

**The Friends of Nachusa Grasslands**  
**2023 Scientific Research Project Grant Report**  
**Due June 30, 2024**

Please answer the following questions with clearly written summaries to give Nachusa Friends' science committee members, officers, and board members a good idea of what you accomplished using your grant money. Unless you object to the Friends doing so, your report will be uploaded into the science section of the Friends' website: [nachusagrasslands.org](http://nachusagrasslands.org).

1. Please save this form to your desktop with a unique file name that includes "Friends 2023 Science Grant Report" and your last name.
2. Complete the form using the headings in **bold** as your guide.
3. Save the file as a Word document or a PDF.
4. Attach the file to an e-mail, and send it to: [nachusafriendsscience@gmail.com](mailto:nachusafriendsscience@gmail.com) no later than June 30, 2024.
5. The subject of the e-mail should be "2023 Scientific Research Grant Report" and your last name.
6. If you have not completed your work, please submit this form anyway by the June 30 deadline and plan to contact Friends after your project is complete so that we may learn from and publicize the outcomes as appropriate.

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**2023 grant amount:** \$3,000

**Research Project Topic:**

Our study will investigate the efficacy of raccoon removal through predator control and use camera traps to monitor spatial distribution of raccoons before, during, and after removal. Our study will also assess the prevalence and distribution of zoonotic pathogens in raccoons.

**Research Project Purpose:**

Our study has two primary objectives: (1) to determine the intensity of trapping effort needed to reduce a raccoon population and estimate pre-removal abundance and density of raccoons, and (2) to assess the prevalence and distribution of zoonotic pathogens in raccoons.

**Research Project Outcomes to date:**

Raccoon removal efforts are conducted across five northern Illinois field sites each April-July, with 304 raccoons captured in 2022 during 5,358 trap nights. In 2023, 247 raccoons were removed over 4,785 trap nights. From 2022-2023, Nachusa Grasslands captured 64 raccoons in 1,085 trap nights. Raccoon density will be determined using capture data and used to monitor efficacy of removal efforts. We collected 6,881 photos of raccoons during the past two field seasons; 2,263 were from Nachusa Grasslands. Preliminary results indicate a decrease in mean raccoon detections

following removal. Before raccoon removal was performed, 71% of the camera trap sites detected a raccoon at least once. After raccoon removal, 56% of the camera trap sites detected a raccoon at least once. Further analysis of these data will further elucidate the success of removal efforts. Raccoon carcasses are collected from project collaborators and necropsied according to standard procedures. We collected 20 raccoons from each site per year (n = 300 total raccoons). Raccoon carcasses were necropsied, and tissue samples collected from the liver, diaphragm, spleen, and heart. Intestinal tracts were also collected for examination for intestinal parasites. Thus far, we have completed 231 intestinal tract examinations and have detected the presence of raccoon roundworm in 70 individuals (30%). We have also detected intestinal parasites in 229 individuals (99%) including hook worms, tapeworms, trematodes, and acanthocephalans. Tissue analysis to detect the presence of pathogens is ongoing.

**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:**

The grant funds we received from the Friends of Nachusa Grasslands were used for camera and necropsy supplies, laboratory supplies, and travel between field sites.

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

Nachusa Grasslands has put much effort into the head start program for Blanding's turtles and our study on the efficacy of predator control can help decrease the population of a known predator of Blanding's turtles and help to better understand the intensity and duration of trapping needed for an efficient removal program that helps increase nest success and survival of vulnerable species.

Our goal of decreasing the abundant raccoon population aids in Nachusa Grasslands head starting efforts for the Blanding's turtles. While Nachusa Grasslands head starts the nests that they can find, the turtles not tracked are still vulnerable to predation. Our predator control efforts will help decrease the population of a known species that commonly preys on Blanding's turtle nests, hatchlings, and other nesting species.

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

Due to raccoons' opportunistic nature and adaptability, they negatively impact several avian and reptilian species. Raccoons are major predators of many ground-nesting species, contributing to the extirpation of some species in areas where raccoon predation goes unchecked. Our project will provide valuable information on the long-term feasibility and efficacy of raccoon removal. Our project will decrease a known predator of Blanding's turtles and we will gain information on the abundance and density of raccoons in forest preserves that have Blanding's turtle populations.

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

McDonald, A.G., J.R. Schultze, C.K. Nielsen, and F.A. Jimenez. 2024. Prevalence and distribution of zoonotic pathogens and parasites in raccoons (*Procyon lotor*) of northern Illinois. 99<sup>th</sup> Annual American Society of Parasitologists Meeting. Denver, CO. Poster Presentation.

Schultze, J.R., A.G. McDonald, and C.K. Nielsen. 2024. Efficacy of raccoon removal as a wildlife management method for northern Illinois raccoons. 10<sup>th</sup> Annual Nachusa Grasslands Science Symposium. Franklin Grove, IL. Oral Presentation.

McDonald, A.G., J.R. Schultze, C.K. Nielsen, and F.A. Jimenez. 2024. Prevalence and distribution of zoonotic pathogens and parasites in raccoons (*Procyon lotor*) of northern Illinois. 10<sup>th</sup> Annual Nachusa Grasslands Science Symposium. Franklin Grove, IL. Poster Presentation.

McDonald, A. G., Schultze, J.R., and C.K. Nielsen. 2023. Efficacy of predator control and prevalence of zoonotic pathogens in northern Illinois raccoons. 29<sup>th</sup> Annual Meeting of The Wildlife Society. Louisville, KY. Poster Presentation.

Schultze, J.R., A.G. McDonald, and C.K. Nielsen. 2023. Efficacy of predator control and prevalence of zoonotic pathogens in northern Illinois raccoons. 9<sup>th</sup> Annual Nachusa Grasslands Science Symposium. Franklin Grove, IL. Poster Presentation.

**Have you submitted manuscripts to scientific journals? If so, which ones? If not, do you anticipate doing so?** (Please send digital copies of published articles to the Friends so that we can learn from your work.)

We have not, but we do plan to do so once the project has been completed.

**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:**