

Newsletter of the Native Plant Society of Saskatchewan



R O O T S

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Summer 2025



Red Paintbrush

Castilleja miniata

Photo credit: Chet Neufeld

Meet the Team

This summer, the NPSS welcomed two new Project Technicians to assist with the large amount of field work associated with our projects. Here’s a little more about them in their own words.



Elijah Stempien

I grew up just outside of Saskatoon. I was lucky to spend so much time outdoors, exploring nature, gardening, and looking after our animals.

I studied forestry and anthropology at the University of New Brunswick. During my degree, I organized a campus hydroponics greenhouse where we

grew fresh food for students and the community. I worked with the Nature Trust of New Brunswick for my capstone project to conserve rare ecosystems and restore native forests. During the summers I came back to work in Saskatchewan’s forests and grasslands, visiting areas I never knew existed. Turns out it’s not quite flat enough to see the whole province from your back porch!

Nowadays I spend my time knitting, canoeing, and bouldering. More recently I’ve been trying my hand at bird-watching and learning the banjo. With the NPSS, I look forward to getting to know the plants, animals, and ecosystems whose home I share!



Ben Chen

I was born into a farmer’s family in eastern China, where my parents earn a living by growing crops similar to Saskatchewan. Living in rural areas, I found companionship and friendship in little critters, birds, and plants. I often wandered into river meadows and up mountain slopes, catching insects and making toys from leaves and twigs – a great joy at the time. I cherish these childhood experiences, which fostered a deep connection to nature.

I went to university in my hometown, Linyi, Shandong province, where I studied biology-related courses and began to appreciate the vast diversity of plant kingdom from a scientific perspective. After completing my bachelor’s degree, I continued my education in Guangzhou, southern China, as a postgraduate student majoring in environmental science. During that time, I focused on wetland restoration, aiming to reestablish the functioning of a wetland through plant community management.

My career in environmental science began with my work as a researcher in a provincial research institute in Guangzhou, where I

spent my time and energy on environmental quality assessment and application of wetland plant species in various environmental and ecological contexts. Proposing and implementing environmental projects, I felt it was rewarding when a polluted and degraded pond transformed from a state of turbidity and disorder to one of clarity with improved biodiversity and aesthetic values.

I came to Canada in the golden autumn of 2022 and was immediately amazed by the landscape and biota. Fascinated by a whole new environment, I volunteered with several organizations dedicated to environmental conservation. I’m especially proud of the time when my whole family volunteered with the Native Plant Society of Saskatchewan (NPSS) to remove Flowering Rush in the South Saskatchewan River near Leader, SK, which landed our family the volunteer of the year 2024 - a big surprise to our family.

Currently, I am working with NPSS as a Project Technician. I appreciate being able to work with such wonderful and knowledgeable staff, who will undoubtedly increase my understanding of Saskatchewan’s natural world and equip me with the knowledge and skill set to steward our natural resources better.

In my spare time, I enjoy going to church with my family and connecting with friends, walking in parks, or doing some reading, and occasional DVD bargain hunt online.

Roots is a quarterly publication of the Native Plant Society of Saskatchewan (NPSS) and is one of the benefits of membership. Members are invited to submit articles, news, views, photographs and comments. Views expressed by the authors are not necessarily those of the NPSS.

Deadlines: Submission Publication Winter Issue: November 1 December 15 Spring Issue: February 1 March 15 Summer Issue: May 1 June 15 Fall Issue: August 1 September 15	Native Plant Society of Saskatchewan P.O. Box 21099, Saskatoon, SK S7H 5N9 Phone: (306) 668-3940 Fax: (306) 668-3940 E-mail: info@npss.sk.ca Website: www.npss.sk.ca Twitter: @NPSS_SK www.facebook.com/npss.sk	Membership Dues (Year End November 30 th). Individual \$30 Family \$45 Student \$15 Non-profit \$100 Corporate \$200 Life \$500 <i>Please contact the NPSS office for info about the lifetime membership instalment payment option.</i>
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Get your photo on the cover of... **ROOTS!** Submit your Saskatchewan native plant photos for future cover consideration to: info@npss.sk.ca

Spring Workshops Went Well

This spring the NPSS hosted two workshops, the Wetland Bryophyte Identification Course on May 16-18 at Hannin Creek Camp and the Rare Plant Identification Workshop on May 21 at the University of Saskatchewan.

Bryophyte expert and author Brittney Miller lead the Wetland Bryophyte Identification Course. This course was an introduction to bryophytes (mosses and liverworts), designed to develop the skills needed to detect and identify common Saskatchewan wetland species. The course focused on field detection (microhabitats, field-level features), microscopic examination, and taxonomy to confidently identify and distinguish between species. Hannin Creek Camp, on the shores of Candle Lake, couldn’t have been a better setting, and included a lab surrounded by many different habitat types. After a series of presentations to familiarize us with bryophytes and their characteristics, we ventured to some nearby bogs and wetlands to collect samples to take back to the lab to identify. Despite being under a pre-evacuation notice while we were up there due to fires on the other side of Candle Lake, we were able to stay and were only affected by smoke one day. Thank you to Brittney Miller and her assistant Erin Cox for an amazing workshop, Joanne Marchand for supplying equipment and helping to organize, and the staff of Hannin Creek Camp.



Wetland Bryophyte Identification Course crew.

The Rare Plant Identification Workshop was lead by botanist Sarah Vinge-Mazer. This information-packed course was tailored to the participants’ abilities and interests, based on feedback prior to the event. The workshop focused on identification skills to distinguish rare plants (including Species at Risk) from their look-alikes, but also included information about detection, survey types, and habitat hotspots. Hosting the event at the University of Saskatchewan was perfect, as we had access to a lab with dissecting microscopes as well as specimens from the Fraser Herbarium. Thank you to Sarah Vinge-Mazer for sharing her extensive knowledge, Denver Falconer for assisting with the herbarium specimens, and Dr. Eric Lamb for facilitating the venue booking.

Both courses received very positive feedback from participants, and the Rare Plant Identification Workshop sold out while the Wetland Bryophyte Identification Course nearly sold out. With luck, we’ll be able to host both events again in the near future.



Participants of the Rare Plant Identification Workshop. Photo by Sarah Vinge-Mazer

Saskatchewan Conservation Data Centre Update

The Flora of North America (FNA) Fascicle 11 (Fabaceae) was released in 2023 and was reviewed for changes relevant for Saskatchewan. This information is not yet available on the Flora of North America website, but it is available in hard copy. Notable updates include the scientific names for late and early yellow locoweed. *Oxytropis campestris* var. *spicata* is now the scientific name for late yellow locoweed; this name was previously misapplied

to early yellow locoweed. *Oxytropis sericea* var. *speciosa* is now the name for early yellow locoweed. For further information, please see Welsh, S. L. (1995) “North American types of *Oxytropis* DC. (Leguminosae) at The Natural History Museum and Royal Botanic Garden, England, with nomenclatural comments and a new variety,” Great Basin Naturalist: Vol. 55: No. 3, Article 9.

Two species previously ranked SH were confirmed to be growing in Saskatchewan, and have had their previous conservation status ranking restored:

1. *Potamogeton amplifolius* (Large-leaved pondweed) S1, and
2. *Triadenum fraseri* (Marsh St. John’s-wort) S1

Forays & Fungi Fun



The Saskatchewan Mycological Working Group (SMWG), a proud offshoot of the NPSS, has been growing steadily and enjoying an exciting mushroom season so far!

We kicked off the season with a March webinar and April workshops led by local experts Donovan Thiessen and Nicole Sanderson, helping participants build confidence in mushroom identification.

We also ran a contest for the 2025 SMWG t-shirt design and received some amazing submissions. The winning design, created by the talented Skye Mercier, beautifully celebrates Saskatchewan's fungi—perfect for forays, festivals, and fungi-filled days. You can contact us to purchase one or forage a shirt at an upcoming event!

So far, we've hosted forays at Anglin Lake (June 21) and near Redberry Lake (July 26)—both well-attended and full of fascinating finds. We'll wrap up the season with a final foray at Honeywood Heritage Nursery on September 13.

WHY FUNGI? A WORLD OF FASCINATION BENEATH OUR FEET

What is it about fungi that captures the imagination of so many people? Whether you're a seasoned naturalist, a curious cook, or simply someone who loves a good forest walk, there's something in the fungal kingdom for everyone. People are drawn to fungi for a wide range of reasons—here are just a few areas that spark fascination:

Nature & Ecology: Many are captivated by fungi's essential role in natural ecosystems. These incredible organisms break down organic matter, recycle nutrients, and form symbiotic relationships with plants through mycorrhizal networks—what some call the “Wood Wide Web.” Others are drawn to the thrill of mushroom foraging, learning to spot edible or medicinal species on forest floors. Some even explore fungi's power in bioremediation—the use of mushrooms to clean up pollutants like oil spills and heavy metals.

Food & Cooking: Fungi lovers often enter the field through the kitchen. From the delicious wild mushrooms like morels and chanterelles to cultivated specimens like oyster mushrooms or wine caps, culinary fungi are a world unto themselves. Fungi can also play a starring role in fermentation. With the right setup, many enthusiasts even grow mushrooms at home!

Health & Medicine: Interest in medicinal mushrooms is growing rapidly. Species like reishi, lion's mane, and turkey tail have long histories in traditional medicine and are now being researched for their effects on immunity, cognition, and inflammation. Mycology enthusiasts may also explore mycotherapy, the use of fungi in both ancient and modern healing systems.

Science & Research: Fungi are biologically fascinating—their genetics, life cycles, and reproductive structures are truly unique in the



Participants on a foray.

natural world. At SMWG, we're working to better understand and document the fungal diversity within Saskatchewan. If you'd like to contribute to this growing body of knowledge, download the iNaturalist app and join the SMWG Project to share your observations and help identify local species!

Art & Culture: Fungi have inspired artists, storytellers, and craftspeople across cultures and generations. From making spore prints and mushroom-dyed fabrics to exploring ancient myths of fairy rings and forest spirits, the cultural significance of fungi runs deep. For some, mushrooms are more than organisms—they're muses.

Habitat and Biodiversity Assessment Tool Available for Saskatchewan Landowners

Landowners in Saskatchewan now have access to a province-specific online Habitat and Biodiversity Assessment Tool (HBAT), one of several the Canadian Forage and Grassland Association (CFGa) has launched in provinces across the country.

Working with national and provincial stakeholder committees, governments, Environmental Farm Plan (EFP) delivery agents and agricultural associations, the CFGa is wrapping up the sixth, and final, year of the \$1.2-million project, which began in 2020 with financial support from Environment and Climate Change Canada (ECCC) as part of the Canada Nature Fund.

About the tool

Designed as an extension and awareness tool, the HBAT is an online tool meant to help land owners and managers gain an understanding of important habitats and biodiversity on their land and the stewardship opportunities they could implement to sustain them. It is based on the potential for species to occur in an area, which means no sensitive information about rare species observations is released.

“The HBAT provides agricultural producers with the knowledge of what native species have the potential to occur on their land based on the known or expected distribution of species, the geographic location of the farm or ranch and on the habitat types and features that are found on it,” says François Blouin, the national technical lead for the CFGa's HBAT project. “With that knowledge, stewardship opportunities for native species can be suggested to the producers who can then decide on what, if anything, is compatible and desirable within their operational constraints and objectives.”

Heather Peat Hamm, the Saskatchewan HBAT lead says she sees the tool being used for planning purposes and for information on species needing stewardship in agricultural areas, guiding users to support habitat and species stewardship on their land.

“It will reveal what are the most impactful practices and which are the “easy-to-do” practices, as well as informing them of what species are more likely to be using their land for habitat,” she says, explaining the tool includes species from most taxa - vascular plants, non-vascular plants, mammals, birds, insects, reptiles, amphibians and fish - and takes an inclusive approach to stewarding habitats to support vulnerable species.

The HBAT will be standardized in nine provinces, providing increased consistency of messaging across Canada. Tools are now available for Alberta, Manitoba, Nova Scotia and Saskatchewan. The CFGa will launch tools for British Columbia, New Brunswick, Ontario, Prince Edward Island and Québec in the winter of 2025.

More info

For more information about the HBAT project, visit the CFGa website or check out this information sheet.

DIY & Sustainability: With the rise of sustainability movements, fungi have taken the spotlight as eco-friendly problem solvers. Mycelium-based materials are being used to create biodegradable packaging, leather-like textiles, and even building bricks. In regenerative agriculture and permaculture, fungi are key players in rebuilding soil health and promoting biodiversity.

WHAT IS A FORAY?

A foray is a guided outdoor mushroom walk where participants explore natural areas to observe, identify, and learn about fungi in their native habitats. Led by experienced guides, forays are a great way to build your identification skills, connect with others who share an interest in mushrooms, and deepen your understanding of the role fungi play in local ecosystems.

They're suitable for all experience levels—from curious beginners to seasoned foragers—and often include a mix of hands-on learning, group discussions, and post-walk identification tables where collected specimens can be examined more closely.



WANT TO JOIN ONE?

Upcoming SMWG Foray Schedule*

- September 13th – Honeywood Heritage Nursery (Parkside)

*Date is Tentative: Forays may be postponed if the scouting team does not find fungi, or if weather is poor.

Stay Connected

To learn more about SMWG, visit <https://linktr.ee/saskmycology>.

Join the Facebook Groups:

- Saskatchewan Mycological Working Group
- Saskatchewan Mushroom Picking

Targeting Threats to Species at Risk

Hilary Pinchbeck, NPSS Project Coordinator

Project Technician Ben Chen sifting Downy Brome seeds out of the sand.



In July, the NPSS focused on manually removing Downy Brome to help restore habitat for Smooth Goosefoot and other rare species at several privately owned ranches participating in our Rare Plants and Ranchers program. Manual removal of Downy Brome consists of hand picking and disposing in garbage bags. However, this is not as easy as this sounds, as many of these patches are located in shrubby areas, making removal very tedious and quite painful due to rose thorns and cacti! Downy Brome is a winter annual and sets seed quite early in the season, so we have adapted to bringing along kitchen sieves to sift through the sand to try and collect all fallen seeds.

We have been removing Downy Brome from these properties for the last few years and are seeing a difference in the amount of plants that come up each year. Since its seeds aren't that long-lived, we're hoping to get rid of Downy Brome from these areas completely! However, some of these patches are starting to move farther into native prairie than we'd like to see so we doubled our efforts this year to ensure we had enough time to fully remove all the patches.

How to identify Downy Brome: Downy Brome is an annual grass that reproduces only by seed and is native to the Mediterranean and southwestern Asia. It was mostly likely brought to Canada through contaminated crop seed. Downy Brome seed heads droop and are covered in soft, dense hairs.

What is the problem? Downy Brome is aggressive and establishes very quickly. It outcompetes native species for resources and can cause injury to livestock because of the sharp, barbed awns. Downy Brome also increases wildfire risk because its life cycle ends early in the season and creates a very thick layer of plant litter which adds flammable material to the landscape.

What can you do? If you come across Downy Brome, you can take a photo, record your location, and contact your local RM office and weed inspector. If you use the iNaturalist app, you can report findings here as well. If you're not sure if you've identified the grass correctly, reach out to us, or load your photo onto iNaturalist for others to help you identify your mystery plant!

Rare Plants and Ranchers, now in its 14th year, is the Native Plant Society of Saskatchewan's (NPSS) flagship project. Through this program, we work with landowners to find win-win solutions for both the ranching operations and the plant Species at Risk that rely on the habitat. One of the biggest threats to species and habitats within our program and across Saskatchewan are invasive species. Downy Brome (*Bromus tectorum*) is one such invasive species that is threatening Saskatchewan's native habitats and species and is especially problematic in sand dune ecosystems, where it threatens Species at Risk like Smooth Goosefoot (*Chenopodium subglabrum*).

Prickly pear cacti (*Opuntia polyacantha*) dotting the landscape. Photo by Elijah Stempien.



Rare Plants and Ranchers Update

Elijah Stempien,
NPSS Project
Technician

Our field season started off with visits to several properties with Species at Risk. The monitoring we do ensures that these species, the habitat they rely on, and the ranches that manage these lands all continue to thrive.

We had a great shift near Cabri, exploring beautiful native grasslands bordered by the South Saskatchewan River while conducting field work for our Rare Plants and Ranchers program. The wide range of environments – from sand dunes to shrublands to riparian

Have Your Say About Saskatoon's Urban National Park

Saskatoon Swale Watchers

Did you know that Saskatoon is set to become one of the first cities in Canada to host a National Urban Park, including parts of the Swales? We're thrilled to welcome this to our city!

As Swale Watchers, we're always thinking about what this means

for the Northeast and Small Swales. We're excited about the potential for permanent protection of these precious areas, but we also have some concerns. For example, the Saskatoon snow dump located within the Small Swale (south of McOrmond Drive) is included in the proposed boundaries, but the ecological core of the Small Swale—endorsed by City Council in February 2023—is not.

Let's make sure this park starts off right by including your valuable input in the planning process. Complete this online survey by September 12 to advocate for including integral natural areas from the beginning, link below.

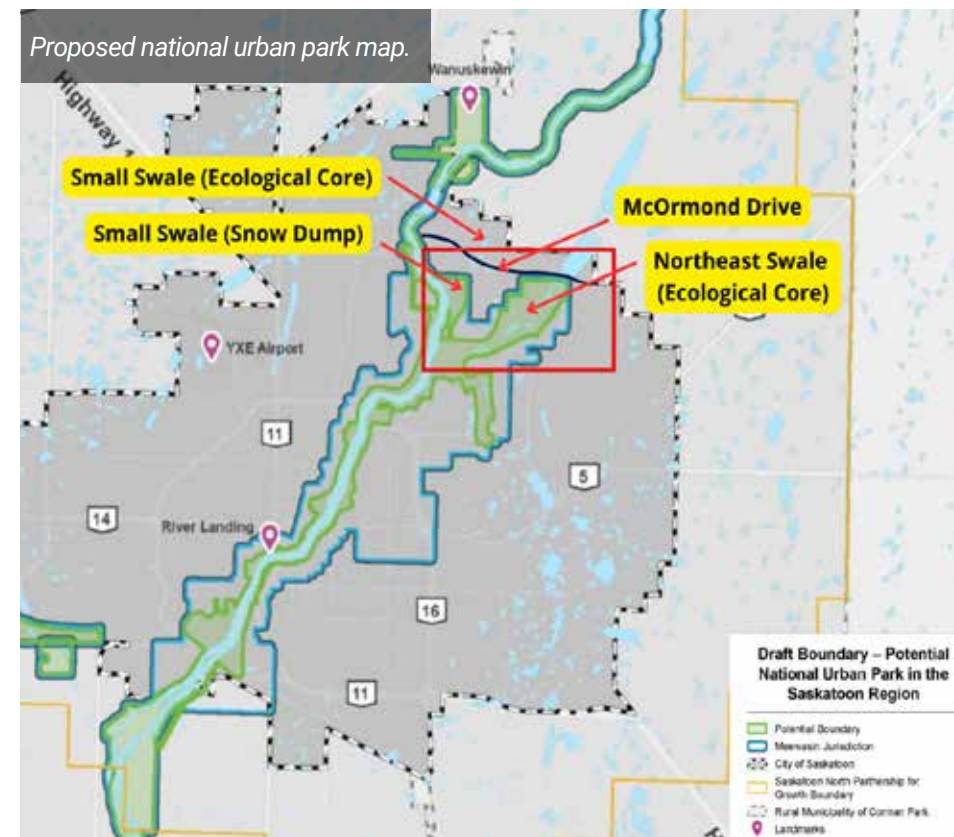
If you have 2 minutes to do the survey, go to Questions #9 and #10 regarding Urban Park boundaries. There, you can explain that you want the entire Small Swale protected within the boundaries of the Park. Next, go to Question #29 and click "other", then explain that you want the Small Swale Natural Area Management Plan to be implemented. Then click through to the end to submit your survey.

If you have 10-15 minutes to do the entire survey, head to our website here to view our full set of notes to help you advocate for the Northeast and Small Swale.

Survey: <https://www.surveymonkey.ca/r/NUPEXploration>

View our website with full set of notes: <https://swalewatchers.org/call-to-action/>

National urban park website: <https://urbanparksask.ca/>



habitats – means we saw a great variety of plants and wildlife. Of special interest, we found several federally and provincially rare species, including Smooth Goosefoot (*Chenopodium subglabrum*), Beaked Annual Skeletonweed (*Shimmersoseris rostrata*), Sand Dune Wheatgrass (*Elymus lanceolatus* ssp. *psammophilus*), and Low Pussytoes (*Antennaria dimorpha*). We also came across a loggerhead shrike and were often greeted by a common nighthawk calling and swooping overhead. This shift was a great example of the natural beauty and diversity native prairie ecosystems have to offer!

A native sunflower (*Helianthus* sp.) adds a touch of colour to the sand dunes. Photo by Elijah Stempien.



The shore of the South Saskatchewan River. Photo by Elijah Stempien.

This issue's COVER PLANT

Red Paintbrush - *Castilleja miniata*



Widely distributed from Alaska to New Mexico and British Columbia to Ontario, Red Paintbrush is a perennial herbaceous plant common in all regions but the prairies. It grows in wet to moist soils and is found in open woods, foothills, fescue grasslands, ditches, and lush meadows.

Belonging to the broomrape family (Orobanchaceae), which has over 2,000 species with many being parasitic, Red Paintbrush appears as if it was dipped in paint, hence its name. The bracts, which are modified leaves split into pointed segments at the ends, range from vibrant red-orange to pink. The actual flowers are tiny and green, hiding among those showy red bracts. The genus name "Castilleja" is named for 18th century Spanish botanist Domingo Castillejo. The species name "miniata" comes from the word "minium" for a kind of red lead paint that was used in the Middle Ages.

Red Paintbrush is a tap-rooted perennial that grows 20-80 cm tall from a woody base with flat, lance-shaped leaves with tiny hairs. Blooming from mid-summer onward, the bright colours attract pollinators like bees and hummingbirds. *Castilleja* species have purported medicinal values such as treating certain diseases, and the leaves have been applied along with grease to make hair glossy. However, the leaves and roots contain potentially toxic levels of selenium.

One of the most intriguing aspects of Red Paintbrush is that it is a hemiparasite, meaning it obtains some nutrients and water from host plants while also producing its own food through photosynthesis. Its roots establish connections with the roots of neighboring species like sedges, grasses, yarrow, thimbleberry, and even some non-native weeds, extracting nutrients to supplement its growth. Transplanting Red Paintbrush usually kills it as its roots are easily damaged and the host plant connection is broken; digging any native plant from where it grows is discouraged and is illegal in places.

Propagating Red Paintbrush can be done through seed sowing, but it requires a specific approach: sowing in the fall along with the seeds of a herbaceous perennial host plant. *Bouteloua gracilis*, known as blue grama grass, has been identified as a suitable host for red paintbrush. Red Paintbrush seeds and plants are commercially available, making it possible to cultivate this striking wildflower in appropriate settings. Despite being a hemiparasite, it is well-behaved in a garden setting and does best when planted with the species that it grows with in the wild.

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Flying Creek Trees



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