



NEVADA NATIVE PLANT SOCIETY



Eriogonum tiehmii. Photo by Dennis Ghiglieri

THE DISCOVERY, CONTROVERSY, AND CHALLENGE TO PROTECT A NEVADA ENDEMIC, *ERIOGONUM TIEHMII*

Story by Rose Strickland

Much has been written in the last few years about *Eriogonum tiehmii*. Newspaper and magazine articles, federal register notices, proposed ruling by the U.S. Fish & Wildlife Service (USFWS), plant status reports, transplant project reports, herbivory attacks and public comments to state and federal agencies chronicle the efforts to conserve and protect this native Nevada wildflower, endemic to a small basin in west central Nevada. Unfortunately, a proposed open pit lithium mine currently threatens the entire habitat of this globally unique species.

This little native plant has been the center of controversy since an Australian company began mining explorations in its limited habitat at Rhyolite Ridge in the Silver Peak Range of Esmeralda County on the western edge of Nevada. It has been surveyed, mapped, edged by new mining roads, partially fenced, and lost a huge percentage of its population to what some experts are convinced was herbivory by small rodents in search of water in extreme drought conditions in 2020. Its habitat has also been impacted by livestock grazing, off-road vehicles,

invasive species, longer and more extreme droughts, and climate change.

Occupying only about 10 acres in a 3 square mile area on public lands managed by the Bureau of Land Management, the plant appears to have little chance of survival against the severity of threats to its habitat without significant conservation and protection of the plant populations and their fragile habitat. But, there is good news. Jim Morefield, Nevada botanist, now retired from the Nevada Division of Natural Heritage (NDNH), believes the plant seems to be recovering well from the apparent climate/weather-induced herbivory event and has probably done so similarly in the past. He states, "if its habitat is otherwise left intact (including buffers for ecological processes, pollinators, dust, and other nearby disturbance), I think the species stands a good chance of long-term survival."

How did the story of this native Nevada plant begin? It has been occupying its niche in Nevada for thousands of years. According to archeologist Dave Rhode, desert Paiute and Shoshone tribes have many names for another *Eriogonum*, *E. inflatum*, and used the plant for food and medicine for millennia (Rhode 2002).

Since that time, the plant attracted little attention until one day in the spring of 1983. A young botanist working for the New York Botanical Garden surveying native plants in the Great Basin noticed a white hill on the slopes of Rhyolite Ridge gleaming in the late afternoon sunshine. Because he had learned that "strange habitats often have strange plants," Jerry Tiehm stopped to look at the plants there.

He found an *Eriogonum* which he'd never seen before. He collected and pressed the plant and later that summer mailed the specimens back to New York. Once in New York, he sent a specimen to noted *Eriogonum* expert, James Reveal. Reveal informed Jerry he had found a new species and that he would name it for Jerry. The next year, Jerry and Margaret Williams, founder of the Nevada Native Plant Society, (NNPS) visited the site with Dr. Reveal and his father and made the type collection. In 1985, Dr. Reveal published a new endemic Nevada species which he named *Eriogonum tiehmii*.

What did the botanists see when they examined the "new" little buckwheat? Dr Reveal wrote, "This remarkable species, named for Arnold (Jerry) Tiehm, may be immediately recognized by its large, distinctly lobed involucres, cream-colored flowers, and stipitate-glandular tepals. In this latter feature, *Eriogonum tiehmii* is unique. Minute glands are common on the inner surface of tepals in many species of caespitose buckwheats belonging to the sub-genus *Eucycla*. Tiehm's buckwheat is the only species with well-defined stipitate glands on the surface (Reveal 1985)."

Growing at the edge of the Mojave and Great Basin Deserts, why has *E. tiehmii* found a home in a possible old volcanic crater on boron and lithium-rich soils, toxic to most other plants? Botanists know that some plants prefer to grow in areas with little competition from other plants and little disturbance, even in altered soils in water-scarce areas. That definitely describes Rhyolite Ridge basin and its rugged and colorful landscapes, which some admirers believe should be a national park.

In the midst of the magnitude of threats to its existence, this *Eriogonum* has raised many concerns which has resulted in actions intended to conserve and protect it. An emergency petition to list the plant under the Endangered Species Act by the Center for Biological Diversity eventually resulted in a proposed listing as an endangered species by the USFWS. This agency also proposed to designate critical habitat for the species and invited the public to comment. The NNPS submitted comments in response.

In its comments, NNPS expressed strong support for the proposed critical

habitat of this endangered plant. As the world is currently in the midst of a biodiversity crisis, NNPS is concerned that without both a designation of critical habitat as well as special management protections, Tiehm's buckwheat faces threats which could lead to its extinction.

The letter to the USFWS also noted that according to the Nevada Division of Natural Heritage (NDNH), Nevada has 309 endemic species and subspecies and ranks 6th in the US in endemism by state, 11th in the U.S. in total species diversity, and 3rd in the U.S. in having the highest number of species at risk. NDNH is currently tracking over 640 at risk



Eriogonum tiehmii. Photo by Dennis Ghiglieri.



A pollinator visits Eriogonum tiehmii. Photo by Dennis Ghiglieri.

plant and animal species and nearly 200 species on the plant and animal watch list (Stein 2002). NNPS is especially concerned about these rare plant species and obtaining protection for their critical habitats.

In regard to Tiehm's buckwheat, NNPS expressed its specific concerns about the adequacy of the 500 meter buffer proposed by the USFWS to protect the plants from dust caused by extensive mining operations and from upslope disturbances. Questions were submitted about whether the agency had calculated the amounts of dust that would be generated by mining operations and whether the proposed 500 meter buffer was adequate to protect the plants from the potential negative impacts of dust on the hydrological processes of the plants including photosynthesis, reproduction, transpiration, water use efficiency, leaf hydraulic conductance and stomatal disruption - problems acknowledged by the USFWS in its critical habitat proposal.

Although the habitat of Tiehm's buckwheat, a sensitive BLM plant, is wholly on public lands and the

environmental impacts of proposed developments, like mining exploration permits, on sensitive species are required to be analyzed by the federal agency under the requirements of the National Environmental Policy Act (NEPA), no such analysis has been done. Under the 1872 Mining Act, some mining projects are eligible for a simple BLM notice and permit if they impact fewer than 5 acres. For this lithium mining exploration proposal, BLM has permitted two exploration projects of just below 5 acres directly proximate to each other, piecemealing the entire project. South Infill is 4.21 acres and Rhyolite Ridge is 4.98 acres, thus preventing any NEPA analysis of the project to be required by BLM.

BLM did ask the NDNH for a status report on Tiehm's buckwheat and conservation and recovery recommendations. In 1995, Jim Morefield edited the NDNH status report which was based on a 1994 status survey report conducted for NDNH by Jerry Tiehm. It is unknown if BLM implemented any of NDNH recommendations in issuing the exploratory mining permits. They included:

1. Establish monitoring of all known sites to document the demographic baseline, understand population trends, and assess impacts from habitat disturbance.
2. Eradicate invasive species to prevent their establishment and spread at known sites to avoid impacts from competition.
3. Do not permit fire suppression,

reseeding, or range treatments of any kind including opening access routes.

4. Fencing, salt block placement, or other livestock management activities likely to increase concentrations of animals should be prohibited in and near the known sites.
5. Assess the role of insect pollinators in the reproductive success of Tiehm's buckwheat and avoid impacts to pollinators.
6. Pursue special land designation in the form of an Area of Critical Environmental Concern (ACEC) to include all known populations and enhance protection of Tiehm's buckwheat including mineral withdrawals.

Dr. Naomi Fraga, Conservation Director of the California Botanic Garden, made additional recommendations to BLM for special management in her support of the listing petition, referencing plant conservation strategy by the Center for Plant Conservation. These include conserving all known naturally occurring populations, elimination or reduction of threats, providing habitat management, and securing ex-situ conservation seed collections.

BLM needs to use its regulatory authority to protect threatened, endangered and sensitive species. NNPS and others concerned about the fate of this endemic native plant can provide these and other comments on how to conserve and protect Tiehm's buckwheat and its habitat to the BLM when the

agency initiates the NEPA process to analyze environmental impacts of the proposed open pit lithium mine and to require avoidance, minimization, and mitigation for mining impacts on *E. tiehmii*. Similarly, when the USFWS finalizes its proposal to designate Tiehm's buckwheat as an endangered species and begins to develop a recovery plan, these and other public comments can be submitted.

NNPS will keep its members informed on all future opportunities to support the conservation and protection of this special Nevada native plant.

To read more on discussions of the plight of *E. tiehmii*, the moral debate over the benefits of mining lithium for batteries for electric cars to reduce emissions and slow climate change vs. the costs of the possible extinction of a little endemic plant in Nevada, and the efforts to ensure its continued existence, see: <https://www.wired.com/story/lithium-mine-for-batteries-versus-the-wildflower/>

REFERENCES

Reveal, James L. (1985). "New Nevada entities and combinations in *Eriogonum* (Polygonaceae)," *Great Basin Naturalist*: Vol. 45 : No. 2 , Article 6. Available at: <https://scholarsarchive.byu.edu/gbn/vol45/iss2/6>

Rhode, D. (2002). *Native Plants Of Southern Nevada* (1st ed.). University of Utah Press.

Stein, Bruce A. (2002). *States of the Union: Ranking America's Biodiversity*. Arlington, Virginia: NatureServe.

SOCIETY NEWS

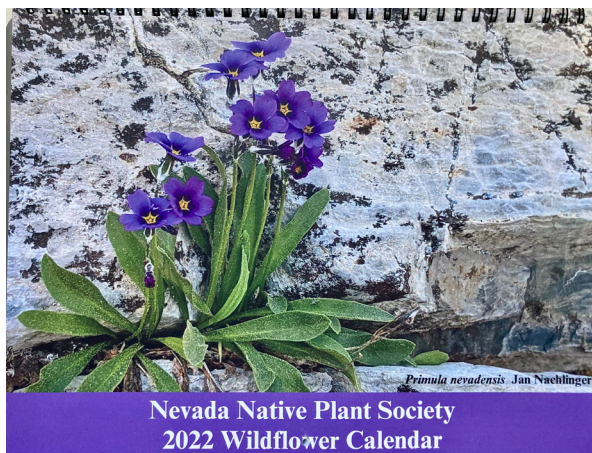
UPCOMING EVENTS

Nevada Native Plant Society meetings will resume in fall.

2023 NATIVE PLANT SOCIETY CALENDAR

We want your photos! Our calendars are filled with photos taken by members of the society. Photos can be flower close-ups, plant portraits or plants in their habitat. Each member may submit up to four photos for consideration. Photos should be taken in Nevada or on NNPS field trips. Photos do not have to be taken in 2022 but we ask that you do not submit photos that were entered in previous years. Photographers will be credited on the calendar.

The 11" x 8.5" calendar will be printed by Mixbook on heavy duty, matte paper. The calendars will cost somewhere between \$13 and \$15. We will arrange



The front cover of the Nevada Native Plant Society 2022 wildflower calendar.

collection places in Reno, Carson City and Las Vegas. Calendars can also be mailed to you; cost of mailing depends on the size of your order.

Calendar and submission details:

- August 1st – 21st photo submission period.
- Photos may be submitted to the website (<https://nvnp.org>), our Facebook page (<https://www.facebook.com/NevadaNativePlantSociety>) or via email to social@nvnp.org
- Beginning of September, 'winners' will be contacted for their original photos (at least 3300 by 2500 pixels)
- Mid October calendars should be ready for distribution.

Contact Emma Wynn at social@nvnp.org for more info.

NNPS 2022 EARTH DAY EVENT

Our first in-person event in almost 3 years was a success! The weather was beautiful and lots of people came out to celebrate at the Reno Earth Day Event. There was a lot of interest in native plants and Emma's match the seed to plant game was a huge hit with kiddos and adults alike! We sold \$105 in Wildflower books, rulers, and stickers. We have completely sold out of the old wildflower books! They were a huge hit and our top selling item.

Special shout out to Sarah Kulpa, Charlie Duncan, Emma Wynn, Connie Douglas, Lea Condon, and Gary Monroe who all generously volunteered their time and made the event a huge success by sharing their passion for native plants!



NNPS Earth Day volunteers discussing native plants with visitors.

NEWSLETTER

Have something to share? We would love to consider your recent trip reports, phenology reports, or Nevada botanical musings for the NNPS newsletter. Contact the editor, Ranae Zauner, for details.

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Rare Plants: Jim Morefield
rareplants@nvnp.org

Social Media:
Emma Wynn, social@nvnp.org
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Nevada Native Plant Society
PO Box 8965
Reno NV 89507-8965

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Newsletter preference: ☐ Paper ☐ Electronic

- | | | |
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| • Individual, family or group for one year | \$20.00 | Dues are for the calendar year in which you join. Membership expiration dates are on the mailing labels. |
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Gifts, and bequests are tax deductible.

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