

Newsletter of the Native Plant Society of Saskatchewan



ROOTS

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Liatris punctata

Dotted Blazingstar

Photo credit: C. Neufeld

Executive Director's Message Chet Neufeld

This summer has been a lot of things: hot, dry, often smoky, and very busy! Once again, we had a full docket of projects and events, many of which you'll read about in this newsletter. While our events are finished for the year, the weather is still nice so I encourage everyone to get out and enjoy the late summer wildflowers while you can. People in Saskatchewan know that once September comes, nice weather is more of a gift than a guarantee.

Our field work began with some Slender Mouse-ear-cress (*Crucihimalaya virgata*) searches in early June as part of our Rare Plants and Ranchers project and continue as I write this. We will probably wrap up in late September. Other projects that have kept us busy this summer include the South of the Divide Invasive Species Strategy, which helps to recover species at risk by addressing the threat of invasive species through a multi-pronged approach and community engagement, and the Rose Creek Ranch Conservation Grazing Project, which tackles Leafy Spurge (*Euphorbia esula*) invasion of native prairie and species at risk critical habitat through conservation grazing with goats. The Rose Creek Ranch was also one of our field tour locations.

We have also continued our efforts to reduce the threat of Flowering Rush (*Butomus umbellatus*) on our native aquatic ecosystems, and received a mid-season boost of funding that has allowed us to increase the pressure on this invasive species and expand our network of control to other areas of Saskatchewan.

Our wildflower giveaway in June was once again extremely popular; by the end of the day, we had given out several hundred seedlings that are now growing in gardens across the province. Now is a good time

to seed anything you want to pop up next spring, so please visit our annually updated native plant materials supplier list at <https://www.npss.sk.ca/info-resources> if you're looking for anything. If you can't find a particular species, feel free to contact me.

We also continue to receive donations of time and money, and for that I am truly thankful. We simply wouldn't be able to achieve everything we do without your support. For those who want to support the NPSS, we have a few options. There are volunteer opportunities for every skill level throughout the year, so don't hesitate to get involved. Financial donations will receive a tax receipt for the full amount, and one-time donations can either be made by mailing a cheque or on our website. Monthly donations are especially helpful, and can be made through our page at <https://www.canadahelps.org/en/charities/native-plant-society-of-saskatchewan-inc/>

One special gift we recently received was 5 large boxes of books from the estate of noted botanist and Professor Emeritus Dr. Vernon Harms. These are an important part of his legacy in Saskatchewan, and many of the resources are out of print with no digital copies in existence.

Finally, we have already begun to plan our annual general meeting and conference which will take place in Regina in early 2024. The theme will explore forests and will include the Forest Ecosystems learning module of our Saskatchewan Master Naturalist program.

As we transition from field work to office work and look toward fall, there's one more thing that I realize this summer has been: short. Always too short.

NPSS Field Tours Explored Saskatchewan's Sunny South

Once again, this summer, the NPSS took people out into nature to uncover the botanical treasures waiting to be found. On June 24-25, we closed out Native Prairie Appreciation Week by visiting the Cactus Hills near Spring Valley, SK and the Dirt Hills around Avonlea, SK. The Cactus Hills are renowned as some of the largest glacial push hills in the world, covering approximately 1,000 square kilometers and rising as high as 880 meters. The Dirt Hills, also known as the Blue Hills because of their high clay content, are famous for their rugged beauty and their history of clay mining, particularly the Massold Clay Canyons where the Claybank Brick Plant ran for decades and is now a National Historic Site. Both the

Cactus Hills and Dirt Hills were significant to the local Indigenous population and were used for millennia, as evidenced by the numerous tipi rings, medicine wheels, artifacts, and other evidence found in these areas.

June 24 began at Elaine Scheller's farm, from where she led us around for the day. Our first stop was at Oro Lake, a highly saline lake that has been the subject of interest by scientists of many disciplines, as it is only one of three lakes known in the Canadian Great Plains to have not dried up in the past 10,000 years. The lakeshore itself was teeming with vegetation, and even in the briny

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Membership Dues (Year End November 30th).

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Botanizing in the Cactus Hills, with the seemingly endless prairies in the background.
Photo by Chet Neufeld

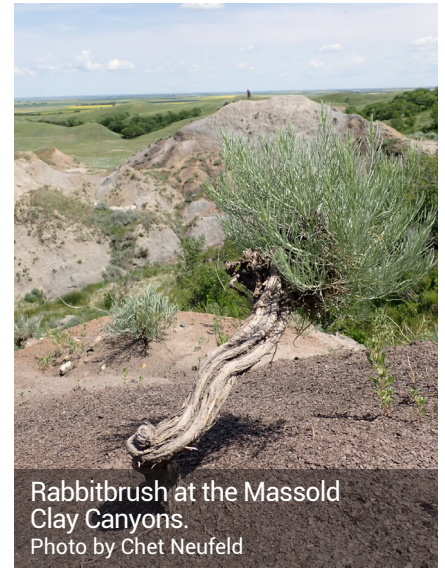
shallows, some aquatic plants were growing despite the harsh conditions. After lunch along the lakeshore, we hiked further into the surrounding uplands to explore the drier prairie grasslands. Here in the Excel Community Pasture, we found a diversity of plant species, including the relatively rare Low Whitlowwort (*Paronychia sessiliflora*), which is ranked S3 in the province. The grassland community here was in good condition, thanks to careful range management and recent rains. After our foray in the community pasture, we headed to Elaine's nephew's property in the heart of the Cactus Hills. Here, we explored some of the higher points in the region, where we had seemingly endless vistas in all directions. Though some of the hills were a steep climb, it was interesting to see the vegetation community change from a wet meadow bottom and slowly get drier as we climbed higher, until only the hardiest of plants survived at the top of the arid, gravelly summits. It was not far from the top where we found small clusters of Tufted Hymenopappus (*Hymenopappus filifolius*) and Downy Paintbrush (*Castilleja sessiliflora*), both rare in Saskatchewan (S3).



Claybank Brick Plant National Historic Site.
Photo by Chet Neufeld

On June 25, we were welcomed by retired Canadian Wildlife Service ornithologist Al Smith and his wife Randi to the Claybank Brick Plant National Historic Site. We were able to walk amongst the buildings that once housed a thriving brick plant, producing such high-quality bricks that they were used in several prominent buildings, including the Chateau Frontenac in Quebec City and Saskatoon's own Delta Bessborough. Their exceptionally heat resistant fire bricks were also used in Second World War ships and NASA even used them to construct the launch pads at Cape Canaveral!

We began making our way up the flanks of the Massold Clay Canyons, exploring the nooks and crannies of the eroded landscape. Filled with rills and gullies, every turn revealed something new, including a small patch of the provincially rare Tufted Hymenopappus and a new rare plant sighting for the trip, Gumbo Evening Primrose (*Oenothera cespitosa*), ranked as an S3. Badland plants abounded, but there were some surprises as well, such as a small, perched wetland community that formed from a seep. If one ventured deep enough, treed coulees could also be found, complete with a forest understory such that if a person were dropped into the area blindfolded, they would have no idea that they were surrounded by badlands. The juxtaposition of eroded clay and lush greenery was interesting and made for some neat botanizing. Those that made it to the top were treated to views stretching for tens of kilometers and a diverse upland plant community of mixed grasses and forbs, many of which were flowering.



Rabbitbrush at the Massold Clay Canyons.
Photo by Chet Neufeld



Goats grazing on Leafy Spurge.
Photo by Reed Lewko



Marie Hanson and her horse, Magic.
Photo by Candace Savage

Over the two days, we found approximately 100 plant species and there were certainly more to be found if we had more time to look. Thanks to Elaine Scheller for being our local guide around the Cactus Hills, Barney Brice for granting us access to the Excel Community Pasture, and to Al and Randi Smith for hosting us at the Claybank Brick Plant National Historic Site.



Bee Flies sip nectar on what is obviously a popular Gaillardia.
Photo by Chet Neufeld



Hiking up a ridge on the Rose Creek Ranch.
Photo by Chet Neufeld

On July 8, our second field tour of the summer took us to the Rose Creek Ranch near Eastend, SK, where we have an ongoing project using conservation grazing with goats to suppress Leafy Spurge (*Euphorbia esula*). Being at the eastern edge of the Cypress Uplands, you get a sometimes-curious mix of plants here, such as a field of Needle and Thread (*Hesperostipa comata*) right next to a steep coulee filled with White Spruce (*Picea glauca*). Indeed, this is probably the only region in Saskatchewan where you'd find these species in such close proximity. We caravanned out from Eastend to the ranch, stopping briefly at Jones' Peak for an unparalleled view of the Frenchman River Valley. The area is very rugged, with gravelly tops and eroded clay sides. However, it is not barren and many hardy wildflower species were blooming, including the provincially rare and beautiful Evening Star (*Mentzelia decapetala*).

Once we arrived at the ranch, Marie Hansen greeted us on her horse, Magic, and explained the history of the ranch as well as past and current land management strategies, with a focus on goat grazing. After an informative question and answer session with Marie, we took a short walk over to one of the monitoring plots that the NPSS is using to measure the effect of the goats on Leafy Spurge and the surrounding plant community. NPSS contractors Hilary Pinchbeck and Reed Lewko took the tour participants through a demonstration of how they collect various types of data and talked about the goals of the project.

After lunch, we headed to the Rose Creek to see what we could find in the wet meadow that surrounded it, and found numerous wildflowers and other interesting species, including Brook Grass (*Catabrosa aquatica* var. *aquatica*) which is rare (S3) in Saskatchewan. We then took a short drive to another, much drier part of the ranch, where we climbed a very large hill that led to a ridgetop that gave us access to some of the highest points on the ranch and some fantastic views.

It was here that we found even more provincially rare plants, including Rocky Ground Sandwort (*Eremogone congesta*), Plains Rough Fescue (*Festuca hallii*), and Narrow-leaved Umbrellawort (*Mirabilis linearis*). We spent the rest of the day in this area adding to our list of plant species found for the day and, by the end, we had racked up an impressive 151 species! It helped that we were able to visit a diversity of habitats within a short period of time but, still, this part of the province is a treasure trove of native plants and one that we're working hard to ensure that future generations can enjoy. Thanks to the Rose Creek Ranch for hosting us, and to Hilary and Reed for the demonstration. The Rose Creek Ranch Conservation Grazing Project is undertaken with the financial support of the Government of Canada (Environment and Climate Change Canada).



Plains Prickly Pear.
Photo by Chet Neufeld

We were very fortunate to have perfect weather for our field tours and had 21 participants for each event. Species lists from our 2023 field tours and other areas of the province can be found on our website at: <https://www.npss.sk.ca/info-resources/plant-checklists>

Funding Available to Landowners in Southwestern Saskatchewan

Now in its third year, the South of the Divide Invasive Alien Species Strategy aims to help landowners in southwestern Saskatchewan with weed management and support species at risk, in part by providing matched funding to support on the ground activities. The project is a collaboration between the federal government and local non-profit organizations lead by the Native Plant Society of Saskatchewan.

"Ranchers are key to conserving and managing native prairie and we know they're doing a great job, but aggressive weeds like Leafy Spurge put a strain on farm families and the land, so we're trying to help in any way we can" says Chet Neufeld, Executive Director of the Native Plant Society of Saskatchewan.

Dollar for dollar matched funding is available for landowners with native prairie who have implemented or plan to implement weed control in 2023. Eligible costs include herbicide and application costs, costs for sheep or goat grazing, expenses from acquiring biocontrol (ie. beetles), and in some cases, fencing or mineral block costs, if it can be demonstrated that it helps to

control weeds or benefits species at risk. Other costs may also be eligible if they can be proven to manage invasive species or improve conditions for species at risk. Those who are approved for matched funding will simply need to submit bills for the total cost and a cheque will be issued for half the amount. Funding is limited and not guaranteed to everyone who applies.

The South of the Divide region, located in the southwest corner of Saskatchewan, is comprised of the rural municipalities of Reno, Frontier, Lone Tree, Val Marie, most of White Valley, and parts of Maple Creek, Piapot, Arlington, Grassy Creek, Wise Creek, Auvergne, Glen McPherson, Mankota, Waverley and Old Post. The 14,157 km² region is critically important to Saskatchewan's ranching industry and contains some of the largest and best quality native prairie remaining in the province, home to many rare plants and animals.

To see if you qualify for matched funding or for more information on the program, please contact the Native Plant Society of Saskatchewan at info@npss.sk.ca

Rare Plants and Ranchers 2023 Summer Update Reed Lewko, NPSS Project Technician

Our field season began in early June, where we spent some time looking for Slender Mouse-ear Cress (*Crucihimalaya virgata*; S1, Threatened) on a private property near Burstall, SK. We were convinced that we had found multiple plants, only to go send the pictures off and be told that what we had actually found was a lookalike species – Hairy Rockcress (*Arabis hirsuta*), which is not rare. Shoutout to Candace and Chet Neufeld for properly identifying the plant! We were disappointed but determined to redeem ourselves. And while we did not find Slender Mouse-Ear Cress this year on the property, we did find Northern Blue-Eyed Grass (*Sisyrinchium septentrionale*; S3), Kelsey's Cryptantha (*Cryptantha kelseyana*; S2), Few-Flowered Oat Grass (*Danthonia unispicata*; S3), and a plethora of the provincially rare (and very cute) Small Lupine (*Lupinus pusillus*; S3). In addition to these plants, we saw multiple Great Plains Toads (*Anaxyrus cognatus*; S3 in Saskatchewan), heard Sprague's Pipits (*Anthus spragueii*; S1), and came across one very large, very angry Bull Snake, and two smaller, only slightly angry, Prairie Rattlesnakes.

Our next stop was a Soapweed (*Yucca glauca*; S1, Threatened) site near Rockglen, SK. This was a very exciting trip, as we found a relatively large population of Yucca plants in a spot that was not previously known to us. None of them had flower stalks from this year, but we are hopeful that they will reproduce in due time! In the same area, we came across Few-Flowered Buckwheat (*Eriogonum pauciflorum* var. *pauciflorum*; S3), Blue Phlox (*Phlox alyssifolia*; S3) as well as many common native plants.



Multiple Soapweed plants.
Photo by Reed Lewko

Near Maple Creek, we visited a private property, where we found Smooth Goosefoot (*Chenopodium subglabrum*; S3, Threatened). Smooth Goosefoot is a plant that thrives in partially stabilized sand dunes with some degree of disturbance, which is exactly where we found it – beside a pasture road on the side of a small sand dune.

In addition, this property contained Small Lupine and Kelsey's Cryptantha. Unfortunately, we were there to check out a population of Downy Brome (*Bromus tectorum*), an incredibly invasive grass. We spent many hours manually removing and bagging Downy Brome from multiple locations on the property. It was a lot of work, but there had already been a marked improvement in the size of the infestations from previous years due to the hand-pulling efforts of the NPSS as well as the landowners, who hate this invasive grass as



Smooth Goosefoot.
Photo by Hilary Pinchbeck

much as we do! We look forward to coming back yearly to make sure this plant doesn't have the chance to spread any further.

Afterward, we were on to a piece of private land near Cabri, SK! This property was full of interesting plants and beautiful sand dunes, both active and inactive. Here, we found more Smooth Goosefoot, Sand Dune Wheatgrass (*Elymus lanceolatus* ssp. *psammophilus*; S2), an as-yet unidentified Bugseed (*Corispermum* sp.), and a very nice looking Velvet Ant (*Dasymutilla biculata*; unranked, but rare), which is (fun fact) not actually an ant, but a wingless wasp.

Our last Rare Plants and Ranchers property of the field season was near Empress, AB (on the Saskatchewan side, don't worry). This ranch has had an incredibly dry season and not much was green when we visited, except the Prickly Pear Cactus (*Opuntia polyacantha*) and Narrow-Leaved Goosefoot (*Chenopodium leptophyllum*), a native species. We did end up finding many Tiny Cryptantha (*Cryptantha minima*; S1, Threatened). They were very crunchy and dried up, but it appeared to have been a good year for them, as we found thousands of individual plants in known sites.

Overall, the field season has been very rewarding. We have had the chance to see a lot of the amazing native plants that our province has to offer, both rare and common. While there is a lot of work to do in preserving our remaining native prairie, it is heartening and exciting to see how many ranchers are interested in doing all they can to help the effort.



Tiny Cryptantha.
Photo by Reed Lewko

Botanists are Disappearing - Just When the World Needs Them Most

Sebastian Stroud, PhD Candidate in Ecology and Botany, University of Leeds

Editor's note: This article was originally published on The Conversation and has been reprinted through the Creative Commons license. Although the article is written from a European perspective, we chose to include it because the same situation and issues hold true for Canada and the rest of North America.

Can you recall any of the plants you saw today?

Probably not. As a species, we are not programmed to recognise and register everything we see within our field of vision. This would be an overwhelming amount of information for our brains to process.

You can however, with a little time and practise, be trained to read the plants around you: to recognise which species they belong to and their names, their relationships with other organisms and what they are telling you about the environment they live in. This is to develop what some call a natural literacy.

Most people suffer from what is commonly known as “plant blindness”, a term coined by US botanists Elisabeth Schussler and James Wandersee. They described it as “the inability to see or notice the plants in one’s own environment”. Unless taught, people don’t tend to see plants – despite the fact that at any given moment, there is likely to be a plant – or something made by plants – nearby.

In our latest study, my fellow researchers and I found that people are not only less aware of plants through a lack of exposure and a loss of knowledge, but demand for an education in botany and opportunities to study it in the UK have diminished too.

The extinction of botanical education

Botany, once a compulsory component of many biology degrees and school programmes, is disappearing fast. It has been over a decade since a student was enrolled in a botany degree in the UK. We believe there has been a gradual erosion of knowledge about plants among biology graduates and the general public as a result.



Botany graduates are now few and far between. Photo by skynesher

biology. When we scrutinised the modules offered to students on plant science courses at UK universities, we were surprised to find that only 14% focused solely on plants. Only 1% of modules in plant science and biological science programmes offered any form of training in identifying plant species.

Students are not introduced to the diversity of plant forms and functions at UK universities and are certainly not engaged with how fascinating and dynamic the floral world is. The result is a growing skills gap, with a looming shortage of professionals capable

of effectively managing environmental projects. Well-meaning but careless management is not just ineffective, it can add to environmental degradation.

For example, planting thirsty species of tree in the name of capturing carbon from the air can deprive precious bog plants of much needed water. Recklessly cutting and trimming grasslands can wipe out populations of rare orchids.

Harnessed properly, there is no doubt that plants and the services they provide can help solve looming climate and ecological crises. Restoring flood meadows and riverside habitats can reduce flooding from the extreme downpours which are likely to become more common in some areas as the Earth warms.

Less teaching about plants and the ensuing disconnection from the natural world will, if not reversed, have irreparable and disastrous consequences. How many generations of botanists remain before we no longer have the expertise to understand when ecosystems are on the brink of irreparable loss and damage?

The Scottish government has highlighted the lack of a skilled workforce to implement nature-based solutions and argues that “nature literacy” must become a core skill for various professionals, from planners, engineers, architects and educators to farmers, foresters and fishers.

The problem is vast. Various other studies have documented falling plant literacy worldwide. While other studies have identified that plant content is often neglected in textbooks and students who are unable to recognise even local plant species. Our study revealed that the UK curriculum neglects plant ecology and how to identify species, with most of this education taking place at a rudimentary level in primary schools.



The UK education system is failing to equip students with the knowledge to identify plant species.

Photo by South_agency

Reversing the decline in plant knowledge

Reviving botanical education is possible by presenting students and the public with evidence of how plants can combat the challenges of the 21st century. An invested and knowledgeable public is one well-equipped to demand environmental policy reform.

Botanists can support this ambition, but ultimately, change needs to come from those who decide policy. This is why botanists must agitate to bring botany back into the classroom and beyond.

One thing we couldn’t fully convey in our paper is just how fascinating and exciting the plant kingdom is. In my experience as an educator, there is no student who cannot be reached. Stories about plants are woven into every society’s history, politics and culture. Plants are relevant to every person on the planet – most just don’t know it yet.

This issue's COVER PLANT

Liatris punctata

Dotted Blazingstar is a common, late season wildflower of the prairies. It is found in all three Prairie Provinces and ranges south through the Great Plains of the United States into Mexico. It is a member of the sunflower family (Asteraceae) and one of only two *Liatris* species in Saskatchewan, the other being Meadow Blazingstar (*Liatris ligulistylis*). However, Dotted Blazingstar prefers drier habitats, growing in the mixedgrass prairies while Meadow Blazingstar is more common in the moist mixed grassland.



A diminutive plant, Dotted Blazingstar can grow up to 30 cm tall, but is commonly half that size. It is a perennial with a corm-like rootstock that can grow as deep as 5 meters in some regions of North America. It has stiff, linear leaves up to 15 cm long covered in tiny dots, hence its common name. Short hairs can also be found along the leaf margins. Earlier in summer before flowering, it can be easily missed by the casual observer. However, once it blooms it is impossible to overlook. In late July and throughout August, you can see these bright pink blossoms crowded on a short flowering stalk, with several groupings of about 5 tubular florets each ascending the spike. Where they are abundant, they will dot the landscape almost as far as the eye can see. After pollination, narrowly conical seeds form, each having a white, feathery pappus that will catch the slightest breeze once ripe.

Dotted Blazingstar is very drought tolerant and can be found on dry slopes, hilltops and plains, and grows on a variety of soil types, but prefers well-drained soils like sandy loam, loam, clay loam, sand, and finer gravels. It requires full sun and is very shade intolerant.

Ecologically, Dotted Blazingstar is usually one of the most common late season forbs in many mature mixed grassland communities, so its absence would be an indicator that something may be wrong. It generally increases with grazing pressure and also responds well following a fire, particularly quick burns that remove the layer of accumulated organic matter (litter). While generally avoided by livestock and having poor forage value, it is eaten by deer, pronghorn, and small rodents. Its most important ecological role is likely as a late season nectar source for pollinators that are migrating or preparing to overwinter.

Horticulturally, Dotted Blazingstar is a favourite. It is relatively easy to grow, hardy, adds a pop of late summer colour, grows well with other short plants, and is maintenance free once established. It can also be very long-lived, with one study from the U.S. measuring some plants to be 35+ years old! Potential locations of Dotted Blazingstar in a yard could include sunny flower beds, rock gardens or a fun addition to a native lawn. Seeds or seedlings of Dotted Blazingstar are readily available, though starting it from seed can be a slow process, as the seedling will only produce a single leaf in the first year, directing most of its energy to root growth and not flowering until at least its second year. Seeds can be sown 2-4 mm below the soil surface outdoors in spring or fall, or started indoors around February and transplanted outdoors once the risk of frost has passed.

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