Abstract: Spatial and temporal variation in water availability is known to play a large role in shaping plant phenotypes within species. For ecologically and phenotypically diverse species complexes such as seep monkeyflowers (Erythranthe guttata (DC.) G.L.Nesom complex, Phrymaceae), it is not always clear how acclimation to local soil moisture environments contributes to morphological, physiological and phenological variation. Here we investigate phenotypic variation and plasticity in annual and perennial seep monkeyflowers where they co-occur within meters of each other on the Central Coast of California. Although the annual form tends to occur in drier rock outcrops and the perennial form occurs in adjacent perennial seeps, there appears to be a gradient of indistinguishable phenotypes between these microhabitats. We first tested and confirmed that key morphological, physiological, and phenological life history traits varied with soil moisture along the natural gradient from rock outcrops to seeps and with experimental water additions in the rock outcrops. To determine the role of plasticity in maintaining trait differences in the field, we collected seeds from individuals at the extremes of the soil moisture gradient to grow under common conditions. In the common garden, petal size and flowering time differences were partially maintained, while vegetative and physiological trait differences were not maintained. This indicates that much of the phenotypic variation between microhabitats is environmentally induced, although other factors may be at play. These results improve our understanding of how plants respond to fine-scale variability in soil moisture and suggest that plasticity plays a key role in the phenotypic diversity observed in seep monkeyflowers.

Read the full article here!
Volunteer webmaster needed! We are looking for someone with WordPress expertise to help troubleshoot and maintain the new CalBotSoc website. Send inquiries to Vice President Josh Der (jder@fullerton.edu).

Annett Carter Award Winner
Tito Abbo
UC Riverside

Tito Abbo is currently a 4th year PhD candidate at UC Riverside studying manzanitas with Amy Litt.

Manzanitas are extremely diverse, and their taxonomy and species relationships are the subject of historic and ongoing debates.

Using modern genomic methods, Tito's preliminary data resolves the phylogeny for most of the manzanitas in the US and mainland Mexico, but key gaps in his sampling are the manzanitas endemic to Baja California.

The Annetta Carter Memorial Fund Grant will finance his collecting expedition to Baja California, where he is collaborating with BCMX Herbarium Curator Jose Delgadillo. Baja California has several endemic manzanitas.

Tito's project aims to investigate the consequences of Baja California's unique geography on manzanita evolution.

It is also imperative for conservation that the manzanitas of Baja California be resurveyed to document their continued persistence and abundance.

More information on our website

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Upcoming Events

Speaker Series (7 pm):
• May 9, Kane Keller, CSU, Bakersfield
• June 13, Rebecca Nelson, UC, Davis

Missed a Speaker?
View previous speakers on our YouTube Channel

New and Upcoming in Madroño

A. Noteworthy Collection: Fern from Arizona, named after Lady Gaga
B. Noteworthy Collection: Sidalcea from the Santa Cruz Mountains
C. New Species Alert: New species of cliff-dwelling Dudleya

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Left: Introduction and CalBotSoc Updates from our President, Dr. Kathleen Kay (UC Santa Cruz); Middle: The keynote presentation from Dr. Michael Simpson (San Diego State University); Right: The field trip to Canyon Ecological Reserve (All photos from Joshua Der)