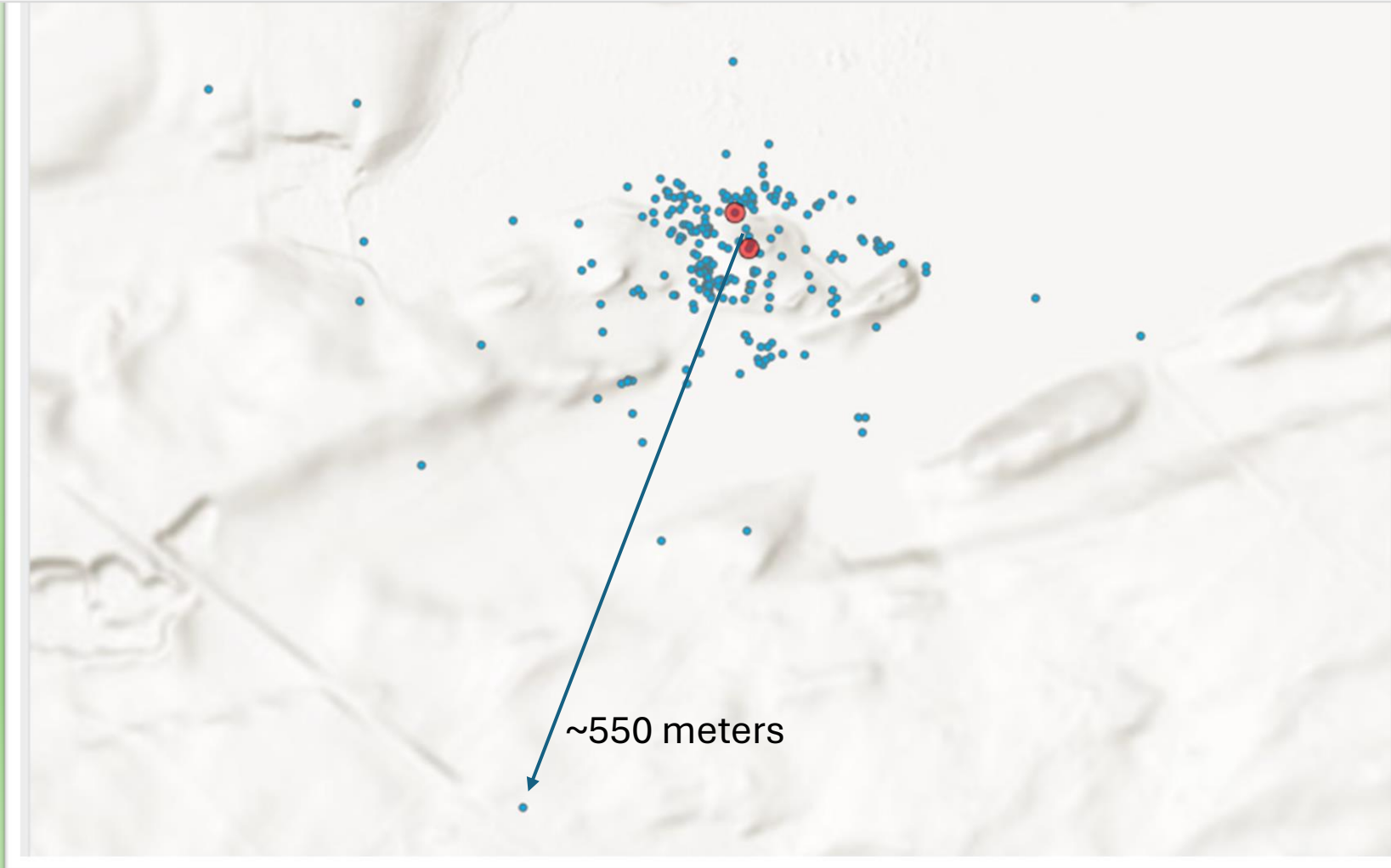


Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community





- Three turtles “reset” due to their proximity to roads or private parcels.
- Four-Five turtles reset due to their interests in highly inaccessible habitats for monitoring (although still on protected land).
  - Some individuals have required multiple resets.
- No resetting beginning in 2025 if otherwise still on protected land, will reduce tracking frequency.





# Acknowledgements

- Surveyors
- Dave Collins (AZA/Turtle Survival Alliance)
  - Funding
- Philadelphia Zoo
  - Veterinarian Staff
- Woodlands Wildlife Refuge
- Turtle Conservancy
- PARC CCITT

