



WILDFLOWER NEWS

From your editor:



Aspen leaves in the fall, Wedgewood Ravine, 2023-11-19. Photo: P. Cotterill

With outdoor activities curtailed by the season, now is the time for plant enthusiasts to recap the last few months, catalogue photos, and research and plan for 2024. If you have collected seeds, you'll want to ensure they are dry and safely stowed depending on their requirements. If you are keen to purchase seeds even before our early spring sales, note the announcement below!

ENPS' Annual General Meeting is now behind us, and with no change in the executive, we are taking a weekend's retreat in December to analyze how well we are functioning as a board, as well as to ponder future directions.

Most of our projects will continue, and we will be pursuing our new relationship with Edmonton Valley Zoo, furnishing at least two exhibit areas with native vegetation. For these endeavours we may be calling on volunteers.

The article in this issue on pollinators and non-native vs native plants may seem controversial and unwelcome to some readers and practitioners. Bear in mind that this is complicated research with a narrow focus and relates only to pollinators, butterflies and bees, in restricted areas, not the holistic function of natives in ecosystems in general. However, we cannot ignore it, because the facts provide insight into understanding plant-insect relationships, evolution, conservation, and human land use, including good practices in restoration.

Always, if you have any ideas for ENPS, please feel free to contact us at editor@enps.ca. In the meantime, we wish you all the best for the Christmas season — we'll be in touch¹ again in February.

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Events

Title: Monarchs and Native Plants

Date: Tuesday, December 12, 2023, 12:00 p.m. Central Standard Time (11 a.m. MST)

Location: Webinar

Content: Hosted by Saskatchewan's Prairie Conservation Action Plan, Emily Putz, Stewardship Coordinator of Nature Saskatchewan, will speak on this topic as part of the December Native Prairie Speaker Series.

Register: https://us02web.zoom.us/webinar/register/WN_85hs5GasQ569AAhmmJy6jA

Price: Free

Title: Under Pressure: Threats to Alberta's Native Plant Communities

Date: January 16, 2024, 12 p.m. Mountain Standard Time

Location: Webinar

Content: The Alberta Native Plant Council is hosting a new monthly lunchtime webinar mini-series, Under Pressure: Threats to Alberta's Native Plant Communities. Alberta's native plant communities face many threats, from invasive species, to habitat loss to climate change and more. This webinar mini-series will touch on some of these challenges and explore some of the innovative solutions and research aiming to address them.

Register: <https://us06web.zoom.us/meeting/register/tZcpd-2hqTsuGdJTSOCmJBdm0yGvYWcpced8#/registration>

Price: Free

Title: Nature Out of Place? Brainstorming Best Practices for Communicating About Invasive Plants

Date: January 16, 2024, 10 a.m. Mountain Standard Time

Location: Webinar

Content: The Natural Areas Association of the U.S. will present

Register: <https://www.naturalareas.org/nature-out-of-place-brainstorming.php>

Price: Free for members of the NAA and US \$29 for non-members

Title: Central Alberta Plant Study Group

Date: January 31, 2024 at 6:30 p.m., Mountain Standard Time

Location: University of Alberta

Content: Manna Parseyan, owner of Arnica Wildflowers, will be joining us to talk about native plants.

Register: For more information and to RSVP please email CentralPSG@anpc.ab.ca.

Price: Free

Please send compliments, concerns and questions to info@enps.ca

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Wildflower News editorial board:

Patsy Cotterill, Liz Deleeuw, Susan Neuman and Melanie Watson

Patsy Cotterill, editor | Melanie Watson, acting publisher

www.edmontonnativeplantsociety.ca/

News

ENPS Native Plant Seed Sales

Apache Seeds (10136 149 St NW) will carry the ENPS seed packages throughout the 2023-2024 winter (while supplies last). Other local stores will also carry our seeds starting in early March, 2024.

Correction: On the “Events” page, in the October issue of *Wildflower News*, a tree was mistakenly identified as *Larix occidentalis*. The proper identification is *Larix laricina*. We apologize for any confusion this may have caused.



Sales display (of ENPS native plant seed packages) at Apache Seeds, 2023-09-21. Photo M-J. Gurba-Flanagan



Manna Parseyan of Arnica Wildflowers puts her pots outdoors in late fall to allow them to experience cold and snow, anticipating their revival in spring. Photo: M. Parseyan



A New Meaning to “Bedding” Plants: Putting Them to Bed for the Winter. Photo: M. Parseyan

Advocacy

McClelland Lake Decision Bad News for Alberta Wildlife, Vegetation, Rare Species and Climate

ENPS does not normally write about provincial conservation issues, but in this case we make an exception.

For decades the McClelland Lake Wetland Complex (MLWC), north of Fort McMurray, and some 60 sq. km of carbon-storing patterned fens and sinkhole lakes, has been targeted by ecologists and government staff for protection. It provides an important nursery and stopover for birds, including some rare species, contains 18 species of rare mosses and liverworts as well as rare orchids and aquatic plants, and is home to a variety of boreal wildlife. It is culturally significant to local Indigenous people. However, these long-term conservation plans changed when oilsands bitumen was found below the surface in 2002.

The current operator, Suncor Energy Ltd, is now proposing to develop a mine in roughly half of the MLWC, having submitted a mitigation* plan, the Operational Plan, designed to protect the other, unmined, half of the complex. It includes a 14-km-long underground wall, to separate the two halves, an unprecedented, untested measure.

The Alberta Wilderness Association (AWA) advocacy group has worked hard to oppose the project, employing local and international wetlands specialists to demonstrate flaws in the Operational Plan. AWA managed to persuade the Alberta Energy Regulator (AER), who gave first approval of the plan in September, 2022, to reconsider its approval. Alas, we heard on November 23 that the AER has confirmed its approval of the Plan.

According to Phillip Meintzer, lead conservation specialist, AWA is awaiting information from their lawyers to see if there are any legal/regulatory avenues remaining to challenge the project.

For more information we invite readers to check out the following links:

<https://naturealberta.ca/botanical-treasures-in-mcclelland/> and <https://albertawilderness.ca/dontminemcclelland/>

and their latest news release: <https://albertawilderness.ca/news-release-alberta-energy-regulator-fails-albertans-by-ignoring-evidence-wont-reconsider-its-approval-of-suncors-flawed-operational-plan-for-mcclelland-wetlands/#DontMineMcClelland%20#ABLeg%20#CDNPoli%20#ABPoli>

Editorial comment: It's a testament to the dichotomy and perversity of human nature that we can have the interest and skills to understand the biological richness of the McClelland Lake Wetland Complex and at the same time be willing to ruin it for the sake of profit.

*The conservationist's definition of mitigation: Making excuses that don't work so that development can go ahead as planned!

Summarized by the editor, with files from Alberta Wilderness Association and Kate Spencer.

To learn more about patterned fens, visit Wetlands Alberta - <https://wetlandsalberta.ca/media/uploads/BorealWetlands-Fens.pdf>



Water smartweed (*Persicaria amphibia* subsp. *stipulacea*), Acheson Field Pond, 2013-07-17. Photo: J. Teare

Problems with Urban Landscaping in a River City Using a Higher Wire Might Help!

All photos by Jiri Novak



Oops! Dem darn beavers can stand up pretty tall! Goldbar Park, 2023-11-27. Photos: J. Novak

Readers' Questions

Native Container Gardening

Member Deborah den Otter recently posed this question for ENPS to answer:

"I have recently moved from a house with a big flower garden ... to an apartment where my garden will be limited to containers. I was wondering what native annual would work in a container? Also, I was wondering if there are any native plants that would winter over in a container sitting out on my deck for the winter? I thought it might be a topic for a newsletter because there might be some other gardeners in my situation."

Editor's Note:

Normally, ENPS members grow native plants in small pots or containers for later planting out in the garden, but our experience suggests that a number would do well in containers, on a permanent basis, especially if they are protected from desiccation by wind and excessive sun (and possibly the depredations of small mammals and birds). The containers need to have access to snow during the winter and adequate moisture during dry periods when the snow cover has gone. Plant growth should be periodically pruned or otherwise removed to prevent overgrowth and root-binding.

In terms of annuals, there isn't a lot to choose from. Native annuals are far less common than native perennials, which persist year after year in established native plant communities and are adapted to be competitive and long-lived in these communities, rather than grow fast and pioneer in disturbed soils like annuals. Our local plant growers do not usually grow them.

Shrubs and subshrubs can also be considered for planting in large containers, provided they are pruned to be kept small.

Examples are:

- Common juniper (*Juniperus communis*) and common bearberry (*Arctostaphylos uva-ursi*) are evergreen.
- Roses, common wild rose (*Rosa woodsii*) and prickly wild rose (*Rosa acicularis*) could be grown along with the two above evergreens, which have a prostrate growth habit, to provide vertical interest.
- Red-osier dogwood (*Cornus sericea*) may be grown if pruned, and tamarack (*Larix laricina*) may be available commercially as a bonsai.
- Wild blue clematis (*Clematis occidentalis*) is difficult to grow from seed but could be grown on a trellis from rooted cuttings.

There are numerous other possibilities, including the growing of ferns. Even a bonsai tamarack could be grown (see article on larches).

Further botanical information on these plants can be obtained on the internet. Searching on the scientific (Latin) name is usually the most rewarding.

Mary-Jo Gurba-Flanagan:

For the most part, perennials or small shrubs or trees are hard to keep overwinter (-35°C) outside. The deeper and wider the pot the better. And you have to experiment with some type of insulation, on top, bottom and around the plant. Styrofoam, straw, whatever material will insulate the plant from huge temperature swings and desiccating winds. I've seen spruce trees grown in containers outside.

That said, our native plants are pretty hardy and the seedlings I grow in small containers USUALLY make it through to the following year to pot up. BUT, I usually put them in trenches in the ground so that the temperatures are mitigated. Or, I have put MANY pots together, watered them in, and covered them with leaves and soil, straw, etc., and then a good layer of snow to insulate them until spring, when I will remove the mulch once the snow is melted and nighttime temperatures are above zero.

Experiment. Try a few plants or use seeds to keep the overall cost down and have more plants to work with/or a mass planting. I expect there will be successes along with losses as is true for ALL gardening.

Manna Parseyan:

Use large pots made of plastic rather than terracotta, as they retain water better and put them close together to create a mini-habitat and reduce wind. Be sure to water adequately during the growing season.

Here is a list of plants I have grown in pots:

- Arctic aster (*Eurybia sibirica*)
- blue giant hyssop (*Agastache foeniculum*)
- blue grama (*Bouteloua gracilis*)
- blue-eyed grass (*Sisyrinchium montanum*)
- Canada mint (*Mentha canadensis*)
- Canada violet (*Viola canadensis*)
- Canada wild rye (*Elymus canadensis*)
- crowfoot violet (*Viola pedatifida*)
- early blue violet (*Viola adunca*)
- field chickweed (*Cerastium arvense*)
- fireweed (*Chamaenerion angustifolium*)
- fringed loosestrife (*Lysimachia ciliata*)
- gaillardia (*Gaillardia aristata*)
- golden corydalis (*Corydalis aurea*)
- great northern aster (*Canadanthus modestus*)
- hairy flat-top white aster (*Doellingeria umbellata* var. *pubens*)
- hairy goldenaster (*Heterotheca villosa*)
- hairy hedge-nettle (*Stachys pilosa*)
- hairy sweetgrass (*Anthoxanthum hirtum*)
- harebell (*Campanula alaskana*)
- heart-leaved alexanders (*Zizia aptera*)
- late goldenrod (*Solidago gigantea*)
- Lindley's aster (*Symphyotrichum ciliolatum*)
- long-stalked chickweed (*Stellaria longipes*)
- long-style sweet cicely (*Osmorhiza longistylis*)
- low goldenrod (*Solidago missouriensis*)
- meadow arnica (*Arnica chamissonis*)
- nodding onion (*Allium cernuum*)
- nodding beggarticks (*Bidens cernua*)
- northern yarrow (*Achillea borealis*)
- Philadelphia fleabane (*Erigeron philadelphicus*)
- prairie buttercup (*Ranunculus rhomboideus*)
- prairie sagewort (*Artemisia ludoviciana*)
- rhombic-leaved sunflower (*Helianthus pauciflorus* subsp. *subrhomboideus*)
- rosy pussytoes (*Antennaria rosea*)
- shining arnica (*Arnica fulgens*)
- showy aster (*Eurybia conspicua*)
- slender blue beardtongue (*Penstemon procerus*)
- sloughgrass (*Beckmannia syzigachne*)
- smooth aster (*Symphyotrichum laeve*)
- smooth fleabane (*Erigeron glabellus*)
- spotted Joe Pye weed (*Eutrochium maculatum*)
- tall lungwort (*Mertensia paniculata*)
- three-flowered avens (*Geum triflorum*)
- tufted white prairie aster (*Symphyotrichum ericoides* var. *pansum*)
- veiny meadow-rue (*Thalictrum venulosum*)
- western Canada goldenrod (*Solidago lepida*)
- wild strawberry (*Fragaria virginiana*)
- woodland strawberry (*Fragaria vesca*)
- yellow evening-primrose (*Oenothera biennis*)

Articles

My Front-yard Native Plant Garden Conversion

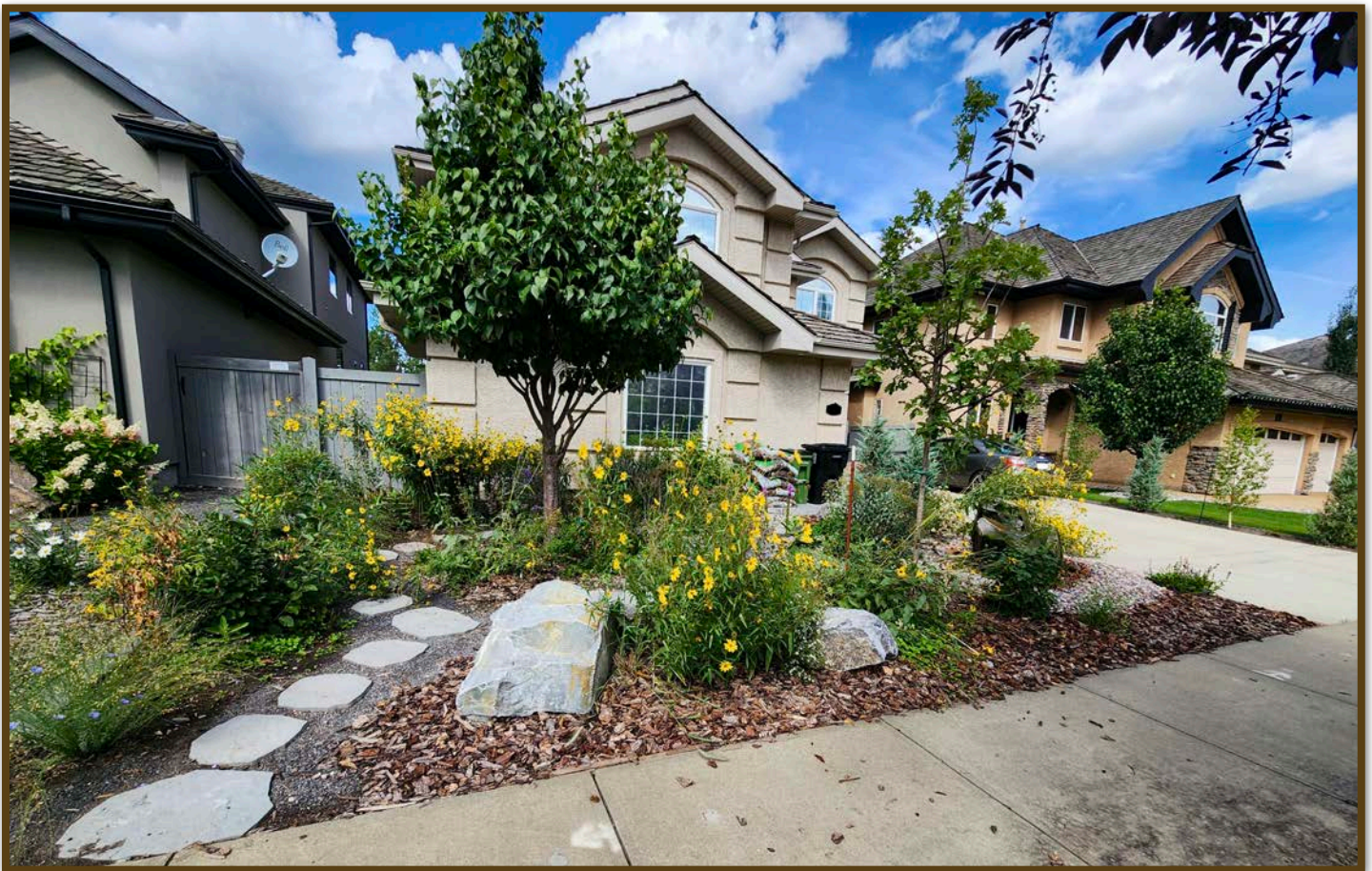
Text and photos by Kristina Haagsma

Editor's Note: Kristina began her front-yard conversion in April, 2022, by hiring a landscaper to remove the sod. She has been planting native plants ever since, which now make up over 95% of her plantings. Her yard is located in the Donsdale neighbourhood, and gets full sun. Kristina offers the following advice to other gardeners contemplating a similar endeavour...



Before the conversion, 2022-04.

1. Ask the experts. Members of the **Edmonton Native Plant Society** and **Alberta Native Plants, Trees, and Shrubs** Facebook groups can verify whether or not a certain plant is native to Edmonton. Greenhouse employees, while well-meaning, do not typically have expertise in native plants. (I purchased a very pretty variegated ribbon grass, which the greenhouse employee assured me was native to Alberta, only to learn it is non-native and somewhat aggressive.)



After the conversion, 2023-08-11. Native plants include: wild blue flax (*Linum lewisii*), common bearberry (*Arctostaphylos uva-ursi*), common tall sunflower (*Helianthus nuttallii*), rhombic-leaved sunflower (*Helianthus pauciflora* subsp. *subrhomboideus*), smooth aster (*Symphyotrichum laeve*), prairie fleabane (*Erigeron strigosus*), and slender blue beardtongue (*Penstemon procerus*).

2. Choose the right suppliers.

- For flowering plants: **Arnica Wildflowers**, the **Edmonton Native Plant Society**, **Medieval Manor Gardens**, and **Wild About Flowers**.
- For trees and shrubs: **Sunstar Nurseries**, **Wild About Flowers/Wright Nurseries**, and **TreeTime**.

3. Creating a native plant garden paradise attracts lots of birds, which is wonderful! This comes with responsibility: make your large windows bird-safe using **Feather Friendly** window decals, or **Acopian BirdSavers**. Similarly, don't use herbicides and pesticides.

4. Most importantly: **START SMALL**. My massive undertaking was time-consuming and overwhelming.

To ensure your own sanity, start with smaller beds rather than ripping out all the sod at once.

5. Follow your creativity.



Partway through the conversion, 2023-05-24. Native shrubs/forbs on the left include: wolf-willow (*Elaeagnus commutata*), goldenrod (*Solidago sp.*), and red-osier dogwood (*Cornus sericea*).



The boulevard after the conversion, 2023-08-11. Native wildflowers in this area include: prairie sage (*Artemisia ludovicana*), blanketflower (*Gaillardia aristata*), mouse-eared chickweed (*Cerastium arvense*), long-staked chickweed (*Stellaria longipes*), rosy pussytoes (*Antennaria rosea*), and small-leaved pussytoes (*Antennaria parvifolia*). Native grasses include: blue grama (*Bouteloua gracilis*), prairie junegrass (*Koeleria macrantha*), slender wheatgrass (*Elymus trachycaulus*), Canada wildrye (*Elymus canadensis*), and tufted hairgrass (*Deschampsia cespitosa*).

The Role of Non-native Plants in Butterfly Communities

by Patsy Cotterill

The Research

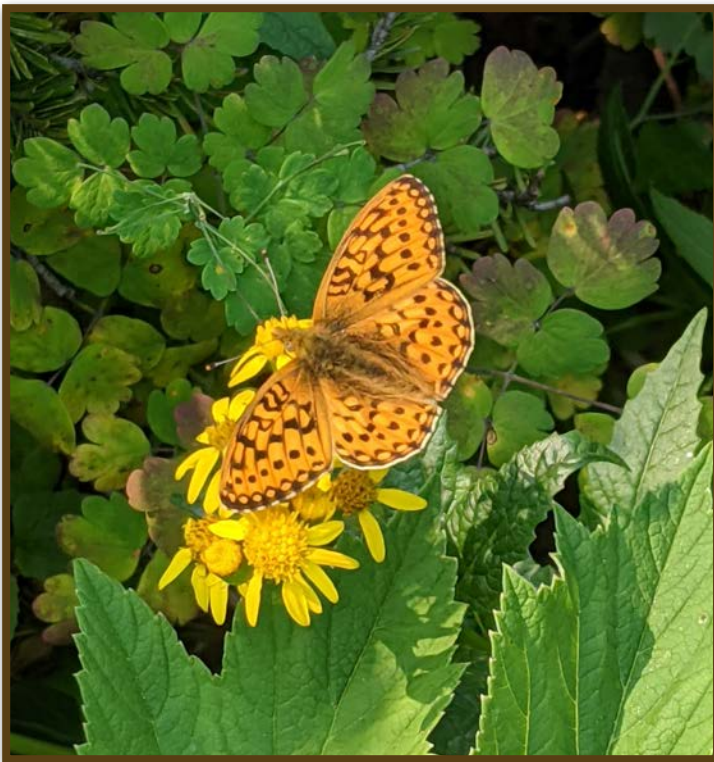
On September 13 I watched a presentation <https://www.youtube.com/watch?v=PivqaDA38IQ> with the above title given by Dr. Heather Kharouba of the University of Ottawa, whose area of research is plant-insect interactions. The findings of her research come as a bit of a bad news bombshell to those of us who sing the praises of native plants and bad-mouth non-natives! Non-native plants apparently do indeed feature prominently in the diets of butterflies. (Note that this research was confined to butterflies, it did not include bees, the

and non-native species. In both, non-native species contributed the major supply of nectar, with 83% of foraging visits at the oak savanna sites being to non-natives (despite the fact that the latter were only 30% of the total flowers) and 63% of all the flowers visited in the Ottawa sites. Interestingly, in the oak savanna ecosystem, visits to non-natives were greater later in the season (in July) when natives had finished flowering. This was attributed to drought, with the natives being adapted to earlier season flowering during times of higher moisture. In the Ottawa sites it was the reverse, with non-native species being less available to supply nectar late in the season. (I suspect our local situation would match Ottawa's somewhat, as we have abundant native Asteraceae -asters, fleabanes and goldenrods-flowering in late summer.)

The oak savanna research has now been published in the journal *Ecology* (<https://doi.org/10.1002/ecy.4004>; and see reference) and I quote from their abstract:

“We found that non-native plants were well integrated into butterfly nectar diets (83% of foraging observations) and that visitation to non-natives increased later in the season when native plants were no longer flowering. We also found that butterflies selected non-native flowers more often than expected based on their availability, suggesting that these plants represent a potentially valuable resource. Our study shows that non-native species have the potential to drive key species interactions in seasonal ecosystems. Management regimes focused on eradicating non-native species may need to reconsider their aims and evaluate resources that non-natives provide.”

The nutrient quality of the nectar (water, sugar and amino-acids) was investigated at the Ottawa sites, and no data has been published yet, but the researchers seem to think that it is equivalent or even better in the non-natives. The research also raises the fascinating question of whether the dearth of natives late in the season at the Vancouver Island sites and early in the season in Ottawa is due to anthropogenic changes in land use, such as agriculture. (This suggests to me that compiling species lists for given areas over long



Mormon Fritillary on arrow-leaved ragwort, Plateau Mountain, AB, 2021-07-27. Photo: M. Parseyan

major pollinators.)

Kharouba's team investigated 10 sites each at a Garry Oak savanna ecosystem on Vancouver Island and in the Ottawa area. In both areas the sites were semi-natural, that is, with a mix of native

periods to document population changes and conducting phenology (timing of reproductive phases) could provide useful data, and might be a good subject for citizen science.)

The Kharouba research team also investigated the use of plants for nectaring by Monarch butterflies (using adults artificially reared and released). They found that 58% of the foraging visits were to non-natives, and of the top five most-visited species four were non-natives. (Interestingly, the species were red clover, two thistle species, perennial sow-thistle and Canada goldenrod. I remove red clover, Canada thistle and perennial sow-thistle from semi-natural sites, and I never plant the native Canada goldenrod because it tends to form monocultures. What a complex web we weave, when first we practice to disturb!). Kharouba notes the astonishing rise over the last few centuries of the numbers of invasive species among various groups of organisms, and postulates that butterflies use non-native plants because many of the latter have generalized flower traits that make the nectar accessible and other floral characteristics in common with natives.

What Does This Mean?

This research has implications for us native plant practitioners, particularly if we extend that interest to reclamation and restoration. For a start, we should not be making the blanket statement that native plants are necessarily better for pollinators than non-natives on the assumption that pollinators are better adapted to using the long-extant resources. This may be true in some cases, but not all. Rather, our rationale for promoting native plants should be based more on the value of conserving their native genes, their intrinsic worth, as well as their total value in ecosystems, rather than their value to pollinators.

Another important consideration relates to the removal of non-native species during weed control or restoration. If non-natives are significant contributors to the welfare of an ecosystem, should we be removing them? It's a question that opponents of herbicides will no doubt be keen to ask. Kharouba raises the alarm (see the last sentence in the quotation from the *Ecology* paper)

but also suggests that the benefit of nectar provision might be considered outweighed when invasive non-natives otherwise damage ecosystems. They recommend more planting with natives to counter native deficiencies, for example, gaps in flower availability or phenology.

Kharouba observes that non-natives are here to stay and will almost certainly increase. Modern ecological communities are in a state of flux, and non-natives appear to be more resilient to climate change than natives. She would not recommend planting non-natives but advises caution before large-scale removal and provision of native substitutes. This is a problem I've certainly pondered myself when I've seen the high numbers of pollinators (not just butterflies) visiting Canada thistle or red clover, although I hate with a passion both these species and always attempt to remove them from the two grassland reserves I help manage. I am conscious of the fact that if I exterminate large patches of Canada thistle I should expect to plant native flowers to replace them.

One member of the webinar audience asked whether it was better for native plant gardens to use red clover as a mulch rather than regular mulch. The answer was yes, this would be good for butterflies. The City of Edmonton is planning to plant red clover, but I cannot summon up any enthusiasm. (I do wish we could develop native legumes for naturalization instead.)

Although this research is obviously complex, I believe that studies of native/non-native plant interactions with pollinators could make excellent citizen science projects for our naturalists. We have people with the time and good photographic skills. Even knowing which pollinators visit what plants in our area would be worthwhile and a possible contribution to both plant and butterfly conservation.

The impetus for this kind of research comes in part by the precipitous decline of the Monarch butterfly, now rated a Species of Special Concern under the federal Species at Risk Act.

And Now for More Research....With Bees

Are native and non-native pollinator plants equally valuable for native wild bee communities?

This is the question asked by researchers Seitz et al. <https://doi.org/10.1002/ece3.6826> . To answer it they established gardens of either 20 native plants or 20 non-natives at three sites in Maryland, USA, and observed visits by 120 species of bees over two seasons (2017 and 2018).

From their findings the researchers concluded that non-native pollinator-friendly plants were frequented by a diverse bee community. Depending on the season, non-native plants attracted similar or higher numbers of individuals and species compared to native plants. Particularly in the early and late seasons, many bees chose non-native over native plants, while no differences were found in the middle of summer. Visits increased, as may be expected, with increasing floral cover (native plants were scarcer in spring and early summer). Individual bee species varied in their preference for native vs non-native species and, as anticipated, specialist bees preferred native plants as compared to generalist bees which were more likely to favour non-natives. (This makes sense: old, long-established species have had more evolutionary time to develop specialist relationships.) Other complications are that specialist bees may use natives for pollen collection but non-natives for nectar collection. Also, some generalist bees alter their foraging behaviour to become more specialized.

The authors conclude that their “study suggests that non-native plants can complement native pollinator-friendly plantings because they are visited by a broad spectrum of bees and buffer gaps in grassland native flowering plant times, particularly in early spring. However, non-native plants also alter the composition of plant communities, may not support as many specialist bees, and appear to affect individual and network specialization of bee communities with unknown consequences for plants and bees.”

They go on to suggest that selective non-native plants may be used in restoration, e.g., in flower



Orange-belted Bumblebee on slender blue beardtongue, Fort Saskatchewan Prairie, 2019-06-14. Photo: P. Cotterill

strips alongside crop fields, to provide increased bee forage but that care should be taken that these non-natives do not spread into natural or semi-natural communities, and that non-natives are only planted as complementary to natives.

Editorial comment: This too has consequences for how we do naturalization and restoration locally. Possibly we should be attempting to plant more spring-flowering plants. Since in our climate forbs get going slowly in our frozen ground, some of this may be directed towards our early-flowering shrubs – willows (planted from cuttings, decadent specimens in reserves pollarded to produce new flowering shoots, etc.), Canada buffaloberry, pin cherry and saskatoon. Violets, buttercups, and several woodland species are also early flowerers. Our volunteers could help with growing some of these species!

Reference

Seitz, N., D. vanEngelsdorp, S.D. Leonhardt. Ecology and Evolution 13 Oct 2020. 10, 23, pp. 12838-12850. <https://doi.org/10.1002/ece3.6826>



Low milkweed (*Asclepias ovalifolia*) in flower at Fort Saskatchewan Prairie, 2023-06-12. Photo: P. Cotterill

Low milkweed colonizing ground which has been herbicided to remove smooth brome. Fort Saskatchewan Prairie, 2023-06-12. Photo: P. Cotterill

My Experiences With Growing Low Milkweed (*Asclepias ovalifolia*)

by Liz Deleeuw

Low milkweed can be a challenge to grow out for planting in the garden. The germination can be extremely variable but I have often achieved successful germination. The problem for me is keeping plants alive and viable. More on that below.

I stratify my seeds for six weeks in the fridge. I use a 50/50 mix of peat moss and sand. I mix one part seed to five parts of the mixture in a baggie. I add just enough moisture to dampen the mix. While the baggie is in the fridge I check it routinely to see if there is germination happening, but there is usually no germination before the six weeks are up.

At the six-week mark I spread the mixture thickly on top of 5" pots and put them in my bay window or under grow lights. The link below recommends planting other milkweed species at 1 to 2 cm depth. I have never done this because I rely on the thickness of my mixture to provide different depths for the seeds. Planting them a bit deeper, covering some pots with more potting medium, may be worth a try.

Once germinated, I harden off the seedlings by putting them outside in the shade for progressively longer periods of time, while still bringing them in overnight. Once they are acclimatized to the outdoors, I put the pots into my backyard nursery where they get watered and tended.

Many seedlings will die back at different times during the growing season. I keep them all as some may come back after the winter. While I let some established first-year seedlings go for planting into gardens, I like to keep the majority of the pots in my nursery and overwinter them. If the peat pots become weak I plant the whole thing into a larger plastic pot over the winter.

In the spring, the second-year low milkweed plants that come up have the best chance of survival. I keep the rest of the (seemingly) empty pots until later in the season (in case they should sprout up again) but compost them before fall if they show no signs of life.

"Due to their rhizomatous nature, milkweeds do not develop many fibrous roots and their root plugs often fall apart during transplanting..... (Therefore, Jiffy® pellets ... or containers with other types of stabilized growing media are recommended." IPPS Combined Proceedings Volume 64 (2014) p. 302 (usda.gov)) This confirms my experience.

If you are planting your first-year seedlings into the garden, cut back some of the peat pot to allow for root growth. The key is not to disturb the roots. If you are planting second-year plants you will not need to cut the peat pot. The decomposing peat pot will make it easier to prevent disturbing the roots.

After planting out into the garden there is still a chance that the plants may die back. Keep them marked and wait for them next year. While I have never been able to keep low milkweed growing in my garden, ENPS has good populations at the Muttart and John Janzen demonstration beds.



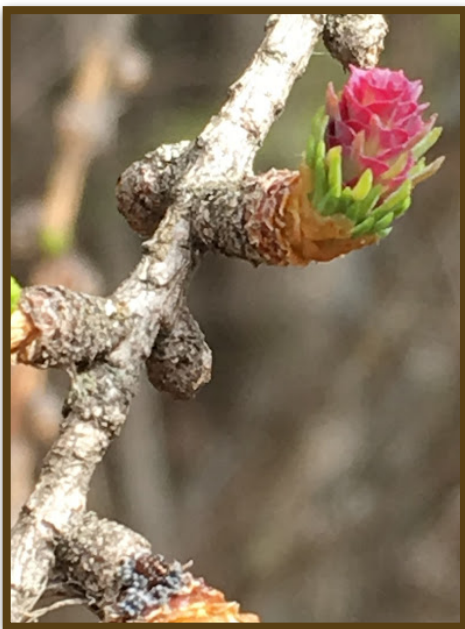
Peat Pots, Photo: L. Deleeuw

Hark, hark the larch: its leaves are turning golden as fall progresses!

By Patsy Cotterill

The onset of autumn and a misidentification in a draft version of the October WN got me thinking that larches might make a good subject for the next newsletter. Larch trees attract attention when they show the first hint of yellowing, which turns to glowing golden in full sunlight, and finally to muted ochre as the needles drop off and the cloak of

as well as in mountain habitats. Their leaves are soft, flexible and needle-like, attached singly on shoots of the current year but otherwise produced in clusters of 10-40 leaves on short, woody, spur shoots along the branches. (In contrast, spruces and firs have leaves attached singly along the twigs, and pines have two, three or five, much longer leaves attached at the base to form a bundle.) Male and female larch cones occur on the same individual tree and usually on the same branches; the male cones bearing the stamens are small, yellowish and round, and fall off after pollination. The female cones are larger, woody but more flexible than those of pines, and have thin



Male cone (below) and female conelet, tamarack. Wagner Natural Area, 2019-05-05. Photo: P. Cotterill.



Developing female cones of tamarack. Tucker Lake, AB, 2011-06-18. Photo: P. Cotterill.



Ripe cones of tamarack. Bunchberry Meadows 2022-10-05. Photo: P. Cotterill.

foliage thins to a mere veil. Larches (genus *Larix* in the pine family, *Pinaceae*) are unusual in being deciduous conifers. This is in contrast to our pines, firs and spruces which retain their needles for several seasons and so appear evergreen (although I could swear that the white spruce in my back garden thinks it is a larch, so heavily does it prune its dead leaves in the fall!).

Larch species are adapted to the cold, moist regions of the Northern Hemisphere, and are found in the boreal forests of Eurasia and North America,

bracts attached at their base. They remain on the tree for several years. The seeds have papery wings promoting wind dispersal and are usually borne in pairs on the inside of the cone scales.

There are three native larches in Canada, all of which occur in Alberta. Tamarack (*Larix laricina*) is widespread across the country in boreal habitats. Locally, it occurs in pockets of our peaty soils, which often represent little islands of boreal forest, such as at Wagner Natural Area, and in the



Subalpine larch. Fortress Mountain, 2006-11-01. Photo: P. Cotterill.

wetlands between the sand dunes, for example, at Bunchberry Meadows Conservation Area.

Subalpine larch (*L. lyallii*) and western larch (*L. occidentalis*) are restricted to B.C. and Alberta and, as their names suggest, are mountain species, with western larch being quite rare in Alberta and much more common in B.C. For mountaineers, these two species can be distinguished by somewhat subtle characteristics as well as habitat: subalpine larch, which occurs only at high altitudes, generally has needles that are four-angled compared to western larch's triangular ones, and its twigs are woolly; moreover, its bracts are obviously longer than the scales and have bent tips, whereas in western larch, which occurs at lower altitudes on mountain slopes, the bracts only slightly exceed the cone scales.

Tamarack grows 15-25 m tall, and has a grey bark, scaly in older trees, similar to that of spruce. Trees are generally considered to live for about 150 years, but gnarled, stunted trees at Wagner Natural Area have been dated as over 300 years old. Seed cones are 1-2 cm long, elongate and purple when

young, but becoming more ovoid and light brown by the time the cones open in mid-August to release the seeds. Old cones with open cone scales are dark brown. As shallow-rooted trees tamaracks are prone to damage by wind and flooding. As a widespread species they are host to a variety of insect predators and to fungal diseases. Unfortunately, porcupines much prefer the inner bark of tamarack to that of spruce, resulting in the killing of fine, mature trees. Snowshoe hares eat the seedlings and red squirrels eat the seeds. The dense, outspreading branches provide plenty of nesting sites for birds. Indigenous peoples used tamarack for making snowshoes and a variety of medicinal purposes. Interestingly, early surveyors used tamarack posts to mark the northeast corner of sections within townships: the wood was light to carry but hard and extremely rot-resistant. Ornamentally,



Porcupine damage to a tamarack, Wagner NA, 2023-10-20. Photo: P. Cotterill.

tamarack is often used for bonsai.

In peaty soils in our region, tamarack usually grows in the company of black spruce, as is the case in



Old, stunted tamarack, Wagner Natural Area, 2023-10-20. Photo: P. Cotterill.

Wagner Natural Area, its feathery-looking foliage and shape allowing it to be easily distinguished from the dark green, rigid spires of spruce in the summer and by its leaflessness in winter. But in Bunchberry Meadows black spruce is rare, and tamaracks alone fringe the edges of several wetlands. In one area on the western side of the site tamarack occurs in dense stands of similar-aged trees, lacking understory vegetation under heavy needle litter and inviting speculation as to how the stand got established. Since tamarack is a pioneering tree which likes open areas and plenty of sunlight, opening up some of these stands by cutting might result in trees of better form and possibly even in seedling regeneration.

You don't need to get your feet wet, however, to enjoy the seasonally changing foliage of larches. The non-native Siberian larch (*L. sibirica*) is

commonly planted in Edmonton, in gardens, grounds and parks, where there is room for its spreading branches which reach almost to the ground. A native of western Russia and Siberia, where it is a major forest tree, this species is well adapted to dry, cold continental winters.

Three other non-native larches, European larch, Japanese larch, and Dahurian larch are also planted in Canada, but I do not know if they are grown in Edmonton.

Sources:

Farrar, John Laird. 1995. *Trees in Canada*. Ottawa, ON. Fitzhenry & Whiteside Ltd. & Canadian Forest Service, Natural Resources Canada.

Moss, E.H. 1983. *Flora of Alberta*, 2d ed. rev. by J.G. Packer. University of Toronto Press, Toronto.



Siberian larch, residential area, 2023-11-20. Photo: P. Cotterill.