

Iris

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The Alberta Native Plant Council Newsletter

Fragments of the Rocky Mountains: Conference 2011

By *Catrina Duffy*

The day started crisp, with traces of snow on the ground from the recent snowfall. Approximately 85 people filed into the Canmore recreational centre, past the hockey rink to a small upstairs room and the comfortable company of people with a shared passion, native plants. The 24th annual Alberta Native Plant Council (ANPC) conference started with some potent Miner's Blend coffee from Canmore's Beamer's Coffee Bar and a crowd of familiar faces. The president, Kelly Osterman, opened by presenting Lorna Allen with the Emerald Award to house for the upcoming year, a gesture of appreciation for Lorna's hard work and dedication to the ANPC. The Emerald Award was won by the ANPC in 2010 for promoting knowledge of native plants in Alberta and conserving native plant species and their habitats for present and future generations.

John Potter did a fantastic job kicking the conference off, introducing speakers and keeping everyone on track. A familiar face started the day with an introduction of the topic of discussion, the natural region of the Rocky Mountains. Dave Downing, from the Natural Regions Committee, and Ed Karpuk, with Alberta Sustainable Resource Development (ASRD), took the crowd through a whirlwind tour of the region, linking plant communities, topography, climate and geology with sharp clarity. Unique phenomena such as rock glaciers (distinctive features created when rock-filled glaciers melt and leave behind an interesting formation of vegetated rocks) were described by Ed, while Dave's final presentation in ANPC's Natural Regions



Almost a full house at the April 2011 ANPC workshop in Canmore
Photo Laurie Hamilton

series again conveyed his knowledge, experience and presentation skill.

Joyce Gould and Mari Decker revealed that a surprising number of rare plants have managed to make this inhospitable environment home. Perhaps the rarity of the plants is a product of the inaccessibility of the environment. Of the 490 rare vascular plants listed in Alberta, 330 (68%) occur in the Rocky Mountain region. For the more primitively inclined, 579 rare species of

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The Rocky Mountains near Canmore were the perfect backdrop for emcee John Potter at the 2011 ANPC Workshop
Photo Laurie Hamilton

bryophytes and lichens are found within this region. Mari shared innumerable beautiful photos (many of which were provided by the dedicated people in attendance) of the rare plants distinctive of this region, including the newly christened endangered whitebark pine (*Pinus albicaulis*) and limber pine (*Pinus flexilis*). Mari upheld her reputation by reciting detailed information on each species with a nonchalant air. Joyce's presentation addressed the fact that the pace of development currently exceeds the pace at which rare plant surveys can be completed. Single species habitat assessment is simply impractical in achieving the goal of identifying and preserving rare species and communities before they get paved over. Joyce explored the option of using landscape level indicators to target specific landscapes for conservation. After investigating where rare plants occur, whether they tend to co-occur, and what factors affect where they occur, Joyce found that some rare species do tend to co-occur and that some of those have a high degree of fidelity to habitat, which may lend itself towards multi-species assessments.

Cyndi Smith, a Conservation Biologist with Parks Canada, discussed one of these rare species with a high correlation to habitat, quillwort (*Isoetes* sp.), which was found during a detailed survey in Waterton

Lakes National Park. Cyndi deftly guided the crowd through the wide variety of National Parks projects taking place in the Rocky Mountains of Alberta, such as preventing in-growth of forests in the Ya Ha Tinda by implementing controlled burns, initiating disturbed sites reclamation in Banff National Park and invasive species management in Waterton Lakes National Park.

An example of rare plant mitigation in a commercial project was shared by Giles Stevenson, who was the project manager for the TMX Anchor Loop Pipeline through Jasper National Park. A rare grape fern (*Botrychium* sp.) species was identified on the proposed pipeline right-of-way that was subsequently relocated. Giles' engaging presentation explored the various obstacles encountered while constructing in the unique habitats present within the park. Native seed was collected and grown locally to be used for revegetation, as well as land spraying, air spraying and mulching in an effort to overcome the obstacle of varied terrain and sensitive soils. The project even had to erect visually pleasing fencing to serve the dual purpose of preventing grazing and contributing to the visual aesthetics of the park.

During intermissions, attendees could admire artwork from two very talented artists. Heather Shillinglaw displayed wonderful 3-D textured paintings at a table in the back of the room. Heather is a Métis artist originally from Daysland who often travels to South America to teach children's art classes. The gifts for the speakers were beautiful watercolour floral paintings provided by artist Linda Le Geyt from Okotoks.

Lisa Guest, the Supervisor of Parks for the Town of Canmore, introduced the crowd to the invasive species management plan for the Bow Corridor, put into place by the Bow Corridor Invasive Plants Initiative. Lisa's innovative ideas and passion contributed greatly to the success of the invasive species management program in an important ecological area that sees a far higher amount of human traffic than any other in Alberta. The invasive species program has subsequently concentrated its focus on education of the general public with such programs as a weed bouquet designed to educate the public on identifying invasive species, door hangers for educating violators about weeds on their property rather than ticketing them, a weed swap (where the public could bring in invasive plants from their gardens and trade them for native species), and working with local greenhouses to not stock invasive species. Lisa also worked hard to improve the Town of Canmore's own invasive management program to set a good example for the public. A GPS tracking system was put in place to help target, control and track the spread of weed species within the area, and has subsequently been implemented on a broader scale between the Bow Corridor Invasive Plants Initiative and the Calgary and Area Intergovernmental Working Group, with the goal being an Early Detection Rapid Response (EDRR) program.

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In recent years an invasive fungi, blister rust (*Cronartium ribicola*), has been threatening whitebark pine communities in Alberta, resulting in the tree being listed on the Alberta Wildlife Act under the classification of "Endangered." Andrew Befus, a Masters student at the University of Calgary, gave a lively presentation on his research mapping the whitebark pine using remote sensing technology. He has been using Landsat and DEM along with ground truthing in an attempt to identify a successful mapping method. Although he likens his quest to that of the South Park Underpants Gnomes, envisioning a start and an end with a lack of clarity in between, he hopes movement forward will find him a means to an end.

Fire suppression is a phenomenon that has also impacted the range of the whitebark pine. Scott Jevons from Alberta Tourism, Parks and Recreation discussed fire suppression and its role in shaping vegetation communities throughout local history. Scott was involved in reconstructing the historical fire frequency in the Bow Valley since 1800. Contrary to hypothesis, the data revealed that the fire frequency increased for the period of time immediately following colonization and showed a significant decrease later on. The data also revealed that the last several decades have been the longest time span of fire suppression within the data set. Rick Arthur, a wildland fire prevention officer with ASRD, frankly discussed the role of prescribed fire in maintaining native plant communities. He stressed the importance of the First Nation peoples' knowledge and use of prescribed fire in shaping the landscape we love today and the strong impact of removing this mechanism from plant and animal communities that have adapted to it. Rick also shared how severity of a fire is particularly decisive in the resulting plant community, and he shared fantastic pictures of lightning strike simulations, where specific

individuals of competitive species are targeted using flame throwers.

Mike Alexander, a Provincial Rangeland Specialist with ASRD, also discussed the impact of fire suppression on the Rocky Mountain Natural Region, among other topics. He discussed the use of tools such as provincial classification systems and rangeland management tools to understand landscape changes. A University of Alberta graduate, Varina Crisfield, researched pressures on alpine plant communities from tourism. Her research compared the plant community and structure on alpine hiking trails to those of areas disturbed by frost in the alpine. She found that plant communities on the trail were significantly different from those of natural disturbances, but that the change in community was strictly confined to the trail area.

The day was capped off with delicious lasagne, teriyaki beef kabobs, and strawberry rhubarb pie. Dave Poulton, Senior Advisor for the Yellowstone to Yukon Conservation Initiative (Y2Y) wrapped up dinner with an engaging and light-hearted overview of the Y2Y initiative to create a network of protected areas stretching from Yukon to Yellowstone National Park. He stressed the importance of the Rocky Mountain region as one of the last areas to maintain a full suite of large predators, and that the current fragmented protected areas do not allow these species sufficient space to roam. The project is an attempt to create a corridor connecting protected areas along the Rocky Mountains. Dave stressed that progress in the Crowsnest Pass area and in Canada-US relations has proved very problematic.

The final ANPC conference in the Natural Regions of Alberta series wrapped up with a call for suggestions for next year's conference topic, a reminder of the forthcoming new rare

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Puzzling Pairs: Alberta's Wild Columbines

By Lorna Allen

It's funny that the four columbines that grow wild in Alberta can be grouped into two sets of puzzling pairs, each set with one rare or relatively rare, and one common species. If you are seeing a columbine in the blue to purple tones, it is either Jones' columbine (*Aquilegia jonesii*) or blue columbine (*Aquilegia brevistyla*). Blue columbine is quite common (ranked S5); Jones' columbine is rare (ranked S2).

If the columbine you are looking at is on the yellow to pink to red side of the colour wheel, you have found either the common yellow columbine (*Aquilegia flavescens*) (ranked S5) or the uncommon Sitka columbine (*Aquilegia formosa*) (ranked S3). The fact that yellow columbine is often pink further confuses things.

First, a quick note on flower parts. The flowers of columbines are made up of a set of outer coloured appendages that look like petals but are technically called sepals. The sepals have a hollow, slender extension called a spur. The inner set of coloured appendages is the petals.

Let's look at each of these puzzling pairs in more detail, starting with the blue grouping. The flowers of blue columbine have hooked spurs, which look quite different from the straight spurs of the Jones' columbine. The flowers of blue columbine will usually have a light to whitish centre (the set of petals) – it is the sepals that are blue. The flowers of Jones' columbine have blue-purple sepals and petals. Jones' columbine tends to be a short plant (less than 15 cm tall) and will often have only one flower and no stem leaves, only basal leaves. Blue columbine is usually taller (more than 15 cm), usually has stem leaves, and plants generally have more than one flower.

Of course, if a blue columbine is growing in a poor site, it could be smaller and easily mistaken for Jones' columbine. But the hooked spurs and presence of stem leaves should still be evident. And Jones' columbine is a rare species, found on high alpine scree in the Waterton area. Blue columbine is far more widespread, documented north into the NWT but not generally found south of the Bow River, and often found in woodlands.

Side by side, Sitka columbine and yellow columbine are easy to tell apart, with Sitka columbine being quite red (but with the petals in the centre of the flower yellow) and yellow columbine being, well, yellow. Identification can be confusing when a yellow columbine is tinged pink; however, it never gets the red to red-orange of Sitka columbine.

There are other differences as well. The spurs of the Sitka columbine flower are straight, but spurs tend to be incurved in the yellow columbine. Both are found in the mountains, but yellow columbine is widespread throughout the Alberta Rockies, while Sitka columbine is more restricted in distribution, generally found only north of the North Saskatchewan River.



Jones' columbine – flower erect, not nodding, spurs straight, no stem leaves (all basal)
Photo Lorna Allen



Blue columbine – note hooked spurs and stem leaves
Photo Lorna Allen



Sitka columbine – straight spurs
Photo Lorna Allen

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**Yellow columbine
(yellow version)
– with incurved spurs**
Photo Lorna Allen



**Yellow columbine (pink version)
– with incurved spurs**
Photo Lorna Allen

Species	Jones' Columbine <i>Aquilegia jonesii</i>	Blue Columbine <i>Aquilegia brevistyla</i>	Sitka Columbine <i>Aquilegia formosa</i>	Yellow Columbine <i>Aquilegia flavescens</i>
Flowers	Usually erect	Nodding	Nodding to pendant*	Nodding
Sepals	Blue to blue-purple	Blue to blue-purple	Red to orange-red	Yellow or sometimes pink
Petals	Blue to blue-purple	White to yellowish	Yellow	Yellow
Spurs	Straight	Hooked	Straight	Incurved
Leaves	Basal	Stem leaves present	Stem leaves few but present	Stem leaves few but present
Height**	5 – 20 cm	20 – 80 cm	Up to 1 m	20 – 60 cm

* from Flora of North America

** from Moss 1992

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Flora of North America Editorial Committee. 1997. Flora of North America north of Mexico, Volume 3, Magnoliophyta: Magnoliidae and Hamamelidae. Oxford University Press.

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

Improving the Procedures for Sale of Public Land

In September 2010, a Ministerial statement of intent to approve sale of 65 sq. km (25 sections) of public land that would see native prairie turned into irrigated potato fields was a lightning rod for public discontent over shortcomings in how government deals with public land sale. Information about the proposed sale emerged through media reports and interviews, and was often incomplete and inaccurate. There were unexamined implications for native prairie of national environmental significance, species at risk, soil conservation, watershed protection, and current uses

of the land for sustainable livestock production and outdoor recreation. Standard procedures regarding sale of public land were not followed. The lack of an open, transparent, and fair public process was a major concern for many Albertans. The proponent withdrew the application amidst a storm of controversy.

In light of this event and the history of public land sales in Alberta, the Alberta Native Plant Council, Alberta Wilderness Association and Nature Alberta have prepared a document entitled *The Sale of Public Land in Alberta:*

Recommendations for Improving Regulation, Policy and Procedures. The objective of this document is to promote discussion about improvements in regulation, policy and procedures regarding sale and acquisition of public land, including tax recovery land. The focus is on public lands in the White Area of southern Alberta and the Peace River region but also includes consideration of public lands in the Green Area. The complete document is available on the Alberta Native Plant Council website (www.anpc.ab.ca) under “Publications.” ♦

Whitebark & Limber Pine: A Field Guide to Our Endangered Conifers

By Cyndi Smith

Feature	Whitebark Pine <i>Pinus albicaulis</i>	Limber Pine <i>Pinus flexilis</i>
Young bark	Bark pale grey, from a distance appearing whitish to light grey and smooth	Bark light grey, nearly smooth
Older bark ¹	With age becoming light brown and thinly plated without conspicuous fissures	With age (generally >30 cm DBH) becoming dark reddish-brown and cross-checked longitudinally into scaly plates and conspicuous fissures
Branches ²	Roughening of branches at a larger size, >10 cm diameter	Roughening of branches at a smaller size, <10 cm diameter
Pollen cones ³	Scarlet in colour, cylindro-ovoid, ca. 10–15 mm	Yellow in colour, broadly ellipsoid-cylindric, ca. 15 mm; as they age may turn reddish-brown
Seed cones ³	Spreading, symmetric, broadly ovoid to depressed-ovoid or nearly globose, 4–8 cm, dull grey to black-purple, sessile to short-stalked; scales thin-based and easily broken off	Spreading, symmetric, lance-ovoid before opening, cylindro-ovoid when open, 7–15 cm long, yellow-brown, resinous, sessile to short-stalked; scales thick-based, securely held on
Cone location on tree	Cones usually on apical portion of canopy	Cones may be throughout the canopy, even on lower branches
Cones at maturity	Remain closed on tree (unless dislodged by animals), not opening naturally but through animal agency	Open on tree, shedding seeds and falling soon thereafter
Cones on ground	No intact cones of prior cone crop at base of tree; any cones show predation and disintegration	Intact cones (usually seedless) of prior and older cone crops often found at base of tree with no sign of predation

References:

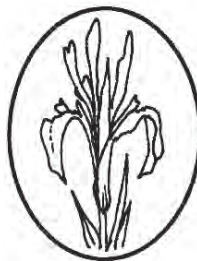
1. Kral, R. 1993. *Pinus*. Flora of North America north of Mexico, Vol. 2. Flora of North America Editorial Committee (eds.). Oxford University Press. Available online [http://www.efloras.org].
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Want to help? ANPC needs volunteers:

- Rare Plant Committee members
- *Iris* Newsletter Editor
- Steward for Whitehorse Wildland
- Workshop Organizing Committee members
- Treasurer (term begins in April/May 2012)

For more information, please contact us at info@anpc.ab.ca.



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plants of Alberta book, and the many ways individuals can get involved with ANPC, such as Botany Alberta, Adopt-A-Plant, the Rogue's Gallery and Plant Watch. ♦



**Limber pine pollen cones on left;
whitebark pine pollen cones on right**
Photo Katherine Kendall



Whitebark pine pollen cones on the tree
Photo Cyndi Smith

**Limber pine pollen
cones on the tree**
Photo Cyndi Smith



**Whitebark pine cones showing one
that has been hammered by a Clark's
nutcracker, exposing the seeds**
Photo Cyndi Smith



**Whitebark pine cones on left;
limber pine cones on right**
Photo Katherine Kendall



**In this early spring photo of
limber pine cones, last year's
open cones (bottom) and this
year's green growing cones
(top) are shown**
Photo Cyndi Smith

Central Alberta Rare Plant Study Group

Dates: Last Tuesday of the month; starts October 25, 2011, and ends April 24, 2012

Time: 6:00 p.m. to 9:00 p.m.

Location: University of Alberta Herbarium, Room B319 (3rd floor), Biological Sciences Building (east end), Saskatchewan Drive, Edmonton, AB

Parking: The parking garage located at the north end of 116 St. near the intersection with Saskatchewan Drive is \$5 for the whole evening, if you arrive after 4:30 p.m. Parking meters on Saskatchewan Drive are \$3 per hour (24 hrs/day).

What to Bring: Notebook & favourite reference book, if you have one (not required); snacks or a beverage, if desired

RSVP: Space is limited! Please sign up by contacting Kristen Andersen (kristen@adoptaplantalberta.com)



Southern Alberta Rare Plant Study Group

Dates: First Saturday of the month; starts October 1, 2011, and ends April 7 or May 5, 2012 (depending on circumstances)

Time: noon to 4:00 p.m.

Location: University of Calgary Herbarium, Biological Sciences Building (basement), University of Calgary, 507 Campus Drive NW, Calgary, AB

Parking: Parking lot located directly south of the south (basement) entrance to Biological Sciences Building

Public Transportation: C-train access via the Northwest train line; get off at the University of Calgary station

What to Bring: Notebook & favourite reference book, if you have one (not required)

RSVP: Space is limited! Please sign up by contacting Leslie Monteleone (lesliemonteleone@hotmail.com) or Heide Blakely (enzian44@shaw.ca)

New Oil Sands Reclamation Research

In February 2011, Patricia Marlowe published her thesis entitled *Carex establishment on reclaimed oil sands landscapes: A case study at Suncor Energy Inc.*

Included in Appendix G (120 pages) of the document is a literature review of each species, focusing on its application in reclamation (e.g., habitat preferences, seed weight, germination, propagation, forage/wildlife use and mycorrhizal association). The thesis supplement includes detailed photos of each of the 66 *Carex* species encountered as part of this research, a valuable resource for any botanist working in the oil sands.

Patricia's full thesis can be viewed or downloaded from Royal Roads University's DSpace: <http://hdl.handle.net/10170/407>. The photo supplement is available on the Alberta Native Plant Council website (www.anpc.ab.ca) under "Publications." ♦

Knotsheath sedge (*Carex retrorsa*)
Photo Laurie Hamilton



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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Submission deadline for the next issue:

January 15, 2012

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