

Project Year-End Summary Report

Title of Project: Browsing effects on *Salix arizonica* - using defense chemistry

Begin answering in the shaded box right beside or below each question and it will expand to accommodate as you type. Use up to a total of two and a half pages for questions 1-8. More detailed presentations, a final report, articles or posters are welcome separately(See final instructions at the end of this form.)*

1. Organization name or Individual who received the grant: Shannon Lencioni

2. Amount of Grant: \$2000

4. Was additional outside funding obtained? (check box that applies) Yes No

Other funding source(s) if you checked "yes." Utah Native Plant Society

5. Briefly, how was the grant money from the Carter Conservation Fund used?
processing phytochemical lab samples

6. Write an abstract or summary of the activities performed and the progress that was made this year on your project. (Save any conclusions, lessons learned, and benefits achieved for the final sections, 7&8.)

Salix arizonica is a rare species that only occurs in subalpine wetland communities in disjunct locations in the four-corner states. Populations have been in decline since the species was first described and we are examining the impacts that browsing of ungulates have on populations by investigating if there is a correlation between amount of browse and concentration of chemical defense compounds. Samples were collected in the field both in 2022 and 2023 growing season. A subset of *S. arizonica* individuals were protected with temporary structures from browsers to test if there is a rapid response in reduction of phenolic glycosides, the defense compounds naturally produced against herbivores. Samples were processed in the lab in fall of 2023, and analysis is underway.

7. How does your project further a Native Plant Society mission area, namely: *plant or ecological education; conservation/restoration of native plants and/or their habitats; adds to botanical research; promotes appropriate use of native plants to conserve water, land and/or wildlife.*

The hopes of this project outcome is to help inform land managers on species specific needs for protection and conservation. Little research has been conducted on *S. arizonica* and examining the phytochemical composition of this species is novel. I truly hope that this research is broad reaching with the Native Plant Societies mission area, to provide plant and ecological education, provide context for conservation needs, adds to botanical research, and will ultimately help protect the habitats it occurs in.

8. Any other conclusions., lessons learned, benefits to you, the community or the environment hopefully result from your work as assisted by this grant.

Selfishly, I hope this is just the beginning of this work of becoming a more informed and better equip researcher. I hope to continue advocating for this little species and protect the biodiversity of the beautiful ecosystems. Running through analysis it does seem like my sample size is

small for the recently protected individuals, and there might be too much noise to tweeze out significance in the hypothesis. Even though that is a lesson learned, I believe there will be a valuable story to tell still.

Final Instructions

Please send your completed form as pdfas an email attachment to cartergrantapps@gmail.com by December 1.

** To remain in good standing for any future funding from the Native Plant Society of New Mexico, we ask that you educate our membership more fully in some way. This could be an article (250 words minimum, at least 1 high resolution illustration or photo) for our newsletter, **ora** paper or electronic copy or link to a published article connected with the past year's work, **or**by making an educational and visual presentation to one of our chapters. Contact information for our 7 area chapters is found on our website at www.npsnm.org under the Chapters tab.*

What are your intentions in this regard? I would love to present one of the northern chapters in 2024 once analysis is complete. I'm also happy to provide an article about the research and include links to my thesis once it is completes.

This year end report is submitted by (Type your name) Shannon Lencioni

My typed name is equal to my handwritten signature in testifying to the accuracy and truth of this report to the best of my knowledge today.

eMail address slencioni13@gmail.com or sl2782@nau.edu

Date 11/28/2023

Please contact us again at cartergrantapps@gmail.com if you have any questions or alternate suggestions.