

GREAT BASIN
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President's Message



Greetings to all! Now that we're well into springtime, many of us have been able to begin our field seasons. I hope what you're seeing isn't too distressing. Looking at the latest U.S. Drought Monitor map, I don't see a single part of our region (except for a couple of counties along the Oregon-Washington border) that isn't in a condition of D1 (Moderate Drought) or worse. We all realize how much more difficult our restoration task can be in drought, but it's good to know we have so many bright minds in our chapter and the Great Basin who are working on how to meet this challenge.

When the SER-GB leadership team met at the end of April, a lot of our discussion focused on our goal of increasing university student participation in SER and restoration. We were joined on the call by leaders of two new student organizations that are affiliated with our chapter: Laura Shriver, president of the University of Nevada, Reno student group that formed late in 2021; and Leanna DeJong from the Utah State University student group that became an official SER affiliate at the beginning of May. Both groups are infused with energy and we look forward to hearing good things from them in the coming months and years.

To assist the student groups, the chapter will pay the student associations' annual dues until they can get on their feet. We're also pleased to be able to provide further assistance by continuing the summer student research award competition that was begun last year. As I write this we're reviewing the 12 applications submitted. These students have a lot of interesting ideas, and I really wish we had enough funds to support them all!

We also will be able to use the Paul Doescher Memorial Fund, named for a well-loved Oregon State University professor who influenced the careers of many of us, to assist with student travel to conferences. Hopefully we'll have great student and professional participation at our next **SER-GB Conference in March 2023**. The exact dates haven't yet been selected, but we'll be meeting at Boise State University.

President's Message cont'd

It's been several years since we've had a chance to get together in person, and I hope to get to see you all there. In the meantime, I wish you all a productive start to the summer, and that we all can enjoy the restorative benefits of being out in the landscapes we care deeply about!



Penstemon miser—Castle Creek, Owyhee County—Photo: Anne Halford

Welcome to the New BLM Great Basin Native Plant Materials Coordinator



Dr. Alison Agneray is an ecologist and researcher whose work for the last ten years has focused on the plant communities of the Great Basin Desert. In her role as Ecoregional Coordinator for the Bureau of Land Management, Alison is the point of contact for the implementation of the BLM's Native Plant Materials Development Program in the Great Basin. Alison recently completed her doctorate in Ecology, Evolution, and Conservation Biology at the University of Nevada, Reno in 2022. Her dissertation work focused on optimizing seed sources and mixtures to restore degraded habitats in the Great Basin. Throughout her career, Alison has mentored and managed 110+ personnel, including other experienced biologists establishing statewide monitoring programs. She also founded the SER student chapter for UNR and is actively serving on the board for SER's International Network for Seed-based Restoration as Secretary.

Alison prides herself as an effective communicator with a passion for connecting diverse stakeholders to the latest evidence-backed conservation strategies. Now, Alison is looking forward to a new career with the federal government stationed at the Nevada State Office in Reno, Nevada. There, she is working alongside the region's State Botanists and the National Program Lead to improve the access and the use of native plant materials to advance restoration on a broad scale. Her program seeks to improve every step of the native plant materials development cycle from targeting seed collections by seed zone, to working with producers to diversify the native seed available for restoration projects. Alison can be reached at aagneray@blm.gov

Hint: This species is blooming or setting seed in many parts of the Great Basin this month and into June.

Additional hints (to be presented at the end).

This perennial forb species occupies an elevation range of 330 to 9,850 feet and is common on deep, well-drained, fine- to coarse-textured soils. It grows where the annual precipitation averages 12 inches or more. Plants are very long-lived and produce deep, large, partially woody taproots that reach up to nine feet deep. Plant growth begins about 20 days after snow has melted. Seed is often mature by mid-June. In pollinator surveys of plants growing in Utah, the most frequently collected bee pollinators were mason bees (*Osmia* spp.), mining bees (*Andrena* spp.), longhorned bees (*Eucera* spp.), furrow bees (*Halictus* spp.), sweat bees (*Laioglossum* spp.), and

Name That Seed

Corey Gucker, USFS Rocky Mtn. Research Station

cuckoo bees (*Nomada* spp.). Total bee visitors represented 15 different genera and 32 unique species.

This species provides important food and cover for many wildlife and livestock species including elk, deer, bighorn sheep, various small mammals, and game birds. It is one of the most important, early season species for wildlife. It is highly palatable and sought after from before the time of first leaf emergence through flowering. Large mammals are thought to migrate to large patches of this plant for feeding.

The species has antibacterial and antifungal properties and remains an important food, medicine, and ceremony plant to Indigenous peoples. The shoots, mature seeds, and roots are edible and nutritious. In the past, roots of

this species were even used in trading.

Seed ripens relatively uniformly and is easily collected by hand stripping, beating flower heads into a container, cutting stems, or plucking intact flower heads. Seed is harvestable when flowers are dry, seeds are dark brown or black, and seeds are not dented by fingernail pressure. Insect predation of flower heads is common. As flowers are maturing, collectors can cut across the flower head horizontally to see how many flowers are producing viable seeds, which will appear white and plump. This allows collectors to return only to those sites with the greatest percentages of filled seed. If sites are visited as seed is maturing, seed fill can be

evaluated by cutting the seeds. Because filled and non-filled seeds appear nearly identical, seeds must be cut with a knife to determine fill. Empty seeds will be papery on the inside and often collapse under the pressure of the knife. Immature seed is retained longer in the flower heads than mature seed.

Based on field growth trials, good seed production for this species is reached once stands reach three to six years old. Stands produce harvestable seed drops for up to 30 years. Because of its slow growth rate, this species should be seeded in rows separate from rapidly growing species in wildland settings. It can take 10 years or more for this species to reach reproductive maturity when seeded with more rapidly growing species. Although reproduction follows slowly after establishment, this species grows large providing good soil cover and competition while reaching reproductive maturity. Seeding this species in alternate rows with bluebunch wheatgrass has been particularly successful in wildland revegetation.



Figure 1. Dry fruits and fruit segments (left). Single seed close-ups (right). Photo: U.S. Department of the Interior, Bureau of Land Management ID931, Seeds of Success.



Photo: Arrowleaf balsamroot growing in Nevada. Photo: USDI BLM NV930 SOS.

Answer. Arrowleaf balsamroot (*Balsamorhiza sagittata*). Learn more about this species and other native forbs useful for Great Basin restoration in the online book, [Western Forbs: Biology, Ecology, and Use in Restoration](#)

Student Chapter Updates

University of Nevada, Reno's Restoration Ecology Club Completes its Second Semester

Laura Shriver, Aramee Diethelm, Tessa Bartz, and Dr. Beth Newingham

Ecology, Evolution, and Conservation Biology Program, University of Nevada, Reno

The University of Nevada, Reno Restoration Ecology Club had a productive Spring semester. We have grown to 42 members ranging from graduate students studying ecology to undergraduate students who are learning about restoration ecology for the first time.

We started our semester with a tour of Rosewood Nature Study Area (Figure 1). Rosewood used to be a golf course, and a local non-profit, the Truckee Meadow Parks Foundation, is working on conserving and restoring the wetland and upland habitats and engaging the local community. Rosewood graciously hosted the

Restoration's Make a Difference Day in 2021, and we are planning to have a tea party and weeding day in their pollinator garden on June 11th for *Make a Difference Day* in 2022.

We also organized four volunteer days this semester. We helped graduate student Charlene Duncan collect data on geophytes (perennial plants that grow from underground storage organs, i.e. tuberous roots, bulbs or corms), including four species of *Lomatium* at Lower Thomas Creek (Figure 2). Geophytes are significant food staples in traditional Indigenous diets, and the diverse remnant patches at Lower Thomas

Creek appear to have characteristics of manipulation and cultivation in the past as an Indigenous food resource. Charlene is examining the impacts of grazing on the geophytes at Lower Thomas Creek by collecting community data before and after sheep grazing.

The Club also volunteered to weed three pollinator gardens on the UNR campus (Figure 5). We removed invasive weeds including flixweed, cheatgrass, and prickly lettuce.

Student Chapter Updates cont'd.

Many plants in the pollinator gardens are blooming, and we observed several pollinators enjoying them (Figure 6).

We are looking forward to SER's Make a Difference Week this year, and excited to plan our field trips and adventures for the fall semester. We are always looking for speakers, places to visit, and volunteer opportunities for our members. You can reach us at RestorationEcologyUNR@gmail.com and be sure to follow us on Twitter @UnrSer.



Figure 1. Restoration Ecology Club members at Rosewood Nature Study Area in Reno.



Figure 2. Rosemary Fredrick, Aramee Diethelm, and Charlene Duncan identifying plants at Lower Thomas Creek. Photo by Laura Shriver



Figure 3. A quadrat with several species of Lomatium at Lower Thomas Creek. Photo by Laura Shriver.



Figure 4. Sheep grazing at Lower Thomas Creek. Photo by Charlene Duncan.



Figure 6. Pollinators on native plants in the pollinator at UNR. From left to right: honeybee on an *Eriogonum umbellatum*, true bug on *Baileya multiradiata*, and bumblebee on *Stanleya pinnata*.



Figure 5: Top: Restoration Ecology Club members weeding a pollinator garden on the University of Nevada Reno's campus; bottom: before (left) and after (right) weeding.

Upcoming Events and Research

7/16-21 Sixth North American Conservation Biology [Congress](#)- Reno, NV

7/26-28 Western Governors' Association [Annual Meeting](#)- Coeur d'Alene, ID

8/15-18 Sage and Columbian Sharp-Tailed Grouse [Workshop](#)- Logan, UT

8/29-9/1 National Tribal and Indigenous Climate [Conference](#)- St. Paul, MN

Research

Link to this very timely collection of papers about the importance of common gardens for understanding climate adaptation, and thus for making decisions about native plant materials to develop and use.

<https://besjournals.onlinelibrary.wiley.com/toc/13652745/2022/110/5>

[Phenotypes and environment predict seedling survival](#) with invasive grass

Trajectories of post-fire [seeded treatments driven by seed mix species](#)

Multiple drone flights through the season [can highlight seasonal differences in plant functional groups](#)

[Four paths toward realizing the full potential of using native plants during ecosystem restoration in the Intermountain West](#)

[Bridging the gap between spatial modeling and management of invasive annual grasses](#) in sagebrush

[Monitoring for adaptive management of burned sagebrush-steppe rangelands:](#)

The 2015 Soda Megafire—USGS [invasive annual grass \(IAG\) spatial dataset compilation and synthesis](#) summarized by SRFSN

[Climate change increases risk of extreme rainfall following wildfire](#) in the western US

Ecological [Drought Forecast Tool for drylands](#)

Creating [jobs through sagebrush conservation partnerships](#)

Webinar Recordings

[Connecting native plant materials development with successful habitat restoration- Native Seed in Restoration](#)- Workshop presentations

Upcoming Events and Research cont'd

SER's Certified Restoration Practitioner Applicant Window is open now—**Applications are accepted on a rolling basis year-round. Applications received by April 30 will be reviewed by June 30; applications received by October 31 will be reviewed by December 31.** Check out the applicant portal here: <https://www.ser.org/page/Certification>

SER's Certified Ecological Restoration Practitioner (CERP) program encourages a high professional standard for those who are designing, implementing, overseeing, and monitoring restoration projects throughout the world. The only certification program for restoration practitioners, the program guarantees that practitioners meet a set of minimum requirements for restoration and ecological knowledge, on-the-ground practical experience, and an understanding of international restoration principles and standards.



Eremogone frankinii (Franklin's sandwort) —Castle Creek, Owyhee County—Photo: Anne Halford