

The Friends of Nachusa Grasslands 2021 Scientific Research Project Grant Report

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2021 grant amount: \$4,750

Research Project Topic: We seek to develop and implement management strategies for the Blanding's Turtle, an Illinois endangered species, at Nachusa Grasslands and elsewhere in north-central Illinois. Blanding's Turtle management at Nachusa Grasslands focuses on determining the number and location of adults and enhancing juvenile recruitment using nest cages and head-starting. This work is being conducted in parallel with similar efforts at Richardson Wildlife Foundation and at other sites in northern Illinois.

Research Project Purpose: The goals for our 2021 grant were to:

- (1) Conduct 14 days of intensive trapping for Blanding's Turtles on TNC and adjacent property
- (2) Track adult females to their nest sites and collect eggs for head-starting and release in 2022
- (3) Release and track head-starts produced from eggs collected in 2020 to obtain data on survival, movements, and habitat use

Research Project Outcomes to date:

- (1) A total of 33 traps were deployed for a total of 258 trap days across three sites, Tellabs Savannah, Hay Road (property owned by the Meiners family), and the newly acquired pond on Clear Creak (adjacent to S. Carthage Rd.). This resulted in 163 turtle captures (157 trap captures and 6 hand captures), including 140 painted turtle captures, 16 snapping turtle captures and 7 Blanding's turtle captures. Blanding's turtle captures all occurred at Tellabs Savannah and included three individual adult females, all of which had been marked and equipped with radio transmitters in previous years.
- (2) Four of five transmitter-equipped adult females were captured and transported by TNC employees to Willowbrook Wildlife Center where they were induced to lay eggs. Females were released in their home wetlands at Nachusa; eggs were incubated at Willowbrook ($n = 35$), and hatchlings ($n = 25$) were transported to the Lake County Forest Preserve turtle facility for rearing.
- (3) Head-started turtles, including Nachusa and Richardson hatchlings from 2020, were equipped with radio transmitters and released in June 2022 (23 at each site). The fate of these turtles, along with six other Nachusa juveniles (hatchlings and head-starts released in 2018 and 2020), will be monitored over the next year.

Describe how the grant funds you have received from the Friends of Nachusa Grasslands have been used in regard to the above topic, purpose, and/or outcomes:

| | |
|------------------------------------|-----------|
| D. Mauger – 14 days of trapping | \$3250.00 |
| J. Fliginger – trapping assistance | \$1365.00 |
| R. King – mileage reimbursement | \$ 135.00 |
| total | \$4750.00 |

Describe how your project has benefited the work and goals of Nachusa Grasslands:

- Determination of the timing and location (habitat) of key Blanding's turtle life-history events (active season, nesting, hatching, overwintering)
- Collection of eggs, release of head-starts, assessment of Blanding's turtle head-start survival
- Contributions to regional and state-wide Blanding's Turtle management efforts

Describe how your findings can be applied to challenges in management practices for restoration effectiveness and species of concern:

- This project has identified areas where encroachment by woody vegetation may reduce habitat quality for Blanding's turtles, areas where care should be exercised in the application of management practices to avoid negative impacts on Blanding's turtles, and areas adjacent to Nachusa Grasslands that are utilized by Blanding's turtles.
- This project has identified predation as a major risk factor to eggs, hatchlings, and head-started Blanding's turtles, resulting in modification to head-starting tactics (by delaying releases planned for 2021 until 2022) and suggesting the need for predator monitoring and possible management.

Please list presentations/posters you have given on your research:

Survival of Head-Started Blanding's Turtles at Multiple Restored Sites in Northern Illinois. C Golba, G Glowacki, RB King, W Graser, B Towey, E Bach. Midwest Fish and Wildlife Conference, Minneapolis, MN, February, 2021.

Blanding's Turtle Recovery Strategies, Progress, and Goals. RB King. Friends of Nachusa Grasslands Science Symposium, April 2021.

Have you submitted manuscripts to scientific journals? If so, which ones? If not, do you anticipate doing so?

Golba CK, King RB, Glowacki G. 2022. Growth and survival of wild and head-started Blanding's turtles (*Emydoidea blandingii*). Ichthyology and Herpetology: in press.

King, RB. 2022. Resiliency, redundancy, and representation of Blanding's turtles in Illinois. Manuscript currently under review by members of the Illinois Blanding's Turtle Recovery Team and Illinois Department of Natural Resources staff in anticipation of submission to a scientific journal.

King RB, Golba CK, Glowacki G, Kuhns AR. 2021. Blanding's turtle demography and population viability. Journal of Fish and Wildlife Management 12:112–138. <https://doi.org/10.3996/JFWM-20-063>

Kastle M, Kapfer J, Kuhns AR, Graser W, Glowacki G, Ibach A, Mitchem, L, Mozuch J, Rudolph N, Rutzen K, King R. 2021. Blanding's turtle hatchling survival and movements following natural vs. artificial hibernation. *Journal of Herpetology* 55:167-173.

What follow-up research work related to this project do you anticipate (if any)?

- NIU researchers continue to monitor head-start survival at sites in Lake, Kane DuPage, and Lee County.
- Researchers from SIU, under the direction of Dr. Clay Nielsen, initiated predator monitoring at northern Illinois Blanding's turtle sites in spring 2022. This work is coupled with raccoon removal at a number of these sites.
- Drainage tile removal at Tellabs Savanna in late-fall 2021 resulted in an increase wetland habitat in spring 2022.