SER GREAT BASIN SOCIETY FOR ECOLOGICAL RESTORATION

GREAT BASIN CHAPTER HTTPS://CHAPTER.SER.ORG/

SERGB NEWSLETTER

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President's Message

Greetings to all!

Winter is more than half over, and it's looking like we have another challenging year ahead of us. Where I live on the eastern edge of the Great Basin, we had an unusually wet December and were excited about the prospect of a heavy snowpack. But it's barely snowed since and the latest USDA Drought Monitor shows our entire region in stages from moderate to exceptional drought. Luckily, we have creative and hard-working folks like the folks in this chapter to help us meet our restoration challenges in a changing climate!

Regarding chapter activities, we'd set a goal of increasing student involvement and that's proceeding nicely. As of late November 2021, the University of Nevada-Reno student association became official, and in the past few weeks students and faculty at Utah State University have also begun taking steps to form a student group (Page 6).

As a new chapter president, I want to hear more about what you all would like to see us do. One question is about our next in-person meeting. Usually we've met in March, but at our last business meeting we agreed to postpone until November 2022 due to ongoing uncertainty over the pandemic. Recent events with omicron have shown that was the right move. But now we're wondering if November is the right time or if we should wait until March 2023. Partly that's due to uncertainty over continued restrictions on work-related travel, but also because the best dates would be Nov. 9-11, right after Election Day and the same weekend as the Southwest Chapter's meeting. I'd love to hear others' thoughts about what the best timing would be.

The second question I have is about an exciting SER activity, Make a Difference Week, a week of global restoration action hosted by the Society. MAD-Week this year is June 4-11. SER invites individuals and partners to engage by hosting MAD-Week events in our regions; 2) taking part in MAD-Week events, and 3) by financially supporting MAD-Week. It would be wonderful if Great Basin could sponsor an event or join in an already planned event. Since we're spread out, maybe it makes sense to look for opportunities in different corners of the region. So again, if you know of any scheduled events for that week or have ideas about one or more events we could sponsor, please contact me (Mark.Brunson@usu.edu) or another officer (Owen Baughman, Sarah Barga, Anne Halford, Trevor Caughlin). We look forward to hearing from you!

Mark Brunson

Stories From the Sage

Modoc hawksbeard—*Crepis modocensis*—*BLM Seeds of Success Smug Mug photo*

USGS continues intensive study of 2015 Soda Wildfire with DOI colleagues

Dr. Matt Germino, USGS Forest and Rangeland Ecosystem Science Center Station Boise, ID

The Fire, Invasives, and Restoration team at the US Geological Survey's Forest and Rangeland Ecosystem Science Center in Boise, Idaho, has worked with the FWS and especially BLM to advance the basic understanding and tool development for restoration of burned or invaded sagebrush steppe. Their focus is on obtaining the best available science on maintaining and increasing resistance and resilience and, restoration in heterogeneous sagebrush steppe rangelands. Several new publications focused on the 2015 Soda Wildfire explain how the monitoring for adaptive restoration occurred and what can be learned from it on this heavily treated and monitored, ~300,000 acre burn area in the Owyhee Mountains in Idaho (for an overview, see Germino et al. 2022).

Annual grasses, a key stressor on the Soda Fire Landscape:

To help understand patterns of annual grass proliferation after fire, Cara Applestein et al. (2021 a,b) contributed insights on differences and mutual interactions among cheatgrass, medusahead, and ventenata relative to restoration treatments, in addition to, cheatgrass responses to natural fungal pathogens. Dr. Brynne Lazarus's careful tests of herbicides reveal that imazapic can have much longer duration than is commonly assumed, and that it strongly modifies below-ground insects and biogeochemical processes in ways that held explain why exotic forbs can invade sites (Lazarus et al. 2022, and in prep). Dr. Toby Maxwell is helping incorporate an emphasis on benefits of restoration treatments to soil carbon sequestration. Rebecca Donaldson and Chad Kluender capitalized on the wide range of different restoration treatment combinations to determine the incremental benefits of adding follow-on or repeat treatments to restoring perennials and decreasing exotic annual grasses, including answering the question of whether it is best to apply herbicides first and then seed, or vice versa.

Seeding and planting effects:

Bill Davidson has several new reports on recovery of sagebrush, describing how origin of seed sources has affected establishment success, how seedings vs plantings perform, and how factors such as soil type progressively become

more important for explaining the success or failure of sagebrush restoration as time since treatment elapses. Matt Fisk has completed a pilot study on whether seed-bearing sagebrush carcasses cut and collected in late fall can be translocated and tacked down on restoration sites to increase establishment. Matt has also completed an intensive analysis of how plant diversity has changed over time as a function of natural and management variables. Researchers from the three large Idaho Universities are collaborating with the team on understanding genetic variation in sagebrush and how it affects restoration outcomes, primarily through the project.

Wildlife benefits and protecting the investment:

Two papers revealed Greater Sage Grouse responses to the vegetation recovery and restoration treatments, one based on tracking grouse with radio collars and the other observing grouse scat (Poessel et al. 2022, Germino et al. 2022). Dr. Chris "Digger" Anthony submitted a paper describing modeling challenges and advances for predicting how cattle concentrate their use of burned areas in ways that could impact restoration investments. Jake Price led papers in review that are using new advances in fire simulation modeling to address effects of a large network of fuel breaks installed to protect restoration treatments.

Nearly all of these restoration studies are also being replicated on burned or threatened sagebrush steppe elsewhere around the Great Basin. There are many opportunities for land managers and scientists to collaborate with the team (please contact **mgermino@usgs.gov** if interested).

"Researchers from the three large Idaho Universities are collaborating with the team on understanding genetic variation in sagebrush and how it affects restoration outcomes".

Photo: seed-bearing sagebrush carcasses being translocated in the Soda Fire burn—USGS

Erigeron disparipilus (ERDI3) - White cushion fleabane—ID931_459 Seeds of Success Collection—Coal Mine Basin, Owyhee Co.Ann DeBolt and Sandy Smith. 2015.

Hint: This species is long-lived, produces red-orange flowers, is important for pollinators and other wildlife.

Name That Seed

Corey Gucker, USFS Rocky Mtn. Research Station

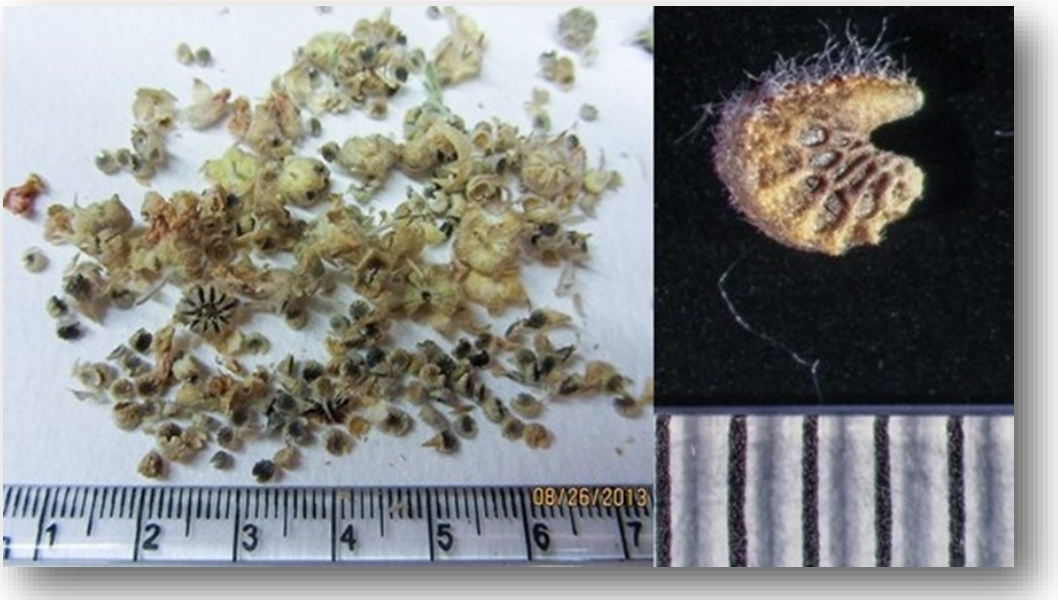

Figure 1. Dry fruits (aka. schizocarps) and fruit segments (mericarps) (left). Single seed close-up (right). Photo: U.S. Department of the Interior, Bureau of Land Management WY050, WY932A,

This perennial forb species occupies an elevation range of 980 to 9,020 feet and is common on dry, sandy to gravelly soils. It is drought tolerant and typically found growing in the 8- to 12-inch precipitation zones. Plants are long-lived and produce taproots that can reach up to 13 feet deep. Plant growth begins in March or April, flowers appear in May to July, and seed is produced in July and August. Bees, especially sunflower bees (*Diadasia* spp.), are important pollinators.

This species is important to a variety of wildlife species. It provides excellent forage for deer and pronghorn, and the list of small mammals known to feed on this plant includes black-tailed prairie dogs, desert cottontails, black-tailed jackrabbits, bushy-tailed woodrats, golden-mantled ground squirrels, deer mice, and kangaroo rats.

Flowers ripen indeterminately and seed can be harvested by hand stripping or knocking the inflorescence over a container. Wildland seed of this plant can be harvested mechanically when dense stands occur on level, open terrain.

Trials for growing this species for seed production were conducted at Oregon State University's Malheur Experimental Station (OSU MES). Plants flowered and produced harvestable seed in the first growing season following fall seeding. Seed yield reached a maximum of 386 lbs/acre in the fourth year without supplemental irrigation.

Seed was harvested for 4 years at OSU MES. Irrigation did not significantly increase seed yields, and in some years, irrigation resulted in reduced seed yields. Seed yield reached a maximum of 386 lbs/acre in the fourth year without supplemental irrigation.

Answer. Scarlet globemallow (*Sphaeralcea coccinea*). 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.

Photo: USDI, Bureau of Land Management, Seeds of Success.

Student Chapter Updates

New SER Student Chapter at the University of Nevada, Reno

Alison Agneray, Laura Shriver, Aramee Diethelm, Tessa Bartz, and Dr. Beth Newingham, Ecology, Evolution, and Conservation Biology Program, University of Nevada, Reno

Graduate students Alison Agneray, Laura Shriver, Aramee Diethelm, and Tessa Bartz along with faculty representative Dr. Beth Newingham started a new student chapter in November 2021 for the SER Great Basin at the University of Nevada in Reno. The Restoration Ecology club currently has 33 members of both graduate and undergraduate students who are all actively studying ecology and seeking a future career in restoration.

At our club's inaugural event, we met with the Executive Director and Stewardship Manager of the Walker Basin Conservancy to learn about their salt desert restoration efforts and toured their nursery and active restoration sites (Figures 1-2). The salt desert is notoriously difficult to restore, and we were impressed with the progress that the Walker Basin Conservancy has made. This was also a great opportunity to introduce students to riparian and salt desert flora.

Figure 1.

Figure 2.

Upcoming Events

Native Seed in Restoration Workshop

This event has been approved for continuing education credits through the Society for Ecological Restoration.

Date/location: March 8th, 2022
Virtual (Zoom event)

What will you learn?
The workshop will bring together experts working in seed-based restoration around the world to discuss key elements of the native seed supply chain. This event is organized in conjunction with INSR, BLM, SER, TNC, and with assistance from the Great Basin Fire Science Exchange.

Details & Registration:
https://us02web.zoom.us/meeting/register/tZItde6vqzgrGddxHYjP9lDPwXeoqggpngJl

Please contact Olga Kildisheva—olga.kildisheva@TNC.ORG for a copy of the agenda.

Future Seed Workshop Products:

Following the recent publication of the first international standards for native seeds article series (https://onlinelibrary.wiley.com/toc/1526100x/2020/28/S3) the BLM has provided support to turn the content and messages of those articles into videos for educational and training purposes.

Tentatively the topics of the videos will cover all of the key steps in the native seed supply chain:

- Overview on native seed for restoration and the native seed supply chain
- Seed sourcing, genetic diversity, and seed procurement
- Wildland seed collection and pre-cleaning seed drying
- Seed cleaning
- Seed storage
- Seed quality testing
- Seed production – site preparation, cultural practices, and seed harvesting
- Seed preparation and technology (pre-treatments, dormancy, seed enhancement, seed mix preparation, etc.)
- Site preparation and seeding
- Seed certification

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.

Upcoming Events, cont'd

WEDNESDAY
03.23.22
9 a.m. - 5 p.m. (PST)

Fallon Convention Center
100 Campus Way
Fallon, NV 89406

NEVADA NATIVE SEED
PARTNERSHIP

The 2022 Nevada Native Seed Forum brings together stakeholders to discuss and develop local native seed strategies. Sessions will be held **in person** with the option to view **virtually**. Those attending in person must follow all COVID-19 guidelines. Sessions will cover a breadth of native seed topics including permits, collection, production, testing, certification, storage, marketing and restoration.

Register for the Nevada Native Seed Forum by March 11, 2022 by emailing:
Stephen Kielius
skielius@agri.nv.gov

Dr. Clint Shock (Professor Emeritus of Crop Science, Oregon State) and son Cedric have recently restored their Mid Snake River Vegetation Database - Mid-Snake River Watershed Vegetation Database at https://midsnakeplants.com/

Phacelia lutea—Clint Schock

The database is written so that you do not need to know the full correct common name or the scientific name to find a plant of interest. You can search the database with a flower color, family, or even a part of a common name. You can even quickly scan through the entire list. A single picture comes up first as a thumbnail for each species. Click on the species and you will get a choice of thumbnails. Click on a thumbnail photograph once and you will get a larger picture. Click on the larger photograph once again and many of the photographs will reveal amazing details.