SAPAA NEWS

Stewards of Alberta's Protected Areas Association

"Stewards helping stewards"

No. 42, April 2022

Sheep Creek Natural Area. Photo by Kate Reeves

Editorial by Patsy Cotterill

Spring is fast approaching and it will soon be time to put the plans under development all winter into action. According to their March quarterly newsletter, 30-year-old Big Lake Environment Support Society, better known as BLESS, has got another busy season of activity ahead. This includes furthering their educational programming mandate by hiring a Summer Nature Interpreter again this season, and running a Kids' Summer Nature program in July and August. A new project being discussed with Ducks Unlimited Canada is designating a wetland in Lois Hole Centennial Provincial Park as a Wetland Centre of Excellence. A local St. Albert high school has already signed up to participate in projects, and this could extend to Edmonton-area schools, with the aim of eventual year-round educational programming. BLESS is also looking for volunteers to be in the Park this season to interact with visitors and carry out monitoring duties. See http://www.bless.ab.ca and https://www.facebook.com/biglakeenvironmentsupportsociety

In this issue Bertha Ford writes of her experiences as steward of Kootenay Plains Ecological Reserve. Also long-timers, she and her late husband Harry have been its government stewards for 24 years and Bertha has lots of stories to tell about her encounters. One of her main stewardship activities, carried out with the help of her family, has been monitoring the breeding success of mountain bluebirds. Unfortunately, their numbers have declined in recent years. She wonders if the huge increase in visitors to the area and the popularity of the bluebirds with photographers have something to do with it. Being a steward of a remote, popular site in the recreational paradise of the Eastern Slopes takes not only determination but also courage! But no doubt Bertha, a veteran hiker and mountain lover, has found stewardship worth it.

The SAPAA website committee has been working hard for the past few months putting together new web pages for Natural Areas and Ecological Reserves. We have only completed a fraction of the pages so far, but digging into the various maps and facts has stimulated our appetites to see these sites in person, as it were. The snowshoers and skiers have had their turn this winter; now it is time for the naturalists, hikers and land managers to get out and explore! We look forward to hearing of your field trips and stories and seeing your photos! https://sapaastewards.com

In This Issue:

Membership Renewal

If you haven't yet renewed your membership in SAPAA or wish to join for the first time, the membership form is available at Membership. It differs this year in that we are asking for an additional $5.00 payment if you request a printed and mailed copy of your newsletter. Also new this year is that we have now enabled e-transfer as a payment option. Our thanks to all members who have renewed for this year.

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Kootenay Plains Ecological Reserve PA Site #77 by Bertha Ford, Steward. Photos by author.

Kootenay Plains Ecological Reserve is located along Highway 11 within 30 km of the Banff/Jasper highway. The irregular boundaries extend from Abraham Lake to Whirlpool Point on, along the North Saskatchewan valley. The size of this reserve was 8,495 acres/3438.66 hectares but has been decreased in size with an area at the Cavalcade now being designated recreation.

This montane area has strong winds, very low annual precipitation and chinooks in the winter. Once soil is disturbed with the winds it is prone to erosion and vegetation is slow to recover. The area is an important wintering range for Elk, Mule Deer and Bighorn Sheep that are often in the higher ranges but are also seen on the plains.

Mountain Bluebirds occur naturally in the Kootenay Plains. When the reserve was originally established Bluebirds were given a priority in the management plan. The Bluebird boxes had unfortunately fallen into disrepair so in 2002 my husband, Harry Ford, removed 24 boxes and replaced them with 20 new boxes. Then we started our monitoring of the boxes. The first year 24 bluebirds fledged.

Mountain Bluebird and 7-day-old babies.

In 2017, we added the fortieth box. Unfortunately we have also had to replace eight vandalized boxes, a stolen box and some damaged boxes. But it was worth it as the numbers of Mountain Bluebirds fledging have increased to as high as 117. Additional birds have fledged but due to the distance involved (nearly 500 km on a return trip) some fledge without being seen and are not counted. Other birds such as Tree Swallows also nest in the boxes in lesser numbers. Some years the Mountain Chickadees have occupied boxes. Sixty-four other species of birds have been noted. Unfortunately the squirrels also managed to get into a couple of boxes.

Harry and I have been stewards for 24 years. We have made 135 trips including some with a hiking club. 107 of these trips were to monitor the Bluebirds. In the last two years, when the government was not active in the steward program, my daughter and son-in-law made trips to monitor the Bluebirds, and have been assisting me with monitoring them.

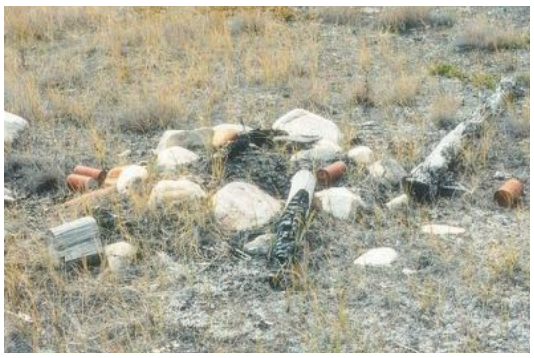
The vegetation on the reserve includes some rare plants. Dry grasslands, along with aspen, limber and lodgepole pine, Douglas fir and spruce forests, as well as many flowering plants are located in the reserve. The endangered whitebark and limber pines are also present.

White morph of the usually pink calypso orchid, *Calypso bulbosa*.

The 1st Canadian Parachute Battalion, who were the initial force on the ground during the Normandy invasion, has a memorial at the Siffleur Falls Staging Area. *Ex Coelis* (in Latin 'out of the clouds') was the motto of the Parachute Battalion and the mountain was named Ex Coelis to honour them. The five peaks were then named after their battle honours. Siffleur Falls has become an increasingly popular destination; there has been up to 300 cars at the staging area and the parking lot has been enlarged.

Looking southeast towards Ex Coelis from Highway 11.

At the beginning of the program, illegal camping was a problem. Fire pits that we found were dismantled and occasionally a significant amount of garbage would be carried out. We reported other problematic activities including a Frontier Lodge crossing over the Siffleur Falls gorge on ropes that had been set up. Erosion was also a problem that required monitoring. For example, erosion on the way to Siffleur Falls required a boardwalk to be built and extensive erosion also resulted in a dangerous hole developing at the edge of the Siffleur bridge that required repairs.



L: Near Siffleur Bridge. Extra lumber piled up, benches made from lumber around fire, trees cut down and used for fire. Parks removed the lumber from this one. C: Kootenay Plains meadow between the North Saskatchewan River and Highway 11 (west of river, east of hwy.) Evidence of old fire surrounded by stones - removed 4 rusty cans and an old coat hanger. R: Huge bag of garbage - carried out on poles by 2 people.

L: Graffiti on rock at Siffleur Falls - done after someone's friend died there. Still visible but faint now. R: Eroded trail at edge of deep gorge that continues to be used. Barriers and signs were put up as requested.

Beware of:
L: Ticks - need to check self, especially during May and June. This photo is of a female Rocky Mountain Wood Tick. It does not carry lyme disease but can cause dangerous Rocky Mountain spotted fever.

R: Bears - scat on trail just past Siffleur Bridge; note film canister for size. Also saw a tree root ripped apart.

Between the trips with the hiking club and the family, I have managed to hike extensively, covering most of this large area on foot. The hikes include Siffleur to the 3rd Falls,Tuff Puff, Whirlpool Ridge, Wildhorse Creek, Survey Hill and Heritage. In addition to the hiking, Harry and I also biked the Whiterabbit trail and Glacier trail.

I love the area and the bluebirds. It is a challenge to try to check the boxes at least every two weeks in May and June due to the length of the trip. But the area is so beautiful and the trips are always worthwhile. Sadly my partner, my husband Harry, passed away July 2021. Fortunately my family all love the area and will carry on the work helping with the monitoring of the beautiful Mountain Bluebird.

L: Descending into meadow on other side of Survey Hill. R: Beaver Pond.



L: Beavers continue their work on Wilson Creek. Depth of water was about a foot which was more than usual for that time of year. We went further up the creek to gain access to Survey Hill. C: Kootenay Plains from Icefield Walk. R: In early July the western wood lilies, *Lilium philadelphicum,* cover the meadow.

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Welch Creek Natural Area From the 2021 AGM presentation. Compiled by Judith Golub from commentary by Hubert Taube and Manna Parseyan. Photos by Manna Parseyan.

Welch Creek NA is about 70 km west of Ponoka.
SAPAA had an inquiry from a fellow about Welch Creek and the associated Natural Area. He is the nephew of W.E. Welch, a fallen Word War II veteran killed in Dieppe, after whom the creek and natural area are named.
He, and his family, would like to have his uncle remembered by placing a memorial plaque at the creek or near the "entrance" to the Natural Area so his uncle's sacrifice is not forgotten.
Prompted by his contact, SAPAA members took a field trip to Welch Creek.



Welch Creek; treed fen; and an open fen view - lots of *Carex aquatilis*, water sedge and *C. prairea*, prairie sedge.




A variety of orchids were in bloom: *Platanthera huronensis*, Huron green orchid (this orchid is also known as northern green bog orchid, as is *Platanthera aquilonis*, which is also called tall northern green orchid. The problem with common names, eh?); *Platanthera aquilonis*, northern green bog orchid; *Spiranthes romanzoffiana*, hooded ladies tresses; *Platanthera dilatata*, white bog orchid.




A selection of more of the plants seen there - *Drosera rotundifolia*, round-leaved sundew; *Polygonum viviparum*, the alpine bistort was a surprise to find as it usually grows, as its name suggests, in the alpine region; *Anticlea elegans,* mountain death camas, is also known as smooth or white camas; *Delphinium glaucum,* tall larkspur.

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Spring, the Sweet Spring... Budbreak or flower? by Patsy Cotterill

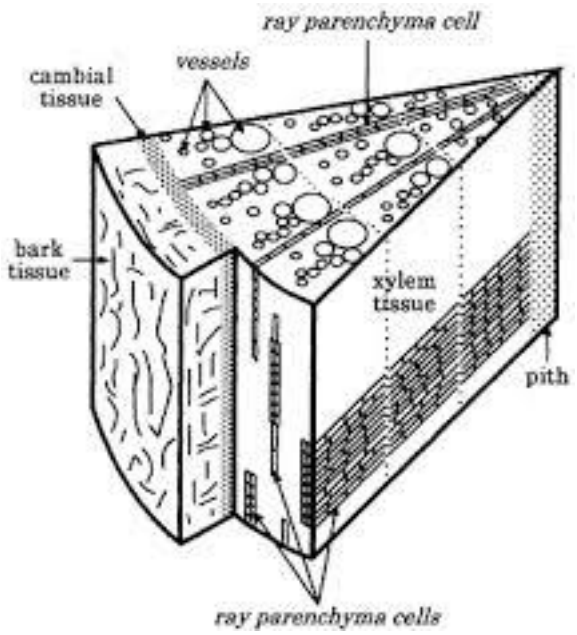
As I write in late March from Alberta's Central Parkland, anticipation of spring is rising like the proverbial sap and some willows, with their feet still in ice and snow, are showing their characteristic strings of silver beads. They are not yet in flower of course; their minute catkins, tightly cocooned in white hairs, have merely grown too big for the confines of their thick, dark, bud scales. It will be weeks before true flowering occurs, when the stamens and stigmas of the flowers are mature and ready for pollination. Willows are not usually the first of our local woody plants to flower, however. Aspens, in the same family as willows, the Salicaceae, now have similar white-capped swollen buds. Our urban American elms are not far behind aspens in flowering, and members of the birch family, beaked hazelnut and river alder, may even precede them. Generally, in the Parkland, most of our earliest-flowering trees and shrubs, including Manitoba maple and Canada buffaloberry, bloom in mid-April to early May.

Pussy willow, *Salix discolor*, showing female catkins with yellowish-green stigmas emerging from the bud scales, shortly before flowering. Photo by Manna Parseyan, Edmonton, 2020.04.30.

Why are trees and shrubs the earliest plants to flower?

It is not hard to see why our trees and shrubs are our earliest plant forms to flower, although in temperate countries where the ground does not freeze so hard or for so long, many herbaceous species flower early. Woody plants usually form their buds in the previous growing season, and protect the delicate apical meristems inside them during the winter with thick, oily or hairy bud scales that resist desiccation and damage. From the multiplying meristem cells in spring will develop new flowers and flowering shoots, leaves and vegetative shoots. Moreover, woody plants have a large biomass in their stems and roots packed with many thin-walled parenchyma cells that serve to store food and conduct materials laterally in the plant. In a tree trunk cross-section they show up as horizontal bands or rays extending across the vascular tissue, the xylem and phloem, and also down the longitudinal axis of the trunk. The xylem conducts water and nutrients upwards in the plant, carried out mainly in dead, tube-like cells called vessels; the phloem carries sugars and other organic substances in its fluid, within living cells called sieve-tubes, both upwards and downwards in the plant. The parenchyma cells connect xylem and phloem. Once temperatures are warm enough for plant metabolism to occur and liquid water is present in the xylem, starch stored in the parenchyma cells is converted to sucrose and moves into the phloem. This in turn pulls water from the xylem by osmosis and causes the phloem sap to flow. In the spring it moves to parts of the plant that are actively growing, the meristems in the buds. These act as sinks, sucking up the sucrose that has originated in the parenchyma cells, the source. This concept of

nutrient movement following a sink–source gradient is becoming familiar in botany. Plants that are connected to one another by rhizomes can shunt food around from well-nourished plants to those less fortunate, and the same is true in plants that are connected by a fungal mycorrhizal network, with unrelated species even taking part in the exchange.



A wedge taken from a cross-section of a tree trunk, showing xylem and parenchyma cells. The phloem, not shown, is a thin layer of living cells just under the bark, between it and the cambium, which produces new xylem and phloem cells. Parenchyma rays extend into the phloem. Old, dead xylem accumulates as heartwood and performs no conducting function, which is left to the newer sapwood. The phloem dies and is constantly renewed from the cambium. Parenchyma cells are important in delivering sucrose at sinks. Leaves within buds are sinks, but later when they have unfolded and begun to photosynthesize they will become sources of sugars. Online source.

Xylem sap and maple syrup

It should be noted, however, that the sap that exudes under pressure when a sugar maple tree is tapped for maple syrup production is xylem sap, not phloem sap. Several maple species and a few other trees that grow in eastern North America produce an abundant xylem sap, a dilute sugar solution, for a limited time in late winter when day temperatures are high but the nights are still below freezing. Birch does something similar, although by a somewhat different mechanism. Our local poplars do not produce xylem sap when the xylem is breached. They store less carbohydrate than the maples, just enough to fuel respiration during the winter, provide frost hardiness, and power the early development of shoots in the spring before photosynthesis takes place. Nor do conifers produce xylem sap that flows out under pressure.

The advantages of early spring flowering

Breaking buds on a male aspen, *Populus tremuloides*, reveal immature red stamens. Photo by P. Cotterill, Edmonton, 2009.04.12. The hard, sticky, brown bud scales, dense grey hairs and the colour of the stamens all help to protect the delicate flower parts from winter cold and desiccation.

Think about it. Why would plants flower early in the season and risk losing a year's reproductive potential to frostbite? Presumably, because our trees and shrubs benefit in some way from early budbreak and flowering, especially if they are wind pollinated in whole or in part. An early start also confers advantages with respect to the timing of seed maturity and dispersal.

Poplars (*Populus* species) are pollinated by wind, and moreover have male and female flowers on separate plants, so self-pollination isn't an option. It is clearly an advantage for the pollen to be scattered by the wind before leaves get in the way. However, the timing of maturation of seeds may be more important. Germination of seeds depends on moist ground, and the seeds of riparian species such as balsam poplar and cottonwood need the slowly receding moisture after a spring flood in order to germinate and survive as seedlings.

Willows (*Salix* species) do produce nectar, so have the option of pollination by insects, but germination of their seed likely depends also upon an adequate supply of spring moisture. In other cases, early production of flowers may be necessary to allow fruits to fully mature in our short growing season. Canada buffaloberry and thorny buffaloberry (*Shepherdia canadensis* and *S. argentea*), for example, flower in early May and produce ripe fruit by June or July. A succession of ripening fruits is obviously of great benefit to fruit-eating animals.

Additional reading

For those who would like to delve deeper into the plant physiology of sap flows, here are three good sources:

https://botanistinthekitchen.blog/2013/03/18/maple-syrup-mechanics/ (Accessed 2022.04.26)
https://organismalbio.biosci.gatech.edu/nutrition-transport-and-homeostasis/plant-transport- processes-ii/ (Accessed 2022.04.26)
https://resources4rethinking.ca/en/step-outside/nature-guides/page/early-march-2022 (Accessed 2022.04.26)

Send us your observations of early spring flowering

Note: We welcome submissions from our stewards on their observations of early flowering in their localities and natural areas. Which species, and why? What are their adaptations for early flowering, e.g., do they have lots of hair, hug the ground, show protective coloration such as anthocyanins? What about their locations, their aspect? Are they pollinated by wind or insects or both? How and when do they disperse their seeds? Do you compete to see who finds the first flower? Please send us your pictures and comments, or post them on the SAPAA Facebook page: https://www.facebook.com/groups/334320645328106

Changes in the May Count of Plants in Flower

Traditionally, participants in field trips to count plant species in flower across the province during the final days of May have recorded their observations on anything from hand-written lists to Excel spreadsheets. However, this year will see the start of an experimental transition to recording results in iNaturalist. This is intended to make citizen science data more useful and easier to analyze. A team from the Alberta Native Plant Council, in conjunction with Rick Schneider of Nature Alberta, is working on the move, hoping for a roll-out of the new system by the spring of 2023.

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NATURE CENTRAL: Celebrating Our Wild Alberta Parklands by Myrna Pearman

The Red Deer River Naturalists have launched an exciting program called Nature Central: Celebrating Our Wild Alberta Parklands. The main objectives of the program are to compile an online, publicly accessible inventory of protected rural landscapes in Central Alberta and to increase the appreciation and respectful enjoyment of these spaces.

In 2022, we hired a young biology student, Shaye Hill, to be our Naturalist in Residence and Sherry Scheunert as her assistant. Their work was overseen by an RDRN committee.

To identify the properties, the team explored the online resources of local municipalities, the Nature Conservancy of Canada, Alberta Environment and Parks, Ducks Unlimited Canada, Alberta Fish and Game Association, and the Alberta Conservation Association's Discover Guide, then followed up with personal communication.

A new website was created, naturecentral.org, and social media channels with content were updated on a regular basis. Properties were organized according to their distance from Red Deer, in 25-km increments up to 100 km. We provided a short description of each site, including key features and links to external websites where visitors could get further details, as well as directions to the site. We also created an internal spreadsheet containing access details and biological information obtained during site visits.

We were surprised by the number of publicly accessible protected areas we found in Central Alberta. By the end of the season, a total of 171 properties were identified!

In addition to cataloging the sites, the Nature Central team promoted the appreciation and enjoyment of these properties by leading nature walks, a kayak trip, and by hosting family events.

We will be hiring another team for the summer, and will be developing a Story Map so visitors can more readily find and learn about these hidden gems. (We were inspired by the Story Map idea by SAPAA – thank you!).

Visit naturecentral.org and chose 'Parkland Areas' from the menu to plan your next Central Alberta adventure!

SAPAA is now on Facebook!

SAPAA has now got a Facebook page - https://www.facebook.com/groups/334320645328106 - and open to all Albertans who enjoy our parks and Protected Areas. The objectives are:

- Increase public awareness of Provincially Protected Areas; in particular, of Natural Areas, Ecological Reserves, Wilderness Area and Wildland Provincial Parks.
- Highlight past and current activities of the Government's Volunteer Stewardship program and those of the separate SAPAA organization.
- Promote conservation and stewardship initiatives in these Protected Areas
- Spread information about SAPAA activities (website updates, field trips, etc.)
- Encourage more citizens to become volunteer stewards.

Postings of original content are welcome from any of the above listed Protected Areas. A post could feature a particular site, or steward, or relate to noteworthy plant or wildlife observations, or to upcoming events (field trips and other gatherings).
General guidelines: Photos should include location and date(s) of photo(s)and be taken within Alberta. Please ID species to include species name (if known).

From Nature Alberta:

Free Lifetime Membership with Nature Alberta is available to all SAPAA members. To sign up, click here and fill in the sign up form. As a Nature Alberta Member, you are adding your voice in championing Alberta's natural environment, will receive regular ENews updates (one every month or two, and you can unsubscribe at any time), and will receive a discount code for our online store. If you have any questions, please email Steph at info@naturealberta.ca or call 780-427-8124.

Steward Contributions Solicited

SAPAA is all about sharing stewards' experiences. We want to hear about your sites, their natural history and their challenges, what insights you have gained as a steward, what you have done in the way of infrastructure building, trails, education of the public, interactions with the Provincial Government, etc. We want gleanings from your submitted reports, indeed, anything you think the wider steward public could benefit from knowing. We'd also be pleased to publish blogs of your personal experiences on the website also.

We welcome your feedback at sapaanews21@gmail.com

Mission Statement:

SAPAA is a group of volunteer stewards whose objectives are:

- To provide a forum for stewards to share information and provide assistance to them.
- To promote the preservation, protection and restoration of ecological integrity in Alberta's Protected Areas.
- To promote the use of Protected Areas for non-intrusive educational, research and recreational activities.
- To ensure that stewards' concerns are heard by government and by the public, particularly with regard to legislation and management policies for Protected Areas.

Plains Garter Snake, *Thamnophis radix*, recently emerged from a hibernaculum near Kilini Creek Natural Area, 2017.05.19. Photo: Hubert Taube.