

**The Friends of Nachusa Grasslands
2021 Scientific Research Project Grant Report
Due June 30, 2022**

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2021 grant amount: \$1200

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

Research Project Topic: My project was on the phylogenetic diversity of wetland plant communities. I used the historic transect data from 3 wetland sites at Nachusa and two other wetland nature preserves in Illinois as well as performed transects during the summer of 2021 to compile a list of over 200 plant species. I then used the published chloroplast data of those plants to create a community phylogeny and was then able to determine the phylogenetic diversity of each transect.

Research Project Purpose: Some studies find that ongoing restoration efforts result in species richness loss. This finding can be discouraging to land managers. Phylogenetic diversity has been proposed to better reflect the diversity of a community because while species richness may decline, phylogenetic diversity can increase. Additionally, at the time of starting my study, wetlands had not been the subject of phylogenetic diversity studies.

Research Project Outcomes to date: While my study found that there was no significant change in species richness, the plant phylogenetic diversity of the study sites have increase during my study period. I also found, using historic transect data, that the occurrence of exotic species decreases with management.

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 was used to purchase field equipment used in research as well as travel expenses to and from my study sites.

Describe how your project has benefited the work and goals of Nachusa Grasslands: Determining the efficacy of restoration efforts is imperative to the restoration and management of our natural areas. My study uses a diversity measuring tool that can better reflect plant diversity than species richness alone. Additionally, my thesis work involved the collection transect data for Nachusa, which will be used for future research.

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

Demonstrating that management efforts have a positive impact on plant communities could help show the importance of the work conducted at Nachusa.

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

I presented at the Nachusa Science Symposium.

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.)

I have not published my master's thesis. But my thesis is available to read upon request.

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

Unfortunately, I have no immediate plans to further my research at this time.

Optional: Suggestions for improving the application and award process for future Friends of Nachusa Grasslands Scientific Research Grants: