Proceedings
Twelfth Montana Plant Conservation Conference
April 11-12, 2024

Montana State University - Bozeman

Restoration of Native Plant Communities

Snowberry (Symphoricarpos) illustration by Denise Montgomery

Agenda

Wednesday, April 11

9:30 - 9:45 Welcome and Introduction to the Symposium: *Kenda Herman, Montana Native Plant Society Vice President*
Moderator: *Gretchen Rupp, MNPS Past President*

9:45-10:10 The Montana Native Seed Network: Developing a Production Hub at the DNRC Nursery to Serve the Surrounding Ecoregions. *Michael Butts, Montana DNRC Program Manager*

10:10 – 10:35 Assessing Pollinator Friendliness of Plants and Designing Mixes to Restore Habitat for Bees. *Justin Runyon, USDA Forest Service, Rocky Mountain Research Station, Bozeman*

10:35 – 10:50 Break

10:50 – 11:30 Bear Creek Fire Revegetation and Biochar. *Jessie Salix, Forest Botanist, Beaverhead – Deerlodge National Forest*. Update on USFS Region 1, Seed Increase Program: *Amanda Hendrix, Regional Botanist, Northern Rockies*

11:30 – 11:55 Considering Mycorrhizae and Ecological Restoration. *Dr. Cathy Zabinski, Plant and Soil Ecologist, MSU – Bozeman*

11:55 – 12:20 Restoring Purple Camas within Meadow Systems. *Jennifer McNew, USDI, BLM District Botanist and Myrna Demontier, Salish Tribe Teacher and Traditionalist*

12:20 – 1:20 Lunch

1:20 – 1:45 Lost Creek/ Dutchman Wetland Complex: 4,500 acres of Fens, Wetlands, Springs, and Rare Plants Preserved. *Sue Wall, Environmental Scientist, Herrera Environmental Consultants*

1:45 -2:10 Restoring Cropland to Grasslands in North Central Montana and Impacts on Birds. *Kelsey Molloy, Rangeland Ecologist, The Nature Conservancy, Malta, Montana*

2:10 – 2:35 BLM's Habitat Restoration Program: Lessons Learned. *Wendy Velman, Botany Program Lead, Bureau of Land Management Montana/ Dakota's Office*

2:35 –2:50 Break

2:50 – 3:15 The Montana Audubon Conservation Ranching Program. *Christian Meny, Director of Conservation, Montana Audubon*

3:15 – 3:40 Community-led Conservation in the Northern Great Plains. *Aaron Clausen, Montana Manager for World Wildlife Fund's Sustainable Ranching Initiative*

Following the Thursday presentations, we are planning a tour of the Indreland Audubon Wetland Preserve led by Aaron Clausen and Matt Lavin. This wetland site on the east side of Bozeman is a remnant of what was a large wetland complex. It was donated to the Sacajawea Audubon Society (SAS) in 2018. Since then, restoration measures have been implemented by SAS and beaver have arrived for further wetland engineering. This will be a fun conclusion to a day of inspiring talks. The trip will be weather dependent considering the nuances of spring in Montana.

Thursday, April 12

Since 2006 The Montana Native Plant Society and the Montana Natural Heritage Program have worked together to gather threats information for Montana's Species of Concern (SOC) at the Montana Plant Conservation Conference. We'll do that again on the second day of the 2024 conference, and we hope that all agency and non-agency botanists will join to help update our information. This information will be available on the MNPS website (Montana Species of Concern Threat Assignment (mtnativeplants.org)) and the MNHP database (https://fieldguide.mt.gov/). At least two weeks prior to the conference, MNHP will provide listings of SOC vascular plants with their MNHP State Threat Score and MNPS Threat Rank sorted by land ownership and habitat. At the conference our MNHP State Botanist, Andrea Pipp will provide a presentation on the threat reporting and ranking processes. Please take the time to look over the SOC list and provide updated information at the conference. Andrea will lead us through this information gathering session.

Abstracts

The Montana Native Seed Network: Developing a productions hub at the DNRC Nursery to serve the surrounding Ecoregions.

Michael Butts, Montana DNRC Nursery Program Manager

Michael Butts will present the Nursery's newly expanded operations as the ecoregional native seed production hub for the Montana Native Seed Network (MTNSN). Formed in 2022, the MTNSN brings together public and private conservation practitioners working in the native seed industry. Through partnerships, genetically rich, eco-type seed is derived from wild plant populations and produced on a large scale at the DNRC Seedling Nursery in Missoula. The seed is accessible to partners to restore and enhance ecosystems throughout the region.

Michael will present the stages of eco-type seed increase production: from wild population collection, Foundation and Bulk seed cultivation, seed extraction and cleaning, banking and warehousing, to habitat specific restoration projects. As MTNSN grows, the 60 acres of production fields at the DNRC Nursery will become an ecoregional hub for the National Seed Strategy.

Assessing pollinator friendliness of plants and designing mixes to restore habitat for bees

Justin Runyon, USDA Forest Service, Rocky Mountain Research Station, Bozeman, Will Glenny, Department of Ecology, Montana State University-Bozeman, and Laura Burkle, Department of Ecology, Montana State University- Bozeman

Insects, especially bees, are required for pollination of most forest and grassland plant species. However, many bee populations are declining and there is great interest among land managers to protect and restore pollinators. Increased floral resources by revegetating with native flowering plants can benefit pollinators, but we lack information about which plants work best. Identifying the native plant species most benefitting pollinators allows land managers to counteract pollinator declines and protect ecosystem services. We assessed the pollinator-friendliness of 24 native plant species that are available for revegetation projects on National Forest Lands in Western Montana. Plant species that had the highest visitation rate, attracted the most bee species, supported specialist bee species, and bloomed for extended periods were considered pollinator friendly. Using this information, we created score cards for early, middle, and late season flowering plants that land managers can use to create restoration mixes that can most benefit pollinators. The best mix of nine plant species – three from each season – should support 80 per cent of the 246 bee species found in this study. This framework can be used to assess pollinator friendliness of native plant species for other areas, forests, and public lands.

Bear Creek Fire Revegetation and the use of Biochar. Update on Region 1, USDA Forest Service, Seed Increase Program.

Shared Presentation by Jessie Salix, Forest Botanist, Beaverhead-Deerlodge National Forest, and Amanda Hendrix, Regional Botanist, USDA Forest Service Northern Region.

The Bear Creek fire burned in 2019 near Lemhi Pass in southwest Montana. In an effort to assess the success rate of our Region 1 Seed Transfer Zone seed, and additional locally-collected seed in a post fire situation, we established five monitoring sites in the Bear Creek Fire on the Dillon District of the Beaverhead - Deerlodge National Forest. In addition, we applied Biochar in certain plots to assess the the effects of Biochar in post- fire revegetation work. Two of the sites were within burned open sagebrush – grassland habitat and the other three were on burned forested slopes. The two sagebrush grassland sites fully recovered by year 1 from the native seed bank. In the forested sites, the first year following seeding showed a dramatic seed germination response in the seed plots with Biochar. By year two, the native seed bank, primarily pine grass, began establishing throughout the sites, but seed plots with Biochar still showed the best results. Bluebunch wheatgrass (Pseudoroegneria spicata) had the highest cover of all seeded species in the fall treatments, whereas Mountain brome (Bromus marginatus) had the highest cover in the spring seeded treatments.

In 1995, the Northern Region released a guide to revegetation with native species to provide direction for implementation of the 1993 Northern Region policy on the use of Native Plant Materials. In 2008, the Forest Service issued a National Native Plant Materials Policy. From this foundation, the Northern Region Native Plant Program has grown. Workhorse species have been identified and a seed transfer pilot program was initiated. Subsequent products have informed land management decisions and additional deliverables are forthcoming. Bipartisan Infrastructure Law funding has infused these programs across the country.

Considering Mycorrhizae and Ecological Restoration

Dr. Cathy Zabinski, Plant and Soil Ecologist, Montana State University, Bozeman

Mycorrhizae are plant-fungal symbiosis found in 85% of all plant species, involving different groups of fungi that are specific to certain host plants. Because of their role in host plant nutrient uptake, along with other potential benefits like pathogen protection and contribution to soil food webs, mycorrhizae are an important consideration for the restoration of native plant communities. This talk will summarize research done in my lab and elsewhere that considers whether and how to incorporate mycorrhizae into restoration programs. I will include research on revegetation with native plants on metal contaminated sites, after invasive species management, and in high elevation restoration projects.

Restoring Purple Camas Within Meadow Systems

Shared Presentation by Jen McNew, USDI, BLM District Botanist and Myrna Demontier, Salish Tribal Teacher and Traditionalist

The Blackfoot Valley in Western Montana is in the heart of the ancestral homeland of the Confederated Salish and Kootenai Tribes. Tribal people have tended and harvested from forests and meadows in the area since time immemorial. Before European colonization, areas around the Blackfoot River supported vast meadows of Camas and a diversity of other native plant species. Most Camas meadows have since been converted to pasture grass and indigenous people have largely been excluded from the landscape. Recent shifts in land management strive to help welcome tribal values and people back to the area through the Reserve Treaty Rights Land Program, and restoration activities for Camas (*Camassia quamash*) and other species. Myrna Demontier will be talking about the importance of keeping connection between people and plants. Her portion of this talk will illustrate why it is critical to protect plant populations that serve as harvest locations and places of deep connection with the land. Jen McNew will talk briefly about the Camas restoration that the CSKT, The Nature Conservancy, and the BLM are undertaking in along the lower Blackfoot River.

Lost Creek / Dutchman Wetland Complex: 4,500 Acres of Fens, Wetlands, Springs, and Rare Plants, Preserved.

Sue Wall, Environmental Scientist, Herrera Environmental Consultants

A few miles north of Anaconda, Montana, the Lost Creek/ Dutchman wetland complex is home to a wide range of the state's native plants and wildlife. The Dutchman encompasses over 3,000 acres of land, making it the largest remaining wetland habitat in the Upper Clark Fork River Basin. Many unique species of fish, birds, mammals, and vegetation now thrive throughout the expansive wetlands area. These include some rare plants like the Indian paintbrush, and wedge-leaf saltbush as well as rare marsh birds, such as Virginia Rail. Plant surveys on the Dutchman and discovery of rare plants resulted in the designation as an Important Plant Area within Montana Native Plant Society's Important Plant Areas Program.

The wetlands were impacted in the past by emissions from the Anaconda smelter and cattle grazing that trampled native vegetation and eroded the terrain. Atlantic Richfield purchased the property to compensate for injuries to migratory birds from wetlands lost during past mining operations. AR agreed to create, restore, or enhance the equivalent of 400 acres of restored wetlands in the Upper Clark Fork River Basin. The restoration and management of the Dutchman wetlands were undertaken to fulfill this commitment. Enhancement of the Dutchman wetlands is meant to offset the permanent loss of wetland habitat and nesting habitat for migratory birds. Today, the Dutchman Wetlands are under monitoring and management by AR and are open to the public.

Restoring Croplands to Grasslands in North Central Montana and Impacts on Birds

Kelsey Molloy, Rangeland Ecologist, The Nature Conservancy, Malta, Montana

The Nature Conservancy and other conservation partners have been restoring marginal cropland, in order to connect important grassland habitat in north central Montana. I will discuss the considerations of a specific 1,100-acre grass restoration effort just outside the Bitter Creek Wilderness Study Area in Valley County. I will then discuss more broadly the implications of grass seedings for grassland birds, followed by a discussion of other observations and research needs around grassland restoration.

BLM's Habitat Restoration Program: Lessons Learned

Wendy Velman, Botany Program Lead, Bureau of Land Management
Montana / Dakota's State Office

Montana/Dakotas Bureau of Land Management manages approximately 1.75 million acres of Northern Great Plains habitat that were returned to the U.S. Government after failing to prove up as homesteads. Many of these acres were plowed or planted to non-native grasses. These lands were once mix and tall grass prairie that had high wildlife value. Since these lands came back to the BLM for management, many have been identified as connected habitat areas for migratory wildlife and birds. During the BLM's updating of Land Use Plans, these acres have been identified as restoration lands.

The six field offices that cover the bulk of these lands have initiated restoration work at different times with varying success. This talk will highlight the efforts to restore /enhance these once non-native lands back to a diverse habitat that will benefit wildlife and grassland birds, as well as diversify the native plants important for native pollinators. Sagebrush plantings, prescribed burns, conifer removal, and native seedings make up a variety of treatments. To accomplish successful diversification, the use of locally-adapted seed has become paramount. BLM has worked with many partners to develop the native seeds needed for these projects. Some of the partners include Special K Ranch, Fort Belknap Indian Communities, Wild Turkey Federation, Pheasants Forever, South Dakota State University, and North Dakota State University. New partnerships with organizations including the Montana DNRC, Salish Kootenai Tribal Nursery, and other tribal nations are being developed.

The Montana Audubon Conservation Ranching Program

Christian Meny, Director of Conservation, Montana Audubon

The Montana Audubon Conservation Ranching program (MT ACR), in direct collaboration with the National Audubon program, certifies cattle raised on ranches that qualify as "Bird – friendly". The MT ACR certification both supports ranchers and empowers consumers to support conservation by selecting beef products bearing the Audubon seal. The Audubon seal tells the ranchers' stewardship story, and speaks to consumers, conveying that these products come from lands where grzing and management practices ensure healthy cattle, diverse bird habitat, healthy soils, abundant pollinators, and cleaner waters. Audubon's "green seal" is the premiere certification for products that have positive impacts on grassland bird habitat and grassland ecosystems. For more information contact Christian Meny at 406-546-7135; cmeny@mtaudubon.org

Community-led Conservation in the Northern Great Plains

Aaron Clausen, Montana Manager, World Wildlife Fund's Sustainable Ranching Initiative.

The Northern Great Plains (NGP) is one of the largest still-intact grassland ecosystems in the world. In spite of this, threats to this ecosystem remain – largely in the form of land conversion for crop production. An average of 400,000 acres of shortgrass prairies continue to be irreversibly converted each year. To help stem the loss of these bastions for wildlife, World Wildlife Fund's Sustainable Ranching Initiative support individual ranchers and ranching communities to develop and achieve sustainable land management goals. Because much of the NGP – especially areas at risk of conversion – are privately held, there are no viable conservation strategies exclusive of local communities. WWF, and many other partners, support local communities in Montana that are leading the charge towards the synergy of sustainable food production, agricultural community vitality, and thriving grassland habitats. WWF believes in the ethic of community-led conservation as the most durable approach to protecting these landscapes. I will present on the outcomes of several years of this approach, including our land protection, enhancement, and restoration approaches, and share examples of food production benefitting wildlife species relying on shortgrass prairie ecosystems.

Conference Presenters

Michael Butts – Montana Native Seed Network. Michael joined the Montana DNRC Seedling Nursery as Program Manager in 2022, after 10 years at the Greenbelt Native Plant Center, the nation's largest municipal native plant nursery. With a similar capacity and mission to the Montana DNRC Nursery, the Greenbelt Native Plant Center is a 13 – acre greenhouse and production facility in Staten Island, operated by the NYC Parks Department.
Michael has focused most of his recent career in native seed production and restoration ecology, growing ecoregional seed for the Mid-Atlantic Seedbank and launching the Montana Native Seed Network in 2022. Prior to his time in the native plant nursery industry, Michael worked for the Botany Department of the Smithsonian in Washington, DC. His time at the Smithsonian expanded his passion for plant conservation. He conducted taxonomic studies on the flora of Eastern North America and worked on phylogenetic analysis of global taxa.

Justin Runyon is a Research Entomologist with the US Forest Service's Rocky Mountain Research Station in Bozeman. His research focuses on interactions between plants and insects. Over the last decade he has studied interactions between pollinators and plants, especially the role floral scent plays in attracting bees. More recently, Justin has worked to understand and promote the use of flowering native plants in restoration to benefit pollinators. His talk will be on research which he participated in with Will Glenny, Ph.D. graduate from the Department of Ecology at MSU – Bozeman, and Dr. Laura Burkle, Associate Professor in the Department of Ecology, MSU – Bozeman.

Jesse Salix has worked as the Forest Botanist on the Beaverhead – Deerlodge National Forest in southwest Montana since 2010, where she oversees the rare plant, revegetation, and pollinator programs. She has a master's degree in ecology from Montana State University, where she studied the local lichen flora of Lewis and Clark Caverns State Park for

her thesis project. Her absolute favorite thing to do is go backpacking to a high mountain lake with her family and Aussies.

Amanda Hendrix currently serves as the Regional Botanist as well as the Native Plant Materials and Pollinator Coordinator for the Northern Region, USDA Forest Service. Amanda was born and raised in Montana and learned some of life's important lessons working on her grandparents' ranch in the summers. She also obtained her education in Montana and feels fortunate to have come full circle to these roots. She is glad (and highly entertained) to be accompanied in life's adventures by her two teenage children.

Dr. Cathy Zabinski is a plant and soil ecologist at Montana State University. Her research has focused on mycorrhizal ecology, soil processes affected by disturbance and restoration practices, extreme environments, and soil health and sustainable agriculture. She teaches courses in restoration ecology and belowground ecology.

Myrna Dumontier is a dedicated traditionalist, educator, and member of the Confederated Salish and Kootenai Tribes. She works to educate youth and interested tribal members on traditional practices and values. She learned plants starting at an early age from her grandmother and others walking in the woods, and has continued this deep learning throughout her life. **Jen McNew** is a Natural Resource Specialist/Botanist with the BLM in Missoula. She knows a lot of Latin names for plants but will never know as much as Myrna.

SusanWall is an environmental scientist with Herrera Environmental Consultants. For the past 20 years she has worked on wetland delineations, riparian area and upland plant community classification, and botanical resource surveys for projects in western Montana, Idaho, and eastern Washington. Her work in Montana includes wetland restoration and preservation in the Upper Clark Fork basin, including the Lost Creek/Dutchman wetland complex, which is the topic of her talk today.

Kelsey Molloy is a rangeland ecologist with the Nature Conservancy based out of Malta, Montana. She has a BS in Wildlife Biology from the University of Rhode Island. After her undergrad she pursued a Masters at the University of Manitoba, where she studied grassland songbirds' responses to cattle stocking rates in Grasslands National Park in Sasketchewan. She is the Eastern- at-Large representative to the Board of the Montana Native Plant Society.

Wendy Velman is the Botany Program Lead for the Bureau of Land Management Montana/Dakotas State Office. Wendy has been instrumental in the current development of the Montana Native Plant Conservation Strategy. She graduated from Idaho State University with a degree in Botany, and is passionate about conservation of native plants and animals.

Christian Meny is the Director of Conservation at Montana Audubon (MTA). His background includes contributing to the Statewide Management Plan for the Common Loon, the USGS grizzly bear DNA project in the Cabinet/Yaak ecosystem, and the World Wildlife Fund Sustainable Ranching Initiative (WWF-SRI). He managed Montana's Integrated Monitoring in Bird Conservation Regions program for nine years (2011 – 2019). He now strives to promote knowledge of and appreciation for nature, to improve economic and ecological productivity on working lands via the Audubon Conservation Ranching (ACR) program, and to inventory and protect Montana's species of greatest conservation need.

Aaron Clausen is the Montana Manager for World Wildlife Fund's Sustainable Ranching Initiative. He has worked in Montana since 2012, primarily on private lands conservation and restoration projects, including retoring plant community and ecosystem function. More recently his work heavily emphasizes the landscape integrity of the shortgrass prairie ecosystem in central and eastern Montana, and primarily involves supporting and collaborating with local ranchers and

agricultural communities. He serves on the board of the Montana Watershed Coordination Council and the Sacajawea Audubon Society, is a Montana Native Plant Society member, and has been involved throughout the development of the Montana Native Plant Conservation Strategy. He earned a BS in Biology from the University of South Dakota and MS in Biology from Eastern Washington University. Aaron lives in Bozeman with his wife and spends time in the mountains and prairies as much as possible.