The Native Plant Study Group

April 2010

A look through time: Garry Oak Ecosystems

By: Kristen Harrison

Dr. Brenda Beckwith gave a passionate and enthusiastic presentation to the Native Plant Study Group last month about Garry oak ecosystems with a special emphasis on *Camassia* sp. Dr. Beckwith knows Camas well from completing her doctoral research on the ethnoecology of this edible root food at the University of Victoria where she teaches now.

The current Canadian distribution of Garry oak (*Quercus garryana*) ecosystems is limited to southeastern Vancouver Island and the Gulf Islands in the rainshadow of the Olympic and Vancouver Island mountains, though a few stands remain on Savary Island and in the Fraser Valley. Paleoecological records from Vancouver Island suggest *Q. garryana* arrived around 8000 years ago and current distributions are essentially remnants of a much wider historical range.

Garry oak ecosystems are characterized by a mosaic of vegetation types including oak woodland (25–75% tree cover) and oak savanna (5–25% tree cover). Floral diversity is high and is regionally determined by topography, soil depth, and fire interactions. These ecosystems are known to support 694 plant taxa and 61 of these are at risk. In the last 150 years, agricultural, residential, and industrial development have vastly reduced the extent of Garry oak ecosystems. Only 1-5 % of the original extent of Garry oak ecosystems remains in a near-natural condition. Historically, the largest tracts of *Q. garryana* ecosystems were on deep soil habitats. Upon European settlement, deep-soil sites were preferentially sought and thus, the present-day distribution of oak savannas is highly unrepresentative of historical conditions. The vast majority of deep-soil sites have been destroyed, leaving much that remains on steep, rocky terrain at high elevations. Many provincially and nationally endangered species in this ecosystem are associated with deeper soils.

Forming seas of intense blue in early spring, Camas (*Camassia quamash* and *C. leichtlinii*) are the best known associated Garry oak species. The great camas, *C. leichtlinii*, is less common than *C. quamash,* but both are found in similar habitats and across a similar range. The two species can be differentiated by flower characteristics. The tepals (term used when the petals and sepals can't be told apart) of *C. leichtlinii* twist together to cover the fruit, while those of *C. quamash* do not. Common camas has 5 tepals curved upwards and the 6th is curved downward. Additionally, common camas flowers several weeks before great camas. Like many Liliaceous plants, Camas has both absorptive and contractile roots. Contractile roots have the power of contracting, thus continually pulling the plants deeper into the ground, while absorptive roots enable plants to take up water and mineral salts.

Camas was an extremely important food source for First Nations. The bulbs were harvested with the flowers still visible as not to confuse the bulbs with the poisonous *Zigadenus venosus* (death-camas). Harvesting was a seasonal event that could last for weeks and involved digging the bulbs out with pointed sticks and pit-cooking them for 1 to 2 days. Bulbs were strategically dug in an

Photo Dave Blevins
Acer macrophyllum

The Native Plant Study Group meets on the third Thursday of the month from September through May at the MacLaurin Building, UVic.

Please join us!

The NPSG gratefully acknowledges the support of the Restoration of Natural Systems (RNS) program at UVic in securing the use of the rooms and facilities.

UVic parking policy--pay parking is in effect 24 hours a day. You must purchase a $2 parking permit for the evening.

Save yourself the trouble by riding your bike or taking the bus! (http://www.bctransit.com/regions/vic/)

effort to leave the largest bulbs. First Nations' oral traditions and stories often had embedded within them lessons for the young to learn how to harvest Camas effectively. Camas patches could be owned and inherited by families and were maintained in order to produce healthy Camas bulbs through regular fires.

Frequent fires in Garry oak habitats thin out woody species and maintain the open canopy. Interestingly, where Camas fields are seasonally flooded (e.g. Courtenay, Port Alberni), water can serve the same function as fire by keeping the ground free of shrubs and replenishing nutrients. Fire exclusion has been described as the most serious ecological problem facing remnant Garry oak stands that are protected from development.

Dr. Beckwith reminds us of humankind's relationship with the natural world and the importance of respecting these ecosystems. For future generations to be able to experience the richness and beauty of these areas, we must make an effort to maintain and restore what is left to the best of our ability. The range of biological and cultural values vested in Garry oak ecosystems makes imperative their conservation.

For more information:

Garry Oak Ecosystems Recovery Team: http://www.goert.ca/

MacDougall AS, Beckwith BR, Maslovat CY (2004) Defining conservation strategies with historical perspectives: a case study from a degraded oak grassland ecosystem. Conservation Biology 18: 455-465

Photo by: Jim Riley
Salix hookeriana

Events & Outings

Victoria Natural History Society

Sunday, April 18

Field Trip (LVL 4)-Enjoy All that Jocelyn Hill Has to Offer
Join us to enjoy the wildflowers and the birds. Hopefully, we'll see the Gold Stars (*Crocidium multicaule*) in bloom. There is also an amazing array of other delights and great panoramic views from the ridge. The trail is steep and challenging but we'll take a leisurely pace. Wear sturdy shoes and can bring a walking stick and a lunch as it is a full day event.

Location & Time:
Jocelyn Hill at 9am

Contact | Rick T: 250-885-2454

Friday, April 23

Field Trip (LVL 3)-Two for One Bargain: Horth Hill and Bear Hill Wildflowers
It is hard to fit all the good wildflower areas into a short period when they are at their peak, so we'll give you two treats in one day: Horth and Bear Hills. The flora is quite different despite their close proximity. Horth Hill is sunnier and Bear Hill is woodsier and doesn't get as much sun. Hopefully, we'll see some Pink Fairy Slippers (*Calypso bulbosa).* The trails are steep but not as challenging as others. We'll take a leisurely pace. Wear sturdy shoes and can bring a walking stick and a lunch as it is a full day event.

Location & Time:
Parking lot at Horth Hill at 10am

Contact | Agnes T: 250-721-0634 | thelynns at shaw.ca

Monday, April 26

Field Trip (LEVEL 3)
Enjoy the Wonders of Thetis Lake Park
This park is overflowing with wildflowers, common and uncommon. Enjoy the ferns, lichens, mosses, and others. Our walk will only cover a small fraction of this fantastic

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For all VNHS events: No pets please.
Bring a lunch and drinks for the all-day outings.
Wear appropriate attire and footwear.

Contact Agnes | 250-721-0634 | thelynns(at)shaw.ca | www.vicnhs.bc.ca

Photo by: Matt Fairbarns
Abronia umbellata var. breviflora

park. We hope this visit encourages you to come again on your own.

Location & Time:
Main Parking lot at Thetis Lake Park at 10am

Contact | Agnes T: 250-721-0634 | thelynns at shaw.ca

Friday, April 30

Field Trip (LVL 2)- Plants of Cattle Point & Uplands Park
Conservationist Matt Fairbarns will show you many reasons why this area of rare and endangered plants in an urban setting is so special. We'll be walking on some rocky bits but this is basically a level trail and is an opportunity for those who can't handle the usual Southern Vancouver Island rocky terrain where the wildflowers typically grow. You can bring a snack and drink if you'd like.

Location & Time:
Nature sign in Cattle Point/Uplands Park parking lot at 10am

Contact | Agnes T: 250-721-0634 | thelynns at shaw.ca

Tuesday, April 20

BOTANY NIGHT: Lichen and Moss Communities Found on Garry Oak (*Quercus garryana*) Bark
Camosun College students Anne Anderson, Angela Lougheed, and Andrea Panich will present results of their Camosun thesis project: the study of epiphyte distributions on Garry oak trunks at two sites: the Lansdowne campus of Camosun College in Victoria, and the Cowichan Garry Oak Preserve in Maple Bay. Admission is free. Bring a friend.

Location & Time:
Swan Lake Nature House at 7:30pm

Swan Lake Nature Sanctuary

Saturday, April 17 & Sunday, April 18

Native plant sale

Time:
10am–3pm

Sunday, April 25

Wonderful Wildflowers
A celebration of spring for the whole family. Walks, crafts, music and more. Admission by donation

Time:
12-3pm

Sunday, May 2

Designing Your Garden With Native Plants
Native Plant Gardening Consultant, Pat Johnston and Landscape Designer/Horticulture Technician, Barb Kohlman, are teaming up for a workshop on garden design with native plants. The workshop will teach you to choose appropriate plants and draw a design for your own particular garden conditions. A tour of Swan Lake Native Plant Garden is included. $10 fee.

Contact | T: 250-479-0211 to register

Photo by: Kevin Newell
Saxifraga integrifolia

NPSBC Native Plant Society of British Columbia

Saturday, May 1 & Sunday, May 2

Spring 2010 AGM
Join us for: a tour of Somenos Marsh and Garry Oak Protected Area, a tour of the Cowichan Garry Oak Preserve, lunch at Maple Bay, field trips to Mount Tzouhalem Ecological Reserve and/or Honeymoon Bay Wildflower Reserve.

Contact | Dawn T: 604-831-5069 | dawnhanna@telus.net

Reoccurring Events

Victoria Natural History Society

Botany Night

3rd Tuesday of each month
Go to www.vicnhs.bc.ca to become a member and support our local Natural History Society!

Location & Time
Swan Lake Nature Centre at 7:30 pm

Contact: Darren Copley| dccopley(at)telus.net| http://www.vicnhs.bc.ca/

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Swan Lake Nature Sanctuary

Native Plant Workshops

Sat, Apr 10th 9:30am–12:30pm
Sun, Apr 11th 1–4pm

Native Plant Sale

Sat, Apr 17th 10am–3pm
Sun, Apr 18th 10am–3pm

Plant Nurseries in Victoria

Cannor Nurseries
4660 Elk Lake Drive
250-658-5415
www.cannor.com

GardenWorks-Saanich
4290 Blenkinsop Rd
250-721-2140
www.gardenworks.ca

Lochside Nursery
Lochside Drive
250-544-3100
www.csll.ca/lochside.html

Thousand Summers Environmental Design
250-727-0229
thousandsummers@shaw.ca

GardenWorks-Colwood
1859 Island Highway
250-478-2078
www.gardenworks.ca

Island View Nursery (wholesale)
2933 McIntyre Road
250-544-4802

Marigold Nurseries
7874 Lochside Drive
250-652-2342
www.marigoldnurseries.com

Swan Lake Christmas Hill Nature Sanctuary
250-479-0211
www.swanlake.bc.ca

Nature's Garden Seed Co.
Victoria, BC
V8P 5S2
250-595-2062
www.naturesgardenseed.com

Russell Nursery
1370 Wain Road
250-656-0384
www.russellnursery.com

Nursery information found at : http://www.goert.ca

Volunteer Opportunities

The Anti-Ivy League of Cadboro Bay

Seapoint Dr., Saanich
Volunteer for great camaraderie, loads of fun and a feeling of satisfaction. Start up early March and finish about early November.

Location & Time:
Konukson Park on 10-Mile Point every Wed. and Sat. from 9am-12pm

Contact Harry Drage | T: 250-477-9544 | hdrage(at)shaw.ca

Brodick / Bow Park

West of Univ. Heights shopping centre off of Cedar Hill Rd

Invasive species removal and site restoration. Training and tools provided.

Location & Time:
Schedule and location may vary every Mon. 10-12pm

Contact Judy Spearing | T: 250-472-0515 | jandd_speaing(at)shaw.ca | www.mountdouglaspark.ca/calendare.do

Swan Lake Christmas Hill Nature Sanctuary:

3873 Swan Lake Road, Victoria
Swan Lake has a wide range of volunteer opportunities involving plants: nature interpretation, gardening with native plants, and removal of invasive plants.

Contact Robyn Burton T: 250-479-0211 | volunteer(at)swanlake.bc.ca

Glendale Gardens Native Plant Demonstration Garden:

505 Quayle Road, Saanich
Snow, rain or shine! Before coffee we work in the Western Woods restoration project and after coffee we work in the native garden. Volunteers welcome.

Time:
Every Wednesday morning

Contact | T: 250-658-5740

Photo by: Jim Dickson
Lysichiton americanus

NATIVE PLANT STUDY GROUP

Go to the ant, thou sluggard; consider her ways, and be wise

Proverbs 6:6

By: James L. Hodgins (contributing editor of the now defunct WILDFLOWER)

Don't kill that ant! You may be hindering the spread of many of our native wildflowers. Ants are responsible for dispersing the seeds of at least 90 species of North American wildflowers from 24 plant families. Because this seed collecting activity benefits both the ant and the wildflower it is termed a mutualistic relationship or symbiosis. In biology this particular symbiosis is called myrmecochory (pronounced mir/me/ko/ko/re) an interesting word translating from the Greek 'myrmex' ant, and 'chore' farm. Not only do the ants harvest the seeds for food but they also 'plant' the seeds for a future crop.

Approximately 30% of our spring blooming species of mesic, deciduous woodland wildflowers are myrmecophytes i.e. plants whose seeds are dispersed by ants. These include such well known species as wild ginger, trilliums, bloodroot and fringed polygala.

Photo by: Jamie Fenneman
Zizia aptera

In Ontario there are 93 species of ants and approximately 2500 species of native and naturalized wildflowers, of which there are 25 genera with myrmecophytes. Almost all ripe seeds have a protective coating much too hard for a hungry ant to penetrate. The myrmecophytes have evolved a method of feeding their dinner guests without damaging the precious seed. The myrmecochorous seed has an 'ant snack' attached to the outside of the seed coat. To gain a quick visual appreciation of these 'ant snack' seeds, glance through F.H. Montgomery's *Seeds and Fruits of Plants of Eastern Canada and Northeastern United States*. You will find individual photographs of seeds from 1100 species of wildflowers of which it will be obvious which seeds are from myrmecophytes. The 'ant snacks' appear as white, cream coloured or transparent ridges or protuberances, covering a minor portion of the seed coat. This specialized appendage is known botanically as an aril, caruncle, or, more commonly, an elaiosome. It is filled with an oily fluid containing mainly fats (diglycerides) and possibly sugars. Volatile vapours from the elaiosome, known as pheromones, may attract ants to the seed.

Once the ripe diaspore (seed or fruit) has been shed to the ground it is only a short time before it is harvested by an ant. The seed is carried back to or near the ant nest. Distances of transport up to 10m have been recorded. Here the ants bite the elaiosome and feast upon the contents. After dining, the intact seed is removed to an abandoned nest tunnel or an outside seed dump. In the case of Polygalapaucifolia (fringed polygala), the ants actually remove the seeds from cleistogamous (self-fertilized) underground flowers and then carry them away.

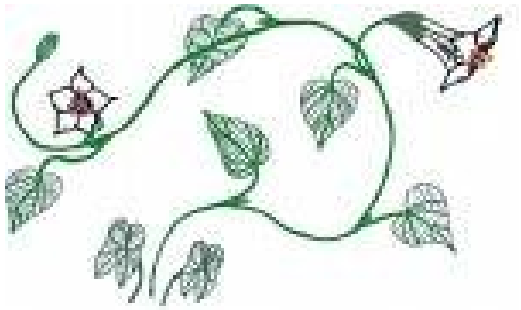
The ants have dined well at Hotel Myrmecochore. What does the generous wildflower get in return? It has after all, expended considerable energy in producing those 'ant snacks'. Many of the myrmecophytes grow in deeply shaded forests in which much of the soil's nutrients are frequently locked up in the biomass of mature trees. This may result in nutrient stress making it difficult for seedlings to survive. Conversely, the ant nests are rich in nutrients, particularly phosphorous and nitrogen, optimizing conditions for growth. Seeds discarded in tunnels or dumps are removed from competition with non-myrmecophyte seeds, as well as the parent plant and clones. Seeds dispersed and buried are less likely to be eaten by rodents or birds. Experimentation has shown that the removal of the elaiosome in some species will accelerate seed germination, ie *Sanguinaria Canadensis* (bloodroot). Consider the ways of the ant... if you want to help wildflowers spread, don't swat those ants on your next picnic; don't spray insecticides on your garden... be wise.

NATIVE PLANT STUDY GROUP

May Speaker: We Are Pleased to Welcome Lise Townsend

Rain gardens and other 'low impact development' techniques help to restore the natural water cycle in cities, alleviating some of the problems of urbanization. This talk will focus on why this approach is needed, what rain gardens are and how they can contribute to urban biodiversity, some basic design instructions and tips, and ideas and discussion about ideal local native plants for these garden features.

Lise Townsend (MSc, RPBio) has a background in urban watershed ecology, and has been closely following the rapidly developing field of Low Impact Development, as it is practiced in the Pacific Northwest, over the past few years.



NATIVE PLANT STUDY GROUP (NPSG)
(Sub-group of the registered non-profit Native Plant Society of British Columbia and is guided by a steering committee)

The NPSG is a non-political group dedicated to learning about B.C. native plants as wild populations and in garden settings, and to supporting conservation of native plants and their habitats. Participation in outside events, by the group, or by individual members, using the NPSG name is dependent on approval of the steering committee or, where indicated, by the at-large membership. Activities requiring funding must receive approval by the general membership.

Co-Chair	Valerie Elliott| co-chair@npsg.ca
Co-Chair:	Nathalie Dechaine| co-chair@npsg.ca
Speakers:	Kristen Harrison
Treasurer:	Joan Varley
Newsletter:	Ilana Kronick
	Kristen Harrison
	Hilary Stead
Plant Rescue:	Todd Doherty
Membership:	Agnes Lynn
Publicity:	Valerie Elliott
Room Set-up:	Pat & Wayne Robertson
Plant Raffle:	Heather Pass
List-serve:	Linda Beare & John Olafson
Refreshments:	Pat McMahon
Archivist:	Brenda Pilon

Native Plant Study Group members are members of the Native Plant Society of BC.