

Newsletter of the Native Plant Society of Saskatchewan



ROOTS

Vol. 28 No. 3

Fall 2023



Krascheninnikovia lanata

Winterfat

Photo credit: C. Neufeld

President's Message Andrew Stewart

Greetings!

The fall seemed to be fly by even quicker than our summer. Normally, this would be a time where both plant and botanist alike take a long well-deserved break and focus on the storage of our energy until next spring.

However, this doesn't need to mean that those with a love of plants need to be idle. I had the opportunity to dust off some of my old pressed plant collections for my kids to look through. Their interest and excitement in the variety of species and their "magical" names (i.e., Latin names) made a good reminder that sharing our knowledge of plants is one of the most important things we can do. Our last newsletter included an article on the lack of botanists and

lack of nature literacy in general. The NPSS plays an important role as a community for learning and sharing knowledge of our native vegetation and ensures that opportunities for nature literacy exist in our beautiful province.

As always, our fantastic Executive Director is busy planning for more field trips, outreach events, and partnership building to make sure this knowledge is shared with our community. One amazing opportunity to take in this knowledge will be at our Annual General Meeting to be held in Regina this winter. Already a great list of potential speakers is being lined up. Make sure to mark your calendars for February 3-4, 2024 and perhaps bring along someone new to the NPSS to help expand the nature literacy in our community!

Rose Creek Ranch Project Update

Hilary Pinchbeck, NPSS Project Coordinator

Once again, we've returned to the Rose Creek Ranch to monitor the effects of targeted goat grazing on Leafy Spurge (*Euphorbia virgata*). This is the third year the NPSS has been monitoring this property which involves 14 leafy spurge transects, 26 rangeland health assessments across the property and 12 riparian assessments along the creek that flows through the property. In 2023 some of the provincially rare species we found were: Bluebunch Wheatgrass (*Pseudoroegneria spicata*; S2), Few-flowered Oatgrass (*Danthonia unispicata*; S3), Carolina Whitlow-grass (*Draba reptans*; S3), Rocky-round Sandwort (*Eremogone congesta* var. *lithophila*; S3), Plains Rough Fescue (*Festuca hallii*; S3), Gumbo Evening Primrose (*Oenothera caespitosa* ssp. *caespitosa*; S3) and Low Whitlowwort (*Paronychia sessiliflora*; S3).

Additionally, the NPSS held a field tour at the Rose Creek Ranch in early July this year and we had a great turn out of 27 people! We spent the morning demonstrating the work we do while at the ranch and had the landowner speak to us about some of the work that goes into managing and raising goats on their land for the purpose of controlling Leafy Spurge. The ranch has about 300 goats that they move around their property with a shepherd and dogs to target the Leafy Spurge throughout the season. A few of the big takeaways we learned from the landowner about their goats were that firstly, they love their goats and enjoy the work! Secondly, the costs associated with goats are about the same as cattle and they manage the number of cattle they have based on how many goats they want for the season. Thirdly, at this property they previously tried Leafy



Bumblebee snacking on Slender Beardtongue (*Penstemon procerus*).
Photo by Hilary Pinchbeck

Spurge beetles and herbicide management in the past but ultimately decided on goats because that's what worked best for them in their location. The landowner answered so many great questions and we were incredibly lucky to be able to work with and learn from their experiences! The rest of the day was spent botanizing along the creek, and along the rocky ridges that encompass the property. All together we found about 152 species that day alone!

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

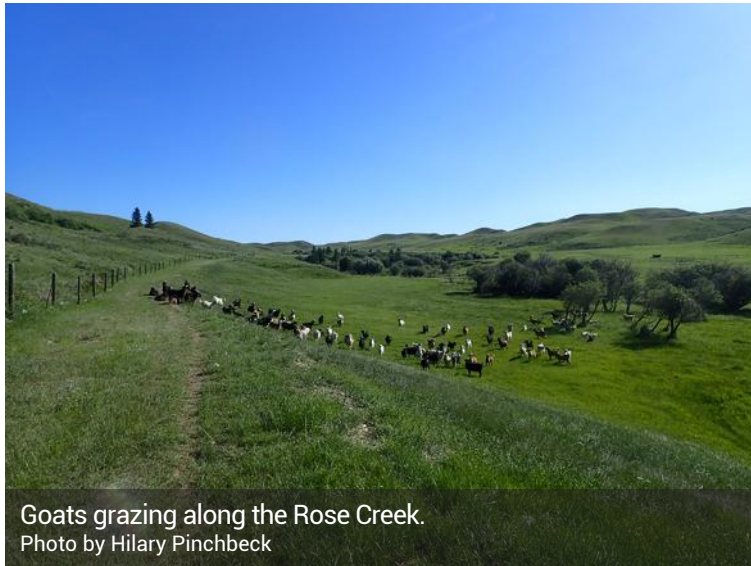
Membership Dues (Year End November 30th).

Individual \$30 Family \$45 Student \$15

Non-profit \$100 Corporate \$200

Life \$500 Please contact the NPSS office for info about the lifetime membership instalment payment option.

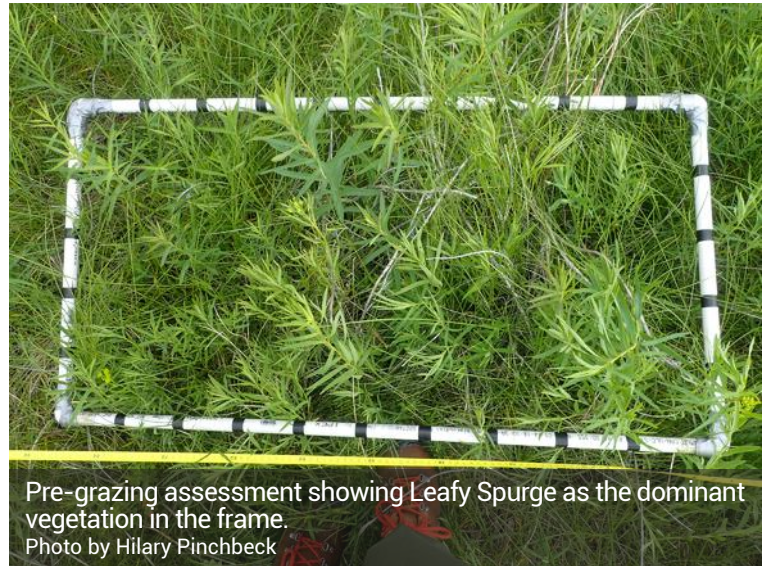
Get your photo on the cover of... ROOTS! Submit your Saskatchewan native plant photos for future cover consideration to: info@npss.sk.ca



Goats grazing along the Rose Creek.
Photo by Hilary Pinchbeck

Near the end of September, I headed back to the Rose Creek Ranch to finish collecting our data for the year. I was collecting the “after” goat grazing data in which I re-visit all 14 of our Leafy Spurge transects that were assessed in June before the goats were sent to work. The purpose is to measure the effects the targeted grazing has had on the Leafy Spurge. For the post-grazing results, I record the same information as the pre-grazing assessments (number of Leafy Spurge plants, percent cover of Leafy Spurge and percent cover of live material, if there were any biocontrol agents present, the height of the tallest Leafy Spurge plant, and the amount of the litter). In June we were finding hundreds of small Leafy Spurge plants of 5 cm or less across most of the transects underneath the normal layer of Leafy Spurge plants. In September not only were all the mature Leafy Spurge plants completely grazed and left as just stems without any flowers or leaves, but I found none of the smaller plants either, so the total counts were significantly less, meaning the goats were doing a good job!

We will return in June 2024 to start another year of monitoring.



Pre-grazing assessment showing Leafy Spurge as the dominant vegetation in the frame.
Photo by Hilary Pinchbeck



Post-grazing assessment of the same frame, showing almost complete removal of Leafy Spurge which has allowed the native grass to flourish.
Photo by Hilary Pinchbeck



NPSS tour participants learn about goat grazing on the ranch.
Photo by Hilary Pinchbeck



Reed Lewko conducts a Leafy Spurge assessment.
Photo by Hilary Pinchbeck

Fall Seeding Native Species Chet Neufeld

Gardening doesn't have to cease with the first frost, particularly if you're planting native seeds. We've been blessed with an unusually long and unseasonably warm fall and winter this year, and after spending all my 45 years in Saskatchewan, even I was surprised that the few small snows we had have disappeared, and there's still an opportunity to plant seeds. I love fall seeding and it's pretty much all I do now as I don't have the time to continually care for seedlings in root trainers indoors over the last few months of winter. The following instructions can be used for any fall planting, with a little preparation and a general sense of what the weather will do.

By this point, you should have all the seed that you want to plant. Legume seeds or others with thick seed coats can be scarified by lightly rubbing them between fine grit sandpaper to allow moisture to easily enter the seed and speed up germination, although the seed coat will naturally break down in the soil if you choose not to scarify (germination will just take more time in this case). All of the site preparation can be done any time during fall. If the seeds are going into flower beds, make sure they're weed free and that the space will be big enough for mature plants. The soil should be just firm enough to barely register a footprint. Wait until all the migratory birds have gone or you will be feeding them instead of growing plants. Also wait until it freezes at night, and day temperatures are single degrees. Fall weather conditions can sometimes mimic spring weather, tricking seeds that were planted too early in the fall into germinating and being winter killed. If you can time it right, do it just before a snowfall so that the seeds have a protective layer to keep them from being blown away or eaten by resident birds/rodents. Sow the seeds either on the surface by gently pressing them in, if that's what they require (some species need light to germinate - ask the seller or read the seed packet), or sow them no deeper than 1/4 inch (about 5 mm). Ensure that the seeds have good contact with the soil. MARK THEM WELL. I can't tell you how many people have accidentally weeded out their seedlings or didn't know what they had growing because they didn't mark them. Permanent marker on plastic tags will fade over the winter, potentially so much as to be unreadable. I prefer to use good old wooden popsicle sticks (they're much more environmentally friendly too). If you're seeding a mix, marking individual species isn't an option, but marking out the area you seeded the mix into is still a good idea.

Once this is done, you just have to wait for snow. Although it seems like nothing much is happening, throughout winter and into early spring, the freeze/thaw cycle is helping to break seed dormancy with a cold, moist stratification. This is a process many of our native species have evolved to require in order to break dormancy, which prevents it from sprouting in unsuitable conditions, and triggers the seed to germinate.

When spring comes, the snow melt and early season rains should provide all the moisture your seeds need. In late May and early June (and sometimes later), watch for seedlings. Remember that it is often very difficult to identify the seedlings to species until they have several leaves. Even at this point, it may be unwise to pull weeds that you have positively identified, as they may inadvertently pull up native seedlings with them. If you really want the weeds gone and you are sure that's what they are, it is best to clip them

at ground level for the time being. Don't worry if the area initially looks patchy, as not every seed will germinate due to a multitude of issues. Most people seed more densely than needed anyway, and the plants will fill in the area as they grow. You can also supplement the site with a spring seeding if it looks like things just aren't going to recover. Remember to water the site if necessary, ensuring you that water deeply and infrequently to encourage root growth. Finally, be patient. Some fast-growing species like Prairie Coneflower (*Ratibida columnifera*) will get quite large by the end of the season and may even flower, while slower-growing species like Crocus (*Anemone patens*) will grow just a single, small leaf in the first year, two leaves in the second year, and might flower in the third year. Also remember that setbacks are a normal part of gardening, and to not get discouraged. If all else fails, the NPSS is always here to help, so please reach out if you have any questions. There are also some books that can help. Without question, the best printed resource for our region is Nora Stewart's book, *Cultivating Our Roots: Growing Authentic Prairie Wildflower and Grasses*, which can be found on our online store here: <https://www.npss.sk.ca/store/publications/cultivating-our-roots-growing-authentic-prairie-wildflowers-and-grasses>

In her book, Nora drew on decades of experience growing native plants to outline exactly what treatment each species' seed needs to germinate.

I would like to point out that, while we collectively know a fair bit about native seed ecology, there are still a lot of unknowns about what certain species require. Even with my roughly 20 years of experience growing native plants, I am sometimes at a loss as to why a certain species didn't flourish in my yard as hoped. To this thought, I'll end with a short story. Back when I worked for Agriculture and Agri-food Canada, we were germinating some Goldenbean (*Thermopsis rhombifolia*) seeds in a growth chamber. The seeds had been properly prepared just as they had always been. They were cold stratified after having spent months in the freezer, manually scarified, then sandwiched between wetted filter paper, and placed in petri dishes. The seeds were occasionally watered and checked for germination, but hardly any did within a normal timeframe. It was just before Christmas, and no one thought to throw the samples out before the holidays. When we came back in January, every one of the petri dishes were filled with every mould species known to science, and likely a few that weren't! At first glance, they looked horrible, but a closer inspection revealed that the lids on nearly all of the petri dishes had been pushed up with healthy Goldenbean seedlings that were seemingly unaffected by the mould. Could the mould have played a part in helping to germinate the seedlings, and do soil fungi play a similar role in nature for Goldenbean? While we know that fungi are necessary and important in ecosystems, I honestly have no idea what part, if any, they may have played in the germination exercise, but I often think about this situation whenever something unexpected happens with my seeding projects.

Whatever your fall seeding situation is, preparation will go a long way in getting you to a successful outcome and will also help smooth out any bumps in the road. Happy planting!

Flowering Rush Update

Hilary Pinchbeck, NPSS Project Coordinator

On September 16th and 17th, the NPSS held a volunteer event for removing Flowering Rush (*Butomus umbellatus*) from the South Saskatchewan River. In total we had seven volunteers show up from the Saskatoon area, including help from the University of Saskatchewan Prager Lab. All together we were able to remove four truck loads of plant material in just two days! Removing Flowering Rush consisted of getting knee deep in mud and ensuring all plant material (rhizomes, bulblets, leaves, stems, and flowers) were dug up- all parts removed, bagged, and taken to the dump. Thank you to everyone who was involved in this fantastic weekend!

Flowering Rush is an invasive aquatic plant in Canada and was brought over from Europe as an ornamental aquatic plant. The plant resembles a sedge or bullrush but is in its own family (*Butomaceae*) and has triangular leaves, reddish in color at the base, and an umbel of pink flowers can sometimes be spotted. In Saskatchewan, Flowering Rush mostly reproduces vegetatively by its roots and bulblets. Once established, Flowering Rush can spread easily and creates a dense mat of vegetative material across waterbodies. The negative impacts of Flowering Rush are that it outcompetes native vegetation for resources resulting in lower biodiversity, water supplies can be negatively impacted, and recreational activities like boating and swimming are restricted due to the dense mat of vegetation. While we were out removing, we had a local stop by



Volunteers removing Flowering Rush along the Saskatchewan River near Leader, SK.
Photo by Reed Lewko



One of the Flowering Rush that was removed. The plant was cleaned, pressed, and submitted to the Fraser Herbarium.
Photo by Hilary Pinchbeck



Flowering Rush.
Photo by Hilary Pinchbeck

to ask what we were doing and explained the spot we were in used to be his favorite fishing spot, but he was no longer able to access the water due to the dense stand of Flowering Rush. After only a few years of the plant being present are the negative effects being noticed by the surrounding community.

Since 2017, the NPSS has been monitoring and removing Flowering Rush along the South Saskatchewan River, and in total for 2023 we were able to monitor 166 km of shoreline. If you are ever interested in helping with monitoring or removal please reach out, we would be happy to have you join!

NPSS Event to Highlight our Northern Treasures

Register now for the NPSS annual general meeting and conference, February 3-4, 2024, at The Atlas Hotel in Regina, SK. This year's theme is "Forests Forever" and features top notch speakers with fascinating presentations. Speakers include Dinyar Minocher talking about fire ecology in forests, Glen Lee taking us on his quest to photograph the 28 orchid species in Saskatchewan, Miriam Körner speaking about a grassroots effort to protect northern muskeg, Dale Gross talking about recent projects in the Cypress Hills, and many others. We will also host a silent auction to raise funds for our conservation programs. Please contact Chet at info@npss.sk.ca if you would like to donate anything for the auction. Sunday will include the Forest Ecosystems module of the Saskatchewan Master

Naturalist Program. This workshop is for all ages and experience levels and takes a closer look at what forests are made of (not just trees!) and how they function.

Participants can register for one or both days, and there are special rates for NPSS members and students. Because everyone is feeling the economic pinch, we've decided to keep our pricing the same as last year.

To register online, go to: <https://www.npss.sk.ca/store/events/2024-npss-annual-general-meeting-and-conference>

Protecting the Prairies

Lorne Scott and the Politics of Conservation

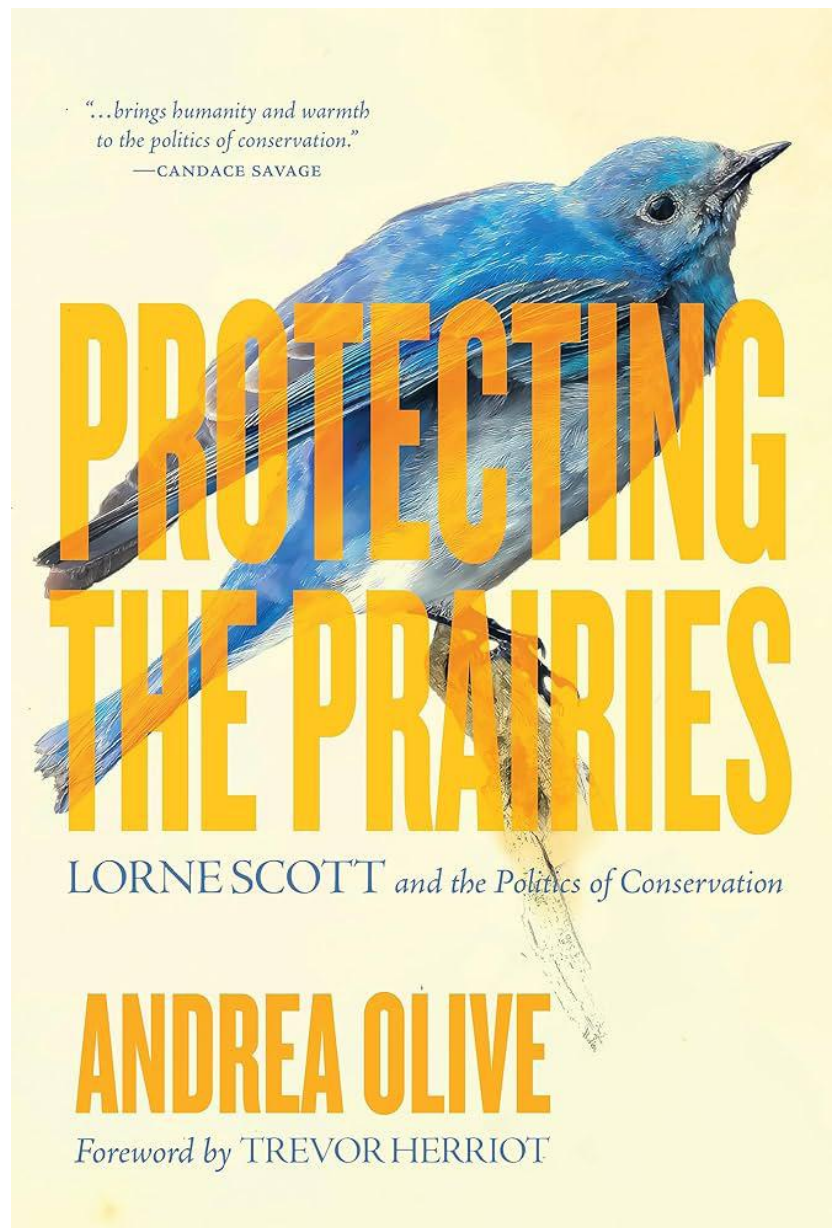
Grasslands are among the richest, most biodiverse ecosystems on the planet, and they are crucial in the fight against climate change. Unfortunately, since 1970 Canada has lost more than 40 percent of its grasslands, and less than 15 percent of Saskatchewan's grasslands exist today. The province has some of the highest CO₂ and methane emissions per capita and virtually no environmental regulations. How did we allow the grasslands to become one of the most endangered ecosystems on Earth?

In some sense, the story of Saskatchewan fits rather neatly into the larger story of Western Canada, where politicians often care more about extraction and growing the economy while destroying the very things the economy depends on. But that isn't the whole story.

Much like Canada's universal health care, Saskatchewan is also the birthplace of some of the first provincial and national conservation laws, and home to an unsung and unlikely champion for the environment: a farmer with a twelfth-grade education and a really old van...

In *Protecting the Prairies*, Andrea Olive provides a history of wildlife and land conservation in Saskatchewan told through the life story of environmentalist, naturalist, farmer, and former Minister of Environment and Resource Management Lorne Scott. This is a book that challenges and inspires us to be stewards of the environment in our own backyards and communities, and above all, to never be complacent when it comes to protecting the natural world.

Copies of the book can be purchased through the University of Regina press at: <https://uofrpress.ca/Books/P/Protecting-the-Prairies>



TREES AGAINST THE WIND: THE BIRTH OF PRAIRIE SHELTERBELTS

by William R. Schroeder
Foreword by Trevor Herriot

Author William R. Schroeder relates how a government initiative begun in 1901 transformed Canada's open prairie into a tapestry of treed farmyards and planted shelterbelts

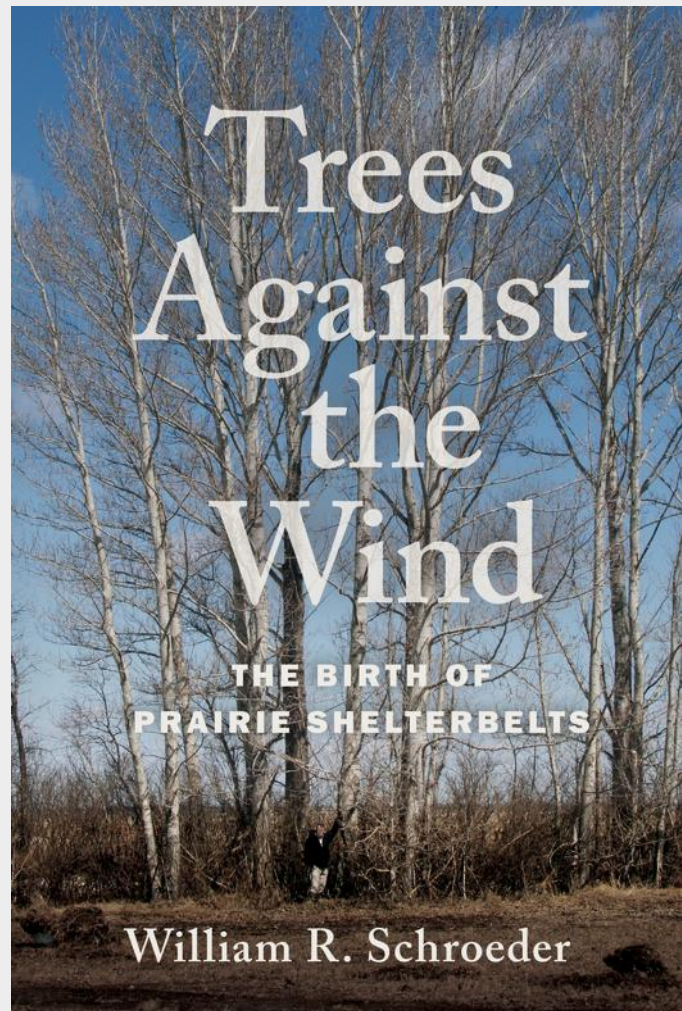
Curious about the origins of the government tree planting program he had worked for, retired research scientist William R. Schroeder was driven to learn more about the people who had the foresight and belief that tree planting could succeed on the Canadian prairies. Scouring archives in Indian Head, Regina and Ottawa, he gathered information and images that would help him trace the history of tree planting on the Canadian prairies. In *Trees Against the Wind*, Schroeder brings to life the inspiration, the people, the science, the business and the politics behind prairie shelterbelts. This enlightening history is a tribute the thousands of innovative prairie farmers who planted trees to shelter their homes and land, and to Norman M. Ross, Chief of the Tree Planters, who, from 1901 to 1941, shaped, promoted and fought for the program that ultimately distributed over 600 million trees to western Canadian farmers. Complemented by over 130 archival photos and maps, this 288-page publication provides an important and captivating perspective on prairie history and a heightened appreciation for the connection between people and trees on the prairies.

ISBN 9780921104377 (softcover)

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Nature
SASKATCHEWAN

This issue's COVER PLANT

Krascheninnikovia lanata

Winterfat is a common, perennial subshrub of the prairies that prefers dry soils and full sun. In Canada, Winterfat is found from British Columbia east to Manitoba. In the U.S., it ranges mainly through the Great Plains region but does make it as far west as California, Oregon and Washington. Its southern extent is in Mexico, and while its northern extent is mainly along the northern edge of the Canadian prairies, an isolated population has been found in Kluane National Park in the Yukon. Winterfat is a member of the goosefoot family (Chenopodiaceae).



While Winterfat only grows from 15-50 cm tall in our region, its dense covering of white hairs can make it stand out in the grasslands. These white hairs cover the leaves, giving them a grey-green appearance, and are particularly long and silky on the flowering stalks. The leaves themselves are linear, slightly rolled along the margins, and from 1-5 cm long. Plants arise from a long, woody taproot up to 1.8 m deep in Saskatchewan but can reach up to 7.6 m deep in other parts of its range. While the plant can sometimes resemble a sage, Winterfat does not have an odour like many of the sages do. Winterfat is monoecious (male and female flowers on the same plant) and can self-pollinate although it tends to cross-pollinate when other Winterfat plants are around. The fruit is a utricle (a single seed inside a bladder-like structure) which is covered in fine hair, making it resemble a tiny cotton ball, and has a double-toothed protrusion on the tip. When ripe, the slightest breeze will send these flying far and wide. Seed production can vary greatly, with no seed produced in drought years and up to 350 seeds per plant in favourable conditions. Plants are generally long-lived, with the oldest specimen from Utah being an incredible 136 years old! Winterfat is extremely drought tolerant and cold tolerant, with one study noting that dormant plants survived down to -80 °C in lab tests. It is, however, very intolerant of fire; while it can survive low intensity fires, entire stands of Winterfat can be killed by high intensity fires.

Winterfat is an excellent range plant and is so named because of its ability to keep animals well fed through the winter thanks to its high crude protein content (greater than 10%) in a season when the crude protein content of other plants has dropped dramatically. For this reason, it is highly favoured by livestock and wildlife of all kinds but for the same reason, can easily be grazed out of a pasture, so its presence is a sign of good land management. Winterfat's characteristics would make it an ideal candidate for range improvement or ecological restoration projects, but there are some shortfalls to implementing it, such as having a relatively short seed viability, few commercial seed sources, and difficulty seeding it using conventional equipment due to its fluffiness. Some work was done in the 1990's and early 2000's at Agriculture and Agri-food Canada's Semi-arid Prairie Agriculture Research Centre in Swift Current which attempted to address some of the shortfalls associated with including Winterfat on large scale projects.

In a horticultural setting, Winterfat would make an interesting addition to anyone's landscape due to its appearance and would provide a nectar source for pollinators (and a food source for any local rabbits). It could be used equally well in either a flower bed or a shrub bed, provided that it wasn't shaded by taller plants, and would even work well in a rock garden. Plants would have to be started from seed or cuttings, as there is no Canadian commercial source of Winterfat plants at the time of writing.

This project was undertaken with the financial support of:
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