



Iris

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The Alberta Native Plant Council Newsletter

Botany Alberta Visits Dry Island

By Kristen Anderson & Kelly Ostermann

This summer's Botany Alberta field trip was held around Dry Island Buffalo Jump Provincial Park on June 1–3, 2012. It was organized and coordinated by Tony Blake, Jim Posey and Kelly Ostermann. Dry Island Buffalo Jump Provincial Park is located east of Trochu. Its diverse landscape provides a multitude of habitats—badlands and riparian forests, coulees and grasslands, hill slopes and ridge tops—with stunning views of the Red Deer River valley. On Friday, we botanized the area above TL Bar Ranch, just north of Tolman Bridge west campground on the Red Deer River. It was good practice for those not familiar with central and southern Alberta plants and got us primed for Saturday when we were going to be in the park.

On Saturday, we assembled at the lookout in Dry Island Buffalo Jump Provincial Park. Charley Bird led the way, and a group of Junior Forest Wardens from Red Deer accompanied us for a short while at the start of the

day. They enjoyed Charley's botanical teachings and were happy to get some assistance with plant ID from the group. They seemed especially interested in the fact that Alberta had native cactus and seemed intent on trying to distinguish *Opuntia fragilis* (brittle prickly pear cactus) from *O. polyacantha* (prickly pear cactus).

The provincial park is near the northern end of the range for many species, while other species are at the southern end of their range here. These grasslands are not very far from the parkland natural subregion, so species diversity certainly characterizes the park. It was possible to see *O. polyacantha* (prickly-pear cactus) growing not very far from *Betula papyrifera* (paper birch).



Charley Bird examines round-leaved hawthorn (*Crataegus chrysocarpus*).

Photo J. B. Posey

Clouds above us provided the right amount of shade during the day, and despite the name Dry Island, the rain started just as we were leaving the park and ended just before we finished supper at a restaurant in Trochu. It was in many ways a perfect day, ending at the Tolman Bridge campground around a fire, with friends discussing the finds of the day and what might be found tomorrow.

Sunday morning, Tony Blake led the group to an area south of Tolman Bridge, in one of the locations

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Rare Species and Communities Found During Botany Alberta 2012

Scientific Name	Common Name	Rank*
<i>Artemisia tilesii</i>	Herriot's sagewort	S3
<i>Brachythecium campestre</i>	moss	S3
<i>Bryohaplcladium microphyllum</i>	moss	S3
<i>Caloplaca flavorubescens</i>	bark sulphur-firedot lichen	S3
<i>Cathartes aura</i>	turkey vulture	S2S3
<i>Crataegus chrysocarpa</i>	round-leaved hawthorn	S3
<i>Distichium inclinatum</i>	inclined-fruited didymodon (moss)	S3
<i>Festuca altaica</i>	northern rough fescue	S2
<i>Grimmia plagiopodia</i>	bird grimmia (moss)	S3
<i>Hennediella heimii</i>	long-stalked beardless moss	S2
<i>Oxytropis borealis</i> var. <i>viscida</i>	boreal locoweed	S3
<i>Papilio machaon</i>	old world swallowtail	S2S3
<i>Papilio machaon dodi</i>	Dod's old world swallowtail	S2S3
<i>Phaeophyscia hispidula</i>	whiskered shadow lichen	S3
<i>Physcia caesia</i>	blue-gray rosette lichen	S3
<i>Populus deltoides</i>	plains cottonwood	S3
<i>Preissia quadrata</i>	liverwort	S3
<i>Psora decipiens</i>	blushing scale lichen	S3
<i>Psoralea esculenta</i>	Indian breadroot	S3
<i>Rhizoplaca chrysolenca</i>	orange rock-posy lichen	S3
<i>Townsendia exscapa</i>	low townsendia	S2
<i>Triglochin maritima</i> emergent marsh	seaside arrow-grass emergent marsh	S2?
<i>Wolffia borealis</i>	northern ducksmeal	S3

*Provincial Rank from Alberta Conservation Information Management System
S2 = Known from twenty or fewer occurrences, or vulnerable to extirpation because of other factors

S3 = Known from 100 or fewer occurrences, or somewhat vulnerable due to other factors, such as restricted range, relatively small population sizes, or other factors



Dorothy Fabijan & Charley Bird joined those who explored grasslands near Trochu during Botany Alberta 2012.

Photo J. B. Posey

where the Tolman Badlands Heritage Rangelands form a string of quarter sections along the Red Deer River. This natural area preserves badlands and parts of the Red Deer River valley. These small upland plateaus of fescue grassland are especially significant because much of this landscape has been cultivated to produce cereal crops.

We concluded that it was a very successful Botany Alberta. We recorded over 240 species, both vascular and non-vascular plants as well as butterflies and birds. To the left is a list of the rare species (and one plant community) that were found during our botanizing.

Thanks to all the folks that came out to make it a successful trip, and we hope to see you next year. ♦

Join Our Volunteers

**Are you looking to get more involved with the ANPC?
There are many positions available that suit a variety of interests.**

**Please send an email to info@anpc.ab.ca
or contact Janine at 403-478-2911 for further information.**



We Welcome . . .

by Kelly Ostermann

The ANPC is a great organization to be involved in, mostly due to the energy and enthusiasm that its volunteers possess and pass on to those around them. We would not be able to continue to do good work without input from the many people involved in ANPC. Like any volunteer organization, we struggle with getting volunteers, and it thrills us when people come forward and say, "I want to volunteer." Some new faces have joined us in the last year, so read on to find out who those people are and what they do within the ANPC. In no particular order:

Janine Lemire – We often get inquiries about volunteering and have often said, wouldn't it be great to have a volunteer coordinator? Well, Janine thought so, too; she is helping us recruit and work with new volunteers as our first Volunteer Coordinator. Due to her efforts we have seen a lot more interest expressed in the ANPC.

Amar Keshri – The treasurer position is a critical one within ANPC because it is required under the *Societies Act*, and we need to have a person in the job who likes looking at numbers even more than at plants! And actually, they don't even need to know much about plants.

Amar is an accountant by trade, and we welcome him as our new Treasurer.

Dana Bush – Dana, who has volunteered with ANPC in the past, is once again with us, this time as Newsletter Editor. Dana is currently taking a break from full-time consulting work as a botanist to study art at The Alberta College of Art and Design in Calgary.

Kristyn Housman – Kristyn has expressed an interest in assisting with reclamation-related questions and work that may come up for the ANPC. Kristyn recently graduated from the U of A, and we look forward to having her involved in the Reclamation and Horticulture component of the ANPC.

Sam Pittman – Sam is taking over the role of Volunteer Steward for Whitehorse Wildland Area from Allison Dinwoodie. Allison had been doing this volunteer job for a number of years, and she put her heart and soul into maintaining and protecting this jewel of an area. Sam is stepping into some pretty big shoes, but he has already been to the area, and we look forward to having him as steward of Whitehorse Wildland Area. ♦

ANPC Needs a Webmaster

Do you, or someone you know, have webmaster skills? The ANPC is currently seeking a Webmaster volunteer who would manage and complete updates to information on the ANPC website: seasonally featured plant, news and events, links of interest, volunteer opportunities, and publications. Additional website projects may also be undertaken as required.

If interested, please email info@anpc.ab.ca or contact Janine at 403-478-2911.

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The Value of Native Plants in Urban Environments: Workshop Highlights

by Kelly Ostermann

The ANPC had its 25th annual workshop on Saturday, April 21. The event focused on native plants in urban environments and was held at Hole's Enjoy Centre. The Centre was the perfect location, adjacent to Lois Hole Provincial Park and in St. Albert. The day started with an introduction to the Enjoy Centre by Jim Hole. With most of our population living in urban environments, we thought it was a timely topic for our workshop.

Pam Wright, Executive Director of the Edmonton and Area Land Trust (EALT), provided a good summary of challenges and opportunities facing the EALT with conserving and preserving natural landscapes within the Edmonton area. There are many tangible benefits of conserving natural areas in urban environments, including economics and health. The values of natural areas go beyond measureable economics and include community-building, child development and wellbeing, aesthetic and other less tangible values to families, municipalities, developers, children and the general public. Pam also discussed the value of involving individuals and householders in the conservation efforts.

Anyone that lives in the Edmonton area will be familiar with the river valley that runs through the city. Grant Pearsell, Director of the Office of Biodiversity with the City of Edmonton, discussed the City's approach to biodiversity protection. The City currently manages over 4,000 ha of natural area—WOW. In a response to conservation demands, the City has developed a new strategic approach to the way it protects and



Workshop session at Hole's Enjoy Centre in St. Albert.

Photo C. Willms

manages urban biodiversity. These strategies are contained in the Natural Connections Strategic Plan, the recently adopted The Way We Grow land use plan, and The Way We Green environmental strategic plan.

What would a workshop on native plants in urban environments be without a talk on wildlife? Jenna Cross, Natural Parkland Management Coordinator with the City of Calgary, gave a talk on "Wildlife in Your Backyard: Managing Biodiversity in an Urban Setting." While some of us may curse at rabbits, deer and porcupines, these are a part of our natural environment, and it is important to allow citizens to connect with nature in their urban setting and often in their own backyards.

Urban provincial parks play a special role within the provincial park system. Fish Creek, the oldest, and Glenbow Ranch, the newest, are located within an

urban setting and have relatively similar origins yet provide very different and unique challenges and opportunities. Joey Young, a Senior Parks Planner in the Kananaskis Region, provided some insight into the management requirements for both of these parks that are very popular with Calgarians, are heavily used, and need different management approaches to manage the native plant communities.

Ecosystem services of native landscapes are often overlooked and hence often undervalued in most economic development decisions; these services are numerous and, for example, include air quality or flood control by wetlands. The challenge is how are these ecosystem services quantified? In 2010 and 2011, the Government of Alberta in collaboration with a number of expert groups undertook an Ecosystem Services Approach Pilot on Wetlands. The pilot focused on assessing the

See **Workshop**, page 5

Workshop, from page 4

benefits that people acquire from wetlands in a qualitative, quantifiable and comparable way. Gillian Kerr, Manager Ecosystem Services Program, Environment and Sustainable Resource Development, discussed the use of an ecosystems approach to inform discussions on urban environments. I think that this is a critical step in determining the true value of our natural environments.

Scott Atkinson, COO of HeatherGlenEagles Golf Company, operates two golf courses: GlenEagles in Cochrane and HeatherGlen Golf Course in Calgary. Golf courses have a bad reputation for using high water and fertilizer inputs. Scott recognized the value of non-manicured areas within his courses and wanted to start using native grasses. He discussed incorporating the natural look, educating golfers on the benefits of native plants, and being challenged to understand seed mixes and growth habits while incorporating native plants into his golf courses.

Green roofs have been getting a lot of attention, but often these roofs are covered with introduced species. Tom Boag, President of Applied Aquatic Research, provided a hands-on presentation on the dos and don'ts



June Flanagan speaks about using native plants in landscaping.

Photo C. Willms

of building a native prairie green roof and went into details on the rationale, challenges and subsequent experimentation that led to the successful establishment of the first native, mixed grass prairie roof in the world. Things that Tom learnt along the way were the role of wind and shallow soils in rooting success on his green roof; fortunately, the green roof has an economic benefit as well as an environmental benefit!

We also had Leta van Duin, Executive Director of Alberta Low Impact Development Partnership Society, provide some great examples of the use of native plants in urban drainage management. Leta's presentation

focused on source control practices of urban drainage green roofs, rainwater harvesting, conservation landscaping, rain gardens, bioretention areas and bioswales. With many of these, native plants can be incorporated, further reducing

management requirements, not to mention providing an

aesthetically pleasing landscape.

We also had June Flanagan and Cherry Dodd speak to the audience about using native plants in landscaping. June Flanagan has written four books on prairie gardening and native xeriscaping. She

recently designed a native plant garden at the Galt Museum in Lethbridge. June talked about the challenges of designing the garden and the management that was required to establish the plants. It is great that the Galt Museum has integrated the garden in educational programs, hosting public lectures, workshops and garden tours on topics related to local flora, ethnobotany and sustainable gardening. Cherry Dodd is with the Edmonton Naturalization Group (ENG). The group focuses on conservation through cultivation by growing out native species and encouraging and educating the public on the value of adding native plants to their landscapes. ENG works with individuals, community leagues, community gardens, schools and businesses.

Our day was rounded out by having Jim Robertson from the Waskasoo Environment Education Society discuss the benefits of getting children back to nature. Using humour as well as facts, Jim provided a stark reminder of how important it is to have children immersed in nature. Jim's thesis work was on the long-term effects of involving preschool kids in nature. Research indicates that removing kids from nature is actually a threat to nature itself. Jim's talk was a great way to finish the workshop. We thank all the speakers for their time and all the people that registered for the workshop. We are looking forward to next year's workshop, so stay tuned for location and topic. ♦



Jim Robertson talks about the importance of children spending lots of time in nature.

Photo C. Willms

Thoughts on Taxonomy: Where Have All the Scrophs Gone?

By Patsy Cotterill

With the field season looming ahead, and beyond that the season of report-writing and constructing species lists, I resolved to get the changes to the family Scrophulariaceae—the scene of much recent devastation and evacuation—sorted out in my mind. Even for those of us who only make species lists for fun, it behooves us to keep up to date with the new taxonomy and the new nomenclature. (Not all my colleagues agree; there is much whining and complaining about having to learn new systems and new names. To them I reply that this is good news because it means that the science of taxonomy is alive and well and making advances in our understanding. The response is usually a similar low level of enthusiasm.)

A quick check online brought up Richard G. Olmstead's paper "Whatever happened to the Scrophulariaceae?" (*Fremontia* 30: 2, April 2002), exactly what I was looking for. This article proved to be as popular and readable (at least to the botanically inclined) as its title suggests, and it answered a lot of questions. Olmstead is a guru (since the early 1990s) of the New Angiosperm Phylogeny, which uses DNA analysis extensively to determine the closeness of the evolutionary relationships between taxa. Olmstead's reassignment of genera within the former family Scrophulariaceae is based on his group's study of nucleotide sequences in three genes from the chloroplasts of 65 species from the Scrophulariaceae and related families (such as Bignoniaceae, Gesneriaceae, Lamiaceae and Verbenaceae)—all now in the order Lamiales along with several other families.

Traditional Scrophulariaceae, with a worldwide distribution of 275 genera and 5,000 species, has now been split into seven families, some of which are new, such as the Calceolariaceae (containing *Calceolaria*, with which most of us are familiar only as an ornamental), and some of which have been expanded (e.g., Orobanchaceae, the broomrape family). The family itself remains, although much reduced, at least in its northern representatives. Olmstead's paper provides a table of common North American genera with their new family assignments in the groups he studied.

To help in the construction of species lists in family groupings, I took Olmstead et al.'s results, along with further information from the Internet, and applied them to reassign the relevant genera included in *Flora of Alberta* (Moss & Packer, 1983) (FAB). I then summarized these reassignments in the table on page 7. This should enable us Albertans to see at a glance which family our relevant species or genus fits into under the new classification.

There are logical reasons for these changes, both morphological and molecular, and hence some logical ways to remember them. All the hemiparasitic genera, *Castilleja*, *Orthocarpus*, *Pedicularis*, etc., formerly in the Scrophulariaceae, have been transferred to the Orobanchaceae. Here they join *Boschniakia* and *Orobanche*, the fully parasitic genera (totally lacking chlorophyll) already in the Orobanchaceae. All these plants produce haustoria, allowing them to clamp onto the roots of adjacent plants and withdraw water and nutrients. Most species in these genera have bilaterally symmetrical (often two-lipped) flowers

with five parts, and superior ovaries with two fused carpels, typical of the Lamiales.

The other genera comprising the Scrophulariaceae in FAB (except for *Scrophularia* and *Verbascum*) have been placed in the family Plantaginaceae. Also placed in the Plantaginaceae—surprise, surprise!—are two aquatic genera and their families, *Callitriche* (water-starwort) of the Callitrichaceae and *Hippuris* (mare's-tail) of the Hippuridaceae. *Plantago*, of course, remains within the Plantaginaceae. Since the new, enlarged Plantaginaceae contains a mixture of families, Olmstead has suggested an entirely new name for it, the Veronicaceae. He personally uses this name in his work, but admits that it has been rejected under the Rules of Botanical Nomenclature. All up-to-date online sources give Plantaginaceae as the family for these genera.

There is one surprise left from our FAB Scrophulariaceae: the genus *Mimulus* (monkey flower) has now been transferred to the Phrymaceae, an unfamiliar family to most of us. It consisted traditionally of a sole genus, *Phryma*. Olmstead insists, however, that if you look closely at the flower of a *Phryma* you can see a little monkey face looking back at you!

The two remaining genera in Scrophulariaceae in FAB, *Scrophularia* (figwort) and *Verbascum* (mullein), are alien to Alberta, and of these we are only likely to encounter the latter (in dry places in the southwest, although Edmonton to my knowledge did once support a couple of populations of *V. thapsus* along railway lines). The

See *Taxonomy*, page 7

Scrophulariaceae have their greatest diversity in the southern hemisphere, especially South Africa. Travellers to Australia, particularly, may be familiar with two genera, *Myoporum* and *Eremophila* (emu bush) in the family Myoporaceae, which is now included in the Scrophulariaceae. So is the family Buddlejaceae, containing the genus *Buddleja*, of butterfly fame. A native of China and Japan, *Buddleja* has been widely cultivated. In the U.K. it has escaped from gardens and become an invasive weed of railway lines, waste places, and cracks in the walls of old buildings. Olmstead notes that most of the Scrophs as now defined have radially symmetrical flowers (*Verbascum*, *Myoporum*, *Buddleja*, the South African genera), the exception being *Scrophularia*. The Plantaginaceae have a mixture of both types of flowers.

Other familiar genera now in the Plantaginaceae but not occurring naturally in Alberta are *Antirrhinum* (snapdragon) and *Digitalis* (foxglove). The *Penstemon*-like *Nothochelone* (turtlehead), likely known by visitors to B.C. and the southwest, is also a member of the Plantaginaceae.

Selected Changes in the Former Family Scrophulariaceae

Old Family	Genus	New Family
Orobanchaceae	<i>Boschniakia</i>	Orobanchaceae
Scrophulariaceae	<i>Castilleja</i>	Orobanchaceae
Scrophulariaceae	<i>Euphrasia</i>	Orobanchaceae
Orobanchaceae	<i>Orobanche</i>	Orobanchaceae
Scrophulariaceae	<i>Orthocarpus</i>	Orobanchaceae
Scrophulariaceae	<i>Melampyrum</i>	Orobanchaceae
Scrophulariaceae	<i>Odontites</i>	Orobanchaceae
Scrophulariaceae	<i>Pedicularis</i>	Orobanchaceae
Scrophulariaceae	<i>Rhinanthus</i>	Orobanchaceae
Scrophulariaceae	<i>Mimulus</i>	Phrymaceae
Callitrichaceae	<i>Callitriche</i>	Plantaginaceae
Scrophulariaceae	<i>Chaenorrhinum</i>	Plantaginaceae
Scrophulariaceae	<i>Collinsia</i>	Plantaginaceae
Scrophulariaceae	<i>Gratiola</i>	Plantaginaceae
Hippuridaceae	<i>Hippuris</i>	Plantaginaceae
Scrophulariaceae	<i>Limosella</i>	Plantaginaceae
Scrophulariaceae	<i>Linaria</i>	Plantaginaceae
Scrophulariaceae	<i>Penstemon</i>	Plantaginaceae
Plantaginaceae	<i>Plantago</i>	Plantaginaceae
Scrophulariaceae	<i>Synthyris</i> (= <i>Besseyia</i>)	Plantaginaceae
Scrophulariaceae	<i>Scrophularia</i>	Scrophulariaceae
Scrophulariaceae	<i>Verbascum</i>	Scrophulariaceae

More Thoughts: To Adopt a Phylogenetic System or Not?

Once the geneticists and taxonomists have re-organized the genera, it still leaves the problem of how to order the families (and our species lists): does one go phylogenetic or alphabetical? And if one suddenly has a new family, where does one put it? The *Flora of Alberta* (FAB) is arranged according to the Englerian system of taxonomic classification (1924). This was superseded in general usage by the Cronquist system (1981), and now the Angiosperm Phylogeny Group (APG) III system (2009; first version 1998) is coming into fashion.

It makes no sense to do family switches according to APG and then arrange them under some other system, so I've decided to adopt the APG III system for my species lists in future. I will arrange families under APG-recognized orders, which in turn are listed within higher groupings (Magnoliids, Monocots, Eudicots, etc.). This information is available in a paper by The Angiosperm Phylogeny Group, published in 2009 (*Botanical Journal of the Linnean Society* 2009, 161: 105-121). The problem with this paper, however, is that while the orders are arranged phylogenetically, the families within them are listed alphabetically. Fortunately, Elspeth Haston et al. have done the work of arranging families in phylogenetic order for us in their paper "The Linear Angiosperm Phylogeny Group (LAPG) III: a linear sequence of the families in APG III" (*Botanical Journal of the Linnean Society* 2009, 161: 128-131). They list 413 global families and assign a number to each one.

See *Taxonomy*, page 12

Thanks to . . .

Chad Willms

Chad was the Southern Director for the 2010–2012 term. ANPC would like to take this opportunity to thank Chad for his energy and participation on the Board and other projects. His dedication was very much appreciated, and despite no longer being on the Board, Chad still participates in communications and bringing opportunities to the ANPC. In addition to being the Southern Director, Chad played key roles in both the 2011 and 2012 ANPC workshops, both of which were great successes thanks to his efforts.

Marilyn Germaine

Marilyn was the Newsletter Editor from 2009 to 2012 and was instrumental in producing many great issues of *Iris* by coordinating the newsletter team and doing the majority of submission editing. Marilyn's work enabled the flow of communication about the Board's and Committees' activities to reach the membership. Marilyn's eye for detail was evident in the production of many excellent issues of *Iris*, and her organization helped ANPC transition into delivering *Iris* digitally to many of our members. ANPC thanks Marilyn for all her hard work as the Newsletter Editor.

Gillian Posey

Gillian was the Webmaster from 2010 to 2012. Gillian very quickly learned ANPC's website, and despite many challenges, made updating it seem easy. Luckily Gillian was able to lend her knowledge to our website updates,

Myrka Hall-Beyer



Myrka Hall-Beyer hiking at Helen Lake.
Photo E. Beaubien

Mryka is an Assistant Professor of Geography at the University of Calgary, teaching several undergraduate courses and supervising grad students in remote sensing. At first glance, the ANPC may not seem like it would be a good fit for her. But, before she did her PhD in geography, she trained as a naturalist.

Myrka worked for La Mauricie National Park in Quebec as a bilingual naturalist, so when the opportunity came knocking (in the form of Elisabeth) to spend more time with plant people—well, she just couldn't resist. In response to that invitation from Elisabeth Beaubien, Mryka joined the ANPC executive in 1998 and worked as Treasurer until 2012—a span of 15 years! Even when Myrka was out of the country on sabbatical, she kept up with these volunteer “duties.”

Mryka is a master of practical things like how to tie a brilliant knot so your hiking boots won't come loose. She helped Adopt-A-Plant train people to use global positioning units (GPS) and developed a great online tutorial (available on the APA website at www.adoptaplantalberta.com/resources.html). Myrka has great intelligence, the ability to store a huge diversity of information, and a driving curiosity about the natural environment. And she has the patience to spend 15 years working with the sometimes less than organized non-profit that is the ANPC. Thank you, Mryka, for your dedication, your patience and all your help.

as many of us on the Board find the website a black box enshrined in mystery. ANPC thanks Gillian for seemingly effortlessly mastering our website with little oversight; it is an essential job that was very much appreciated. ♦



Tricky Trio

by Lorna Allen

There are three species of trailing, dwarf shrubs that sometimes grow together in the same habitat. At first, the mass of low greenery can easily look like just one thing. But look closely! There could very well be two or possibly three species mixed together:

- twinflower (*Linnaea borealis*)
- bog cranberry or lingonberry (*Vaccinium vitis-idaea*)
- bearberry or kinnikinnick (*Arctostaphylos uva-ursi*)

When blooming, twinflower is very different from the other two, having (this will be a surprise) two flowers; lovely little pink trumpets hang off each end of a stalk that splits into a “Y” (well, just look at the picture). The flowers of the other two are a little tougher to tell apart—both are pink and bell-like but have slightly different shapes. The bearberry flower is what is commonly called “urn shaped”—the bell is drawn in at the neck—while the bog cranberry flower is more of a true bell shape.

The fruits of twinflower are inconspicuous dry nutlets at the end of the Y-shaped stalk. So if there are red berries present, then either bearberry or bog cranberry is in the mix. The berry of the bearberry tends to be a bit squat, a dull orangey-red and dry and tasteless. The bog cranberry is usually almost round, glossy, juicier, can go almost a red-black when ripe and has that distinctive cranberry zing.

If there are just leaves, each is different enough from the other that you can still tell them apart, even without fruit or flowers.

Again, twinflower is the most different. It is the only one of the three whose leaves have teeth (very small teeth, but teeth nevertheless). The veins and midrib are distinct, and the leaves are relatively thin and tend to be a fresh green.

Bearberry and bog cranberry are a bit more difficult to distinguish. Both have entire (that is, toothless) leaves.

The leaves of bearberry are thick, yellow-green to green, and sometime indented at the tip. There is a bit of a midrib and some obvious veining, but the surface is dull and almost flat.

Bog cranberry has leaves that are a darker green and glossy with a distinct midrib that sets them apart. The midrib tends to be so distinct, it almost looks like the leaves have been folded. If you flip them over, the underside is dotted with short dark hairs.

So, particularly if fruits or flowers are lacking, it can be a bit tricky to know what species you are looking at. But with close observation, they are relatively easy to sort out. ♦



Trumpet-like flowers of twinflower (*Linnaea borealis*).
Photo L. Allen



Urn-shaped flowers of bearberry (*Arctostaphylos uva-ursi*).
Photo L. Allen



True bell-shaped flowers of bog cranberry (*Vaccinium vitis-idaea*).
Photo L. Allen



Small teeth on the leaves of twinflower (*Linnaea borealis*).
Photo L. Allen



Distinct midrib on the leaves of bog cranberry (*Vaccinium vitis-idaea*).
Photo L. Allen

A Delicate Art: Artists, Wildflowers and Native Plants of the West

by Mary-Beth Laviolette

Review by J. B. Posey

I was very pleased on first leafing through this little book to discover the watercolours of artist Robert Sinclair. I'm glad to have the book, if for no other reason. He is better known for his landscapes in watercolour on paper, or in acrylic wash on canvas. But, those works don't really stand out from the crowd for me. His little watercolours of native plants are outstanding, both artistically and as illustrations.

The book has other redeeming features. I had heard of Mary Schaffer Warren, Mary Vaux Walcott, and Annora Brown, but never seen reproductions of their work. The book also talks about William Copeland McCalla, an early photographer of Alberta flora, and Carole Harmon, a very much up-to-date photographer whose montages of digital images of plants and their habitats, or plants at different stages of maturity, scale time or space in striking single compositions.

The "West" of the title seems to centre around Banff. I think that the work of Dagny Tande Lid, in Porsild's *Rocky Mountain Wild Flowers*, and particularly the watercolours of C. Dana Bush in her *Compact Guide to Wildflowers of the Rockies* would certainly not be out of place in this company. Had I been writing such a book, I think I would have included them, even if emphasizing art over illustration.

Coverage of each artist is brief, and the book is small, but not so small that it can't encompass a number of botanical groaners. It's too bad the author did not ask a botanist to review



Photo J. B. Posey

the manuscript and illustrations. Never mind. The author's speciality is art, not botany. Each artist's work is illustrated with a half dozen examples—enough to whet the appetite and let you know if you'd like to see more. And each artist's biography is briefly presented, giving their work context.

Finally, to return to Robert Sinclair. He paints his subjects very economically and gracefully, seemingly in just a few strokes, perfectly capturing forms without rendering painstaking detail, yet somehow all the detail is implied. If you know the plant, it's immediately recognizable.

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\$24.95 (or \$15.64 from Amazon.ca) ♦

The Botanist Effect

by Lorna Allen

An article in the January 2011 issue of *Biological Conservation* had the intriguing title of "Conservation and the botanist effect," so I took a quick look at the abstract.

The authors hypothesized that the reduction in funding for inventories and for work on descriptive taxonomy "could result in an overall decline in the quality of biodiversity data as well as geographic biases, reducing the utility and reliability of inventories." So they looked at inventories done in Tanzania and found "botanists with practical training in tropical plant identification record both more species and more species of conservation concern (20 more species, two more endemic and one more threatened species per 250 specimens) than untrained botanists."

And further, "Training and the number of person-days in the field explained 96% of the variation in the numbers of species found, and training was the most important predictor for explaining recorded numbers of threatened and endemic species."

Also of interest in these days when the value of herbaria seems to be questioned—"good herbarium access significantly reducing the proportions of misidentifications and misspellings."

Source: Conservation and the botanist effect. By: Ahrends, Antje; Rahbek, Carsten; Bulling, Mark T.; Burgess, Neil D.; Platts, Philip J.; Lovett, Jon C.; Kindemba, Victoria Wilkins; Owen, Nisha; Sallu, Albert Ntemi; Marshall, Andrew R.; Mhoro, Boniface E.; Fanning, Eibeleis; Marchant, Rob. *Biological Conservation*, Jan2011, Vol. 144 Issue 1, p131-140, 10p; DOI: 10.1016/j.biocon.2010.08.008 ♦

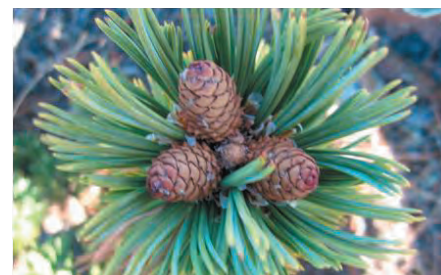
Endangered Species Conservation Committee – Update

by Laurie Hamilton

The Endangered Species Conservation Committee (ESCC) continues to meet regularly to discuss species assessments and recovery plans. The recovery plans for tiny cryptanthus and small-flowered sand verbenas are complete as well as the updates to the recovery plans for soapweed and western spiderwort (but not yet available online). It was decided at the last ESCC meeting that the next recovery plan update for western spiderwort would be in ten years (rather than five), as the recovery plan was to maintain the population, not to implement a recovery strategy. As such, resources and efforts can focus on other species. The recovery plans for limber and whitebark pine are almost complete, and the recovery plan process for slender mouse-ear-cress has recently been initiated. For these recovery plans,

a member of the ANPC was invited to participate.

There has still been no update to the Alberta *Wildlife Act* to include plants (and other taxa, such as fungi). Additionally, there is still no bilateral agreement between the provincial government and the federal government, regarding the application of Canada's *Species at Risk Act* (SARA) on provincial lands, similar to those implemented by other provinces. For inquiries or further information on these items you can contact Alberta Environment and Sustainable Resource Development (AESRD) at srd.infocent@gov.ab.ca; remember to reference Species at Risk Strategy in the subject line. The more people that inquire about this, the higher



Limber pine (*Pinus flexilis*).
Photo L. Hamilton

these items rank in importance to the “decision makers.”

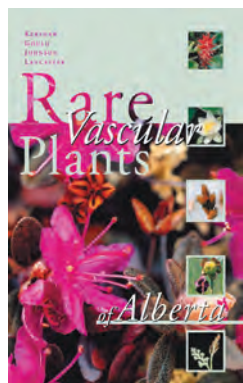
The following table summarizes all federally and provincially assessed plant species. For more information on the provincial status assessment process, visit the AESRD's Species at Risk website at www.srd.alberta.ca/FishWildlife/SpeciesAtRisk/Default.aspx. ♦

Scientific Name	Synonyms	Common Name	SARA Listed (as of Oct. 2012)	ESCC/SCC Species Recommended Designations* (as of Oct. 2012)
Vascular Plants				
<i>Chenopodium subglabrum</i>		Smooth goosefoot	Threatened	
<i>Cryptantha minima</i>		Tiny cryptantha	Endangered	Endangered
<i>Iris missouriensis</i>		Western blue flag	Special Concern	Special Concern
<i>Isoetes bolanderi</i>		Bolander's quillwort	Threatened	
<i>Oxytropis lagopus</i>		Hare-footed locoweed	Special Concern	
<i>Pinus albicaulis</i>		Whitebark pine	Endangered	Endangered
<i>Pinus flexilis</i>		Limber pine		Endangered
<i>Psilocarphus brevissimus</i>		Dwarf woolly-heads (prairie population)	Special Concern	
<i>Tradescantia occidentalis</i>		Western spiderwort	Threatened	Endangered
<i>Transberingia bursifolia</i> ssp. <i>virgata</i>	<i>Halimolobos virgata</i>	Slender mouse-ear- cress	Threatened	Endangered
<i>Tripterocalyx micranthus</i>	<i>Abronia micrantha</i>	Small-flowered sand verbenas	Endangered	Threatened
<i>Yucca glauca</i>		Soapweed	Threatened	Endangered
Non-vascular Plants				
<i>Bartramia halleriana</i>		Haller's apple moss	Threatened	
<i>Bryum porsildii</i>	<i>Mielichhoferia macrocarpa</i>	Porsild's bryum	Threatened	Endangered
*These are the recommended designations; however, some may not yet be listed in the Alberta <i>Wildlife Act</i> Regulations, due to the AESRD Minister's backlog.				

However, this doesn't tell the full story about how to pigeonhole species phylogenetically, as in lists, floras and herbaria, for example. How does one list genera in APG III order within the families and after that the species within genera? This presumably requires an in-depth search of the literature. (Where I have access to families published in Flora of North America volumes, I am slowly starting to follow their order of genera and species, hoping for the most part that it accords with APG III. I assume, for example, that sedge species in the volume on the Cyperaceae are treated in phylogenetic sequence.) On practical grounds, however, it seems that alphabetical order will be necessary for many genera and species for the time being—in other words, a mixed system. This being the case, one could ask, why not do the whole thing alphabetically under orders? One could, but it seems to me better to go phylogenetic as far as one practically can. Even recognizing that evolutionary trees (cladograms) are a much better way of depicting the evolutionary relationships of taxa than linear listings, putting families into APG order in a list does somewhat indicate their degree of relatedness to each other, whereas an alphabetical listing within an order only indicates that those families are closely enough related to be in the same order.

Will an APG III re-arrangement make us feel dizzyingly disoriented when we are reading species lists and looking for things? Eventually of course we will train our brains to find species in their new positions, but even then, at least for lists that are available digitally, it will be a fairly easy matter to locate any species simply by using the Ctrl-f search feature.

Olmstead puts the need for tolerance of all these changes more eloquently than I can. "... If our classification is to truly represent the pattern of biodiversity stemming from the evolutionary history of the plants on earth today, changes we make now will result in a classification that will provide a much more stable means of communicating our knowledge of biodiversity many generations into the future." One just hopes there will be some biodiversity left to study in the future. ♦



**Addenda
for the
Rare
Vascular
Plants of
Alberta
are now
available!**

For information, drawings, and range maps of rare vascular plant species of Alberta not found in the *Rare Vascular Plants of Alberta* (Kershaw et al. 2001) please visit the Alberta Native Plant Council's website at www.anpc.ab.ca under Publications. This is an ongoing project with plant species added as the pages are completed.



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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 favour of the audience.

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