USDA

PLANT MATERIALS TODAY

A newsletter from the USDA-NRCS Montana-Wyoming Plant Materials Program for those Interested in Plants and Conservation

Volume 24 Number 2 July 2021

For more information on Plant Materials or for electronic access to this and other documents, access our web sites, Montana NRCS or National Plant Materials Program. Direct inquiries to USDA-NRCS, Plant Materials Center, 98 South River Road, Bridger, MT 59014, phone: 406-662-3579, FAX: 855-510-7028. All photos by BPMC or Montana NRCS staff, or USDA or NRCS file photos, unless otherwise noted.

PMC and Staffing Updates

New Employees

The MTPMC program and Montana NRCS welcomed aboard our new study leader/agronomist Michelle Majeski on February 1. Michelle has an undergraduate degree and extensive career experience in land use planning and recently finished her Master of Science degree at Montana State University in Land Rehabilitation. Michelle's research focused on the biology of invasive non-native winter annual grasses including cheatgrass and ventenata (or wiregrass) to prevent further invasion in range and pasturelands. Michelle will continue researching these problem weeds, as well as other topics such as soil health and cover crops, at the PMC. Welcome Michelle!

Michelle Majeski, PMC study leader

Scott Edwards, Big Sky Watershed Corps

Another addition to our program this year is Jonathan "Scott" Edwards, our 2021 Big Sky Watershed Corps member. Scott came aboard in January and will serve his term until November. Scott retired from a career with the US Coast Guard and is near completion of Master of Science in Natural Resource Management from Virginia Tech. Scott assists with many operations at the Center including study installation and maintenance, seed processing, and many aspects of field operations. He also assisted the Joliet Field Office and Carbon County Conservation District with

planning and executing a riparian restoration project on the Clark's Fork of the Yellowstone. Scott hopes to put his education and experience to work in the future in the natural resource management and conservation field. The Big Sky Watershed Corps is affiliated with Americorps, and the PMC position is funded jointly by Montana NRCS and the PMC Board of Managers/Soil and Water Conservation Districts of Montana. Welcome Scott and thanks for your service!

Current Issues

Drought Stressed Woody Plants

If you live in the western US, you are no stranger to drought conditions, especially in 2021. Compounding the issue are the sustained, record setting high temperatures this summer. This one-two punch is stressful on all plants, and perennial woody plants (trees and shrubs) are particularly susceptible over time. Here are a few tips as we move towards summer's end that may help reduce stress and losses over the ensuing dormant season.

1.) In residential settings, if you haven't been watering and can, get going! Even relatively infrequent but deep watering can help sustain woody plants. Slow steady application is best. Frequent but light watering (the irrigation schedules commonly used for turfgrass) may not be adequate for deep rooted tree and shrub species. Watering later in the day, or at night if watering ordinances allow, reduces evaporative losses. In landscape situations, focus on watering species that require more moisture (cottonwoods, willows, dogwood, snowberry, fruit trees, etc.), as well as newer plantings with underdeveloped root systems.

2.) Water well beyond the drip line of the plant if possible, covering as much surface area as you can.

3.) Although we normally suggest dialing back the supplemental water in late summer so trees "harden-off" before winter, we do not recommend this technique during drought conditions. Keep watering until the ground freezes, even once every 2 to 3 weeks is very helpful.

4.) Continue periodic watering over the winter months if the ground is not frozen. Even if the soil surface freezes then later thaws (especially if temperatures warm), consider light watering of trees and shrubs. Adequate mulch helps conserve soil moisture so it is available to plants. All woody plants lose moisture over the winter, and evergreens such as conifers can be especially susceptible to desiccation.

5.) For windbreaks and shelterbelts without irrigation, control of competing herbaceous vegetation is essential, either with chemical or mechanical means. Techniques like mulching, installation of weed fabric, windscreens, and the use of anti-transpirants (when practical) can also reduce evapotranspiration. If possible, use a stock tank on a truck or trailer to irrigate woody plants, even if only a modest amount of water per plant is applied.

6.) When providing supplemental irrigation, know your soil type and water accordingly. Water lightly for a longer duration but less frequently on heavy-textured soils (higher clay and silt content) and more frequently but for shorter duration on lighter textured soils with low water holding capacity (more sandy soils).

7.) Think about installing snow fence in the fall to capture snow for cover and supplemental moisture over the winter and early spring.

8.) Lastly, don't be wasteful with water. Follow local ordinances and make sure you don't use more than is necessary for maintaining the plant. Again, when possible, water outside of the heat of the day to reduce evaporative losses. Apply water in efficient patterns, avoid fine mist nozzles, and do not over apply water.

9.) If pruning is needed it might be a good time to remove dead, damaged, deformed, and other unwanted limbs. In plantings that are obviously overcrowded, consider removing select trees to open the planting and increase water availability for the remaining plants.

10.) Check for insects like aphids and thrips which can stress plants and increase water demand. Treat with a product labeled for the target insect and plant species (always follow label instructions!). Environment and user-friendly products such as insecticidal soap and summer oil can sometimes be effective options.

Joe Scianna, Manager, Bridger PMC.

Research Activities

Grass Evaluation for Xeriscaping®

With the current emphasis on addressing global climate change, there is a renewed interest and need for low-maintenance, drought tolerant grasses that can be used in landscape sites, recreation areas, and small acreages. Many native grasses that are indigenous to semi-arid plains-states and provinces can be utilized in manicured or non-manicured Xeriscape® situations.

Since 2016, we have established and maintained our Xeriscape® Demonstration Area to show the attributes of nine top Xeriscape® species adapted to this region. Perennial grass species chosen for the demo included six native (N) and four introduced (I) species: 'Roadcrest' crested wheatgrass (I), 'Ephraim' crested wheatgrass (I), 'Covar' sheep fescue (I), 'Critana' thickspike wheatgrass (N), Foothills Germplasm Canada bluegrass (I), 'Rosana' western wheatgrass (N), 'Texoka' buffalograss (N), Bad River Germplasm blue grama (N) and 'Pierre' sideoats grama (N).

To see how each grass responds to mowing for aesthetics and weed control (mostly cheatgrass), half of each plot is mowed in the summer. Irrigation is applied 1 to 2 times per summer, as well.

We have documented the height, color (some are blue), retention of color, quality of the cutting and level of weed invasion of each grass area and will write a document summarizing our findings. A sneak peek into a couple of results are that Texoka buffalograss and Pierre sideoats grama had the highest weed

invasion in their mowed areas while Ephraim crested wheatgrass and Foothills Germplasm bluegrass had the lowest weed invasion in both mowed and non-mowed areas. We'll keep you posted on when the results document is available to you.

Xeriscape® Demonstration plots after installation (left – looking north, right – looking south). Photo taken November 9, 2016.

Xeriscape® Demonstration plots 2021 (left – looking north, right – looking south). Photo taken July 26, 2021.

Michelle Majeski, Study Leader, Bridger PMC

Can Sixweeks Fescue Compete with Cheatgrass?

Revegetation is often recommended and pursued when weedy or invasive species establish in natural areas. Native perennial plants are typically the desired species used in revegetation areas. In some situations, this approach is successful, but in others, it is not. Native perennial plant establishment could be a big leap depending on the level of weediness at the site. Breaking down the leap into small steps is one solution. This approach is called successional management, which is an iterative method based on plant species used and the revegetation objective. Instead of seeding one time with native perennial species, successional management seeds a site multiple times over 1 to 3- or 4-year period, for example, with a variety of early-establishing species. When species establish early on, compared to later in spring, they can be more competitive with annual weeds. As the revegetated site transitions from weeds to seeded species, it is better suited for native perennial plant establishment, which tends to occur later in spring.

Sixweeks fescue is a native winter annual grass we are testing in the first step of successional management in a cheatgrass-infested area. As winter annuals, sixweeks fescue and cheatgrass germinate and establish roots in the fall while competing for nutrients and water into the spring the following year. With similar germination times, we want to test sixweeks fescue's competitive ability relative to cheatgrass. As a native species, sixweeks fescue has some promise.

Also, timing of revegetation seeding is a question we are often asked and is something that we will investigate in this study. We will drill seed sixweeks fescue in fall, 2021 and spring, 2022. Three seeding rates will be tested, as well. We are in the early stages of this study and have collected site baseline data. We will collect species data in spring, 2022 and 2023. We look forward to sharing what we learn along the way. Stay tuned!

Sixweeks fescue study site. Photo taken July 21, 2021.

Michelle Majeski, Study Leader, Bridger PMC

Program Activities and Direction

Recent Montana-Wyoming Plant Materials Activities

We are often asked about the current focus and direction of the NRCS Plant Materials program at Bridger, as well as research topics and future studies. Accomplishments of the previous year are published each

January in the MTPMC Progress Report of Activities. With so many new NRCS and Conservation District staff, we thought a little history and a brief update of current directions at the Center might be helpful.

Plant Materials Centers were established in response to the soil erosion challenges resulting from the Dust Bowl era of the "dirty 30's". They started as nurseries producing seeds and plants for soil stabilization but quickly evolved into facilities testing and selecting seed sources and species for a variety of conservation uses, i.e., *using plants to solve conservation problems*. The Center was started in 1959 as a collaborative effort with the Montana and Wyoming Conservation Districts, and eventually included the Ag Experiment Stations of Montana State University and the University of Wyoming. Early program focus was on species for forage production, mine land reclamation, and salt-affected sites, and resulted in the release of several important cultivars such as 'Lutana' cicer milkvetch, 'Pryor' slender wheatgrass, 'Rosana' western wheatgrass, and 'Critana' thickspike wheatgrass. As resource concerns and priorities changed over the decades, research focused on different species and techniques to address these new conservation challenges such as heavy-metal contamination, wind erosion, pollinator habitat decline, and soil health impairment. To date, the Center has released 32 plant selections!

Program emphasis in recent years has focused on plant establishment and cover crop species and varieties for Montana and Wyoming. We continue to test cover crop seeding rates and depths, as well as species and varieties like cow pea, mung bean, sorghum-sudangrass, berseem clover, sun hemp, buckwheat, lacy phacelia, radish, turnip, flax, collards, sunflower, and many more. Future projects are planned to address invasive weed management using proper revegetation techniques. For much more information and study results, visit the Montana NRCS and Plant Materials websites and look in the Final Study Reports and Technical Notes.

Joe Scianna, Manager, Bridger PMC and Monica Pokorny, MT-WY Plant Materials Specialist.

From The PMC Board of Managers

Thank You Conservation Districts!

On behalf of the Bridger Plant Materials Center (BPMC) Board of Directors, I want to thank the Conservation Districts of Montana and Wyoming for the donations we receive every year. The BPMC provides technical information, through research studies, to USDA service centers and their clients. Our NRCS staff here at the PMC, also provides training on a variety of topics to various audiences. Your donations are very important here at the Plant Materials Center. Your donations go toward hiring summer help and administrative help, for maintenance at the facility and infrastructure updates when needed.

This summer we hired 4 student summer employees and one part time administrator. Some of the maintenance done this past year has included sewer repairs, new exterior doors, seals for seed barn doors, and repairs on our irrigation system. So again, I want to thank you for your support!

Theresa Kosel, BPMC Office Administrator, Soil and Water Conservation Districts of Montana

The Buzz about Pollinator Habitat

Pollinator insects are incredibly important to humans and wildlife! Almost 90% of flowering plants require an animal, mostly insects, for pollination. The seeds and fruits produced through pollinator provide food for countless wildlife species from songbirds to grizzly bears. About two-thirds of the world's crop species depend on insects for pollination, which accounts for approximately 35% of the food and beverages humans consume. Unfortunately, native pollinator insect populations and honeybees have had large declines in recent years due to habitat loss, disease, and pesticides.

The NRCS is working with our partners to encourage the development of habitat for pollinators and the use of conservation and management practices that encourage native and managed pollinators. Over the winter and spring, Plant Materials staff gave several training webinars on creating and managing pollinator habitat. Our presentations with the Gallatin and Lake County Conservation Districts focused on selecting a site to establish pollinator habitat, the importance of thorough site preparation prior to seeding, and ongoing management of pollinator habitat. Our upcoming workshop with the Little Beaver Conservation District will include discussion on plant species selection for pollinator habitat and pollinator-friendly landscaping.

Check out pollinator resources on the MTPMC Technical Notes website and local pollinator initiative information on the Gallatin Conservation District and Lake County Conservation District websites.

Monica Pokorny, Plant Materials Specialist

Habitat Type Training

Plant Materials staff had the opportunity this year to expand on our plant expertise to teach a Forest Habitat Type training for NRCS staff in western Montana. Forest Habitat Typing is a land classification tool used for communicating about forest types and interpreting and predicting a forest's response to management.

At the heart of habitat typing is plant identification. For the training, we developed an identification guide for forest habitat indicator species, and during the field day we were able to observe many of the indicator species.

Identifying plants can be fun! Start by taking the environment into consideration: is the site moist or dry; are you at low or high elevation? Then study the plant's features carefully: are the leaves alternate or opposite on the stem; do the leaves have toothed edges; are leaves the same color on the top and bottom surface; and what color and shape are the flowers and fruits? Once the indicator plants on the forest site are identified, the habitat type can be determined using the dichotomous key.

Why should we be concerned about forest habitat types? By identifying the forest habitat type a landowner can compare the current site condition with the site potential. Then by planning and implementing some conservation practices they can manage for their desired objectives and site conditions. For example, a forest habitat type may indicate the stand is normally open canopy forest with shrub and forage species in the understory. If the current conditions determine the tree stocking rate is abnormally high, then competition for resources (light, water), plant pest pressure, and fuel loading may be resource concerns. The site potentials described by the forest habitat types can be used to apply conservation practices to move the forest composition toward the natural range of conditions supported on the site. By doing so, applying the conservation practices may decrease the forest risk of disease and pests, improve forest health, decrease risk of wildfire and more. We hope forest habitat typing becomes a useful tool for our NRCS conservation planners when working with landowners to manage forests.

Monica Pokorny, Plant Materials Specialist