



NEVADA NATIVE PLANT SOCIETY

Insights from Nevada's 2024 rare plant workshop

by Joshua Lovera

Early this October, the Nevada Native Plant Society's Rare Plant Committee held its semi-annual workshop in Las Vegas, bringing together over 60 botanists, researchers, and land managers representing universities, federal & state agencies, environmental consultants, and non-profit organizations. Moderated by the Nevada Division of Natural Heritage, this two-day event provided a vital platform for discussing the status of Nevada's rarest plants.

One key topic covered at every annual workshop is an assessment of the species on the Nevada Native Plant Society's Research List. These are plant species that occur in Nevada but lack important information about

their life history, such as how the species is pollinated or how large is the species range. Plants on this list are also eligible for additional research funding through the NVNPS Margaret Williams Grant.

A significant topic of discussion was the screwbean mesquite (*Prosopis pubescens*) from the Research List, whose populations are experiencing alarming die-offs across the western United States. Researchers are not only seeking out the cause of this decline but are also attempting to estimate how much of the total population has been lost already. Although screwbean mesquite is not considered a rare species, the extent of the decline has led Nevada Native Plant Society



Screwbean mesquite (*Strombocarpa pubescens*). ©Kevin Floyd, iNaturalist

Rare Plant Committee to consider the species as “Threatened.” This designation suggests the the species may meet the requirements for listing as Threatened by the US Fish & Wildlife Service as defined by the Endangered Species Act. These recommendations from the Nevada Native Plant Society and other similar organizations are crucial for informing both state and federal agencies in their future management decisions.

It was not all doom and gloom and there is good news to report. The workshop participants also discussed the first observation of Death Valley monkeyflower (*Diplacus rupicola*) in the State of Nevada. This plant was previously considered endemic to California, but was first observed in Nevada in August by California Botanic Garden graduate student Chloe Novak while working on a Flora of the Amargosa River Headwaters. The attendees also learned from UNR Herbarium Coordinator, Arnold Tiehm, about Nevada’s newest described plant species Elko buttercup (*Ranunculus legerae*), named in honor of University of Nevada Reno professor, Dr. Elizabeth Leger. Given the limited information about this new species, the Rare Plant Committee voted to add *Ranunculus legerae* to the NVNPS Research List and several attendees have plans to survey this

species in 2025 to better understand its population size and distribution.

The workshop is also a time for land managers to discuss the implications of both state and federal agency policies. For instance, the US Fish and Wildlife Service recently published a 5-Year Status Review on Ute Ladies’ -Tresses (*Spiranthes diluvialis*) to remove it from the list of Threatened plant species protected by the Endangered Species Act. This is the result of new populations being discovered across the western United States. However, this wetland orchid is only known to occur at one location within the state of Nevada, so while the species is losing some of its protection at the federal level, the attendees voted to leave *Spiranthes diluvialis* on the NVNPS list of Threatened species.

Several attendees also presented their recent research and how their findings could better inform our understanding of Nevada’s Rare Plants. This year, we heard talks on a variety of topics including propagation techniques, ecological discoveries, and status updates for species such as Las Vegas Bear Poppy (*Arctomecon californica*), Sodaville Milkvetch (*Astragalus lentiginosus* var. *sesquimetralis*), Ash Meadows Lady’s Tresses (*Spiranthes infernalis*), Three Corner Milkvetch (*Astragalus gayer* var. *triquetrus*),



Death Valley Monkeyflower (*Diplacus rupicola*).

©Matt Berger, iNaturalist



Ute Ladies’-tresses (*Spiranthes diluvialis*).

©Shalana Gray, iNaturalist

Spring Loving Century (*Zeltnera namophila*), and Tecopa Bird's Beak (*Chloropyron tecopense*).

One common thread among several presenters was the urgent need to protect Nevada's alkaline wetlands. These vital wetland ecosystems are home to many of the state's endemic plant species. For example, Ash Meadows National Wildlife Refuge is believed to harbor 26 endemic species, 12 of which are classified as Threatened or Endangered. Currently, a large number of construction projects proposed on land administered by the Bureau of Land Management in Nevada could impact many of these unique ecosystems. Among the proposed projects are lithium extraction, gold mining, solar energy infrastructure, and drilling for geothermal energy. Combined, these projects could permanently alter hundreds of thousands of acres in some of Nevada's most remote landscapes. They will also require vast amounts of groundwater from the state's already overallocated

systems, risking a significant drop in the water table. Nevada's alkaline wetlands depend on this groundwater to persist and the surge of proposed projects on the horizon has many botanists deeply concerned.

Staff members from the Nevada Division of Natural Heritage (NDNH) also provided several talks on ongoing projects, including updates to the NDNH Rare Plant Atlas ([Nevada Rare Plant Atlas | Nevada Division of Natural Heritage](#)), methods for streamlining NDNH data requests, results from the 2024 rare plant surveys, and the coordination of conservation seed banking initiatives across the state.

The workshop concluded with a field trip to the Spring Mountains National Recreation Area, led by several U.S. Forest Service employees. Despite the late season, attendees were lucky enough to see some of the Spring Mountains' endemic species such as Clokey's greasebush (*Glossopetalon clokeyi*), Jaeger's ivesia (*Ivesia jaegeri*), and Charleston Mountain Angelica (*Angelica scabrida*).



Rare Plant Workshop field trip to Spring Mountains National Recreation Area. ©Gary Reese

The Nature Conservancy and native plants

by Kevin Badik

The mission of The Nature Conservancy (TNC) is to conserve the lands and waters on which all life depends. That “all life” bit has always stood out to me. How do you conserve all life? Managing for all life seems a bit daunting and leaves me uncertain where to focus. And then I’m reminded of Jeff Goldblum’s character in Jurassic Park when he said “Life, uh, finds a way.” And it’s true, the ecological processes that have shaped our unique landscapes don’t just stop. But nature needs room to work. That’s where diversity comes in.

Diversity is the pathway to adaptation and evolution. So, to me, “all life” means thinking about maintaining and restoring diversity across our landscapes. And native plants are the foundation of diverse communities. Communities with high diversity provide a number of ecosystem services, such as better forage for wildlife and livestock, promoting pollinators, and increased resiliency to fire and other disturbances. However, due to invasive species, changing fire regimes, and other human disturbances, we are losing our diverse, native plant communities. The need to conserve and restore these communities is at its highest.

Restoring native communities in the cold desert is tough work. Our native plants in Nevada are finicky most years. Adding to the ecological challenges, a lack of diversity in the market, limited budgets, and ever-increasing demand due to more fire in recent years mean that seeding native plants back on the landscape is often not an option. But that doesn’t stop us from finding ways to slow and, even, change the trend on our landscapes. Here in Nevada and throughout the sagebrush biome, TNC has been working to

maintain intact landscapes and restore ones where diversity is lacking.

Partnerships in Nevada and Sagebrush Sea

It takes a village to raise a child, and it takes a community to plan, collect, grow, harvest, and reseed a restoration project. Recognizing the need to build relationships, TNC has been a participant in the Nevada Native Seed Partnership (NNSP) since its inception.

NNSP is a group of federal, state, tribal, and non-profit agencies and organizations with the goal of increasing “the availability and use of genetically appropriate seed to restore diverse plant communities and sustainable landscapes” in Nevada.

By leveraging our strengths, NNSP looks for ways to help producers grow native plants, help practitioners learn how to better use native seeds, and coordinate on seed collection. Other states have taken notice of Nevada’s native seed strategy, and TNC has helped create similar strategies in places such as Oregon and Wyoming. Across the sagebrush biome, TNC has also been working with partners to find ways to maximize each seeding, like early detection and rapid response to invasives, exploring seed technologies, and improving practices.

Forecasting Seed Needs

We all know that fire years (and the



Drill seeding a burned area in central Nevada. ©Brittany Allen

reseeding that follows them) are variable across the intermountain west. Where and how much fire our landscapes experience dramatically changes from year to year. This often means that the demand for restoration seed is also variable and uncertain. TNC and others have heard from growers that this uncertainty makes it especially hard for growers in the native seed business. So, TNC is looking to reduce that risk by providing better data to growers and practitioners.

While we may never be good at predicting exactly where fire will occur, we can use data to tell us where fire is more likely in the coming years. In 2022, TNC Nevada finished a pilot project to forecast what seeds and how much could be used for restoration across the Carson City BLM District. The idea is that if we can know where things are more likely to burn, we can inform growers on what the needs will be and reduce uncertainty in demand. Growers can then make better informed business decisions about how to enter into the native seed market.

Building on this experience, we are now working with funding from the Forest Service to expand the analysis across Nevada. Also, optimizing each seed means making sure that the right seeds are used to meet the goals of each project. With the Forest Service funding,

we are developing a digital tool drawing from experienced practitioners that can help less experienced restoration practitioners plan seed mixes.

TNC Preserves: Reservoirs of Diversity

My work with TNC means that I get to work throughout Nevada and its neighboring states. While there are plenty of positives to that, it does mean that I can overlook the places TNC manages. In the greater Reno area, TNC has preserves at McCarran Ranch east of Reno, River Fork Ranch outside of Genoa, and north of Truckee at the Independence Lake Preserve. In the Mojave, TNC has two preserves, the Gary and Lajetta Atwood and Torrance Ranch Preserves, along the Amargosa River. These places are open to the public to enjoy the diverse communities that exist there. In addition to being places where folks can learn and experience native plants, preserves can act as reservoirs of diversity. TNC is exploring ways that our preserves can serve as sources for seed-based restoration and culturally significant plants.

Native plants are a key part of Nevada's amazing landscapes and TNC is working to preserve those plants so all life can thrive. You can find more about our work at nature.org/Nevada



An aerial view of TNC's River Fork Ranch outside of Genoa. ©Chip Carroon

Featured Plant: *Psorothamnus polydenius*

by Alison Agneray

Nevada Indigobush, (*Psorothamnus polydenius* (Torr.) Rydb.), is a striking desert shrub belonging to the massive legume family (Fabaceae). Formerly in the *Dalea* genus, it is known by other names like Nevada Smokebush, dotted dalea, or *Dalea polyadenia*, this plant is relatively common in southwestern Nevada, but is also found in eastern California and Utah flourishing at elevations up to 6,000 feet in sandy or gravelly flats and slopes.

This shrub typically grows between 2 to 5 feet tall with highly branching stems that taper into “young stems clad in lustrous deflexed hairs” with small compound leaves made up of paired oval leaflets a few millimeters long ([Marcus 2020](#)). The vibrant inflorescences are dense spikelike clusters of pinkish purplish flowers. Blooming from June to September, the plant has the classic “banner-wings-keel” flower typical of the Fabaceae that fruits into a small legume pod containing one seed. Though its common name is indigo bush, its blooms can range in color from reddish-purple to light rose-

lavender hues accented with yellow spots.

One of the most distinct features of *P. polydenius* is its red or orange “blister-glands” scattered across its stems and sepals. These glands not only emit a strong citrus-like fragrance but also give the plant its names – *Psoro* and *thamnus* translate to “scabby” and “shrub” in Greek, then *polydenius* translating to “many glands” ([Blackwell 2006](#)). Ecologically, Nevada Indigobush is an important shrub for soil stabilization and nitrogen fixation in arid environments and serves as a valuable food source for pollinators, particularly native bees with its prolonged flowering period ensuring a steady supply of nectar. It is yet another plant that appears unassuming when driving down the highway, but this plant’s striking appearance and aroma make it a standout in the desert when appreciated up close and in-person.

Nevada Indigobush has also been a longtime resource for the Indigenous people of our region, historically used as a sort of “cure-all” for ailments ranging from stomach aches to tuberculosis ([NAEB 2024](#)). A bitter tea was



Flowering Nevada Indigobush (*Psorothamnus polydenius*) ©Peri Lee Pipkin, iNaturalist



Fruiting Nevada Indigobush (*Psoralea polydenia*) ©Carla Hoegen, iNaturalist

prepared from the plant using either steeped or boiled stems and the dosage was “never more than a cupful of the tea at a time.” It was also mixed with *Juniperus utahensis* (Utah Juniper) to create an antiseptic bath used to treat smallpox, with unknown success. This extensive traditional usage underscores the plant's significant biochemical potential, a theme echoed in modern research today. In the early 2000's, scientific studies revealed the pharmaceutical potential of *P. polydenia* in addressing neglected tropical diseases (NTDs; [Salem & Werbovetz 2005](#)). Extracts from the plant demonstrated antiprotozoal activity, showing efficacy against parasites such as *Leishmania* (the causative agent of leishmaniasis) and *Trypanosoma* (responsible for sleeping sickness). These diseases, spread by sandflies and tsetse flies respectively, disproportionately affect low-income populations in developing regions, underscoring the global health significance of just one of our native shrubs. Despite these findings, *P. polydenia* remains sorely understudied.

The genus *Psoralea* encompasses nine species currently confined to the Sonoran, Chihuahuan, and Mojave deserts, as well as the arid regions of the Colorado Plateau and Great Basin. *Psoralea*, as a whole, appears to be a treasure trove of pharmaceutically relevant compounds, with activities spanning antimalarial, antibacterial,

and antiparasitic effects. Another bioactive Nevada shrub in this genus is *P. arborescens* (Mojave indigobush) which was explored in 2020 as a potential treatment for COVID-19 given its antibacterial and antiviral properties ([BHL 2020](#)).

As a final note, I want to add that the strong aroma of *P. polydenia* is a bit controversial, with some finding the scent intoxicating and delightful, while others abhor it. I took an informal poll of members and quote them here describing the fragrance...

Cody Ernst-Brock: “Smoky oranges!!!”

Joshua Lovera: “I have always thought that this species smells of citrus almost like an orange. However I have met several people who claim that it smells like cat pee. I have heard it suggested that this divide is largely divided on gender, but that does not seem to hold true 100% of the time.”

Elizabeth Leger: “To me, it smells like burnt oranges, and I LOVE IT!”

Shannon Swim: “My recollection is tangy with a hint of sweet.”



Easy to look over! This is a landscape view of Nevada Indigobush (*Psoralea polydenia*) ©Tom Chester, iNaturalist