



Summary

My goal was to assess Blanding's turtle movement patterns throughout wetland complexes at Nahant Marsh to support future conservation strategies and management efforts. Six Blanding's turtles were successfully tracked across Nahant Marsh properties and surrounding areas. Five Blanding's turtles were monitored using radio telemetry and one Blanding's turtle was tracked using a solar GPS logger.

Introduction & Objectives

Blanding's turtles are semi-aquatic turtles that inhabit shallow wetland ecosystems. Nahant Marsh provides a suitable habitat for Blanding's turtles, with at least 9 individuals currently tracked with transmitters and a documented history of at least 15 individuals. Although the habitat is suitable, the Blanding's turtles face numerous threats, contributing to their status as a threatened species in Iowa. These threats include nest depredation, habitat fragmentation, road mortality, climate change, and low hatchling and juvenile survival rates. Due to their long lifespan and delayed sexual maturity (14-20 years), understanding factors that influence population stability is critical. This project investigated Blanding's turtle movement behavior and travel patterns at Nahant Marsh to support future research, conservation strategies, and management efforts.

Methodology

Initially, Blanding's turtles are captured by baited turtle traps and then fitted with a transmitter attached to their rear scutes before being released. Individuals were located at least twice weekly from May 28th to July 15th using radio telemetry equipment, including a Wildlife Materials Inc. TRX-48S receiver, SOPR-2380 transmitters, and a directional antenna. Location data were collected through signal triangulation or direct capture coordinates. At Nahant Marsh, these turtles have been monitored at many of its properties and surrounding areas, including Nahant Marsh, Conservation Reserve Program 1 & 2 (CRP 1 & 2), Blandings Marsh, Beaver Complex, Carp Lake, the East Trail, and every area in between. The data collected on captured Blanding's turtles include exact location, carapace and plastron length, and whether the females were gravid or not. Turtle 2400 was additionally fitted with an ATS L20 Solar-Cell Tracker, allowing researchers to remotely access precise location coordinates through an online platform. The GPS logger uses a solar panel for charging and a conductivity sensor to conserve battery life by reducing GPS activity when submerged. All spatial data were analyzed and mapped using QGIS.

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Results

Of the eight Blanding's turtles equipped with transmitters, five were successfully located, including two females and three males. One female and two males could not be located, and no Blanding's turtles were captured during live trapping efforts.

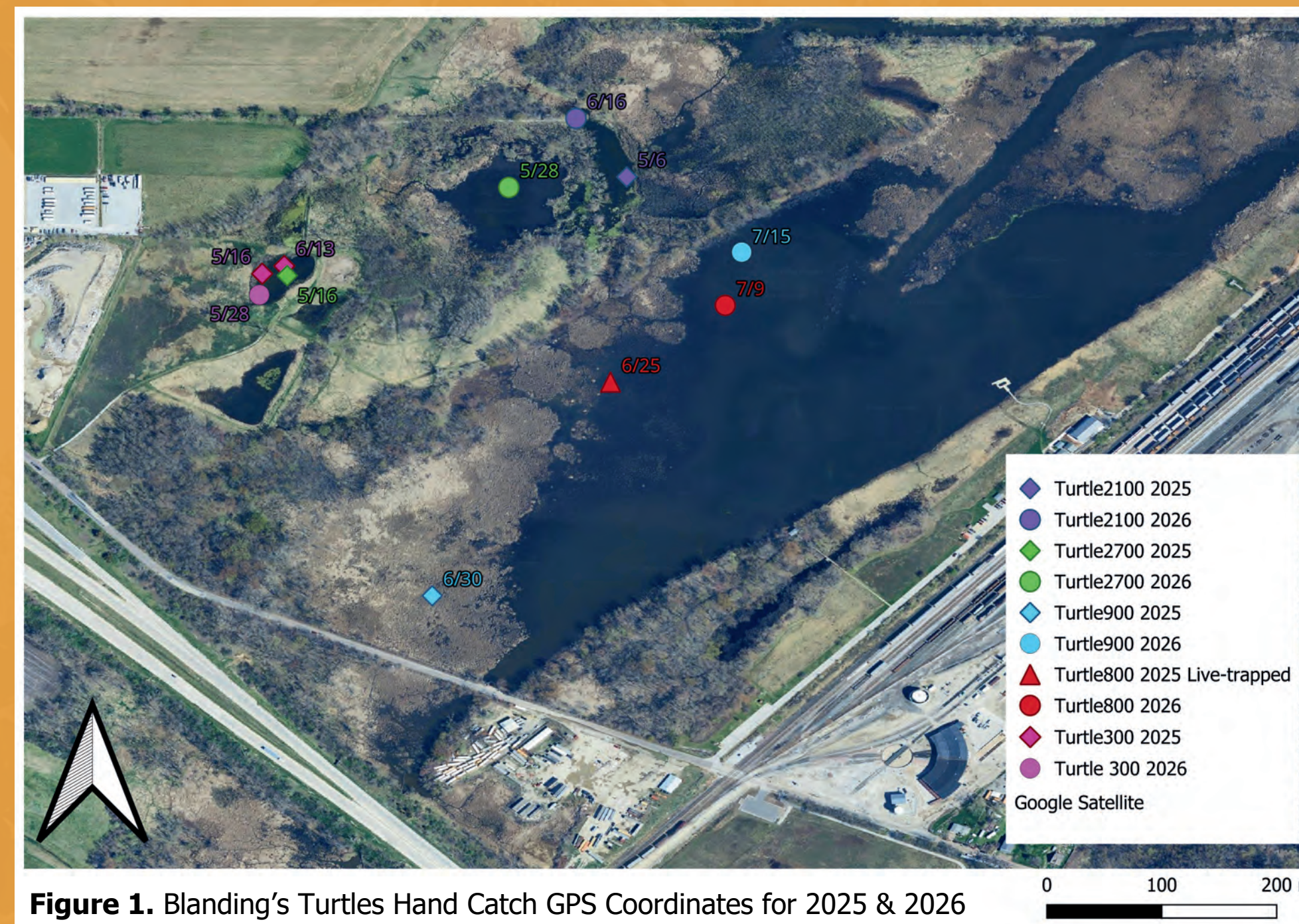


Figure 1. Blanding's Turtles Hand Catch GPS Coordinates for 2025 & 2026

Hand-capture locations (Fig. 1) showed consistent use of certain areas across the last two years focused on May, June, and July. This map is more exact than Figure 3 because the coordinates are the exact GPS coordinates (besides two that are estimated based on description of location). The movement patterns from May, June, and July of 2026 (Fig. 3) revealed differences among individuals. Turtle 300 traveled between CRP1 and CRP2, while Turtle 2700 primarily traveled on the northside of Nahant Marsh properties, specifically the Beaver Complex, CRP1, and Blandings Marsh. Both turtles were females and showed limited movement into the main marsh, whereas male turtles appeared to use the main marsh more frequently. An overall takeaway can be the fact that the turtles follow similar movement patterns through May, June, and July of this year and possibly last year which can be beneficial for tracking them.

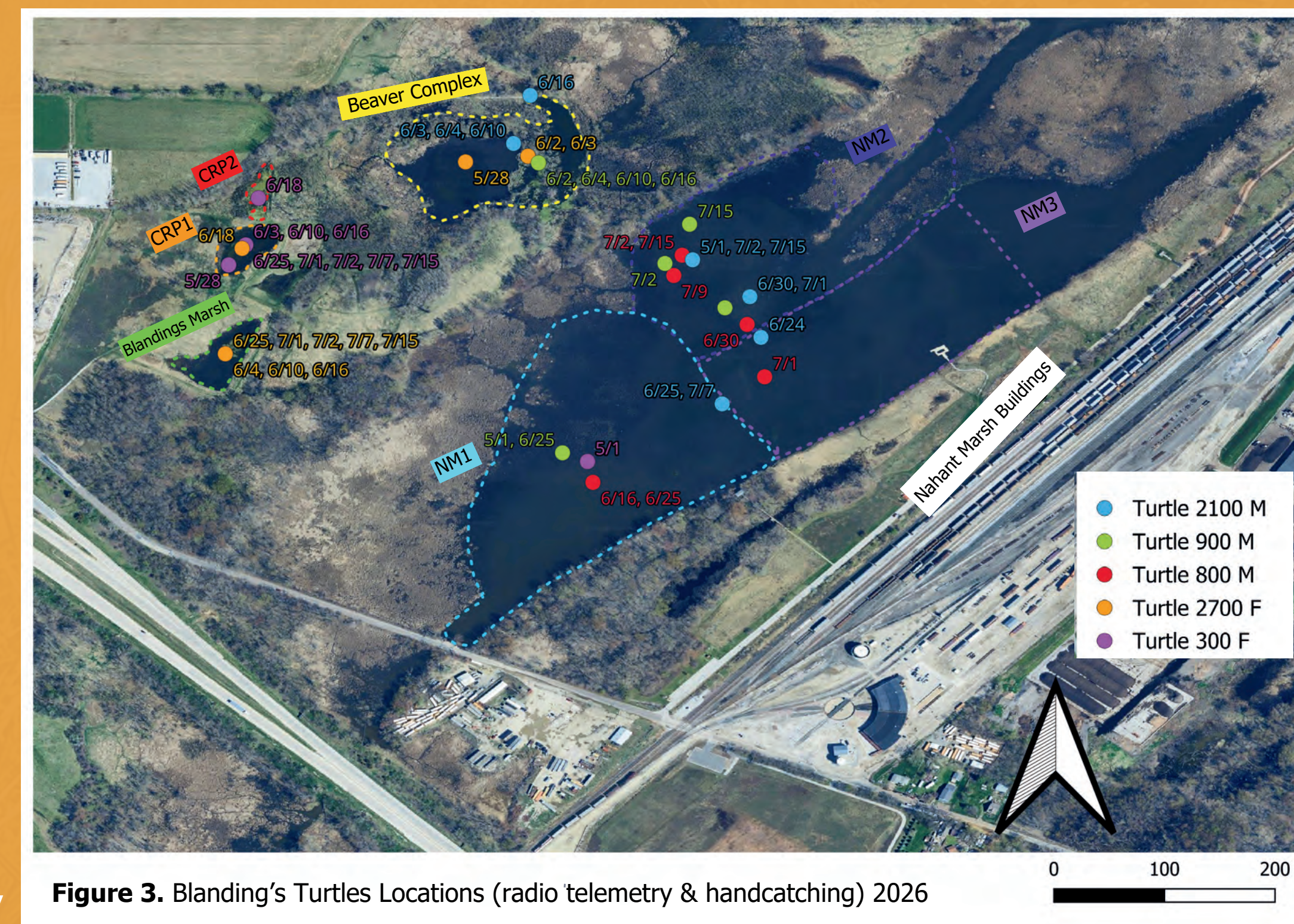


Figure 3. Blanding's Turtles Locations (radio telemetry & handcatching) 2026

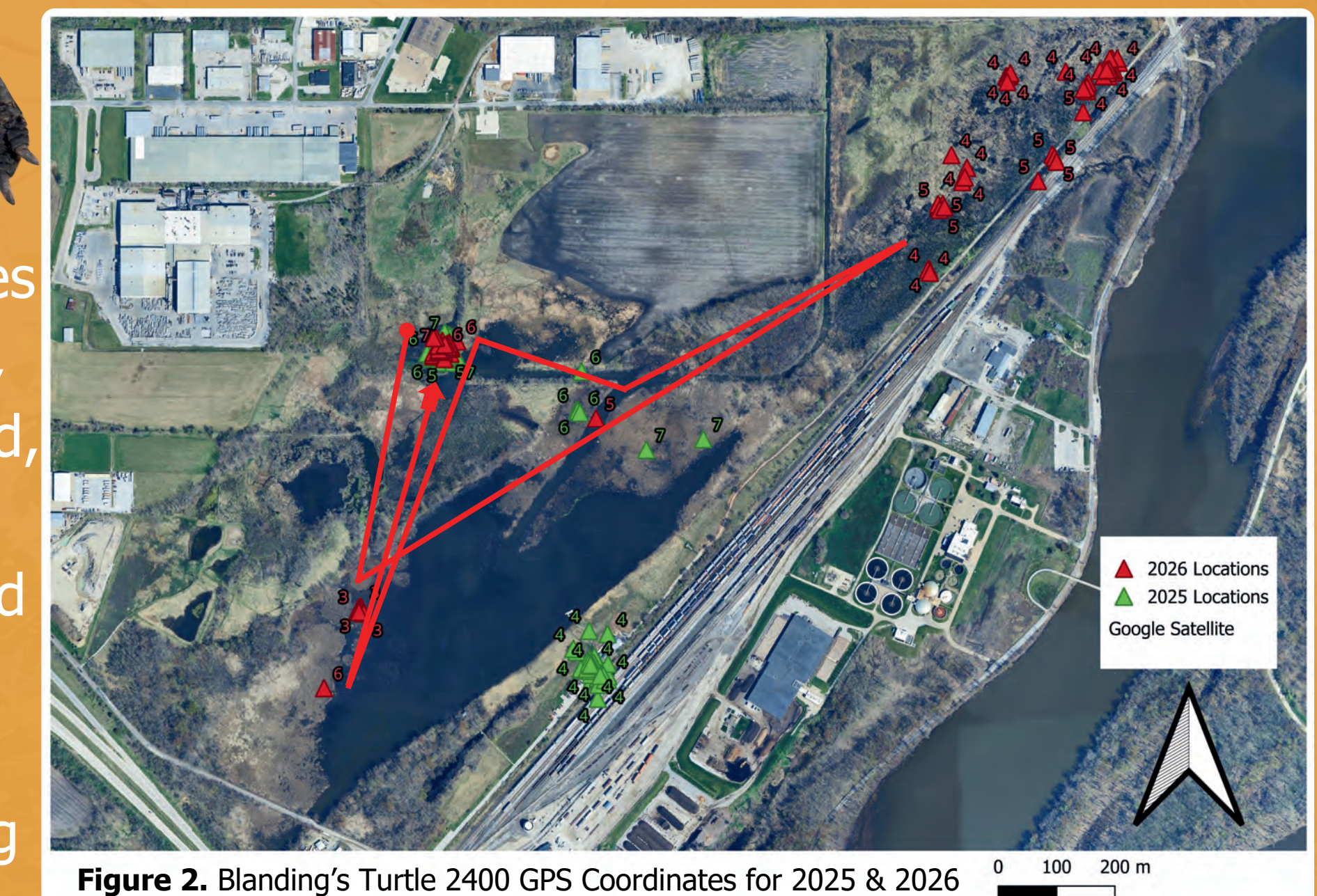


Figure 2. Blanding's Turtle 2400 GPS Coordinates for 2025 & 2026

Turtle 2400's GPS data (Fig. 2) revealed movement from 4/22/25 to 7/11/26, including a newly recorded location in the upper right portion of the map. This could be due to the flooding in spring this year. Also, last year in April this turtle was brought to the building. Fewer GPS fixes were recorded during colder months due to reduced activity during hibernation and sensor limitations under low-light conditions. The arrow shows how this turtle moved to each area based on days of the month.

Conclusion

These findings and movement maps provide valuable information for future Blanding's turtle research at Nahant Marsh. Understanding movement patterns across wetland complexes can assist Nahant Marsh in identifying important habitat areas. It reveals the Blanding's turtles travel and use a wide range of the habitat at Nahant Marsh and possibly the surrounding industrialized areas, which could cause difficulties in protecting the species. Future studies can build upon these results to investigate additional movement patterns and even long-term population trends. Since protecting Blanding's turtles remains a primary conservation goal, this research may help locate and protect nesting areas, support habitat preservation, and inform continued conservation strategies.

