Scientific Results Encourage Restoration and Reclamation Practices

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In February, Saskatchewan Prairie Conservation Action Plan (PCAP) held their 8th Native Prairie Restoration/ Reclamation Workshop (NPRRW), virtually. There was record attendance for the 27 presentations. Many presentations were geared towards restoration and reclamation practitioners, but landowners interested in restoring native prairie were drawn in by many topics.

Grasslands are under multiple stressors such as climate change, invasive species, and land use changes, making ecological resilience a hot topic in rangeland ecology. Carissa Wonkka, from USDA, spoke about rangeland resilience and provided study results on restoring shrubland back to grassland. One of Carissa's experiments was to add fuel to a shrubland fire to damage the shrub enough to overcome the threshold to get back to a grassland system. Woody encroachment is not nearly as big of an issue in Saskatchewan as it is in the mid United States because of our precipitation, but it's a good example of how you might need to push the limits in order to have a successful restoration project.

Carissa also suggested selecting species for reclamation based on the resilience of their traits to perturbation and stress, and their resistance to invasion. There is the TRY Plant Trait Database at **try-db.org/TryWeb/Home.php**, that contains a collection of trait-based approaches to help understand the emergence of plant biodiversity and its consequences for ecosystem function.

Monica Pokorny, from USDA, described how to manage invasive species while revegetating native prairie. Plants evolved to fill different ecological roles because they have different requirements for nutrient accumulation, storage or concentration. Monica mentions that it's important to have different functional groups (e.g., rhizomatous, bunch, tap rooted, legumes), in a seed mix to access resources within a community. Diverse plant communities are more stable and produce more biomass, fully utilizing available resources which reduce the potential for invasive species to take hold.

Rachel Becknell, from Washington University in Missouri, is currently researching how rare plant species interact with similar species and their soil microbes, as these soil microbial communities are able to help different species coexist. Plant species may be negatively-impacted by their own soil microbes, but by having distantly related species with unique soil microbes used in the same planting, their ability to coexist may be improved. It's an interesting concept to consider when choosing species to use in a restoration project.

A presentation by Julie MacKenzie drew in participants with a demonstration of a new Forage U-Pick tool. Forage U-Pick was launched in 2020 as a result of a cooperative effort across western Canada. Forage U-Pick is designed to provide users with information for forage selection, seeding rates, forage weed management as well as native species. Forage U-Pick considers categories, such as soil texture, field salinity level, and the desired forage stand longevity, to name a few. This wonderfully-detailed tool should be considered a starting point for decision-making and consulting with an agronomist, before buying seed is recommended. You can find the Forage U-Pick tool here: **saskforage.ca/forage-upick-tool** and **upick.beefresearch.ca**.

These four examples are just a snippet of the information that was shared during the 8th Native Prairie Restoration/ Reclamation Workshop. Any remaining native prairie should be preserved, as restoring it back to a functional native prairie ecosystem, once it is degraded or destroyed. is costly and takes years to achieve the desired result. However, where native prairie has been lost or destroyed, restoration will be more successful with science, experience, collaboration and doing ongoing research to refine and improve on restoration techniques. Networking and knowledge sharing will be needed for restoration to be successful, making these workshops valuable to all participants for years to come.

Recordings from the 8th NPRRW will be available to the general public in September 2021. BB