

## Project Year-End Summary Report

Title of Project: A floristic study of the vascular plants of the Brokeoff Mountains, Otero County, New Mexico, USA

*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: Bryana Olmeda

2. Amount of Grant: \$ 2500

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

Other funding source(s) if you checked "yes."

University of New Mexico, Center for Regional Studies

The GCA Summer Scholarship in Field Botany

University of New Mexico, Biology

5. Briefly, how was the grant money from the Carter Conservation Fund used?

The grant money was used to fund travel expenses for the final field season of this project.

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.)

Starting in April until November 2024, 41 days of plant collection were completed. Areas targeting historical collections, unique geology, rare plant habitats, and areas not previously collected on were prioritized. With the funding provided by this grant, a total of 904 plant collections were made this season. This brings the final number, for both 2023 and 2024, to 1924 vascular plant collections made for the Brokeoff Mountains. This increases the amount of collections in the study site 8 times before this project started. Every collection has been identified to species, and a preliminary number of plant taxa represented in the region is 441 plant taxa. Additionally, multiple rare plant populations were identified, including range extensions, county records, and state records.

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 plant data collected for this project furthers several mission milestones for the Native Plant Society. The Brokeoff Mountains represent a unique area of Chihuahuan desert grasslands, a habitat historically under collected and under protected. The baseline data obtained during this project will be used to produce and refine rare plant reports for taxa located within the study site. Additionally, plant range extensions identified will provide an even more accurate understanding of plant ranges for several taxa, and/or how much these distributions are changing during climate change. Baseline collection data is the foundation for many conservation/restoration planning and botanical evolutionary and ecology research. In addition

to providing necessary data for conservation planning, this project also engaged in several opportunities for botanical education. During the 2024 UNM Botanical Foray, members of the botanical community, including community and university college students, high school educators, botany professors/professionals, and overall plant enthusiasts, were invited to conduct field work in the Brokeoffs. This was a multiple day opportunity to learn, hands on, how to ethically conduct plant collections, press plants in the field, and engage with desert flora.

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

One of the biggest lessons learned is how essential collection based research is to understanding climate change and combating it. No decisions on land use should be made until there is a full understanding of the biodiversity that will be affected. This project represents the first attempt at describing the vascular plant diversity of an incredibly unique desert habitat, impacted by decades of ongoing ranching and drought. Before this study, there was very little known about the plant diversity of this mountain range, despite a large majority of the study site being designated as public land. The lack of prior botanical collections of the Brokeoffs make it difficult to truly understand how plant diversity has changed, due to drought and land use, over the last few decades. Ideally, this research will model and inspire even more floristic desert studies in New Mexico to truly understand the botanical diversity these ecosystems hold. Another lesson learned is how essential a 4x4 vehicle is needed for biodiversity field studies to continue. During the 2024 field season, a 4x4 vehicle was secured and the area coverage within the study site increased tremendously. A large set back in field studies are the lack of funds/resources available to acquire and maintain reliable transportation to remote habitats.

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**Final Instructions**

**Please send your completed form as pdf as an email attachment to [cartergrantapps@gmail.com](mailto:cartergrantapps@gmail.com) by November 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, **or** a 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](http://www.npsnm.org) under the Chapters tab.*

*What are your intentions in this regard?* I plan on defending my thesis in March 2025, in which I will present the final results of my masters project. I will extend an invitation to the Native Plant Society for anyone interested. Additionally, I plan to submit my written masters thesis and publish in a journal.

This year end report is submitted by (Type your name) Bryana Olmeda

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 [bolmeda@unm.edu](mailto:bolmeda@unm.edu)

Date 01/06/2025

*Please contact us again at [cartergrantapps@gmail.com](mailto:cartergrantapps@gmail.com) if you have any questions or alternate suggestions.*