
Department of Environmental & Plant Biology
Colloquium

Dr. Nicole Pietrasiak

Plant and Environmental Sciences
Department
New Mexico State University, USA



Friday, February 25, 2022 11:50am – 12:45 pm
Streamed via Zoom
(optional in person viewing in Porter 104)

“Enigmatic Cyanobacteria of Drylands”

Cyanobacteria, also known as blue-green algae, inhabit nearly all aquatic and terrestrial habitats on Earth where light is available for at least a short amount of time. They are integral to primary production, fertility, and food webs playing crucial roles in overall ecosystem functioning and health. One habitat that seems most counterintuitive to supporting abundant cyanobacteria is dryland soil. Xerophilic cyanobacteria establish a diverse and unique flora that is found in the upper 1 cm of the topsoil, including even marginal parent materials such as silicate or gypsum sands. Especially filamentous forms function as true ecosystem engineers contributing to the formation of biological soil crusts – living soil aggregates essential to soil stability, nutrient cycling, and water retention in drylands. In my talk I will share case studies from my work in hot desert biomes, demonstrating why cyanobacteria are now recognized as keystone taxa in dryland ecosystems. Then, I will showcase a selection of charismatic cyanobacterial taxa we discovered, each with special sets of traits adapted to the harsh dryland environment. Finally, I will call you to action and invite you to join me on my future scientific adventures investigating aspects of their basic biology for which only little is known.

