

Project Year-End Summary Report

Title of Project: Ecosystem resilience and native plant restoration: understanding above-belowground dynamics in the Chihuahuan Desert

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: Parikrama Sapkota

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." Native Plant Society of Texas - \$2500; Jornada Graduate Fellowship LTER \$24000

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

The grant was used to buy resources and research material to establish greenhouse experiment and run for nine months. It was also used to go field multiple times to collect soil for the experiment.

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.)

I recently finished a nine-month greenhouse experiment, where we harvested rhizosphere soil to study bacterial, fungal, and eukaryotic communities. We also collected plant samples to measure plant biomass. In November and December, I will be extracting DNA and performing PCR, with sequencing results expected by the end of December.

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.*

My research educates the public, including students and the general community, about the types of soil microbes found in the rhizosphere of native plants in New Mexico. Additionally, it provides insights into how specific microbial taxa or genomes interact with different dryland plant species in the region. In this greenhouse study, I explore how microbial inoculation and litter additions facilitate changes in soil microbial communities over time, helping us better understand these community dynamics.

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

I gained valuable experience in collecting soil samples for DNA analysis and honed my molecular biology skills, including DNA extraction from soil samples, performing PCR (polymerase chain reactions), and analyzing gel electrophoresis data. This study is a critical chapter of my dissertation, and I aim to publish it once my sequencing analysis is complete. I

look forward to sharing my sequencing data and insights with the local community in El Paso and New Mexico, the Native Plant Society of New Mexico (NPSNM), and fellow soil enthusiasts.

Final Instructions

Please send your completed form as pdfas an email attachment to 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, **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, once I get final sequencing back and finish analysing data.

This year end report is submitted by (Type your name) Parikrama Sapkota

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 psapkota@miners.utep.edu

Date Oct 28, 2024

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