Early blue violet, *Viola adunca*, photo-bombed by prairie buttercup, *Ranunculus rhomboideus*, at John Janzen Nature Centre, May 2019.

From Your Editor:

Welcome to the Wildflower News for May. Now that the weather has become more like spring, we can head out to observe what is starting to bloom and grow in our wild and natural areas, always observing proper physical distancing, of course!

In This Issue:

Please note:

All events, seed and plant sales, talks, everything, at which ENPS would have been an active participant, are cancelled.
We expect board members, and really hope all our volunteers, adhere to the recommended actions to protect ourselves, our families and friends, and all others, and prevent the spread of novel coronavirus. Please do not be too anxious to return to work or other group activities if you don't have to!
If you'd like information on protocols: Recommended actions by the Alberta Government.

LETTERS:

It was nice to see this (March WN) in my email this morning, after dealing with many difficult situations in the news, and deciding upon appropriate actions. This is such good reading and thinking about this year in the garden and when watching and advocating for wildflowers.
Thanks for all you do,
Janet

Thank you, very glad we cheered you up!

Thank you all so very, very much. The consistent excellence of ENPS brings me such joy. Another great edition.

Appreciatively,
Rocky

Thanks to you and the contributors for another great edition of Wildflower News. It is a delight to read especially these days with the temperatures ten to twenty degrees below seasonal average.
Jiri Novak

Just wanted to tell you both how I love your newsletter. It's a ray of sunshine each month, and especially this one, as we all adjust to the new reality, and the where has Spring gone? Mother Earth hasn't been this clean for decades!! Our challenge is to keep her that way now! Nature is celebrating and so am I! Thank you for your time and love.
Best wishes,
Elaine

Thank you for your factual reporting. How devastating with long negative impacts!
With appreciation,
Shirley
Parkland County

Devastating indeed and we must keep up the protest against park and natural area closures by this government.

I loved this newsletter and Patsy's article on how to become a better wild flower identifier. I moved to BC last year and would love to share the article. May I pass this newsletter onto the Yellow Point Ecological Society, to use as is or adapt Patsy's article for this area?
Many thanx
Love
Nikki

Yes, please do pass the newsletter on! We have passed on the request to use Patsy's article to her.

Liz' photos of seedlings invading her livingroom reminded me of my own domestic dispute over garden seedlings usurping my limited tropical atrium space, while there's still a foot of snow in my backyard. These futile attempts at climate-denial bring to mind the sage gardening advice of The Bard in *Love's Labor's Lost*:
"BIRON
…why should proud summer boast
Before the birds have any cause to sing?
Why should I joy in any abortive birth?
At Christmas I no more desire a rose
Than wish a snow in May's new-fangled mirth;
But like of each thing that in season grows."
As always, keep up the good work with W News, Charles Richmond.

Haha - thanks for this bit of wisdom. Yes, we do really long to see new growth at the tag end of winter!

Thanks; just what I needed on this -23 C April morning!
Lorraine Taylor
George Pegg Botanic Garden

A great newsletter, as usual!
Elisabeth

Hello, I enjoyed the article in Wildflower News this morning about the importance of Wildflower Identification. I wondered if, in future issues, you might consider highlighting specific online resources that lean themselves towards junior naturalists and citizen scientists? After all, people are increasingly turning to digital resources these days and apps are especially popular!
Kristyn Mayner

Thanks for the idea, Kristin. I've made the rest of your letter into its own article. See below.

WN: Thank you all for taking the time to write to us and for your encouragement. We will continue to strive to make our newsletter interesting and informative.

Native Plants in Local Gardens and elsewhere…

Check out some selected posts WN has assembled of the first spring appearance of some of our local native plants.

Beaked hazelnuts (*Corylus cornuta*) are blooming in Hawrelak Park, Edmonton on April 24.

Photo: Myla-Rae Baldwin.

Red blossoms are the female flowers, the catkins are the males.

All the beaked hazelnuts were in full bloom at Fort Saskatchewan Prairie on April 26. These minute red flowers are no more than 3-5mm across!

Photo: Judith Golub

Two to three day old Prairie crocus blooms on a badlands prairie, about 158 km southeast of Edmonton on April 22.

Photos: Jiri Novak

Crocus at NW of Bruderheim Natural Area (slated for divestment from the Provincial Parks system by our UCP government). Photos: Hubert Taube

River alder, *Alnus incana*, in Whitemud Park showing male catkins and female cones, April 23.

Photo: Manna Parseyan

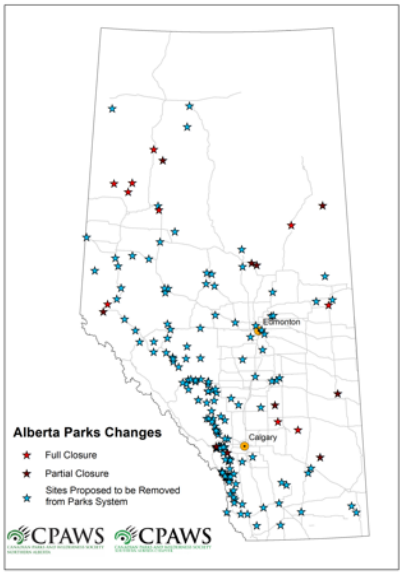
EVENTS - if you would like us to list your event that involves native flowers, please email us at engedmonton@gmail.com by the 20th of the previous month.

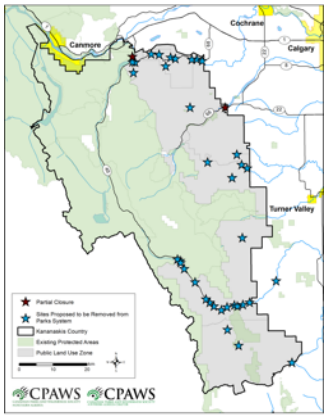
June 11-14 - City Nature Challenge

City Nature Challenge (CNC) is an event to document the biodiversity of nature occurring within a particular city.
The Alberta Biodiversity Monitoring Institute (ABMI) is scheduled to organize this event in Edmonton for the first time in 2020. ENPS is also involved in the ongoing organization.
The NatureLynx platform, developed by ABMI, for gathering of natural history data collection will be the primary tool for data collection.
Initially, the event was planned to be a mixture of group and individual observation activities. It is now likely that all group events will be cancelled due to the Covid-19 crisis, but coordinated individual data gathering is still on the books.
More details will be available in the June 2020 Wildflower News and on the ENPS Facebook page.
You may want to set aside the above dates to participate in the Edmonton CNC.

NEWS... If you have a news item involving native plants that you would like posted, please email us at engedmonton@gmail.com

Defend Alberta Parks - Stop the privatization and closures of Alberta protected areas.





From CPAWS: “When visualized, the number of parks (37% of all park sites) that will lose protection is quite shocking! Especially the huge concentration on the eastern slopes.
If you haven't yet please speak up against this loss - http://bit.ly/DefendABParks #DefendABParks #Ableg #abpoli

If these parks are removed from the system, they will lose the environmental protections and quality recreation infrastructure that are affordably provided to all Albertans. These changes will be incredibly difficult to reverse once in place.

Your actions can make a difference and force the government to rethink this decision. We know that tens of thousands of other Albertans have already signed petitions, called and written letters to the government about these changes. It is crucial that we keep pressure up and let the government know that we will not stand for the decimation and privatization of our parks system.”

Please keep writing those letters to the Minister of Environment and Parks and your MLA if you do not support the

announced changes to the parks system: https://action.cpaws.org/page/57187/action/2

Alberta's cuts harm nature when we need it most
An interesting opinion piece from the April 14 issue of the Edmonton Journal on changes to the Alberta Parks System by Harvey Locke, a conservationist, writer and photographer who is co-founder of the Yellowstone to Yukon Conservation Initiative and lead author of *The Last of the Buffalo: Return to the Wild.*
https://edmontonjournal.com/opinion/columnists/opinion-alberta-is-devaluing-nature-when-we-need-it-most/?fbclid=IwAR2hfNJSbcS7dyNuN6mKgDQxAbZ-jZLHDGyGFbRM1Z-Fn73UJVPSwDvQy5w

Citizen Science and Online Resources by Kristyn Mayner.
Further to the letter Kristyn wrote in response to last month's article on the importance of wildflower identification (above, in Letters), she also compiled a notated list of digital resources and apps.

ABMI's Biodiversity Browser: https://www.abmi.ca/home/data-analytics/biobrowser-home
- Online database includes all taxa in Alberta, but specifically includes 1,536 vascular plants and 351 bryophytes. For wetland species with OBL, FACW or FAC status, these statuses are listed by natural region. There is then an abundance of information on each species' associations and distribution across the province. This is a good, visually appealing source of information for Alberta species and it is in the process of being revamped (further improved) by ABMI.

Note: For wetland indicators, the statuses are as follows:

Obligate (OBL) - Almost always a hydrophyte, rarely present in uplands.
Facultative Wetland (FACW) - Usually a hydrophyte, occasionally found in uplands.
Facultative (FAC) - Commonly occurs as either a hydrophyte or non-hydrophyte.
Facultative Upland (FACU) - Occasionally a hydrophyte, but usually occurs in uplands.

North American Native Plant Society (NANPS) Native Plant Database: http://nanps.org/native-plant-database/
- Information is represented in a non-clustered, easily accessible manner. Photos are displayed as thumbnails on main page and then further detail is given once you click each species. However, only 1 photo per species is provided and it may not show flowering, fruiting or key ID characteristics. No identification information is provided.

Wild about Flowers Database: http://www.wildaboutflowers.ca/browse_common_plant_name.php
- Purpose is for selling plants and seeds but quite an informative, photo-heavy and user-friendly database. Many photos, prominently displayed and high quality. Species information includes that of interest to people looking to grow the species (shade tolerance, bloom timing, etc – definitely its own niche).

NatureLynx (ABMI's new app and website): https://naturelynx.ca/species/1
- Still new (being populated by citizen scientists). Meant for all species (flora, fauna) and very publicly-accessible (informal), eg. https://naturelynx.ca/species/Andromeda%20polifolia/details
- In the Species Gallery, photos are prominently displayed/emphasized. The species ID pages are similarly well done.
- Submissions to the app are verified (identification is confirmed) by ABMI and RAM experts.
- Ability to create a page/group dedicated to a specific natural area, for example. So multiple observers can submit their data and photos for that area to a central forum.

iNaturalist https://www.inaturalist.org/ and **Seek by iNaturalist** https://www.inaturalist.org/pages/seek_app
- These apps are hands down the most accessible way to conduct citizen science: You can take a photo of your plant (or insect, etc) of interest and it will provide you with possible identifications. If you take a clear picture depicting key features (flowers, leaves, etc) then it does a very good job, at least getting you to the genus level. You could then use other resources to verify.

I hope this is helpful. This list is something I had previously compiled for my job. I've included above only the most public-friendly resources but I know there are others such as the USDA plant database, VasCan, NatureServe, ACIMS, eFlora BC, etc. I would be interested in hearing feedback on ones I've missed!

WN: Thank you Kristyn for this great compilation of online resources!

Sweet coltsfoot, *Petasites frigidus,* a sign of spring in our forests and wetlands by Patsy Cotterill.

Prairie crocus is the indisputable harbinger of spring, its large, mauve or white, cup-like flowers eagerly sought amid the straw and vegetable detritus of a long winter. However, with the conversion of prairies to agriculture and urban expansion, prairie crocuses are becoming hard to find, and the icon now has little meaning for whole generations of younger people. In the Edmonton area these members of the buttercup family are best found on some of the sandy or badland soils northeast of Edmonton, in the Fort Saskatchewan, Gibbons-Coronado and Bruderheim reserves.

Inflorescence of male heads of arrow-leaved coltsfoot, *Petasites frigidus* var. *frigidus*. Photo: Dave Fielder

Closer to home, in our local forests and wetlands, is another early-flowering group of herbaceous plants that is more commonly encountered. I refer to the sweet coltsfoots, a single species, *Petasites frigidus*, but which comes in four varieties.

Palmate-leaved coltsfoot, *Petasites frigidus* var. *palmatus*, has particular significance for me, as it is the first herbaceous plant I can recall identifying in Canada. My first location after immigration was in northern Manitoba, "north of '56" where I arrived at the beginning of a long winter. The following May I was surprised to find the white inflorescences of palmate-leaved coltsfoot bravely pushing up along the roadsides. For many years I wondered at their earliness, which seemed ill-adapted, for often the flowers were blighted and killed by frost. I noted that their palmately lobed leaves followed irrespective of flower head death, and persisted for the rest of the season, springing from underground rhizomes. Years later, when I was living in Winnipeg and spending more of my time in mature forest reserves, I was puzzled by the abundance of leaves I saw of this plant, but the scarcity of flowers. It wasn't until I observed an explosion of flowers in a burnt forest that the penny dropped. The plant needs light to stimulate flowering and roadsides are not its natural habitat. In a mining town in northern Manitoba the construction of roads through what had originally been forest had created the well-lit conditions the plant needed for abundant flowering. In forests it needs openings created by tree fall or fire to flower.

Two other varieties are common in our area, particularly arrow-leaved coltsfoot, *P. frigidus* var. *sagittatus*, and vine-leaved coltsfoot, *P. frigidus* var. *xvitifolius*, which is considered to be a hybrid of the palmate- and arrow-leaved varieties. The typical variety, arctic sweet coltsfoot, *P. frigidus* var. *frigidus*, is a high-elevation species, found in moist, open spots in the mountains.

None of the varieties can be reliably identified by the flowers, which are similar in all. The leaves, although somewhat variable in shape, allow for relatively easy distinction between the varieties. Habitat also helps. Of our local species, arrow-leaved coltsfoot prefers the much wetter ground of ditches, wetlands, and open depressions in forests, whereas palmate- and vine-leaved coltsfoots are more obviously forest species.

L. Leaves of palmate-leaved coltsfoot, Bunchberry Meadows, 1 July 2018.

R. Leaves of vine-leaved coltsfoot, near Wagner Natural Area, 27 May 2018

L. Leaves of arrow-leaved coltsfoot in a wetland at Bunchberry Meadows, 5 July 2019. Note the conspicuous white felt on the undersides.

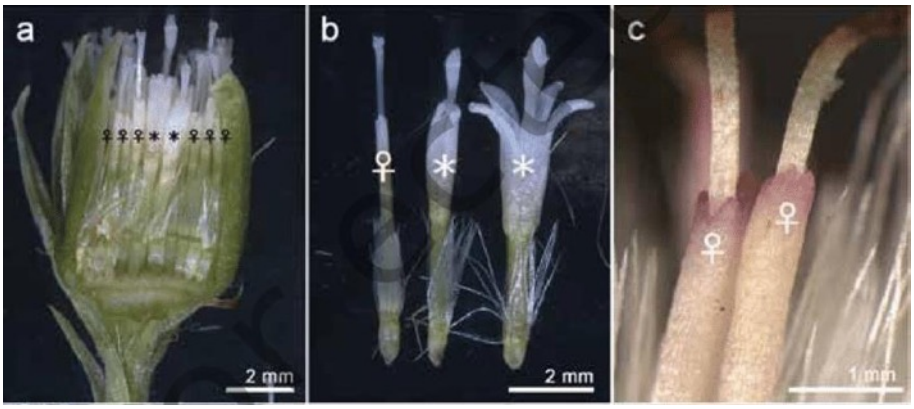
R. Leaves of arctic sweet coltsfoot at Prospect Creek, near Cadomin, 11 June 2015.

Petasites is largely a Eurasian genus of some 18 species, with only a single native species, *P. frigidus*, in North America, confined to the boreal regions and the western Cordillera. Originally, four species were recognized (*P. frigidus* var. *frigidus* was known as *P. nivalis*). However, in the 1990s Donna Cherniawsky and Dr. Randy Bayer, at the University of Alberta, came to the conclusion that there was insufficient distinction between them to merit recognition of separate species, and demoted them to varieties of a single species. They used standard investigative techniques of the time: measurements of plant parts, enzyme electrophoresis (isozyme analysis), chromosome studies and crossing experiments. This single-species taxonomy is currently in use today. As previously noted, the varieties can be recognized by their leaves, although the separation in time between flowering and leaf appearance can make identification difficult for observers not already familiar with the populations.

Like other members of the aster family (Asteraceae) coltsfoot “flowers” are really flower heads (technically, capitula) which, in the case of *Petasites*, are clustered together into a large, flat- topped or somewhat rounded inflorescence. The flower heads in turn are composed of small flowers called florets, which in the coltsfoots are of different types. Some flower heads consist largely of female florets (i.e., each is equipped with a pistil consisting of stigma, style and ovary and which if fertilized will produce one-seeded fruits). As well the head often contains a few hermaphrodite flowers with both female and male sexual organs, i.e., each with a pistil and a set of pollen-bearing stamens. Thus these heads are predominantly female (or pistillate). Flower heads on other plants are made up largely of hermaphrodite flowers in which the stamens produce pollen but the pistil does not develop seeds. These flower heads are considered functionally male or staminate. The style in a hermaphrodite floret is not itself receptive to pollen but serves as a pollen presenter, making pollen (from the adjacent stamens) available to insects that will carry it to other flowers. (See the February WN issue for more information on pollen presenters.) Most florets, in both types of heads, have tubular corollas, but often those that occur at the periphery of the head have rays, which serve to increase the attractiveness of the head and the flower cluster as a whole. In female heads ray florets are often fertile (seed-forming) but in the male heads they do not produce seeds or may have no sex organs at all. For fun, try examining a few flower heads this spring to determine their sexual orientation (I mean the composition of their florets)! Male flower heads will soon turn brown and wither after flowering, but stems bearing female heads with grow tall and bear aloft well-spaced heads of fruits, each equipped with a copious white pappus aiding in dispersal by wind. These fruiting heads are often conspicuous, and confuse observers who may not have noticed the flower heads earlier, hidden amongst vegetation.

Cluster of male (staminate) flower heads of arrow-leaved coltsfoot. Each flower head consists of many tubular florets (some still unopened in the centre) that are hermaphroditic (i.e., have both male and female sex organs) but function only as males, producing pollen. The protruding club-shaped styles do not convey pollen to the ovary but instead act as pollen presenters. Ray florets form a peripheral ring and do not produce seed. In the photo on the right (credit: Derek Johnson) the brownish cylinders of fused stamens are clearly visible with the white club- shaped styles protruding beyond them.

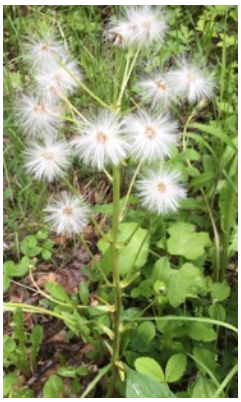
Cluster of female heads of arrow-leaved coltsfoot. Each head consists almost exclusively of female florets with thin, tubular corollas, the receptive stigmas appearing as white dots at the tips. Ray florets are lacking. Flowers are predominantly white but often show some purple due to anthocyanin, as do the tips of the green bracts surrounding the flower head. Female heads are usually narrower and less showy than male heads. Wagner Natural Area, 24 May 2010.



a = cut-open female flower head. Female symbol indicates female floret with pistil only; asterisk indicates hermaphrodite floret with thick, pollen-presenter style.
b= from left, female floret with receptive 2-lobed stigma, slender style, tubular corolla and ovary with developing pappus; middle and right florets are hermaphroditic with wider tubular corollas, thick styles and ovules that will not form fruit despite a well-formed pappus.
c = female florets with slender tubular corollas.
From: https://www.researchgate.net/figure/Female-capitula-and-florets-a-Cross-section-of-a-female-capitulum-Asterisk-and-female_fig1_338541311

The phenomenon of having male and female flowers on different plants is known as dioecy, and is an adaptation that promotes cross pollination. But coltsfoots have other tricks up their sleeves that give them a competitive advantage over other vegetation. Many members of the Asteraceae flower later in the season (think of the asters and goldenrods), but *Petasites* is among a few that flower early. They send up stout but hollow stems poking through the accumulated winter litter in March to May depending on location. (The species occurs all across Canada.) These lack much supporting tissue (an ephemeral quick fix rather than a slow build of permanent infrastructure), a strategy that allows the plant to concentrate resources on flower production. These stems (technically, scapes) bear bracts (really modified leaf stalks) which do photosynthesize, but most of the energy for flower production comes from food stored in the underground rhizomes. Once fertilization is over and the male flower heads and scapes are withering, the plants turn their attention to producing true leaves, which spring direct from the rhizomes; these will photosynthesize throughout the season and restore the food supplies in the rhizomes. (This incidentally is the same strategy that prairie crocus uses, and it is postulated that getting ahead of the game by early flowering before waiting for leaf production is advantageous in reducing competition for insect pollinators.) Later-flowering plants, on the other hand, build up resources with leaves on sturdy stems that only later bear flowers and fruits. A good example of this alternative strategy is showy aster, *Eurybia conspicua.* It is recognizable by its leafy shoots early in the season but doesn't flower until mid to late summer. Its stems, topped by old seed heads, are sturdy enough to persist throughout the winter. Coltsfoots belong in the tribe Senecioneae of the Aster family, having the ragworts (*Senecio* and *Packera* species and marsh ragwort, *Tephroseris palustris*) as close relatives. Gardeners may recognize two ornamental species, both with extremely large leaves: *Petasites hybridus* and *P. japonicus*. Coltsfoots have been traditionally used as medicine for a variety of ailments, but authorities caution against their use because of the presence of toxic compounds.





L. Withering male heads of palmate-leaved coltsfoot, Elk Island national Park, 28 May 2013.
C. Colonial patch of female arrow-leaved coltsfoot in fruit, 30 May 2006.
R. Fruiting heads of palmate-leaved coltsfoot, Shooting Star Hill, 8 June 2019.Leaves not visible.

Photos by author unless otherwise noted.

Reference:

Petasites frigidus in Flora of North America: http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250067342

Just for a bit of added interest - Judith Golub

Here's some photos from May 2019 of the *Petasites frigidus* var. *palmatus* I have in my yard. They bloom very early, have a delightfully sweet scent, and in no time at all are found by any number of different insect pollinators!



Patsy pointed out to me that the middle pic shows the clearly hermaphrodite florets in the middle of the flower head.

Websites of the Month:

Wagner Natural Area Society newsletter
Browse some of the many issues of *Friends of the Fen.* Find out about projects and activities and enjoy some great photos.
http://www.wagnerfen.ca/Newsletters

Alberta's Natural Prairie Heritage should not be for sale
An opinion piece in the April 22 Calgary Herald by Kevin Van Tighem, former National Park Superintendent and author of several books on conservation. He rebuts Jason Nixon's response to Harvey Locke's opinion piece (see above in NEWS) on the changes to the Alberta Parks system.
https://calgaryherald.com/opinion/columnists/opinion-albertas-natural-prairie-heritage-should-not-be-for-sale/?fbclid=IwAR2QypMV_zNqjJm09JJ4zer_LacRIuCAT6qPdPQxeM3Uc4Cr0d7vDZzzY20

STOP THE PRESS!!
The Provincial Government has lifted some COVID-19 restrictions for parks and public lands, beginning May 1st. **Physical distancing measures remain in place** so may we warn you to still be cautious and limit your risks for your own safety.

Because these restrictions are being lifted, ENPS is now working on a way to sell plants and will post details once they are finalized to our website and Facebook page.

Lifetime ENPS Membership
You can now become an Edmonton Native Plant Society member for life. Memberships are $20 and can be purchased by emailing enpgmembership@gmail.com or visit one of our booths at plant events in your area.

Aims of the Edmonton Native Plant Society:

- ✤ Promote knowledge of the Edmonton area native plants.
- ✤ Conserve our native plant species and their habitats.
- ✤ Preserve native plant species and habitat for the enjoyment of present and future generations.
- ✤ Educate individuals, business and local governments about native plants.

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Cherry Dodd, editor
Judith Golub, publisher
www.edmontonnativeplantgroup.org

Common bearberry (*Arctostaphylos uva-ursi*), aka *kinnickinnick,* with prairie crocus (*Pulsatilla nuttalliana*), NW of Bruderheim Natural Area.