Friends of Nachusa Grasslands
2020 Scientific Research Project Grant Report

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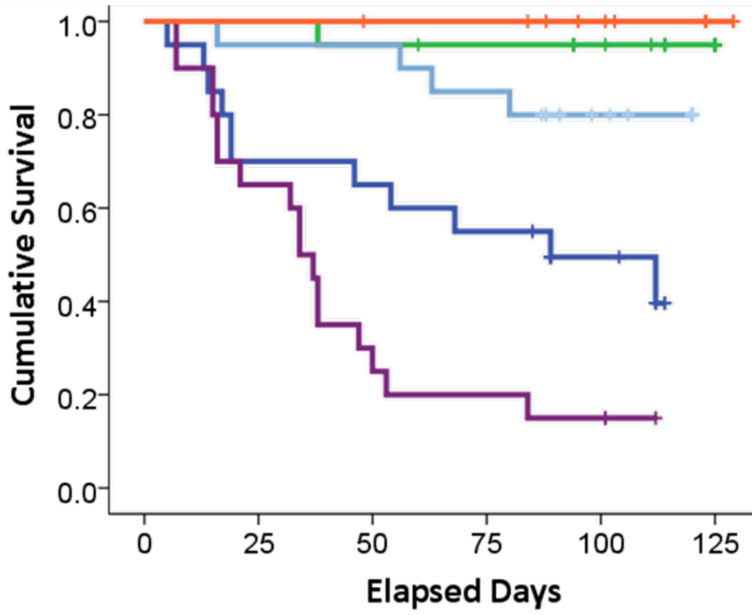
2020 grant amount: $6,884

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 entered a new phase in 2020 with the release of 37 head-started turtles. 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 2020 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 future release
(3) Release and track head-starts produced from eggs collected in 2019 to obtain data on survival, movements, and habitat use

Research Project Outcomes to date:
(1) Trapping during May 2020 on TNC property and property owned by J. and S. Meiners resulted in the capture of two new adults, one male and one female. A total of 15 Blanding's Turtles have been captured through trapping efforts since 2014. Included among these are two juveniles, four adult males and 11 adult females; 13 reside on TNC and adjacent property within the Franklin Creek corridor; two reside on property owned by J. and S. Meiners within the Clear Creek drainage. Three Blanding's Turtles are known to have died, a juvenile in 2018 and two adult females in 2019.
(2) Two of five transmitter-equipped adult females were successful tracked to their nest sites in 2020 and eggs (n = 17) were collected for head-starting. Other females were on private land and unavailable for tracking or nested undetected despite checks every evening from 1-15 June 2020. Eggs were transported to Willowbrook Wildlife Center where they were incubated, resulting in 11 hatchlings (another 15 hatchlings were produced from a eggs collected at Richardson Wildlife Foundation). Hatchlings are being reared at the turtle facility run by the Lake County Forest Preserve District. Given high mortality among head-starts released in 2020 (next section), releases of these hatchlings has been postponed until 2022 to allow for additional growth and increased survival potential.
(3) Thirty-seven head-started Blanding's turtles were released at Nachusa Grasslands (29 on TNC property and 8 on J. and S. Meiners property). Twenty of these turtles

were equipped with radio transmitters (10 at Tellabs and 10 at Bivins Pond) and tracked during subsequent months. In parallel, 37 head-starts were released at Richardson Wildlife Foundaion, 20 of which wre equipped with radio transmitters. Survival of head-starts at Nachusa and Richardson was compared with that of head-starts released at two sites in Lake County and one site in Kane County. High predation resulted in low head-start survival at Richardson (purple line) and Nachusa (dark blue line), As noted above, this outcome led to the decision to postpone until 2022 head-start releases planned for 2021.



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 (+ $1366 from 2019 Friends funding)	$1884.00
J. Fliginger – trapping, nest monitoring, head-start telemetry	$3815.00
R. King – partial mileage reimbursement for travel between NIU and Nachusa Grasslands	$ 823.00
Supplies (waders, batteries, telemetry cables)	$ 387.00
total	$6884.00

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 were 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 (1) modification to head-starting tactics (by delaying release for an additional year) and suggesting the needed for predator monitoring and possible management.

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

Blanding's Turtle Population Viability: Population Size, Connectivity, and Sensitivity. RB King, C Golba, G Glowacki. Midwest Fish and Wildlife Conference, Springfield, IL. January, 2020.

Growth and Survival of Wild-born and Head-started Juvenile Blanding's Turtles (Emydoidea blandingii). C Golba, RB King, G Glowacki. Midwest Fish and Wildlife Conference, Springfield, IL, January, 2020.

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?

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. https://meridian.allenpress.com/journal-of-herpetology/article/55/2/167/466243/Blanding-s-Turtle-Hatchling-Survival-and-Movements#13186617

King RB, Golba CK Glowacki G, Kuhns AR. 2021. *Blanding's turtle demography and population viability*. Journal of Fish and Wildlife Management http://fwspubs.org/toc/fwma/0/0.

What follow-up research work related to this project do you anticipate (if any)?
Optional: Suggestions for improving the application and award process for future Friends of Nachusa Grasslands Scientific Research Grants:

Head-start survival monitoring is continuing at sites in Lake, Kane and DuPage County and will resume at Nachusa and Richardson in 2022. Researchers from SIU, under the direction of Clay Nielsen, will initiate predator monitoring at northern Illinois Blanding's turtle sites in fall 2021 or spring 2022.