

**The Friends of Nachusa Grasslands
2022 Scientific Research Project Grant Report
Due June 30, 2023**

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. Donors and prospective researchers often read these reports after they are posted.

1. Please save this form to your desktop with a unique file name that includes "Friends 2022 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, 2023.
5. The subject of the e-mail should be "2022 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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2022 grant amount: \$4,570

Research Project Topic: Compiling a list of singing Orthoptera (Grasshoppers, crickets and katydids) using acoustic surveying techniques by means of audio recorders at Nachusa Grasslands.

Research Project Purpose: A fast and accurate species level surveying of singing Orthoptera at Nachusa Grasslands to eliminate the process of capturing and killing insects.

Research Project Outcomes to date:

Unit	Calling Orthoptera present
Eight Oaks Unit	<i>Amblycorypha oblongifolia</i> (De Geer, 1773); <i>Oecanthus nigricornis quadripunctatus</i> Beutenmüller, 1894; <i>Neoconocephalus robustus</i> (Scudder, 1862); <i>Pterophylla camellifolia</i> (Fabricius, 1775);

	<i>Oecanthus latipennis</i> Riley, 1881; <i>Allonemobius fasciatus</i> (De Geer, 1773); <i>Neonemobius variegatus</i> (Bruner, 1893); <i>Gryllus pennsylvanicus</i> Burmeister, 1838; <i>Conocephalus fasciatus</i> (De Geer 1773)
Big Woods Unit	<i>Allonemobius</i> Hebard, 1913; <i>Allonemobius fasciatus</i> (De Geer, 1773); <i>Oecanthus nigricornis quadripunctatus</i> Beutenmüller, 1894; <i>Oecanthus nigricornis celerinictus</i> Walker, 1963; <i>Neonemobius variegatus</i> (Bruner, 1893)
Kittentail Knob Unit	<i>Amblycorypha oblongifolia</i> (De Geer, 1773); <i>Nomotettix cristatus</i> (Scudder, 1862);
Thelma Carpenter Unit	<i>Neoconocephalus ensiger</i> (Harris, 1841); <i>Oecanthus nigricornis quadripunctatus</i> Beutenmüller, 1894; <i>Amblycorypha oblongifolia</i> (De Geer, 1773); <i>Oecanthus fultoni</i> Walker, 1962; <i>Allonemobius fasciatus</i> (De Geer, 1773); <i>Neonemobius variegatus</i> (Bruner, 1893)
201 House	<i>Gryllus pennsylvanicus</i> Burmesiter, 1838; <i>Ceuthophilus divergens</i> Scudder, 1862; <i>Neonemobius variegatus</i> (Bruner, 1893)

Table 1. List of singing Orthoptera present at the four localities visited: Eight Oaks unit, Big Woods unit, Kittentail Knob unit, Thelma Carpenter unit and the 201 House at Nachusa Grasslands. Collections of Orthoptera were collected by the use of pan traps, sweeping and pitfall traps. In addition, the identification of singing Orthoptera using their calls are also presented here. The number of singing Orthoptera collected was ~ 50 with bi-catch of other Orthoptera and insects. However, no endangered species were collected or captured during these processes.

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:

- Travel to and from Nachusa Grasslands.
- Purchase of acoustic recorders, batteries, battery charger and memory cards to collect audible data at three localities for evaluation.
- Collection supplies were required to collect insects and data in the field.
- Audio software for analysis of the data collected.

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

Orthoptera are essential in terrestrial ecosystems including prairies, savannas and forests. They provide important ecosystem services as prey for a variety of

animals, including mammals, birds, reptiles and other arthropods, such as mantises. They are essential for restoration of the prairies and determining the health of the prairies.

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

Protection of existing biota and determination of species is important for the practices required to restore and maintain prairies.

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

Poster: Nachusa Grasslands Science Symposium, 2023.

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 anticipate submitting a manuscript to scientific journals

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: