



# Wagner Natural Area Newsletter

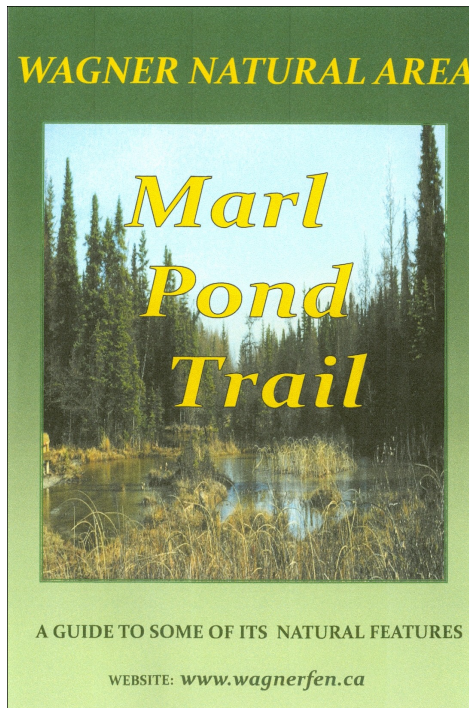
## Marl Pond Trail news—out with the old and in with the new!

## Vegetation Suffers Winter Onslaught

Thanks to the efforts of Rod Spellicy and Mikal Christensen of Alberta Parks the old trail posts have now been removed and the new ones installed, in several cases in somewhat different locations. This means that we can now make the new trail guide available in the guide boxes, allowing new visitors to match the posts to the guides and hopefully ending the confusion that has existed while there was no guide and the old posts were still in place.

The idea is that entries in the guide will give visitors an idea of the salient natural features at any given post. Then if they wish for more information they can search on

the topic on the Society's website:  
<http://www.wagnerfen.ca/>

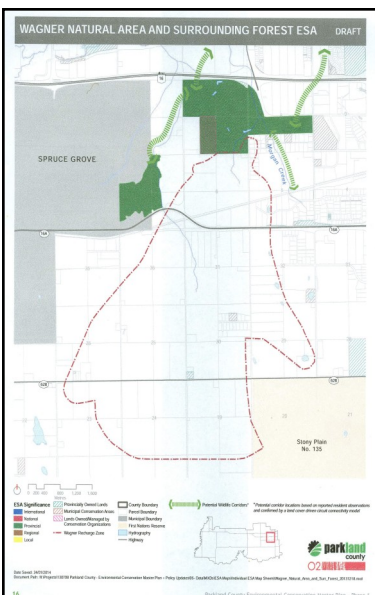


The disappearance of snow and leafless woody vegetation revealed an unusually heavy amount of browse damage to Wagner's trees and shrubs by deer and moose this spring. This occurred not just along the "dogwood corridor" in the southern part of the Marl Pond Trail, but elsewhere along the Trail, including near the entrance, and was noticeable on willows and young poplars as well as red-osier dogwood. In the latter the clipped off branches in some places were so numerous that the number of buds left to produce leaves was severely compromised, possibly putting the shrubs on a pathway to decline. This also raises the question as to whether our ungulate populations have become too high for the confined space of the Natural Area. At the same time it should be borne in mind that animals use the same trails as humans, and therefore damage is likely to be more concentrated, and also more visible to human eyes, along trails.  
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## Parkland County's Environmental Conservation Plan

On June 10, Parkland County Council accepted as information its 2014 Environmental Conservation Master Plan – an update of the 2004 plan – a phase I, technical, non-statutory report that provides background information to inform the development of other County plans. Most immediately this will be The Community Sustainability and Development Plan, which should be ready for public review at an open house in the fall.

The report can be downloaded by Googling "Parkland County Environmental Conservation Plan." It is an excellent source of information on the geography, geomorphology and natural history of the County (despite some mistakes; it seems no report is able to get Latin names right!). It includes an inventory of the County's Environmentally Significant Areas, including Wagner under the heading Wagner Natural Area and Surrounding Forest ESAs. The section on Recommended Planning Strategies for Wagner is a must-read for anyone interested in its future, and provides fertile ground for debate. The document as a whole makes good background reading for anyone planning to intervene in the North Saskatchewan River Regional Plan deliberations.



## The Wagner Grapevine



### School Field Trip, April 30th

Group activities in Wagner began at the end of April this year, with first up a field trip by Kelly Laxdal's Grade 7 class from J.J. Bowlen Junior High School in Edmonton. It was a nice day and the kids enjoyed sampling Wagner's Marl Pond Trail as part of their unit on the boreal forest. Learning was leavened by the joys of splashing through the puddles along the trail. Wagner guides were Patsy Cotterill and Derek Johnson.

### Spring Clean-up of Wagner, May 10th

Pat Clayton, coordinator of the event, wrote the following: "I would like to thank you all for the tremendous job you did for Wagner on Saturday by cleaning up the winter's supply of litter and junk and general mess that we humans make with such abandon. At the last count there were 25 bags, plus cardboard and metal objects, awaiting pickup in the parking lot. There were other bags, and a tire, along the Approach Road which we also left for the County's maintenance crew to remove. Nor did you forget the interior of the site. The built facilities were also spring-cleaned and the trail was trimmed back. (Downed trees will have to await a chainsaw and the soft spots the expected load of gravel.) Altogether a great day and MANY THANKS TO ALL OF YOU for making it so. Hope to see you back in the fall when the Knights of Columbus usually join with us to supply manpower for [cleaning] long stretches of highway, and a barbecue." Volunteers were: Alice Hendry, Carole Dodd, Helen Omelchuk, Leo and Gloria Ulrich, Beth Jenkins, Patsy Cotterill, Dave Ealey, Colin Saunder, Lepa & Peter Ribich, Carolyn Vanderveen, Irl Miller, and of course Pat herself.

### May Count of Plant Species in Flower, May 25-28th

Due to the advancing age of participants and unsuccessful attempts to duck wet weather, this took place in four instalments this year. Shirley Coulson assisted count compiler Patsy Cotterill on May 27<sup>th</sup> and 28<sup>th</sup>. For an analysis of the count, see page 7.

A **May Count of Birds** was also conducted in Wagner, by our bird expert Dave Ealey. A report of this, as well as the Breeding Bird Survey, will feature in the fall newsletter.

### Volunteer Stewards' Spring Conference, May 30th

Irl Miller, Pat and Dick Clayton and Patsy Cotterill representing Wagner attended this all-day meeting at the J. Percy Page Centre in Edmonton. Parks' staff exchanged information with natural area stewards and stocked up the latter's supply of tea-shirts, jackets and other goodies! Twenty-three stewards attended the conference.

During the morning, Kevin Wirtanen, Manager, Learning and Stewardship for Parks, introduced the speakers. Steve Donelon, Executive Director, Parks Program Coordination, outlined some of the government's "wants" under the Plan for Parks: a Parks advisory committee, a science strategy involving post-secondary students and research, a focus on social science aspects to better understand how people relate to parks, and a public engagement framework. Donelon noted that it is unlikely new parks legislation will be introduced before at least 2016, although the government is moving forward with regulations. He reported that some \$81 million has been spent to date on rehabilitating trails and parks infrastructure and on remediation following last year's flooding.

Laura Graham, Senior Manager, Land Use and Dispositions, explained how the many competing uses for a single piece of land are balanced by government departments. Steward Guy Swinnerton reported on the afternoon session as follows: "Coral [Grove, Coordinator of Parks' Steward Program] briefly covered a few points and provided some handouts on the 2014 Edmonton Region Parks Survey, the 2014 Alberta Parks Volunteer Conference (September 19-21, Cold Lake) and a summary sheet of the 133 sites with volunteer stewards and their status as to OC or PNT. She also indicated that it would be useful if volunteer stewards kept a record of the number of hours they contributed. The breakout session involved three topics: What do volunteers want to learn about in the future in terms of topics/skills, etc; what do we need to effectively carry out our responsibilities at different sites; and issues with regards to program development?"

*Continued on page 3.*



Check us out at our website:  
[www.wagnerfen.ca](http://www.wagnerfen.ca)

or contact us at:  
[info@wagnerfen.ca](mailto:info@wagnerfen.ca)



### Wagner Natural Area Society 2014

26519 Highway 16, Spruce Grove, Alberta T7X 3L4

President: Irl Miller    Vice-President: Ben Rostron    Past President: Pat Clayton

Treasurer: Dave Ealey    Secretary: Beth Jenkins

Directors (besides executive): David Fielder Alice Hendry Jasper Keizer

Other duties: Pat Clayton (Archivist), Patsy Cotterill (Newsletter Editor),

Carole Dodd (Webmaster), Jasper Keizer (Fire Marshall), Derek Johnson (Science Advisor)



## The Wagner Grapevine (continued)



### “Bugs and Botany” Field Trip, June 8th

Fortunately the day was just what the butterflies ordered when bug expert Natasha Page, ably assisted by Colleen Raymond, bug study group coordinator of the Edmonton Nature Club, led this field trip for 10 appreciative members of the Edmonton Outdoors Club. Patsy Cotterill of Wagner provided some “botany” assistance. Natasha was once a summer student at Wagner and made a masterful photographic collection of dragonflies. Obviously she has lost none of her early-acquired expertise in capturing bugs and knowing how to handle them for their own safety! For a list of fauna encountered, see Natural History Notes on page 4.



### Land Use Framework Open House, June 11th

Pat Clayton attended the morning workshop session of a North Saskatchewan Regional Plan Open House held in St. Albert on June 11th. She reported that all comments made by participants were recorded and will be transcribed and made public by the government team at the Open House and the consulting company, Stantec. Pat observed: “To me it was unusual in that all the tables held environmental views and were strongly in favour of more conservation, less emphasis on the economic drivers and a definite desire to see Alberta green and responsible for our future well being. “ She notes however that all industries with an interest in the region will also have their say. Patsy Cotterill attended the afternoon session and conveyed her two pet interests: that planning allows for the retention of natural corri-

dors for connectivity, and that appropriate surrounding land uses safeguard existing protected areas.

Note that everyone can fill in the online workbook and register their opinions (by the end of July). Go to <https://landuse.alberta.ca/RegionalPlans/NorthSaskatchewanRegion/Pages/default.aspx> and scroll down to find a profile of the region and a workbook.

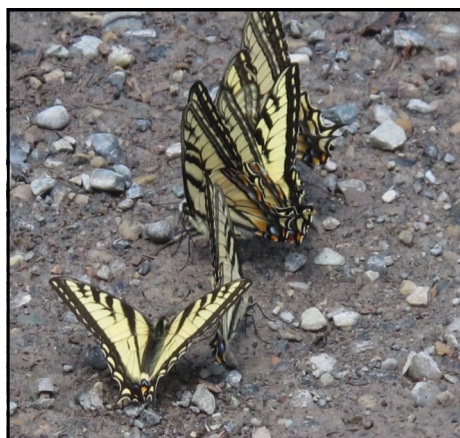
### Annual Father’s Day Orchid Walk, June 15th

Fair weather also shone on our annual open day for orchids, bringing approximately 135 people into Wagner both for guided and individual hikes. (By mid-morning the parking lot held 22 cars!) Yellow lady’s-slippers and pale coral-roots were slightly past their best but plentiful, and other showy flowers included saline shooting-stars, bog violets, common butterwort, Labrador tea and one brave round-leaved orchid! Tour leaders were David Fielder, Patsy Cotterill, Pat Clayton, Irl Miller and Dave Ealey.

### Scientific Activities

On June 5th and 6th two groups from ATCO Electric ecosite survey teams (related to powerline sitings) brushed up their plant identification skills and did some plot characterization training in Wagner. Derek Johnson accompanied the first group and Patsy Cotterill the second.

Bottom right: Red Banded Polypore, *Fomitopsis pini-cola*, decomposing a dead spruce. Near Jones’ Pond, Wagner Natural Area, 27 May, 2014.



Left: Canadian Tiger Swallow-tails puddling. (Waterton Lakes National Park, June 23, 2014.)

Photos: P. Cotterill



## Natural History Notes



Photo: the Smeding family

### Sora on the Rail!

The Smeding family of Osborne Acres received a surprise visitor to their yard in early June, a Sora Rail. They rescued it from their cat, and photographed it before releasing it back to the wild. Soras are a vocal but elusive bird, normally glimpsed slipping in and out of cattails and bulrushes in a marsh. This one, however, did not seem to mind having its picture taken. As the Smedings' property backs onto Wagner, the assumption is that the bird had strayed out of the Natural Area.

### Osborne Acres Wildlife Inventory

Carolyn Vanderveen was instrumental in organizing a survey of "Wildlife in Your Yard" by Osborne Acres residents this spring, getting them to record observations of mammals, birds and amphibians that frequent the acreages. The idea is to show how Osborne Acres provides important habitat and serves as a wildlife corridor.

### The Bugs of "Bugs and Botany," June 8th

See page 3 for more information on the field trip. The following lepidopterans were seen on the wing: common alpine, silvery blue, spring azure, Canadian tiger swallowtail, white, dreamy duskywing, Hobomak skipper, fritillaries, small moths. Other arthropods seen and examined included bumble bees, crab spider, hover fly, horse fly, beetles congregating on dandelions, bluets (damselflies) and four-spotted skimmers (robust dragonflies with sticky legs for catching prey). Caddisfly larvae also came under scrutiny. Local expert John Acorn was carrying out a butterfly count in Wagner at the same time. It will be interesting to see how his results compare with those of the field trip!

#### Editor's Note:

The fall issue of this newsletter will be my last as editor. Unless someone comes forward to replace me, efforts in the future will be directed to putting similar information on the website.



Photos : David Fielder



Top: Pale Coralroot, *Corallorhiza trifida* (magnified inflorescence). Below: Spotted Coralroot, *C. maculata*. Coralroot orchids are saprophytes (although pale coralroot has some chlorophyll and can make some of its carbohydrates by photosynthesis). They rely on fungi in their flat, white, coral-like roots to obtain nutrients from dead or decomposing organic matter in soil. Technically, because they are not self-feeding (autotrophs) and parasitize the fungi that provide their nutrients, they are known as myco-heterotrophs. These species have done well in Wagner this year.



## Tragedy in Our National Parks? Part 4 and Conclusion

By W.A. (Bill) Fuller

Permission to reprint Dr. Fuller's presentation was granted by the Canadian Parks and Wilderness Society.

*A recapitulation:*

*In spring 1975 Prof. William (Bill) A. Fuller gave a presentation to several audiences in different parts of the country as a contribution to The Distinguished Lecture Series sponsored by the National and Provincial Parks Association and Parks Canada. In it he discusses problems being faced by our parks, including intrinsic long-term threats to them from their users. He refers to Garrett Hardin's model of the tragedy of the commons, which holds that amenities held in common such as land, parks and air are headed for ruin because immediate personal gain accrues to users if they treat such amenities irresponsibly. Nor can ethical users acting alone reverse this trend. Given that overuse is a problem and the ability to create new national parks is limited, he recommends that the public accept limits to their freedom of use. In this fourth and final part he discusses possible solutions.*

"There are several steps that we can take. First, let us recognize that the most valuable parts of our parks are the wilderness areas. Wilderness is a resource that is for all practical purposes irreplaceable and non-renewable. It also becomes scarcer with each passing year, so that even if it was both desirable and economically possible to do so, we could not hope to keep up with increasing demand by merely increasing the supply. Clearly, the only solution is to limit demand by putting restrictions on access when that becomes necessary. In order to accomplish this in a responsible fashion we need to know more about visitor carrying capacity so I would urge the National and Provincial Parks Association of Canada [now CPAWS – ed.] to press Parks Canada to get on with the necessary studies – especially for wilderness zones. I also urge the Association not only to accept, but to demand, restrictions on access should studies reveal

the necessity for them. What I am suggesting, of course, is an externally imposed control on a system that is in danger of self-destruction through positive feedback.

I would also urge Parks Canada to consider seriously whether "visitor-days" is any longer a meaningful statistic in terms of impending tragedy rather than as an indicator of success. It seems to me that it is essentially an economic index in that every visitor carries with himself both a monetary cost and a monetary gain. I argue, with J.S. Rowe, that economics must be subsumed with ethnologies, which is in turn a part of ecologies. We should be managing our parks in such a way as to maximize visitor satisfaction (ethnologies). In this sense, rather than in a mere head count, we can truly say "Parks are for the People." But overriding everything must be the health of the land community (ecologies). I doubt that we have sufficient information at the moment to devise an appropriate measure of either parameter, and I hope we will devote some of our resources to the necessary background research. To my knowledge most of the ecological work that has been done in parks has dealt with one or a few species. It seems to me that it is time to place more emphasis now on community relations for which new and powerful ecological concepts have recently become available. The bio-physical study of Western parks that is just being launched may be a step in the right direction.

With respect to the study of visitor satisfaction, I can only report, somewhat sadly, that a graduate student working with me on this very subject, though supported by a Parks Canada Scholarship, was refused permission to work in National Parks. Finally, in an early part of this talk I suggested that positive feedback is to be avoided in resource management. There is one field, however, in which positive feedback is to be encouraged and praised. Knowledge feeds on previous knowledge, which leads to progress in intellectual pursuits. Mankind today is in desperate need of re-establishing some intimate and meaningful contact with his environment, which can serve as the basis for an environmental

ethic. Parks can help us to re-discover, either for ourselves or through the intermediary of an expanded and more philosophically-oriented interpretation program, our place in Nature's scheme of things. They can help us to expand the borders of our ethical community beyond the narrow confines of our fellow men to the whole planet on which we live. If they can do that, they will serve not only as places for recreation and interpretation, but also as the light at the end of the tunnel of environmental darkness in which Man now finds himself. An important part of my title is the question mark at the end. The essence of tragedy is inevitability. People, operating within a recognized set of rules, get caught up in a web of events, and are unable to prevent dire consequences from ensuing. It seems to me that if we continue to operate our National Parks under the rules of a growth-oriented, traditional, economic system we can confidently predict their ultimate ruin. In Canada, as opposed to many other countries, time is still on our side. The question is still open – can we use the time that still remains for us to change the rules and thus avoid the tragedy?

### Notes and References

1. This paper draws heavily on ideas first set down by Garrett Hardin in an essay entitled, "the Tragedy of the Commons" which appeared in *Science*, Vol. 162, pages 1243-1248, December 13, 1968. Prof. Hardin expanded his original essay in a book, *Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle*, published by Viking Press, New York, 1972.
2. A wealth of information about the world's National Parks is to be found in the proceedings of the Second World Conference on national Parks (IUCN, Morges, Switzerland, 1974). Dr. Clawson's paper is in that volume.
3. J.S. Rowe's ideas\* are developed in a report (with E.A. Johnson) "Fire in the Wintering Ground of the Beverly Caribou Herd," Canadian Wildlife Service, external report No. 23, 1973.

*Continued on page 6.*



### Tragedy in Our National Parks? Part 4 and Conclusion (continued)

### Vegetation Suffers Winter Onslaught (continued from page one)

4. I express thanks to my wife for reading and criticizing several drafts of this paper. Also to several graduate students with whom discussions, over the years, helped to sharpen and focus my own thinking.

The concept of an environmental ethic is fully developed in Stan Rowe's 1990 seminal book, *Home Place: Essays in Ecology*.

Editor's note:

The issues Dr. Fuller speaks of are relevant today: loss of wilderness, carrying capacity issues, nature-deficit disorder, promotion of economic values over ecological ones in our parks. They seem particularly so in light of some of the most recent developments in our parks: commercialism and resort to private enterprise in our national parks, increased pandering to visitor needs (e.g., enlargement of campgrounds to accommodate RVs) in provincial parks, and in municipal parks also, such as in Edmonton's river valley, increased expenditure on infrastructure for people rather than on research to underpin the integrity of the parks' ecosystems. It does not appear that much progress has been made in 40 years, despite the wisdom of visionaries such as Dr. Fuller.

Kevin Van Tighem, another ardent advocate for national parks and long-time employee of Parks Canada, wrote in the June issue of *Alberta Views*: "Canadians count on Parks Canada to regulate tourism for the benefit of nature and to maintain public access. Historically the agency did that well. Between budget cuts and the mandate to raise funds for tourism, however, it may be falling captive to industry. If approving a resort in caribou habitat will bring in more money, a principled "no" may no longer be an option."



Observations of damage or lack thereof from some of our permanent plots will help shed some light on the health of vegetation that receives negligible human exposure.

Some young willows planted last season in the willow carr near the forested entrance to the Trail almost universally failed to show this spring. Whether they failed to take root or were eaten is not known. Certainly the balsam poplar saplings planted in the Succession Field last summer fell victim to resident ungulates. Ungulate damage to bark also included deer rubbing against river alder trees where the Trail emerges from the forest into the Succession Field.

Besides ungulates, porcupine damage to bark on two or three large tamarack trees about mid trail was especially noticeable. Snowshoe hare populations appear to be relatively high, given the number of low-lying branches that were stripped of their bark.

Of interest, and possible concern, is the amount of willow morbidity caused by the larvae of a weevil called the poplar and willow borer (*Cryptorhynchus lapathi*). The grub eats into the phloem and wood of stems that are of suitable size, causing them to break and fall over near the base. Willows are particularly susceptible because of their multiple slender stems. One unusual willow, *Salix pseudomyrsinites*, growing close to the entrance has been completely killed by the depredations of this insect. Again, damage appears to occur in willows close to trails, but whether this is an artifact of observation, or whether the weevil, which apparently is a poor flyer, uses humans as vectors, is an open question. One thing is becoming evident: that our efforts to plant individual trees and shrubs are not necessarily the most efficient approach to achieving regeneration.



Below: Recent porcupine damage to tamarack. Marl Pond Trail, 22 April 2014.



Left: Breakage and prostration of willow stems due to poplar and willow borer damage. 10 May 2014. Above: damage to river alder, probably from deer rubbing. 25 May 2014. Wagner Marl Pond Trail.

Photos: P. Cotterill



**May Count of Plant Species in Flower in Wagner (May 25-28, 2014)**

by Patsy Cotterill

The consensus was that spring came late this year. Theoretically, this need not necessarily mean a low number of species recorded in flower, as the earlier flowering species, normally finished by late May, may still be in flower to balance those that have not yet opened. In fact, however, 2014's count did translate into an overall low total, of 51 species, which compares unfavourably to the 67 of 2013. It equals that for 2009, the second lowest count in the last six years.

Many species remain stable in flowering status over the years, either having finished flowering entirely by the last full weekend in May, for example, Canada buffalo-berry and the early-flowering willows, or remaining resolutely in bud or vegetative condition. For other species though, one can see fine gradations in phenology from year to year according to preceding weather and ground conditions. Any species population that rates a score from 4 (beginning flowering) to 8 (flowers fading) is considered to be countable, but observers can also note whether the population rates a 5 (25% in bloom), 6 (50% in bloom), 7 (full bloom), or an 8 (fading). Given that the observer is rating whole populations of a species for a given site not individual plants, these estimates can necessarily become very subjective, especially as populations that are in exposed versus shaded situations can vary greatly in their developmental stage.

Many sedges flower early but in others their status can vary at the end of May. Peck's sedge (*Carex peckii*), common in Wagner's east-side woods, just scraped in this year with some stigmas in the female flowers still receptive, as did prairie sedge (*C. prairea*), although in this case most flowers were in bud in the spikes and only a few stigmas were emerging as little white curls. (Sedges require special care in assessment because their stigmas and stamens mature at different times within the same plant.)

A good plant to use for discriminating changes in flowering status from year to year is the very common star-flowered Solomon's-seal (*Maianthemum stellatum*). Last year it was recorded as being in 25% bloom in Wagner whereas this year only one or two plants had flowers showing ripe stamens; it was evidently mostly in bud or vegetative. Its congener, three-leaved Solomon's-seal (*M. trifolium*) was recorded as being 25% in flower last year, but was still in bud this year. Wild lily-of-the-valley (*M. canadense* var. *interius*) almost never gets beyond the bud stage for the May Count, and this year was no exception; in fact it wasn't fully in flower until about mid-June.

Heart-leaved twayblade (*Listera cordata*) made the count with one or two plants showing open flowers on the raceme, but most were in bud; this is in comparison to a 50% bloom last year, a striking difference. Yellow lady's-slipper (*Cypripedium parviflorum* var. *pubescens*) is always watched anxiously because of the upcoming public orchid

walk. It was only in bud by May Count but came on quickly thereafter, and populations were slightly past their peak by the time of the Walk on June 15th.

Blunt-leaved sandwort (*Moehringia lateriflora*), a member of the Caryophyllaceae, a family not well represented in Wagner, shows variable flowering according to the type of spring season. In 2011, in which 63 species were recorded in flower in Wagner, it was rated as being 50% in bloom; in 2013 it had just started to flower, and this year any plants seen were only in bud. Its peak bloom period is generally the first half of June.

A good group to use as indicators of seasonal variation in phenology is the gooseberries/currants (*Ribes* species). Swamp currant (*Ribes triste*) is one of the earliest currants to flower in mixedwoods, and if you look carefully at the drooping clusters of pink flowers you will see that most of the stamens have faded by late May. Other species are less predictable: northern black currant (*R. hudsonianum*) dropped from full bloom in the 2013 count to just beginning to flower in 2014. Bristly black currant (*R. lacustre*) was only in bud compared to full bloom last year, while northern gooseberry (*R. oxycanthoides*) went from the past-it category last year to only 25% bloom this year.

Violets are another interesting group. Kidney-leaved violet (*Viola renifolia*) was on time, in full flower like last year, and noticeably abundant in its wooded habitats. Bog violet (*V. nephrophylla*) was about 25% in flower, one stage behind last year's estimate, but would not come into its own until well into June. Western Canada violet (*V. canadensis*), on Alice Hendry's Osborne Acres property, was just beginning to flower compared with 50% bloom last year. Unfortunately, despite much clambering about the northeast woods in pouring rain, Shirley Coulson and I did not find great-spurred violet (*V. selkirkii*). This usually blooms around mid-May. Some residual flowers by the end of May in the Fath property suggest that we probably missed its locations in Wagner, although this needs to be checked with a GPS.

One good thing about the May Count is that for all its lack of scientific precision it does compel observers to cover the same routes every year, which is an excellent recipe for noticing changes in plant population status. Although our Northern valerian (*Valeriana dioica*), essentially a foothills species, was only in bud along the Marl Pond Trail at count time, a quick check revealed that its populations had expanded gratifyingly! While tramping about in the east fens I noted that our population of white flat-topped Aster (*Doellingeria umbellata* var. *pubens*) was still extant, but unfortunately in the Villeneuve extension I could find no trace of spotted Joe-Pye weed (*Eutrochium maculatum*). (Both these are summer-flowering species.)





## Wildflowers of Wagner No. 39

### *Primula incana* M.E. Jones

#### Family Primulaceae

Mealy Primrose, *Primula incana*, is by far the commonest of the four *Primula* species that occur in Alberta. It occurs on peaty ground or shores in which there is calcareous groundwater influence, and is found across the central and northern parts of the province. It was once of sparse but reliable appearance in Wagner Natural Area but has scarcely been seen in recent years, perhaps due to a lack of disturbance. It occurs in relatively high numbers for example in moist peaty meadows after coniferous trees have been cleared and the area is re-vegetating with willows.

A slender perennial, each plant consists of a leafless flower stalk rising 10 to 40 cm high from a rosette of basal leaves and topped by flat cluster (umbel) of about a dozen short-stalked lavender flowers. The leaves are long-obovate to oblanceolate with rounded ends, 3-5 cm or more long, very shallowly-toothed, and characteristically green on top but mealy with a white-grainy covering beneath. The veins are prominent beneath this white meal. Because of the mealiness the plant is described as being farinose (flour-like).

The base of the flower cluster is surrounded by an involucre of pointed green bracts, also with a mealy covering, each about 1 cm long and with a swollen knob-like base. Each flower is enclosed by a ridged, tubular green calyx, split into five lobes at the top, which is also very white-mealy on the outside. The corolla is also tubular, matching the calyx tube in length, but at the top it expands into five spreading lobes, each of which is notched at the tip. Inside the corolla the tube is yellow and somewhat transversely furrowed or rugose, which likely has significance for pollinators. Five yellow anthers are inserted on the tube walls slightly below the green style with its knob-like stigma. The ovary is superior, that is, situated above the insertion of the flower parts on the receptacle. It develops into an ellipsoid capsule that splits open along five sutures to release many small, angular, reticulate seeds.

Mealy Primrose's similarity to other *Primula* species, including cultivated ones, is obvious, but can you see any resemblance to Wagner's much more common member of the Primrose family, saline shooting-star (*Dodecatheon pulchellum*)?

### Mealy Primrose

#### Primrose Family



Photos: P. Cotterill

