The Friends of Nachusa Grasslands
2020 Scientific Research Project Grant Report
Due June 30, 2021

1. Please save this form to your desktop with a unique file name that includes "Friends 2020 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 no later than June 30, 2021.
5. The subject of the e-mail should be "2020 Scientific Research Grant Report" and your last name.
6. After your research project is complete, please contact Friends so that we may learn from and publicize the outcomes as appropriate.

Name: Jenn Simons
Address: 812 E Johnson St. Apt 2, Madison, WI 53703
Phone: 402.741.2656 **Current E-mail:** jennksimons@gmail.com

2020 grant amount: $2,470

Please answer the following questions with 1- to 2- sentence summaries:

Research Project Topic: Five Years of Bison: the effects of grazing at Nachusa Grasslands

Research Project Purpose: Using baseline, three-year, and five-year data from permanent exclosures, this study looked at how the bison have affected the vegetation structure and composition at Nachusa Grasslands since their introduction in 2014.

Research Project Outcomes to date: After five years at Nachusa, this research shows that the bison have had minimal effects on vegetation metrics of community composition, abundance, and structure. Trends observed include increased forb abundance and increased nonnative species abundance across all community types and decreasing variability in functional group composition for savanna communities.

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: Grant funds were used to fund researcher travel to the site from Madison, WI ten weekends in the summer in 2021, researcher time conducting vegetation surveys during these weekends and subsequent computer analyses, and supplies to conduct vegetation surveys (measuring tape, PVC quadrat, survey flags).

Describe how your project has benefited the work and goals of Nachusa Grasslands: Though limited changes in response variables were observable in year five, trends observed and data collected thus far provide valuable benchmarks for the management goals at Nachusa. As no detrimental effects on my vegetation metrics were observed, management practices at Nachusa could continue as they are, and with time more pronounced impacts may be observed.

Describe how your findings can be applied to challenges in management practices for restoration effectiveness and species of concern: Continued monitoring and evaluating of land management practices to ensure appropriate management of our threatened prairie

remnants and restorations is essential. Managers at Nachusa may choose to continue using bison in a similar manner, or they may choose to alter their management practices based on these results. Further, this study contributes to our scientific understanding of the early stages of using bison as a tool to manage vegetation in the eastern tallgrass prairie and what factors might affect observed changes.

Please list presentations/posters you have given on your research:
2021 Nachusa Science Symposium oral presentation
2021 SER Midwest-Great Lakes Annual Meeting 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.**)** No journal submissions yet; thesis document will be updated for eventual subscription to a scientific journal with the assistance of Dr. Elizabeth Bach.

What follow-up research work related to this project do you anticipate (if any)?
Additional analyses on collected data regarding changes in specific species composition will be undertaken in pursuit of publishing this research.

- Follow-up research tracking bison locations throughout the seasons and in relationship to use of permanent research plots would prove beneficial.
- Comparing early results of using bison as a tool to manage vegetation in the western tallgrass prairie with these results from the eastern tallgrass prairie would contribute to a greater understanding of using grazing as a management practice across the tallgrass prairie community (a much-debated topic).

<u>Optional</u>: Suggestions for improving the application and award process for future Friends of Nachusa Grasslands Scientific Research Grants: This was such a well-organized and structured process! Thank you all; this has been an incredible experience.