

**GREAT BASIN**  
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**INSIDE THIS  
ISSUE:**

<b>University of Nevada Reno Seed Processing and Storage Center</b>	<b>2</b>
<b>SER Great Basin members participate in the SER 11th World Conference, Darwin, Australia</b>	<b>3-4</b>
<b>Name that Seed, and Answer</b>	<b>5-6 9</b>
<b>Publication of a companion guide to Western Forbs: Biology, Ecology, and Use in Restoration</b>	<b>6</b>
<b>Diversify crop production, expand markets and help in restoration efforts</b>	<b>6-7</b>
<b>Post-Fire Restoration Science</b>	<b>7</b>
<b>Upcoming Announcements</b>	<b>8</b>

## President's Message



I've been looking back at our newsletters and realized that the first of these that I wrote was back in August 2021 as I was preparing to take over the president's role from Trevor Caughlin. Now, more than two years later, my term is officially about to end. It's time for new leadership. In addition to the president, we are served by a treasurer (Owen Baughman), newsletter editor (Anne Halford), and website manager (Sara Barga). These three individuals have done an outstanding job. At some point, however, they should be given the chance if they wish to pursue new opportunities to serve the chapter, the Society, and the land. Anyone who is interested in filling any of these roles can reach out to Owen, Anne, Sara, or myself. If any of these positions sounds interesting to you, volunteers and nominations will be greatly appreciated.

The past two years have seen us take some significant strides as a chapter, especially toward our goal of supporting student chapters and nurturing the next generation of restoration practitioners and researchers. Student associations have been established at the University of Nevada-Reno and Utah State University. We were able to support summer research projects for three graduate students in 2022 and two more in 2023. We heard excellent student presentations at our virtual annual meeting in April of this year.

For me personally, a highlight of the past two years has been seeing USU's chapter take off and establish itself. The group has assisted with restoration efforts alongside members of the Northwest Band of the Shoshone Nation, which is working to restore the site of the 1863 Bear River Massacre in southeast Idaho. They've also had a chance to participate in stream restoration projects with USU's beaver ecology and relocation project. An ongoing project involves the establishment of pollinator habitat and a small restored wetland at a heavily disturbed site owned by the Bear River Land Conservancy here in Cache Valley. In getting to know and work beside these students, I feel confident that our profession will be in good hands as these folks launch their restoration careers.

Lately I've also had a chance to interact with other chapter leaders from across the country and the globe through SER's chapter relations committee. It's interesting to hear how the challenges we face are similar worldwide. Also I meet regularly with other members of the Outreach Committee for the 2024 North American Conference. (See elsewhere in this newsletter for more about the conference.) I'm looking forward to attending, and seeing many of you, at the conference in Vancouver, BC, a bit less than a year from now. If you can help out with that, great! If not, there likely will be other opportunities to serve as a meeting organizer now that the Society has announced its next global SER Conference will be in Denver in fall 2025.

Mark Brunson

Professor  
Dept. of Environment and Society  
Utah State University  
[Mark.Brunson@usu.edu](mailto:Mark.Brunson@usu.edu) Brunson

# University of Nevada, Reno Native Seed Processing & Storage Center

Shannon Swim and Beth Leger

Seed-based restoration is the dominant practice in Great Basin ecosystems, and seed limitation is a real barrier to our efforts to restore native plant communities. Whether native seeds are sourced from wild populations or from agricultural fields, seed cleaning is an essential step before seeds can be deployed in restoration projects. Growers and collectors have some resources for this currently, but many are private, only available to Federal users, or subject to long wait times, as efforts to provide seed are increasing. To meet regional needs, the University of Nevada, Reno (UNR) Native Seed Processing and Storage Center was created in 2017 to help fill this need for processing and storing native seed. Our center contains equipment to extract, finish, test, and store native species, and we are excited to be a new resource for seed processing and storage needs in the Great Basin.

Seeds of native species can be challenging to work with because they are not uniform like agricultural species, and often contain different amounts and types of inert material, including weed seed, which can be difficult to remove. We work to conserve as much diversity in the seed cleaning process as possible, as maintaining genetic variation in native species is a top priority to help increase restoration successes. Because each species, population, and collection are unique, we spend time considering the best method for processing each lot, and we use a versatile array of equipment (Table 1) to properly process each collection. We have the ability to serve the seed cleaning needs of private industry, public agencies, private individuals, and researchers.

One of the great things about being at a University is that we can engage in experimentation and research as part of our mission, and thus we are able to accept difficult species, imperfect collections (i.e. weed contaminants and/or excess extraneous material), or lots that are otherwise unruly. “

For every collection, processing involves two stages: extraction, which breaks up plant material to loosen seeds, and finishing, which is separating seeds from chaff or extraneous material. After processing, seed purity and viability tests can be performed; purity and viability combined results in estimates of Pure Live Seed (PLS), which is vital in understanding the amount of quality seed that has been collected.

For larger seeds, we have the ability to nondestructively sample for viability with an x-ray machine. We also have the ability to store small amounts of seed for the short-term in a refrigerator or longer-term in a freezer.

Since its inception, the UNR Seed Bank has handled over 70 different species and over 400 different seed lots for various Federal, private, NGO, and University affiliates. Our Center would not have been possible without the guidance of the fabulous folks at the Bend Seed Extractory and support from the Bureau of Land Management and US Fish the Wildlife Service. Let us know if you have any questions or seed-cleaning needs by reaching out to our Manager, Shannon Swim, at [swim@unr.edu](mailto:swim@unr.edu)

Type:	
<b>Extraction:</b>	Westrup Brush Machine
	Missoula Dewinger
	Thresher
<b>Finishing:</b>	Mater Continuous Blower
	Office Clipper
	Vibratory Separator
	Various Sieves
<b>Testing:</b>	Germinator
	X-ray
<b>Storage:</b>	Richter Optica Microscope
	Rotronic Moisture Analyzer
	72 cuft Reach-in Freezer
	72 cuft Reach-in Refrigerator



Figure 1. UNR Native Seed Bank Manager, using the brush machine.

## *SER Great Basin members participate in the SER 11th World Conference, Darwin, Australia*

Nancy Shaw, Research Botanist (Emeritus), USDA Forest Service,  
Rocky Mountain Research Station

The SER2023 World Conference held September 26-30 in Darwin, Australia, focused on restoring the connection between nature and culture and emphasized the place of restoration in strengthening that connection. More than 1,000 delegates from 80 countries attended.

The leadoff plenary session featured Indigenous leaders who appealed for increased commitment of local communities to ecological restoration. Marina Best of the Métis community commented that “Indigenous communities manage or have tenure rights to an estimated 85% of global areas proposed for biodiversity protections.” The second plenary stressed the need to incorporate ecological restoration knowledge into corporate business strategies to meet Net Zero emissions and biodiversity targets, and the third provided case studies demonstrating how ecological restoration with a focus on youth can empower communities.

Conference training sessions, symposia and workshops included topics from global ecosystems ranging from local knowledge and innovations to new technologies, research outcomes, community programs, and national initiatives.

SER Great Basin Chapter members Francis Kilkenny, Matt Germino, Leah Prescott, Bryce Richardson, Elizabeth Milano, Berta Youtie, and Nancy Shaw attended the Conference. They contributed oral or poster presentations, organized and participated in workshops, and planned and moderated sessions. Sara Barga, though unable to attend, participated on the Program Committee.

At the closing ceremony, SER and the UN Decade on Ecosystem Restoration Advisory Board issued a joint [Call to Action](#) that emphasizes the need to scale up standards-based restoration world wide to re-establish a healthy connection between people and nature.

[The SER2023 virtual conference, 7-8 November 2023](#), will feature more than 100 live presentations and workshops and provide access to recordings of more than 700 presentations from the live Conference in Darwin.



Red Kurrajong (*Brachychiton megaphyllus*) Darwin, Australia's floral emblem

## SER World Conference, cont'd



Kingsley Dixon, SER Chair, opening the Conference



Leah prescott presenting on the US National Seed Strategy



Berta Youtie, Nancy Shaw (3<sup>rd</sup> and 5<sup>th</sup> from left) with US and Brazilian speakers and colleagues following a session on native seeds



Francis Kilkenny practicing the didgeridoo



Francis Kilkenny presenting "An innovative seed procurement and research partnership in the Great Basin of the United States"



Workshop on developing native seed mixes

## Name That Seed

Corey Gucker, USFS Rocky Mtn. Research Station

**Hint:** This species is short-lived and common on disturbed or early seral sites. Plants contain a milky sap.

**Figure 1.** A single seedhead averages 30+ individual seeds. Photo: USDI BLM OR030 SOS



**Additional hints (to be presented at the end).** This yellow-flowered forb is widely distributed throughout the western United State and Canada. It grows on any aspect in dry to moist or even wet conditions in meadows, sagebrush (*Artemisia* spp.) steppe (Fig. 1), pinyon-juniper (*Pinus-Juniperus* spp.) woodlands, coniferous forests, and alpine tundra. Populations occur at elevations of 300 to 12,500 feet. The species is considered very adaptable, growing in many soil types and moisture conditions, but the density and size of plants are often greatest on open plateaus and well-drained glades with deep, loose, gravelly, clay loams.

Distinguishing this species from its relatives is difficult because traits can vary region to region, misleading and inaccurate plant descriptions persist in the literature, and hybridization and intermediate forms are common. Although many variant forms exist, plants are perennial and scapose with solitary, terminal yellow flower heads. Stems are slender, erect, and can reach 30 inches tall in areas with long growing seasons. Plants have strong and often deep taproots, which can penetrate 2 feet in loose soils.

Flowers are produced from May to September, and mature seed can be found from June to September. This wind-dispersed species is an early colonizer of disturbed sites, and populations are often larger and denser on disturbed than undisturbed sites.

Flowers are pollinated by a variety of bees, wasps, flies, and butterflies. In a study of bee fauna and flora relationships from shrub steppe to high alpine communities in north-central Washington, bumblebees (*Bombus bifarius*, *B. insularis*), leafcutting bees (*Coelioxys sodalist*), furrow bees (*Halictus farinosus*, *H. annulatus*), sweat bees (*Lasioglossum* spp.), and mason bees (*Osmia brevis*, *O. coloradensis*, *O. tristella*) visited the flowers of this plant.

This species is an important wildlife and livestock species, providing food for native ungulates, sheep, cattle, and a variety of small mammals. This plant and its associated insects are important to greater sage-grouse that feed on the leaves in the late spring and early summer brood-rearing season. It is also an important nectar source for a variety of insects.

There are several challenges with collecting wildland seed of this species. It can be difficult to locate as populations are most easily observed when plants are in full flower, but plants are often small, occur in low abundance, and are intermixed with larger statured species. Flowering seasons can be short, and flowering is not guaranteed annually. Seed retention time is short once seeds are mature, and the seed is readily wind dispersed.

Seed is typically collected in June in the Great Basin (5,000-6,000 ft). In this region, plants typically produce one or two seed-heads annually, but with sufficient summer moisture additional flowering stalks may be produced. First seed heads ripen about two weeks before subsequent seed head maturation. Because seed is naturally wind-dispersed, careful monitoring is important for timing wildland harvests.

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## *Publication of a companion guide to Western Forbs: Biology, Ecology, and Use in Restoration*

Sarah Barga, Research Botanist, USFS  
Rocky Mountain Research Station

Many of you may be aware of the online book *Western Forbs: Biology, Ecology, and Use in Restoration* ([westernforbs.org](http://westernforbs.org)), which contains detailed information on many forbs of interest for use in restoration. This online book synthesizes existing research and practical experience into a resource for seed collectors, growers, nursery staff, landowners, restoration practitioners, and land managers.

Recently, the authors of the online book, Corey Gucker (Great Basin Fire Science Exchange) and Nancy Shaw (USFS Rocky Mountain Research Station – RMRS [emeritus]), partnered with Sarah Barga (USFS RMRS) to distill the information from the online book into a field guide that is a physical resource of information and points to more detail available in the online book.

The Field Guide Companion summarizes plant, seed, and fruit identification information, general species ecology, and important tips related to seed collection and planting.



A copy of the companion guide can be found at:

[Field Guide | Western Forbs](http://westernforbs.org/field-guide-2/) ([westernforbs.org/field-guide-2/](http://westernforbs.org/field-guide-2/))

If you are interested in obtaining a physical copy of the companion guide, please contact Sarah Barga at [sarah.barga@usda.gov](mailto:sarah.barga@usda.gov).



*Diversify crop production, expand markets and help in restoration efforts with free native seeds*

Stephen Kielius, Agriculturist, Division of Plant Health and Compliance

Over the last several years, Nevada has seen an increased need for restoration and rehabilitation efforts. From wildfires devastating landscapes to combatting invasive weed species, the need for locally adapted native plant species has never been higher.

The majority of the seeds used in Nevada for rehabilitation and restoration projects are not genetically appropriate for the areas in which they are planted, but rather, grown and adapted to cooler and wetter growing conditions than is available in this region.

The Nevada Department of Agriculture (NDA) Foundation Seed Program aims to provide free native seed to producers in an effort to increase Nevada's available seed stock. Native seeds grown in the state are adapted to Nevada's unique climates.

In return, the program asks that a portion of the applicant's yield be returned at no cost to create a sustainable foundation program. The amount of seed returned to the program will be determined at the time of award on a case-by-case basis. The applicant is then free to use the remaining yield in continued or expanded production on their farm, or to sell the remainder of their yield in the native seed market to be used in restoration and rehabilitation efforts.

This program supports growers that are new to growing native seed, along with experienced growers. Resources are available through the NDA and partners to give farmers awarded seed the best chance at success. The NDA is committed to supporting any producers attempting to grow native plant species, not just those that are admitted into the Foundation Seed Program. With access to technical guides and expert advice, the NDA can help producers begin their venture into the native seed market.

To find out more please contact Stephen Kielius at [seed@agri.nv.gov](mailto:seed@agri.nv.gov) or (775) 399-0284.



## Post-Fire Restoration Science

A new 9-part series "[Native Seeds: Supplying Restoration](#)" about the native seed supply chain in the Western United States by the International Network for Seed-Based Restoration. Several Great Basin scientists and Restoration Practitioners are featured in these videos.



[Pollinator-friendly plants for restoration](#)

[Influence of seeding treatments on vegetation succession following wildfire](#)

[Post-fire native species seed mixes are effective at keeping out cheatgrass in the Great Basin](#)



# Upcoming Announcements

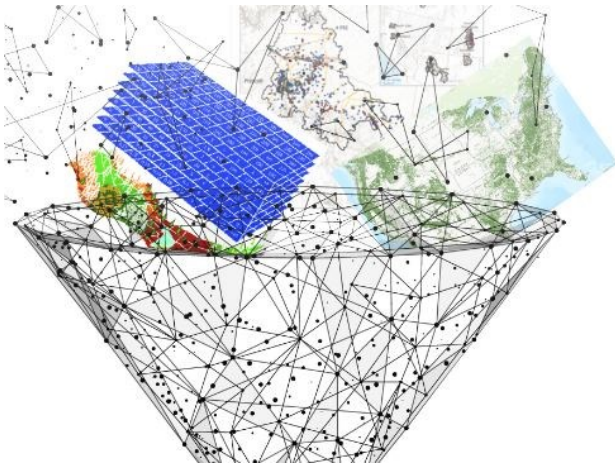
We are excited to share that [EcoRestore Utah](#) has just launched as a new USU tool for ecological restoration in Utah. The EcoRestore Utah portal provides a native plant species tool that allows users to input site information and receive a recommended native plant species list. It also houses resources related to doing ecological restoration including: how to meet specific restoration goals, how to prepare sites, what to do after a restoration project, and local resources such as native plant nurseries by county. We hope that you will use this resource and share it with practitioners, colleagues, and anyone who may be interested in ecological restoration.

Please reach out to me ([kristina.young@usu.edu](mailto:kristina.young@usu.edu)) with any questions or feedback about this new resource.

## Prioritizing Landscape Treatments

11/9 at 12:00 PST/1:00 MST  
 Framework, analysis, and case study from the Southwest Idaho Wildfire Crisis Landscape.

### [Details and Registration](#)



**SER2025** is scheduled to occur in Denver from **September 25 to October 4, 2025**, in the heart of Colorado, USA. This event is noteworthy as it marks the first North American conference since SER's 5th World Conference held in Madison, Wisconsin in 2013.

**SER 2024 NORTH AMERICAN CONFERENCE!**  
 Cross-Biome Connections: Ecological Restoration on a Diverse Continent

October 28th to November 1st 2024

Vancouver, BC  
 Pan Pacific Hotel

Seeking sponsors! Please reach out if you'd like to support the inaugural North American conference. More information about sponsorships available here: <https://sernac.org/become-a-sponsor/>

Stay tuned for updates!  
 Visit <https://sernac.org/> for more information!

1/28-2/1 Society for Range Management [Annual Meeting](#)- Sparks, NV

2/7-8 [National Native Seed Virtual Conference](#)

Now [accepting abstracts](#) until 10/14



Idaho Seeds of Success 'Smug Mug  
 Photo—*Penstemon acuminatus*—





Figure 2. Pale agoseris growing in Wyoming. Photo: USDA BLM WY020 SOS.

**Name that Seed Answer:** Pale agoseris (*Agoseris glauca*). Learn more about this species and other native forbs useful for Great Basin restoration at [WesternForbs.org](https://www.westernforbs.org)