

Browsing the Boreal or Loitering in Lakeland: Botany Alberta #7 Goes to Lac La Biche

by Patsy Cotterill

Perhaps it's the great expanse of lake, the wide sweep of its open shores, or just the brilliance of the light reflected off the water on a sunny day that gives Lac La Biche its feel of a seaside resort. Certainly there was an atmosphere of holiday expectation among the 45 or so people gathered at the old Mission on the fine morning of Saturday, June 19th, 2004. They had come to take part in Botany AB number 7, converging on this small promontory on the west side of the lake a few kilometres from the town. They came from both near and far afield, from a few blocks down the road, from Newfoundland and Vancouver, from Cold Lake and Canmore, from St. Paul and Red Deer, from Vermilion and Edmonton. Lead organizers of this year's ANPC field trip extravaganza were Tom Maccagno, a former mayor of Lac La Biche (the town) and long-time aficionado and advocate of the area's natural beauties, and Parks' staff Ted Johnson and Jennifer Okrainec, also passionate about their region. The Lac La Biche Birding Society had also volunteered their input. Musing for months over an ambitious smorgasbord of field trips and running it past ANPC mem-

bers for feedback and approval, the organizing committee had finally settled on a menu that could be realistically catered to in the short space of a weekend. On offer were four outings, to be repeated on the Sunday, so that participants could choose at least two field trips. After a day in the outdoors everyone was to return to the Mission for a social evening on the Saturday, ready to report on the day's events (a clever idea this, guaranteed to sharpen our observation skills and introduce a bit of competition into the proceedings-for who can resist a challenge to make the best story or compile the longest list?).



Northern twayblade at Garner Lake Fen
Photo: P. Cotterill

Elinor Lake

I chose to join the large group accompanying leader Ted Johnson to Elinor Lake, some 25 kilometres or so southeast of Lac La Biche (LLB) town in the province's Lakeland region. We parked at a small resort on the southeast side of the lake and took a trail that extends northwards along the shore for several kilometres. It led us through a variety of habitats common in the boreal forest; although the canopy was predominantly of aspen, subtle variations in vegetation understory occurred in tandem with changes in topography and hydrology. We went on to sample the flora of wet sandy lake-

shore, creekside riparian, spring-wet and dry ravine slopes, meadow-forest edge and black spruce-tamarack bog having both dry and wet sections. The scenic and botanical highlight of the hike was undoubtedly the large colony of ostrich fern (*Matteuccia struthiopteris*) luxuriating in a shady ravine seep. Along the lakeshore were a number of young birch trees to which I applied my quick field test (hairs in the vein axils on the leaf undersides present = paper birch (*Betula papyr-*

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ifera), absent = Neolaskan birch (*B. neoalaskana*) and declared myself to be thoroughly confused (either both species were present or else this diagnostic characteristic is not particularly helpful!). Unfortunately, although Lakeland is known for its orchids, this was not to be our lucky day. Though Ted searched long and hard for spotted coral-root (*Corallorhiza maculata*) at a known location he turned up nothing; the best we could do was find a couple of pale coral-roots (*C. trifida*), past their flowering best, in the spruce bog. More heartening

region in general. The Oblate Mission was established in 1853, Tom told us, and was moved to its present site in 1855–56. It functioned as a hub for transportation (mainly by water, but also the first road cut in Alberta was one linking the Mission with the Red River Settlement in Manitoba), a staging area for supplies to missions (its moniker was *l'entrepôt du nord*), and as a centre for education and welfare helping the Métis and Aboriginals adapt from a nomadic to an agricultural lifestyle, given the extermination of the bison.



Ostrich fern at Elinor Lake Photo: P. Cotterill

were the cacophony of boreal chorus frogs and the plop-plopping of wood frogs as they leapt in and out of puddles at our approach. (Those jumping out of the water were the smarter ones, because those puddles lay in the deep ruts created by quads, seemingly the cottagers' favourite mode of transportation.) Our final tally of 129 (more or less) plant species proved to be very comparable to counts from the other excursions and is probably quite representative of the northeast boreal flora, with only a few spring ephemerals and late-appearing species missing. Surprisingly, two common species, veiny meadow rue (*Thalictrum venulosum*) and sanicle (*Sanicula marilandica*) were not recorded: did we just overlook them?

Back at the Mission, Tom kicked off the evening's social program with an introduction to the history of the Mission and the

Garner Lake Fen

Still struggling to imagine what life might have been like 150 years ago (so changed now in human and landscape terms but possibly not so much floristically?), we were called back to more familiar chronological territory to begin our accounts of the day.

Graham Griffiths reported on the trip to Garner Lake Fen, guided by Tom. Graham subsequently compiled a list of over 130 species found in the area they covered that day. Situated just less than 4 kilometres west of the crossroads in the village of Plamondon, the site gets its name from a small lake south of the road and a black spruce-tamarack treed fen that occupies the slope of a valley to the north. Flow from a large spring of mineral-rich (iron and calcium) water creates the appropriate peaty conditions downslope for great populations

of orchids of which northern twayblade (*Listera borealis*) and blunt-leaved bog orchid (*Platanthera obtusata*) were most in evidence on June 19 and 20th. The spring itself occupies a large opening upslope and is filled with large tussocks of prairie sedge (*Carex prairea*) interspersed with marsh marigold (*Caltha palustris*) and other wetland species. (Prairie sedge must surely be the most mis-named plant in the Canadian flora as, a wet-loving calcicole, it only occurs in fens and fen meadows, not prairies. Even its geographic distribution is not restricted to the prairie provinces.) Hillside springs are not uncommon, and Owl River Fen, another of our weekend venues, contains a spectacular example, also with prairie sedge. (Nevertheless, species composition seems to depend on water chemistry. Springs at the south end of Long Lake, not too far southwest of LLB, are vegetated exclusively by *Carex aquatilis*, for example.) In finalizing his list after the weekend Graham noted that the tamarack-prairie sedge community close to the road ranked as a rare (S1) community in the Alberta Natural Heritage Information Centre Preliminary Community Tracking List (May 2004). Graham further reported on an unusual form of hoary willow (*Salix candida*) with glabrous undersides to its leaves rather than the typical white indumentum, a variety or form that warrants further investigation. It should be noted that this site was officially created as a provincial natural area (Garner Orchid Fen Natural Area) by Order-in-Council on July 28, 2004 (see report in *Iris* 47, Fall 2004, p. 6). After years of advocacy Tom finally got his wish—congratulations to all concerned!

Owl River Fen

Elisabeth Beaubien reported next, complete with phenological details, timing of bud, flower and fruit being her area of research interest, on the major findings at Owl River Fen, a trip led by owner of the land and careful steward, Bert Arthur. Located some 20-odd kilometres north-northeast of LLB, but relatively close to the eastern shore of the lake, Owl River Fen boasts a wonderful tract of old-growth white spruce and black spruce-tamarack forest, as well as the spring already mentioned. It is the scene of what is probably one of the highest concentrations of white adder's-mouth (*Malaxis monophylla*) in Alberta: Ksenija Vujnovic and I could barely count them when we visited in the company of Bert and Tom on August 18, 2001. (I was

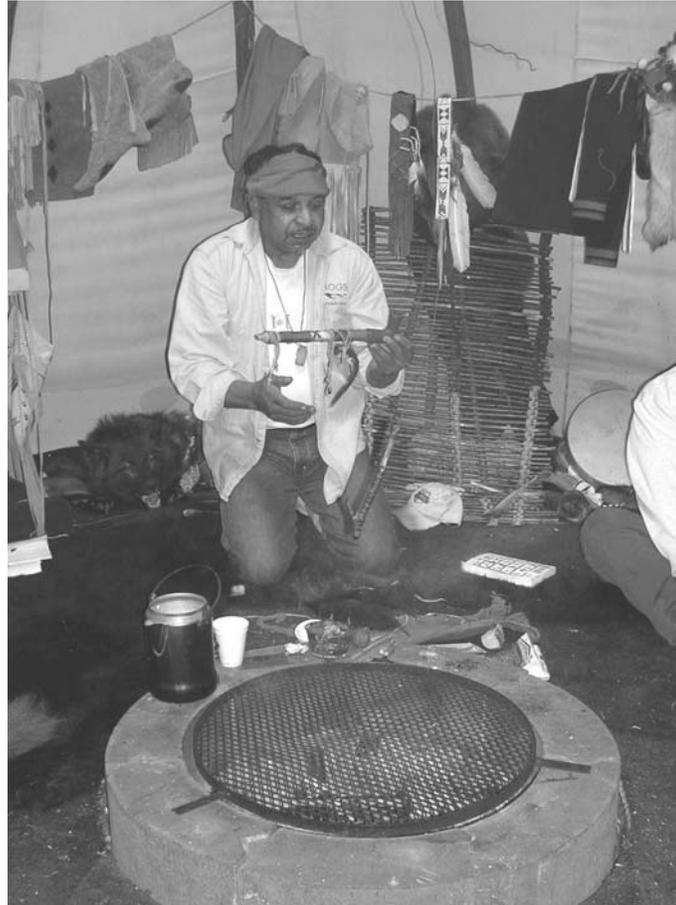
also intrigued then by what I thought was an unusual two-species community of tamarack and Sartwell's sedge (*Carex sartwellii*), forming a belt slightly upland of the lakeside fen.)

The final vascular plant species list for Owl River, when all reports were in after the weekend, and again compiled by Graham, was 127—very similar to Garner's. Terry Taylor, who recorded the prominent bryophytes, lichens and fungi of both Garner and Owl River, noted the presence of a *Puccinia* rust on alder-leaved buckthorn (*Rhamnus alnifolia*) at the latter site. (I wondered afterwards if rust could have been attacking this uncommon shrub—which is confined to the northeast and extreme southwest of the province—at Garner Fen also. It seemed less evident than when I had first visited years previously.) Elisabeth also related an enjoyable stop-over in Sir Winston Churchill Provincial Park on the way home, where they saw fat flower buds of twinflower (*Linnaea borealis*) and a hollow white with Labrador Tea (*Ledum groenlandicum*) blooms and big, fat, white ice-creams bought at the Park's campground store!

Jackson Lake

Jennifer Okrainec led her group on a 3.2 kilometre hike into Jackson Lake in Lakeland Provincial Park, encountering many of the same kinds of boreal habitats. With many birders in tow, however, a good deal of time was spent attempting to gain sightings of the Tennessee warblers and an elusive Connecticut warbler (the birds, like naughty children, were making themselves heard but not seen). Jennifer noted with regret some road mortality among the swallowtail butterflies that were flying in force during their drive. Our reports were well received by special guest Ray Danyluk, MLA for Lac La

Biche-St. Paul, who declared that his consciousness had thereby been raised, and who was given a *Botany AB 2004* T-shirt by Tom for his sentiments.



Elder Walter Quinn with his traditional pipe Photo: A. Dinwoodie

The Mission

Following some extensive gorging on refreshments (a real smorgasbord this time!) accompanied by crumbly conversation, a number of us eagerly joined a tour of the main Mission building. This included an in-depth look at the residential school premises, the chapel, and Church vestiture and accoutrements, and was conducted with great knowledge and evident pleasure by Lucie LeRouzic, executive assistant of the Lac La Biche Mission Historical Society.

(This Society has been largely responsible, in cooperation with the Alberta government, for the Mission's designation as a National Historic Site and a Provincial Historical Resource in 1990, and for its loving preservation and restoration.)

Nature, History, Culture

Sunday dawned a much cooler, blustery day, following a violent thunderstorm and a change in the weather the night before. (I had intended to watch a solstitial sunrise from my camp in Sir Winston Churchill but somehow I didn't have the right vantage point and hey, a cold dawn is no time to leave a warm sleeping bag!) By dint of some last-minute arrangements Tom had managed to add another option to Sunday's menu: a visit to Kak Ki Yaw Cultural Camp, some 10 kilometres east of LLB. Elisabeth and others attended and highly recommended this experience, with elder Walter Quinn sharing his knowledge of aboriginal culture in the appropriate setting, everything from sweat lodge and pipe ceremonies to tips on wilderness survival and ethnobotany. Visitors were sent packing on a delicious lunch of hot moose stew.

Organizers often get little in the way of formal thanks for these weekends, as participants scatter to the four winds after the trips. But I am sure we were all grateful to the

Lac La Biche contingent for giving us the experience of an unusually multidimensional weekend: natural, historical, cultural. It is encouraging to know that so many protected habitats exist in this part of the world, and equally to realize that many people are interested in keeping what is valuable from the past. Such dedication will ensure that the boreal forest continues to play its hugely significant role in our Canadian heritage. ❁

ANPC Native Plant and Seed Source List

The ANPC Native Plant and Seed Source List and Species-Supplier Inventory will be updated in 2005. If you have information regarding new native plant suppliers or changes to existing suppliers currently listed on the web site www.anpc.ab.ca, please contact June Flanagan at june.flanagan@uleth.ca

Information Required!

Due to recent interest in the status of sea buckthorn (*Hippophae rhamnoides*) Laurie Hamilton is compiling observation data on its presence in Alberta. If you have identified this plant species in Alberta, please send location, population and habitat information to laurie-hamilton@wildmail.com

The Roles of Fungi in the Boreal Forest

by Markus N. Thormann

Reprinted from *Spore Print*, (Edmonton Mycological Society newsletter), Sept. 20, 2004

Canada's boreal forest traverses our country in a broad band from the east to the northwest and covers approximately 315 million ha, which makes it one of the largest contiguous forests in the world. The boreal forest recycles water to the atmosphere, filters air and water, moderates the climate, provides habitat for wildlife, stabilizes soils, and forms a dominant feature of Canada's economy, culture, traditions, and history.

Fungi are an integral part of this landscape and perform a multitude of crucial functions. They are decomposers (saprobes), mycorrhizas, pathogens and parasites, lichen-formers, and food sources for humans and many animals. Taxonomically, there are four phyla (groups) of fungi. Chytridiomycetes are the oldest fungi and are comprised of approximately 800 mostly aquatic species. Many chytrid species are saprobes and pathogens. Zygomycetes are a small yet ecologically diverse group comprised of approximately 900 species. They are mostly terrestrial and form mycorrhizas with many herbaceous plants. They are also saprobes and often known as "sugar fungi". There are approximately 32,000 species of ascomycetes, which includes many saprobes, pathogens, and lichen-forming species. It is the largest group of fungi. Lastly, basidiomycetes are mainly saprobic, mycorrhizal with many woody plants, and parasitic in nature, and total approximately 22,000 species.

These fungi co-exist almost everywhere and are mainly involved in the decomposition of organic matter. This is accomplished via a suite of extracellular enzymes (synthesized internally but then excreted to attack organic matter) that allow them to degrade anything from simple molecules, such as sugars, to the most complex polymers, such as lignin, found in nature. On every walk through your favourite forest, you see tree logs, branches, and stumps at various stages of decay. They are decomposed by a myriad of fungi, including brown and white rot fungi, such as the showy turkey tail (*Trametes versicolor*), the red-belted conk (*Fomitopsis pinicola*), and the edible tooth fungus (*Hericium ramosum*). Brown rot, or cubic rot, fungi selectively degrade cellulose

in wood, leaving the lignin behind. Consequently, the decomposed wood is brownish and appears in cubic pieces. Conversely, white rot fungi selectively degrade the lignin and leave the cellulose behind. In this case, the wood appears whitish and stringy. These are but two examples of how organic matter is degraded by fungi, keeping in mind that all organic materials, such as wood, leaves, roots, and animal carcasses, are degraded by these organisms. Without them, organic matter would pile up in huge masses and life as we know it today would not be possible. This process not only degrades organic matter, it also liberates vital nutrients, which is required for growth by other plants.

It also liberates carbon in the form of sugars from the plant for growth, while the plant receives nutrients, water, and increased protection from other soil microbes from the mycorrhizal fungus in return. The two major types of mycorrhizal associations are ectomycorrhizas and arbuscular mycorrhizas. Basidiomycetes represent by far the largest group of fungi involved in mycorrhizal associations, being the dominant ectomycorrhizal fungi. Their fruiting bodies are abundant in forests every year and some of them are choice edibles (e.g., many boletes). Glomeromycota (a new phylum, formerly Zygomycetes) are the only group of fungi that form arbuscular mycorrhizal associations. These associations are by far the most



Fungus from the Boreal Forest Photo: Wally Affolder

Aside from saprobes, mycorrhizal fungi are performing very important functions in the boreal forest as well. These fungi and their roles were previously addressed in *Mycorrhizas—getting to the root of vascular plant diversity* (M.N. Thormann, *Spore Print*, August 2003). Briefly, the close association between plants and mycorrhizal fungi began over 460 million years ago and it is crucial for the establishment and health of most plants. Up to 95% of all land plants are mycorrhizal and both partners benefit in this association. The fungus primarily ob-

widespread of any, with nearly 90% of all land plants having their roots colonized by these fungi. There are also ericoid, arbutoid, monotropoid, orchid, and ectendomycorrhizas, but they tend to be less common. Without mycorrhizal fungi, plants may have had a hard time colonizing land millions of years ago and their success today depends on them.

Many fungi form lichens, a mutualistic symbiotic association between a fungus, the "mycobiont", and an alga or a bacterium, the "photobiont". Lichens are a case of

“mutual exploitation”, whereby the mycobiont provides shelter and raw nutrients for the photobiont and the photobiont provides synthesized food (via photosynthesis, just like plants) or nitrogen (via nitrogen-fixation) for the mycobiont. This mutual exploitation has resulted in the development of approximately 14,000 species of lichens worldwide, and they occur in almost every ecosystem and on every substrate. From a taxonomic perspective, the mycobionts are mostly ascomycetes and the photobionts are most often green algae (chlorophytes) or “blue green algae” (technically cyanobacteria). Over time, three basic growth forms have evolved. These are (a) foliose lichens with distinct upper and lower surfaces, often found growing on the ground and on tree trunks and branches, (b) pendant fruticose lichens, which have no discernable upper or lower surfaces, and are frequently found hanging off tree branches, and (c) crustose lichens, which are tightly pressed against their substrates, such as rocky surfaces and tree trunks and branches. Lichens perform crucial functions in the boreal forest, such as forming and stabilizing soils and providing food for many animals. In addition, lichens are sources of dyes and clothing for many native peoples, they have provided us with many chemicals, including many with medicinal values, and can be used as pollution indicators in areas of industrial developments.

Many fungi are also pathogenic and parasitic and are responsible for the death of many animals and plants. For example, the edible and often-sought honey mushroom, *Armillaria* spp., is the single largest pathogenic fungus of conifers and deciduous trees across Canada. Rusts and smuts are basidiomycetes that destroy the foliage and seeds of many plants, such as grasses, trees, and commercial cereals. Examples include rust fungi that attack poplars and many ornamental trees and numerous diseases caused by smuts, such as an edible corn smut disease caused by *Ustilago maydis* and the very destructive Karnal bunt of wheat caused by *Tilletia* spp. Other fungi cause heart rots, cankers, needle blights, and various other stem and branch diseases of commercial and ornamental trees and shrubs. Dutch elm disease, for example, is caused by the ascomycetes *Ophiostoma ulmi* and *Ophiostoma novo-ulmi*. These two fungi have led to the near obliteration of elms in central and eastern North America. Many fungal diseases can be managed to some degree through appropriate forest

management practices (tree rotations, stumping, removal of host plants, and planting of resistant tree and shrub species) or fungicides (mostly to protect ornamental trees and shrubs).

Lastly, many fungi are eaten by humans and animals (“mycophagy”), including ungulates, squirrels, and insects. Fungi have and will continue to be of great social and historical value to many people. In 2002, in B.C. alone, approximately 50 producers grew 52.5 million pounds of mushrooms, valued at \$74.8 million Dollars. This represented nearly 25% of all fungi grown and sold in Canada. Wild mushrooms are also collected in other regions of Canada and represent a significant source of income to many towns, which formerly depended on income solely from forestry and mining operations. Some choice edible mushrooms include the morel (*Morchella* spp.), the oyster mushroom (*Pleurotus ostreatus*), chanterelles (*Cantharellus* spp.), many boletes (*Boletus*, *Suillus*, and *Leccinum* spp.), puffballs (*Lycoperdon* and *Calvatia* spp.), and various tooth fungi (*Hericium* spp.). Keep in mind that there are countless others with purely culinary as well as largely unknown and untapped medicinal values. From a nutritional perspective, mushrooms are a good source of protein and an excellent source of fibre, vitamins, and some minerals.

In conclusion, fungi are a highly diverse group of organisms common in nearly all ecosystems. They are saprobes, mycorrhizas, pathogens and parasites, lichen formers, and food sources. Hence, as a group, they are one of the most important organisms on Earth. ❀



Puffballs Photo: A. Falk

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Puzzling Pairs

by Lorna Allen (text and photographs)

There seem to be a number of puzzling pairs in Alberta's list of plant species. You look at the plant, and you know that it is one or the other, but which? Some examples? Is it buckbrush (*Symphoricarpos occidentalis*) or snowberry (*Symphoricarpos albus*)? It looks like paper birch (*Betula papyrifera*), often also called white birch, or is it really Alaskan birch (*Betula neoalaskana*)?



Pricky rose—fruit and leaflets

I thought it might be fun to work through some of these puzzling pairs of plants that seem to be out there, starting with one real puzzler—roses. Are there others you are having trouble deciding on which is who? Let us know, and we'll do another one of these next *Iris*.

Now to the roses. We have three species in Alberta; prairie rose (*Rosa arkansana*), prickly rose (*Rosa acicularis*) and common

wild rose (*Rosa woodsii*). The prairie rose tends to be a low, unbranched shrub and pretty easily recognized. But telling the other two apart can be a challenge. Both are bushy, branched shrubs usually from 0.5 to 1.5 metres tall. Both have prickly stems, both have the fragrant pink wild rose flower. So, how can you tell them apart?

At this time of year, you will need to look at the stems. If the plant is densely covered with straight, slender prickles pretty much throughout, it is likely prickly rose. The stems of the common wild rose may be prickly only at the base, or more or less prickly throughout; but are armed with sets of thicker thorns at or just below the stem nodes.

My favourite character is the fruit—the lovely orange to red rose hip is roughly pear-shaped, with a distinct neck in prickly rose, but decidedly rounded in the common wild rose. But if there is no fruit, look at the leaves. Common wild rose tends to have more, smaller leaflets per leaf, and the base of the leaflet is wedge shaped, not rounded as in prickly rose. The flowers also offer some clues.

Below is a table of characters to help sort through this puzzling pair (information taken from *Flora*

of Alberta, supplemented with some facts from the *Illustrated Flora of British Columbia*. And if you are still unsure, take heart. Even the *Flora of Alberta* recognizes the challenge: "Hybridization between our species sometimes makes identification problematical." ❀



Common rose—fruit and leaflets



Pricky rose—thorns All photos this page: L. Allen

Character	Pricky rose (<i>Rosa acicularis</i>)	Common wild rose (<i>Rosa woodsii</i>)
Fruit	Pear-shaped, with a distinct neck	Rounded, without a distinct neck
Height	0.5 to 1.5 m, but can get up to 2m tall in the shade	0.5 to 1.5 m
Number of leaflets	3 to 7, commonly 5, rarely 9	5 to 7; sometimes 7 to 9
Size of leaflets	3 to 4 cm long (occasionally up to 5 cm long)	Generally less than 2.5 cm long
Shape of leaflet	Rounded base	Wedge-shaped base
Stems	Densely covered with straight, slender prickles. Node prickles may be present, but look no different from stem prickles.	May be prickly only at the base; but armed with thicker thorns at or just below stem nodes.
Flowers	Usually a single flower on a lateral branch with petals 2 to 3 cm long	Smaller, clustered flowers, petals 1.5 - 2 cm long.

References:

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 Moss, E.H. revised by J.G. Packer. 1992. *Flora of Alberta*. University of Toronto Press, Toronto, Ontario.

Alberta Weed Species

Oxeye daisy

by Mari Decker

This is a weed with a unique situation—it is often difficult to convince people to remove and destroy it because it is considered a “pretty daisy!” Though I once read an endearing article about the beauty it brings to native meadows in England, it doesn’t belong on this continent (though it’s now in every province in Canada, every state in the US and 38 other countries where it doesn’t belong), and is displacing native plants as it spreads. It was initially introduced from Europe during settlement as an addition to gardens and amongst grain seed.

Oxeye daisy (*Leucanthemum vulgare* Lam. [syn. *Chrysanthemum leucanthemum* L.]) is designated as a noxious weed by Alberta’s *Weed Control Act*, and so should be removed or controlled when it is found. Though it is shallow rooting, it can reduce yield in certain crops, and given the right conditions in a pasture, hay land, roadside or wetland, it can be an aggressive invader. In large areas, it can be killed by intensive cultivation, or with a combination of repeated mowing to eliminate seed production, and application of fertilizer to promote growth of other species. In small areas, plants can be successfully removed by digging, as long as care is taken to get the entire root. You will then need to watch for and eradicate seedlings, as there will still likely be seed in the soil.

If you are purchasing wildflower seed for your garden, make sure oxeye daisy is not listed in the contents (or any other non-native species!). As the seeds germinate, watch for these daisy seedlings. Shasta daisies are a closely related horticultural plant, which are usually taller with larger flower heads, and are safe to have in your garden, but the two species are difficult to distinguish. If Shasta daisy is also not listed on the seed packet, then daisy seedlings should be removed. If you have daisies already and are unsure of them, don’t give them a chance to set any more seed or spread their roots any further - pull them now, and educate your neighbours too. Oxeye daisy is also easy to confuse with scentless chamomile, which has dissected leaves and slightly smaller flowers. However, if you’ve got that one, pick it too, as it is also noxious in Alberta!



Oxeye daisy Photo: M. Decker

Alberta Native Species

Low whitlow-wort

by Mari Decker



Low whitlow-wort Photo: M. Decker

As a low-growing plant with no petals - this little plant may be overlooked. Look for it on dry, rocky hills in native prairie in late summer, and look close when you do find it - this plant is a miniature beauty! You might mistake it for moss phlox at first, but if the flowers are open, the plant will have a yellowish-green colour, due to the colouration of the inside of the sepals, which form little five-pointed stars. The leaves and sepals are sharp-tipped, with silvery bracts below the sepals, and silvery stipules at the base of each leaf. Each flower produces a small round fruit called a utricle, which contains just one seed. Low whitlow-wort has a limited distribution in Alberta, a common name that is neither pretty nor memorable, a cumbersome scientific name (*Paronychia sessiliflora* Nutt.), and it is the only species in its genus.

Whitlow is the English name for an inflammation of the finger or toenail, and this plant, with its white, scaly parts, was once supposed to cure it. *Paronychia* is the Greek name for this nail disease, derived from *para* (near) and *onyx* (nail). *Sessiliflora* means sessile flower, describing the direct attachment of the flowers to the main stem, without a stalk of their own. This plant was first described in 1818 by the famous naturalist, botanist, and ornithologist, Thomas Nuttall (1786–1859), who discovered it in North Dakota in 1810.

This plant is ranked as S3, or vulnerable, in Alberta, since it is limited to specific locations in the southern prairies and it is subject to disturbance pressures, such as by grazing. Although low whitlow-wort is not on the ANHIC Watch List, be kind to it when you see it! ❁



Wildflower Seed Mixes

Background Summary

by Pat McIsaac

Commercial wildflower seed mixes often contain invasive weeds and are poorly and inconsistently labeled. Often, this results in unsuspecting gardeners contributing to what may become serious weed infestations throughout Alberta. It is a problem long recognized by Alberta Native Plant Council.

Education has been a key focus of the work done first by ANPC's Horticulture and Reclamation Committee and now taken up by the Wildflower Seed Mixture Committee. A comprehensive notice on weeds in these seed mixes, outlining concerns and recommendations, was written and circulated to nurseries, garden centres, and home improvement chain stores throughout the province. Numerous letters of concern and recommendation have been written to provincial agencies, which have jurisdiction over weed plants through the *Alberta Weed Control Act*, and federal agencies, which have jurisdiction over seed mixes and their labelling through the Canadian Food Inspection Agency (CFIA).

Committee members have contacted other native plant groups in Canada and the northwestern United States to compare notes on this problem, find out how others may have dealt with it, and perhaps join together to lobby for regulations which will stem this source of invasive weed species.

Identification of the contents of particular seed mixes is a challenging task, and the Wildflower Seed Mix Committee has submitted samples to local testing labs in order to determine whether restricted, noxious, or nuisance weed seeds are present in the mixes. Data from organized analyses was needed to support assertions made to the CFIA. Laboratories in Alberta, Saskatchewan and Ottawa were not able to provide satisfactory seed identification results. Germinating and growing samples of the contents in typical wildflower seed mixes are another strategy being used to identify what is in fact contained

in the packets. These packets tend to be either unlabeled or list only common names of flowers.

Read *The Wildflower "Pot Garden"*, in this issue, for an account of growing experiments carried out during summer 2004. ❁

The "Pot Garden"

by Eileen Ford

Our request for people to grow wildflower seed packets met with a positive response from Myrna Pearman at the Ellis Bird Farm, near Joffre, AB. And what a great job she did!

Under the green thumb of Cynthia Pohl, head gardener at the Bird Farm, samples from 11 different packets were seeded into large clay pots supplied by Red Deer River Naturalists (RDRN). Each pot displayed a large laminated facsimile of the original seed packet. An eye-catching sign entitled

"Wildflowers?" was mounted over all to explain the project with the following text:

"Wildflower" seed mixes are becoming increasingly popular, both on the seed rack and through mail order catalogues. These packets are sold by seed companies eager to capitalize on new product lines and by various non-profit organizations as fund-raisers.

Unfortunately, many of these mixes contain unidentified seeds and most packets contain species that are not native to Alberta. Some even contain noxious weeds. Many packets mix annuals with biennials and perennials.

In order to assess some of these mixes, Ellis Bird Farm has undertaken a seed trial using various mixes that are readily available from local hardware stores, grocery stores and nurseries. While some packets have a list of the plant species included, others do not. We have seeded them outdoors, into clay pots, for observation. As the season progresses, we can see whether or not the variety of plants indicated on the

packet are present, and whether the packet contains noxious or invasive species.

Ellis Bird Farm and the Red Deer River Naturalists are working with the Alberta Native Plant Council to encourage accurate labeling of seed packets. Some of the information we would like to see on wildflower mixes includes:

- All species listed by both common and Latin name;
- An indication as to which species are native to Alberta, and to which natural region within Alberta they are naturally found (Grassland, Parkland, Boreal Forest, Foothills, Rocky Mountains);
- Germination requirements; and
- Expiry date.

This project has been funded by the Red Deer River Naturalists through the proceeds generated by the sale of their book *Nature-Scape Alberta: Creating and caring for wildlife habitat at home*.

The "Pot Garden" became an informative part of the guided tours that are conducted at Ellis Bird Farm through the summer months. It was used as an opportunity to educate the public regarding these seed packets.

What have we observed thus



Wildflowers? Photo: E. Ford

far? Most obvious, perhaps, is that not one pot showed any sign of a plant we could call “wild”, let alone “native”. There were signs of biennials, maybe perennials, emerging in a couple of cases, so Cynthia has buried the pots for the winter. Additional species may become evident in 2005. Blatantly obvious was the fact that we are not getting the variety of species that the packets advertise, either in words or with pictures. There was also evidence of noxious species in some of the mixes.

One mix, for example, advertised “50,000 Wildflowers”. These seeds came packaged in a very appealing tube that was called a “wildflower stick”. Common names of 16 flowers were listed as occurring in the seed mix, with the instructions: “In colder climates, plant in early spring after the frosts.” The results from the sample grown consisted of one black-eyed Susan among many California poppy plants.

No other species were observed.

Should anyone wish to comment on, or make suggestions for our Wildflower Mix Project, please let’s hear from you. Meanwhile, we’ll be encouraging the Inglewood Bird Sanctuary in Calgary and the John Janzen Nature Centre in Edmonton to adopt our “Pot Garden” idea and use it for educating the public. Also, a couple of Olds College students, under the leadership of Dr. Carol Bubar, will be spending their winter identifying the individual seeds in wildflower seed packets, which we have selected for them.

Stay tuned for more results once the next phase of this project is completed!

Thanks to Ellis Bird Farm for taking on this project and for their desire to continue it. Special thanks to Cynthia Pohl for her enthusiastic approach to the project; and thanks to Red Deer River Naturalists for their support. ☘



“50,000 Wildflowers” seed mix results Photo: E. Ford



Iris

is published three times a year by ANPC. The Council aims to increase knowledge of Alberta’s wild flora and to preserve this diverse resource for the enjoyment of present and future generations.

If you have an announcement, article or other item, you are invited to submit it to the editor for publication. Items concerning native plants will be given highest priority.

The editors reserve the right to edit submissions, but will review changes with the authors whenever possible. Disputes will be resolved in favor of the Audience.

Copyright remains with the authors except where noted. Permission to reprint is generally granted, but please contact the editors for details.

Submission deadlines for upcoming issues:

Spring	May 15, 2005
Fall	Sept 15, 2005
Winter	January 15, 2006

A subscription to *Iris* is included with membership in the ANPC. To join, contact the Secretary, or check our web page, www.anpc.ab.ca

SUPPORT THE CALGARY HERBARIUM!

The Dean of the Faculty of Science at the University of Calgary may be considering closing the herbarium. Botanists without access to the herbarium would be required to maintain private herbaria or travel to Edmonton to use the U of A herbarium.

Letters from both individuals and organizations are needed, expressing your concern about the need to have a functioning herbarium in Calgary. Please send letters supporting the U of C herbarium to:

Dr. Mike Boorman
 Dean, Faculty of Science
 University of Calgary
 2500 University Dr. N.W.
 T2N 1N4
 mboorman@ucalgary.ca

Adopt-a-Plant

A new conservation initiative for Alberta's rare plants and lichens

Would you like to get involved in the conservation of rare plants in Alberta?

Consider volunteering with the Adopt-a-Plant program! This exciting new initiative offers an exceptional opportunity to learn about rare plants in Alberta and at the same time contribute to the understanding of their ecology and distribution in the province. Adopt-a-Plant participants will adopt a provincially rare plant of their choice. Experts will train them how to identify it, how to find it and, once found, how to gather data about its location and environment that will be useful in its conservation. All the data submitted will be housed in the conservation database of the Alberta Natural Heritage Information Centre, and be used to help understand where the species lives, and aid in efforts to protect the plant in the province.

Adopt-a-Plant will be developed if there is a sufficient interest amongst botanists, both amateur and professional, in the province. We are currently looking for volunteers to help generate that interest and help build the programme. For more information on assisting with building the programme, or to become a field participant, contact:

René Belland (Devonian Botanic Garden).
E-mail: rene.belland@ualberta.ca, (780) 987-3054 (Edmonton)

Dana Bush (Alberta Native Plant Council).
E-mail: dbush@axys.net, (403) 750-7660 (Calgary)

Ed Karpuk (Alberta Native Plant Council).
E-mail: Ed.Karpuk@gov.ab.ca or phone (403) 340-7114 (work) and (403) 347-5723 (home) (Red Deer)

Become an active member of a botanical community devoted to conserving the native plants of Alberta! Your involvement can make a difference. If you don't do it today, it could be gone tomorrow!

Adopt-a-Plant is a co-operative programme between the Alberta Natural Heritage Information Centre, Devonian Botanic Garden (University of Alberta), Alberta Native Plant Council and Alberta Fish & Wildlife Species at Risk Program. ❀



Anemone
patens

E. Gordon

Welcome spring with a fieldtrip to Nisku Prairie Reserve!

See the prairie crocus in bloom!

In an agreement with Leduc County, the ANPC is acting as an environmental steward of the Nisku Native Prairie Reserve. This reserve was established as it represents a remnant of plains rough fescue grassland.

Date: Sunday April 24, 2005 (Meet at 2pm at east gate)

Duration: 2 hours

Call trip leader for directions and parking instructions.

(Nisku Prairie is just east of Highway 2 and Nisku Industrial Park)

Contact/Leader: Birgit Friedenstab by e-mail birgitf@telus.net or by phone (evenings) 440-0971 ❀

Endangered Species Conservation Committee (ESCC) update

by C. Dana Bush

Alberta Species Listed under Canada's Species At Risk Act (SARA)

No change to listing.

Species Update under Alberta's Wildlife Act

The update report for western spiderwort (*Tradescantia occidentalis*) is about to be printed and will be re-evaluated in the spring.

The recovery team should be established soon for sand verbena (*Tripterocalyx micranthus*). Steven Deugau is in the process of creating and completing an inventory proposal and budget to submit to the Habitat Stewardship Program.

The largest known population of tiny cryptanthe (*Cryptantha minima*) occurs on the river flats in Medicine Hat where a subdivision is planned. This population was identified last summer, well after planning and engineering for a new subdivision was complete. This puts the City in a tight spot. The City of Medicine Hat is working with Alberta Fish and Wildlife to determine the best action to preserve at least part of the population. ❀

ANPC Small Grant Program

The ANPC Small Grant Program which provides funds for research, study and appreciation of native plants supporting plant conservation is now in place. The application form can be obtained through ANPC webpage:

(www.anpc.ab.ca/contact.html)

or by e-mail: info@anpc.ab.ca

or by writing to ANPC at the following address:

Alberta Native Plant Council
Box 52099, Garneau Postal Outlet
Edmonton, AB
T6G 2T5

ANPC Objectives

The **Alberta Native Plant Council** strives to:

- Promote knowledge of Alberta's native plants.
- Conserve Alberta's native plant species and their habitats.
- Preserve plant species and habitat for the enjoyment of present and future generations.

The Council's specific objectives are:

- To educate individuals, industry, and government about native plants.
- To promote awareness of native plant issues through a newsletter, an annual workshop, and in the media.
- To co-ordinate information and activities concerning Alberta's native plants.
 - To develop briefs or position papers for special projects; for example, biodiversity, forest vegetation management, wetlands, rare species or phenology.
 - To organize field trips, plant studies and May Species Counts.
 - To update lists of current research and conservation projects.
- To preserve natural habitats and plant communities.
 - To support legislation that protects native plants.
 - To take action to establish, preserve and manage protected areas.
 - To undertake Alberta projects jointly with like-minded groups.
- To encourage appropriate use of Alberta's native plants.
 - To produce information on the use of native plants in land reclamation.
 - To develop and distribute collection, salvage and management guidelines.
 - To update a list of native seed sources and suppliers for horticulture and reclamation.

INVASIVE PLANT WORKSHOP

“Working Together”

April 13th, 2005

Red Deer College - Margaret Parsons Theatre

9:30 am to 4:00 pm

FEATURING

talks on **collaborative invasive plant management in Alberta and British Columbia, provincial and federal invasive species initiatives,**
as well as a talk on **invasive ornamental plants.**

A trade show and poster session will run concurrent just outside of the theatre. Exhibitors will have an opportunity to give a short presentation to attendees about their organization.

Open to anyone concerned about invasive plants! - students, industry, teachers, general public, agriculture, horticulturists, all levels of government, municipal and civic managers, gardeners, outdoor recreationalists, land stewardship groups...

Come and meet others from across Alberta to share information about invasive plants and management approaches, promote awareness and education, and foster partnerships.



To register, please mail a cheque or money order payable to the Alberta Invasive Plants Council to:

AIPC Workshop
Box 2182
Sundre, Alberta
T0M 1X0

Payment and registration form must be received by April 6, 2005. Sorry, No Credit Cards.

Registration Form

Name _____

Affiliation _____

Address _____

City _____ Province: _____

Postal Code _____

Phone _____

e-mail _____

Banquet Guest(s): _____

Registration (tick one as applicable, enter amount on line below)

- Member \$65.00 Student \$35.00
 Non-Member \$75.00

Registration _____ \$ _____

Banquet @ \$30.00 ea. _____ \$ _____

please advise name of guest(s) for nametag

Late Registration \$85.00 _____ \$ _____

Seed Sowing Workshop \$20.00 _____ \$ _____

New Member's Discount \$10.00 _____ \$ _____

Total Enclosed _____ \$ _____

- My diet is restricted** (please describe, so we may meet your needs):

New membership enclosed (by separate cheque)

- | | |
|--|---------------------------------------|
| <input type="radio"/> Individual \$15.00 | <input type="radio"/> Family \$25.00 |
| <input type="radio"/> Senior \$10.00 | <input type="radio"/> Student \$10.00 |
| <input type="radio"/> Corporate \$50.00 | <input type="radio"/> Life \$500.00 |

For New Members:

If membership fee is enclosed, you may register for the conference at the applicable member's rate.

If accommodation is required:

Coast Terrace Inn

Toll Free: 888-837-7723

Online: www.coastterraceinn.com

Singles: \$89.00 Groups 2 - 4: \$94.00



Alberta Native Plant Council

18th Conference, Annual General Meeting, and Workshop

Grow Naturelle

—Low Impact Gardening in Alberta

April 9-10, 2005

Coast Terrace Inn

4440 Gateway Boulevard

Edmonton, Alberta

Low impact gardening is rapidly growing in popularity. Native plants are not only beautiful, but come pre-adapted to Alberta's harsh climate—ready to thrive with little or no care. Outdated gardening practices with intensive use of chemical pesticides and fertilizers take their toll. Join us to learn new ways to have a beautiful garden in harmony with nature. Imagine your own garden as a prairie landscape, a rock garden, or a piece of our own boreal forest.

Registration for the April 9th conference includes a buffet lunch and refreshments. The banquet is an optional extra.

All events on Saturday to take place at Coast Terrace Inn, 4440 Gateway Boulevard, Edmonton, AB. Complimentary underground parking is available for all registrants and participants. See below for accommodation information. On Sunday, join us at the beautiful Devonian Botanical Gardens to plant your own seeds in time for your own spring garden. We will meet in one of the greenhouses, where we will "get our hands dirty", and afterwards you are invited to tour the show houses at your leisure.

Space for display tables is available on a first-come, first-serve basis. For information on display tables and registration please contact:

Elaine Gordon: Telephone (780) 475-2565
email: ecgordon@telusplanet.net

Registration:

Fill out the registration form and mail it to:

ANPC Conference
c/o 15216 - 74 Street
Edmonton AB
T5C 0Y7

Include your cheque or money order payable to
Alberta Native Plant Council

We cannot accept other forms of payment. We'll confirm your registration by e-mail, no other confirmation will be provided.

Deadline

Fees will be refunded in full if we hear from you by **April 1**.