

GREAT BASIN
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President's Message



I hope you're looking forward to the SER-Great Basin chapter meeting to be held in person on **March 21, 2023, at Boise State University**. We'll hear from speakers in the morning who will share insights from research and practice, there will be a brief lunchtime business meeting, and (weather permitting) an afternoon field trip. Many of you may want also to attend the Great Basin Consortium conference the next day, March 22. Our chapter is part of the Great Basin Consortium, a "partnership of partnerships" that also includes the Great Basin Native Plant Project and the Great Basin Fire Science Exchange, among others.

For the speaker session, **we still are welcoming abstracts** from anyone interested in sharing the results of a research project, field trial, or other restoration activity. We all can learn from what you've been doing, whether you consider it successful or not. Please visit the chapter website to submit abstracts for consideration or to propose a workshop or field trip idea. Here's the direct link: <https://chapter.ser.org/greatbasin/2023-sergb-conference/>.

As a Utah State University faculty member, it's been fun to watch our university's new student organization, SER@USU, as they have begun their first semester of activities. So far they've taken part in a forb-planting activity at a rare plant preserve operated by a Cache Valley nonprofit and shrub planting for the Utah Division of Wildlife Resources, and members have volunteered for a project that uses beavers for stream restoration. I've been quite impressed with the enthusiasm and initiative of these undergraduate and graduate students, and look forward to seeing what else they accomplish in the coming months.

Similar great things are happening in our chapter's two other affiliated student organizations at Brigham Young University and the University of Nevada-Reno. It's been a chapter priority to encourage and support the next generation of restoration practitioners and scientists, and it seems like we're on the right track.

Mark Brunson

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UNR Restoration Club's Fall Semester

Laura Shriver, Ranae Zauner, Aramee Diethelm, Otis Clyne, and
Dr. Beth Newingham

The University of Nevada, Reno Restoration Ecology Club is celebrating a milestone; we've been a club for over a year! We currently have 49 members, a mix of graduate and undergraduate students, who range from students studying restoration ecology to students learning about it for the first time.

This semester we've been preparing for our first fundraiser: a holiday plant sale. We hosted a plant propagation social where we demonstrated houseplant propagation techniques and gathered plant donations (Figure 1). Graduate student Charlene Duncan brought succulents and cacti, including some native North American species, and showed us how to propagate and care for them (Figure 2).

We've been growing the plants in a greenhouse, and we hosted a club social to pot them (Figure 3). We taught students when propagations are ready to plant, potting techniques, and what types of soil mixes to use for certain plants. Many of the plants have grown roots and we're excited to sell them at our fundraiser in December (Figure 4). Our fundraiser will start through an online sale, so if you are in the area and able to pick up plants at UNR in Reno, please email us at RestorationEcologyUNR@gmail.com and we will send you information about the sale.

In other exciting news, graduate student Ranae Zauner has taken over as Club President. Ranae is a fourth year PhD candidate studying the effects of herbicide and drought on Mojave Desert plant communities with our faculty advisor, Dr. Beth Newingham. Ranae is passionate about restoration ecology and is excited to plan field trips, organize volunteer events, and connect with the local restoration community.

We are currently planning field trips for our spring semester, and 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 the plant propagation social.



Figure 3. Restoration Ecology Club members (from left to right) Laura Shriver, Alejandra Garcia, Ranae Zauner, and UNR Graduate Student Association President Matthew Hawn at the plant potting social.

"We currently have 49 members, a mix of graduate and undergraduate students, who range from students studying restoration ecology to students learning about it for the first time".



Figure 2. Charlene Duncan demonstrating propagation techniques for *Sempervivum* succulents.

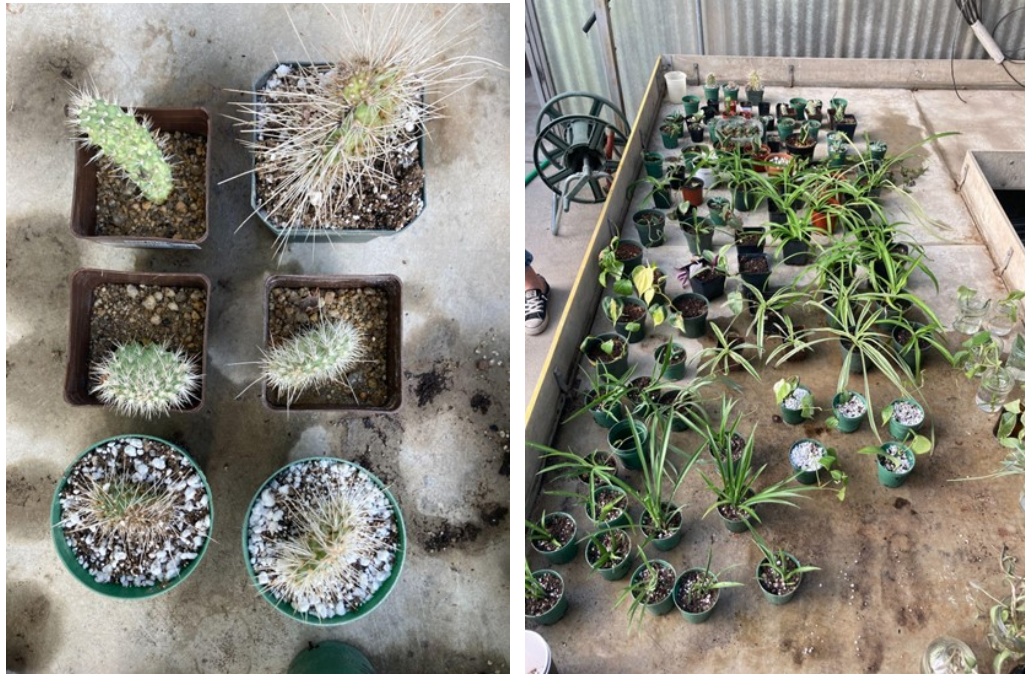


Figure 4. Plants for the upcoming holiday plant sale. Left: native cacti including *Opuntia erinacea* (native to the Mojave, top right) and *Opuntia polyacantha* (native to northern Great Basin, all others). Right: cacti, succulents, and tropical plants in the greenhouse ready for the plant sale.



Image—Creative Commons—11/28/2022

The International Network for Seed Based Restoration (INSR) Great Basin Board Members Elect

The [International Network for Seed Based Restoration](#) (INSR) is a section of the Society for Ecological Restoration that brings together professionals, scientists, practitioners, students, industry, government and organizations such as botanic gardens from the international community who have an interest in promoting and enhancing seed-based solutions in restoration.

Welcome to our new Great Basin INSR Board Members elect!



Our new Chair-Elect is Olga Kildisheva.

I am a restoration ecologist, passionate about native seed, in the broadest sense, from improving seed use efficiency to increasing native seed supply. Currently, I manage the Innovative Restoration Project at The Nature Conservancy, where I coordinate teams working across 6 western US states, building partnerships, and guiding research and development of seed technologies to improve restoration of the sagebrush biome. I hold a Ph.D. from the University of Western Australia where I evaluated novel methods to improve seed-based restoration of native plant communities in the drylands of the

western U.S. and Australia. I also have a M.Sc. from the University of Idaho and a B.S. from Purdue University, which both focused on applied natural resource management. As Chair-Elect of the INSR board, I want to contribute to building a global community of practice where scientists and managers can come together to explore challenges and develop solutions to improve restoration outcomes. As a founding member of INSR, I have been involved in its work since its inception, and have a strong commitment to its mission of fostering understanding and advancement of seed ecology, conservation, and seed-based restoration.



Leah Prescott will be returning as our Treasurer.

I am a Ph.D. student at the University of Nevada, Reno where I am studying seed ecology and restoration. I graduated from the College of Wooster with a BA in Biology & English and a minor in economics. I worked as a Conservation Land Management intern with the Bureau of Land Management in Wyoming before moving to Washington D.C. to work with the BLM National Office. From 2018 to 2020 I worked as the Seeds of Success National Curator where I managed a database of over 25,000 native seed collections.

I am currently analyzing the SOS dataset to uncover the geographic distribution of seed size.



Seeds of Success Smug Mug Photo:
Rhus trilobata, UT



Seeds of Success Smug Mug Photo:
hoary tansyaster - *Dieteria canescens*.
BLM Pocatello Field Office



Karin Kettenring will be returning as an At-Large Director.

I am a Professor of Wetland Ecology and Restoration at Utah State University in the U.S. My research focuses on (1) the ecology, genetics, and management of wetland invaders, (2) seed ecology of native wetlands plants, with implications for wetland revegetation, and (3) restoration genetics for sustainable, functioning wetland restorations. Some of my current projects with my students include seed-based restoration of Great Salt Lake wetlands and Suisun Marsh in the San Francisco Bay-Delta with a focus on seed traits and improving seeding outcomes in restorations. I am excited to be a part of the INSR network and to bring a stronger emphasis on seeds in aquatic ecosystems.



Seeds of Success Smug Mug
Photo: *Ericameria nauseosa*, NV



Nancy Shaw will be retiring from her Chair position and continuing her work with INSR as Chair Emeritus.

I am a research botanist (emeritus) with the USDA Forest Service, Rocky Mountain Research Station, with 35 years of experience in restoration of riparian and terrestrial disturbances in semi-arid lands of the western United States. Prior to retirement, I led the Great Basin Native Plant Project, an interdisciplinary program to develop native plant materials, seed production practices, and restoration technology for this region. The project involved collaboration with federal and state agencies, universities, seed regulatory organizations, and the private sector native seed industry. I am currently contributing to efforts that inform and strengthen native seed conservation and use at levels from local to international. Through the INSR we have a valuable tool for sharing information on the effective and efficient use of native seeds in and beyond the UN Decade on Ecosystem Restoration.

Name That Seed

Corey Gucker, USFS Rocky Mtn. Research Station



Alison Agneray will be continuing as the INSR Secretary.

Alison is an Ecoregional Coordinator for the Bureau of Land Management working to implement the BLM Native Plant Materials Development Program in the Great Basin Desert ecoregions. She works as part of a team to advance native plant community conservation and restoration in the region through the development of native plant materials by seed transfer zones. Prior to this, she completed her PhD program studying native seed mixes and evaluating seed sources for use in restoration. Alison is as a highly effective communicator with a passion for connecting diverse stakeholders to the latest evidence-based restoration strategies. Her experience preparing technical documents, conducting ecology research, working with diverse audiences, and coordinating complex projects has prepared her well for this role as the INSR Secretary.



Pika grooming. Photo: Sylvia Copeland



Figure 1. Enlarged photos of the seed (cypsela or false achene) with attached pappus. Photo: J. Cane, USDA, ARS (retired).

Additional hints (to be presented at the end). This short-lived forb is widely distributed throughout the West from habitats occurring near sea level to 13,000 feet in elevation. It grows in gravelly clays, silts, or sands where the annual precipitation averages at least 7 inches. Plants are taprooted and often less than 24 inches tall with an erect to spreading growth habit. Flowering is indeterminate. Flowers are produced in the first year and appear any time from April to September. Plants are early colonizers of disturbed sites but are also found in late-seral plant communities.

This species is pollinated primarily by bees. In wild and cultivated stands, a study of bee visitation revealed sparse visitation on a per flower basis, but rich visitation based on visitor fauna with 19 bee species visitors.

Western Indigenous peoples including the Gosiute, Paiute, Okanagan, Salish, and Thompson used this plant medicinally to treat sores, aches, swellings, skin problems, and insect and snake bites.

Hint: This species grows as a biennial, short-lived perennial, and in rare cases as an annual.

Wildland seed is collected by hand when the dandelion-like seed heads are open (white and spherical). Seed is generally mature within 4 to 5 weeks of flowering. Seed is collected by hand plucking at the early- to mid-ripening stage or before all seed heads are mature. Seed is stripped or shaken or knocked over a container in the late-ripening stage or when most seed heads are mature. The seed collection window is about 10 days. When seed of this species was collected from wild stands in Yellowstone National Park, the collection rate averaged 0.33 lbs./hour.

Based on field growth trials, seed production beyond the first year is variable. In cultivated plots grown by Oregon State University's Malheur Experiment Station near Ontario, Oregon, seed production was 5 to 8 times greater for first-year than for second-year plants.

Researchers at the Aberdeen, Idaho, Plant Materials Center developed a unique, non-destructive, mechanical harvest method for this species and other species producing indeterminate lightweight seed. The harvest method uses a system of loose chains attached to the hood of a flail-vacuum harvester. The chains agitate the plants, dislodging ripe seed from the flower heads as the harvester passes through the seed production rows. This harvest method results in limited plant damage, allows for repeat harvests, and collects only a minimal amount of vegetative material.



Figure 2. See Page 7.



Image from Western Confluence <https://westernconfluence.org/sagebrush-treatments/>

Upcoming Trgs., Conferences and Research

SERGB meeting: March 21, 2023, at Boise State University, Boise, ID — <https://chapter.ser.org/greatbasin/2023-sergb-conference/>.

Society of Range Management: February 12-16, 2023, Boise, ID <https://rangelands.org/annual-meeting-2023/>

National Native Seed [Conference](#)— March 27th-31st, Washington, DC

Trainings:

BLM and SER Arid and Semi-Arid Lands Seed Technology and Restoration [Course](#)

[New Seed Selection Tool Guidebook and Video tutorial —Hot off the digital press!](#)

We're very excited to roll out the Seedlot Selection Tool (SST) Guidebook and video tutorial to aid silviculturists and other resource specialists consider climate change when planning reforestation and seedbanking projects. The SST application maps climate variables that are known to be important to tree growth, reproduction, and survival. Land managers can use this online tool to explore options for responding to climate change by determining where seeds or seedlings can be sourced so that they are suited to both current and projected future climates.

The SST Guidebook and video tutorial were developed by R6 geneticists in collaboration with the Northwest Climate Hub, PNWRS, and the Conservation Biology Institute. Both training tools can be found on the NW Climate Hub's website: <https://www.climatehubs.usda.gov/hubs/northwest/topic/seedlot-selection-tool>

The SST Guidebook provides six case studies that demonstrate the basic operation and settings options for the SST, including choosing a climate-matched seedlot for a planting area, choosing a planting site for a particular seedlot, comparing suitability of different seedlots, and more. The video tutorial (via YouTube) provides an audio visual explanation of the first two case studies in the SST Guidebook. The set of training materials lead users through each step of the SST application, and provide user tips based on Forest Service policy guidance and science-informed best practices for reforestation scenarios typically encountered on NFS lands in R6.

From the SST case studies presented, R6 silviculturists and geneticists can work together in developing even more advanced application of SST functionality. Examples include seed inventory and seed orchard gap analyses, and creation of GIS overlays of SST output with wildfire risk maps and other priority landscapes within a forest or focal area. This information could be used, for example, to identify cross-boundary restoration opportunities for development of strategies for targeted seed collections among affected landowners, or to prioritize seed orchard assets for co-management and protection.

Content for a webinar series in early 2023 is under development to provide additional real-life examples of how SST can be used to inform climate-based seed movement. Other segments of the 4-5 series will focus on how nursery and silvicultural treatments may be adjusted to promote adaptation and increased reforestation success under changing climates. Details will also be presented on a new PNWRS/PSWRS/R5/R6 research collaboration to study seed sourcing and silvicultural treatments under changing climates in WA, OR, and CA.

Feel free to share this information with others who may be interested in this topic.

Thank you,

Vicky Erickson, Andy Bower, Holly Prendeville, and Brad St. Clair

<https://www.fs.usda.gov/rmrs/science-spotlights/web-based-tools-sourcing-seed-adapted-future-climates>

New Publications—Great Basin Fire Science Exchange

Post-seeding trajectories— <https://onlinelibrary.wiley.com/doi/full/10.1111/avsc.12633>

Later fall plantings and slower germinating seed sources may [improve restoration outcomes in drylands](#)

[Aspen and wildfire](#): getting ahead in a warming climate

[Understanding fire effects on seed germination in western deserts](#) - cold deserts are less resilient

Try [restoration seeding under burned canopies](#) - it worked for bitterbrush



Seeds of Success Smug Mug Photo: starveling milkvetch - *Astragalus jejunos* var. *jejunos* (ASJEJ) - BLM Pocatello Field Office.

Name that Seed Answer. Douglas' dustymaiden (*Chaenactis douglasii*). 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](#).

Figure 2. Douglas' dustymaiden plant producing mature seed and freshly opened flowers at the same time. Photo: M. Fisk, USGS.