NPSG

OCTOBER 2008

Pink mountain heather
Phyllodoce empetriformis

NATIVE PLANT STUDY GROUP

ECOLOGY OF BURNS BOG WITH THOMAS MUNSON

Bogs are beautiful but little known ecosystems that have global significance as wetlands and as carbon storage. For four years, Thomas Munson has been studying the vegetative changes in Burns Bog in the District of Delta. Bog ecosystems form through the action of keystone Sphagnum species and a perched, acidic water table. This 4000 year old bog faces serious threats from: the alternations in precipitation because of climate change, peat mining that may further reduce the 30% of intact bog remaining, and the new highway that will create a "hard barrier" on the West side of the bog.

The level of the water table is critical in the ecology of a bog. The acrotelm and the catotelm are the active layers of the peat that form a dome which is responsible for maintaining the water level above the level of the compressed peat. The micro ecology of the bog is divided into gradients based on the height and variability of the water table. In the most historically accurate and truest plant community in the bog lies towards its center: a Rhynchospora-sphagnum community (sphagnum, whitebeak rush, chamisso's cottongrass, yellow pond lily, Round-leaved sundew). This community begins to blend more and more heavily with Pinus contorta (Lodgepole pine) communities that are invading the Burns Bog. The communities, from the inside of the bog outwards are: Lodgepole pine-low shrub- sphagnum (bog cranberry, cloudberry, bog rosemary, cladonia), Lodgepole pine-high shrub- sphagnum (bog blueberry, western bog laurel, reindeer lichen) and Lodgepole pine- sphagnum (salal, Labrador tea, velvet-leaved blueberry, understorey vegetation of other mosses, small salal and pines).

The intense development of the Lower Mainland has threatened the health and even the existence of this most southerly bog on the Pacific coast: Burns Bog. These threats include: development proposals, dikes, ditches, agriculture, highways, and peat mining and industrial and private land. Fraser River has been diked so it cannot flood into the adjacent communities or into the bog. There is an active and large landfill that when full, will likely tower 40ft above the level of the bog. There are only two drainage ditches to protect the bog water from being contaminated with leachate from the landfill. The cranberry and

blueberry farmers had for many years, been constructing drainage ditches from the bog into their fields as a means of irrigation. Burns Bog has also experienced profound disturbance from peat mining efforts for the agricultural and gardening industries. The top 3-4 m of peat was vacuumed up from long, straight channels through much of the bog, the compressed peat was loaded into railway cars and the remained was extruded in thin ridges between these channels. There are already roads on three sides of Burns Bog, a proposed South Fraser Perimeter Road would remove the last area of natural water and species exchange for the bog.

In 2003-2004, Metro Vancouver made their largest land conservation effort to date and purchased the 3000 ha of Burns Bog. A Burns Bog Conservation Society was formed to help to guide the conservation and restoration efforts at the bog. The goals for this project include a) restoring the water table to historic levels b) retaining winter rainfall into the summer c) re-establishing sphagnum colonies d) restoring peat forming processes in degraded areas of the bog. Techniques that have been employed to gain a greater understanding of the functioning of the bog include: active blocking of ditches, installation of a network of water piezometers, 4 year study of 50 permanent vegetation plots, and photo-point monitoring records. Thomas Munson has been conducting fieldwork for four successive high-water seasons during the spring at Burns Bog. He has noticed that only some of the natural regeneration processes maintain the bog ecosystems (beaver dams, growing Sphagnum colonies). Other processes, such as the large fire in 2006, seem to favour forest species such as fireweed, salal, bracken fern, birch and pine seedlings. Therefore, Metro Vancouver and District of Delta have encouraged the efforts at Burns Bog by damming drainage ditches and by restricting access to the Bog (to decrease the risk of fire and the spread of invasive plants such as birch, salal, lodgepole pine and hardhack). There is however, ways to get more information about Burns Bog: the Burns Bog Conservation Society website (www.burnsbog.org) and the Delta Nature Preserve past the North-East Corner of the bog.

White mountain-heather (*Cassiope mertensiana*)

It is important to have these informational resources available to Canadians who are not as familiar with bogs and peat as many people around the world. There are international Peat Conference's that are held so that different groups can explore their ideas about how peat can be used: for residential heating in Ireland and Scotland, industrial mining in Europe and Eastern Canada, some communities are even seeing potential in bogs for use in the forestry and the agricultural sectors. Modern utilization of peat bogs may be too intensive however for these globally important carbon sequestration ecosystems. The land base of Ireland is still 20% historical bogs and Ireland therefore could stand to be at an international market advantage if it could wean itself off of peat-based energy. Canada is facing a similar issue with the conservation of our bogs due to our reliance on garden peat (think twice before buying peat!).

You can visit our local Richets Bog, near Pat Bay Highway.

Sincere thanks to Amanda Patt for this article.

NATIVE PLANT STUDY GROUP

OCTOBER 2008

EVENTS AND OUTINGS

For information on many environmental activities in our area check the Green Diary from the EcoNews website at http://www.earthfuture.com/greendiary/

Check the CRD parks website for detailed information on their many programs; wear appropriate clothing for the weather and sturdy footwear for all outings: www.crd.bc.ca/parks

For all VNHS activities, please contact Agnes at 721-0634 or email her (thelynns at shaw.ca) if you need more information. No pets please. Bring a lunch and plenty to drink for the all day outings. Check the VNHS website for more details:vicnhs.bc.ca

VIRAGS (Van. Island Rock and Alpine Garden Society) meetings are held at Gordon Head United Church Hall, 4201 Tyndall, doors open at 7 pm.

Every Saturday at 1:30 pm: Tour of Merve Wilkinson's Wildwood Forest, Ladysmith. Jay, 250-245-5540 www.ecoforestry.ca/WildwoodMap.htm

Sun Oct 19 VNHS Koksilah Trees Worth Saving
You probably have heard about the big old growth Douglas Fir trees along the Koksilah River in the Shawnigan Lake area. Warrick Whitehead is one of a dedicated group trying to save these trees from being logged. He will lead us into the area and show us why this stand is unique and must be saved. To find out more about these trees, check out http://koksilah.blogspot.com . Meet at 9:15 at Helmcken Park & Ride to car-pool to Shawnigan.

Sun, Oct 19 SVIMS Wild Mushroom Show 10-4
Discover the world of wacky and wonderful mushrooms of Vancouver Island. Bring your specimens for identification by members of the Mycological Society. Drop-in family program for ages 6 and up. Swan Lake Christmas Hill Nature Sanctuary, 3873 Swan Lake Road. Donations appreciated. Contact Margaret Lidkea: 250-479-0211.

Sun Oct 19 CRD Cedar Grove to Cougar Ridge Hike
Roche Cove Regional Park (East Sooke) 11am-3pm
Hike to one of the most spectacular viewpoints in the region. Meet in the parking lot off Gillespie Road

Tues Oct 21 Botany Night: The Fynbos of South Africa
Join Phillipa Hudson as she journeys back to her roots to experience the extraordinary plant diversity of the Cape Floral Kingdom. "Fynbos (meaning "fine bush" in Afrikaans) is the natural shrubland or heathland vegetation occurring in a small belt of the Western Cape of South Africa, mainly in winter rainfall coastal and mountainous areas with a Mediterranean climate". Admission free and everyone welcome. Bring your friends! Swan Lake Nature House 7:30 p.m.

Tues Oct 28 VIRAGS David Sellars - Following in the Footsteps of Reginald Farrer in the Dolomites
David Sellars is on the Executive of the Alpine Garden Club of British Columbia and is an active member of the North American Rock Garden Society (NARGS). He is a frequent contributor to the NARGS Quarterly Journal and his photos have won a number of awards in the annual NARGS photo contest. He is a keen mountain hiker and maintains the Mountain Flora website . He gardens with his wife, Wendy in South Surrey, British Columbia.

Tues Nov 25 VIRAGS Sean Hogan - Plants of the Sierras
Sean, of Portland's Cistus Nursery, explored for plants in North, Central, and South America when he was at U of C Berkeley Botanic Garden. His previous talks here were on the Great Basin of Oregon, California, Utah and Nevada, where the south-facing slopes have flowers in late winter, and on alpines of Mexico.

Swan Lake Nature Sanctuary is hosting the following free native plant gardening workshops. To pre-register please call 250-479-0211

- Sat Oct 18 1:00 p.m. to 4:00 p.m.
- Wed Oct 2, 1:00 p.m. to 4:00 p.m.
- Sat Nov 15 9:30 a.m. to 12:30 p.m.
- Sun Nov 16 1:00 p.m. to 4:00 p.m.

NATIVE PLANT STUDY GROUP

OCTOBER 2008

VOLUNTEER OPPORTUNITIES

•... The Anti-ivy League of Cadboro Bay is fighting an ongoing battle. Is your warrior spirit ready to tackle the soul-sucking expanse of this pernicious weed? Contact Agnes at 721-0634 or thelynns@shaw.ca for more info.

•... Hospital Rock: Contact Agnes as above

•... Volunteer at Swan Lake Christmas Hill Nature Sanctuary For further details contact Joan at 479-0211 or email volunteer@swanlake.bc.ca.

•... Beacon Hill Park Ivy Pull, Saturdays (except long weekends), 9 am-Noon southeast woods near Cook and Dallas. Bring gardening gloves. No dogs. Volunteers welcomed. Call Cornelia, 920-3556 or kacy@islandnet.com .

•... Oak Bay Native Plant Garden meet every Fri. morning from 9-11, weather permitting. Corner of Beach Drive and Margate Avenue. New members welcome. Guided walks in March and April.

•... Brighton Avenue Walkway Restoration. Removal of invasives and re-planting of native species in a Garry Oak rocky outcrop situation. Work each Sun. 9:30 - 11:30. Meet at Hampshire and Brighton, 2 blocks south of Oak Bay.

•... Garlic mustard removal at Mt Doug park. Contact Judy Spearing at 472-0515 or email to jandd_spearing@shaw.ca

•... CRD Regional Parks is gearing up for this year's restoration work at Mill Hill Regional Park. Anyone interested in a couple of weeks of hard but satisfying work removing invasive species, M-F from September 8-19, please contact George Gollmer at ggollmer@crd.bc.ca or 478-3344.

•... Friends of Mount Douglas Park Society. Douglas Creek has three projects Sept to Nov 2008. If you feel that you are able to help with any or all of the projects please email Bob Bridgeman at rbridge@shaw.ca If you need more info call 250-477-7464

Sat Oct 18 Oak Haven Park Community Day
Come out and join us for a day helping to preserve the Garry Oak meadows at Oak Haven Park in Central Saanich. Join the guided bird walk from 8:30am-10am. The weed-wallup is from 10:00am-2:00pm with a free lunch provided for all! Bring water, protective cloth ing, sunscreen, gloves and cutters or loppers. We will provide plenty of water to refill your bottles. Meet at the south entrance to Oak Haven Park located between 1231 and 1217 Garden Gate Drive. Please call us to register if you plan on attending the lunch so we can plan accordingly. Contact Wendy at 250-995-2428 or wendyct@telus.net for more information. Remember, this is a family event!

Sat Oct 25 and
Sat Nov 1 CRD Parks Mill Hill "Get Out and Give Back" restoration event 12-4 pm Volunteer with a team and remove invasive Scotch Broom at Mill Hill Regional Park to restore threatened Garry Oak ecosystems, including rare and endangered species.

The NPSG gratefully acknowledges the support of the RNS program at UVic in securing the use of the rooms and facilities.

Garry Oak Restoration Project
If you would like to volunteer with restoration of these Saanich parks, please contact Jen Eastman at ferns1 at telus.net All times are 9:30-11:30 am.
Sat Oct 18 at Camas Park
Sat Oct 25 at Mount Doug Summit
Sat Nov 1 at Chatterton Hill Park
Sat Nov 15 at Mahon Brook
Wed Nov 19 at Wetherby Park
Sat Nov 22 at Wetherby Park
Sat Nov 29 at Little Mount Doug
Sat Dec 6 at Playfair Park

Congratulations! to our esteemed co-chair, Valerie Elliott, who has just been named as a member of the Premier's Citizen Conservation Council on Climate Change for Vancouver Island-Coast district. "The Citizens' Conservation Councils will advise government on the best ways to encourage individuals, local business and communities in their regions to learn more about climate change, participate in climate action initiatives, and reduce greenhouse gas emissions."

NATIVE PLANT STUDY GROUP

OCTOBER 2008

The Native Plant Study Group meets on the third Thursday of the month from Sept through May except Dec at 7 at the MacLaurin Building, UVic. Please join us. Membership fees are $15.00 annually or a $2.00 charge for drop-in. Check Room Schedule for new meeting locations.

PRESENTATION SCHEDULE

November 20 Room D116
Parasitic Plants of BC, with Excursions Elsewhere.
Dr Job Kuijt is a global authority on mistletoe species and his special interest is the structure and systematics of parasitic plants, mostly the mistletoe families of the New World tropics.

January 15 Room D116
Member's Presentation Night, topics tba

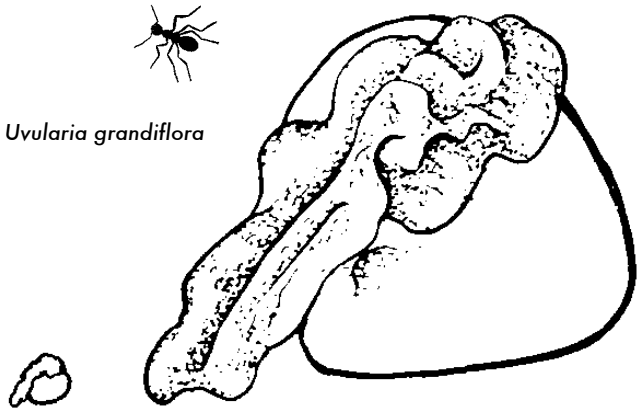
February 19 room tba
"Borrowing a Root" Transplanting Practices of British Columbia Indigenous Peoples with Dr Nancy Turner. This talk presents accounts and examples of indigenous transplanting practices and the implications of such practices.
Dr. Nancy Turner of Victoria is an internationally-distinguished scholar and scientist who has devoted her life to documenting the endangered knowledge of First Nations.

THE SYMBIOSIS OF ANTS AND WILDFLOWERS

by James L Hodgins - Summer 1985, the now defunct and sadly lamented WILDFLOWER magazine.

Go to the ant, thou sluggard; consider her ways, and be wise. Proverbs 6:6

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 called myrmecochory, pronounced (mirme ko ko re), an interesting word translating from the Greek 'myrmex' ant,and 'chore' farm. Possibly the coiner of this term perceived the ants to be engaged in a farm harvest. 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 (ie) plants whose seeds are dispersed by ants. These include such well known species as wild ginger, trilliums, bloodroot and fringed polygala. How do ants find these particular seeds and what do they do with them? Probably not all ant species collect seeds, nor ants.


Uvularia grandiflora

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.
Not only do the ants harvest the seeds for food but they also plant the seeds for a future crop. 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 FH Montgomery's Seeds and Fruits of Plants of Eastern Canada and Northeastern United States. Here there are individual photographs of seeds from 1100 species of wildflowers. It is 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 I0m 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 Polygala paucifolia (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 the 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 mvrmecophytes 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, e.g. *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.

Drawings by Zile Zichmanis 

NATIVE PLANT STUDY GROUP
(Sub-group of the Victoria Horticultural Society)

The NATIVE PLANT STUDY GROUP 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. The group is guided by a volunteer steering committee. Members are encouraged to volunteer for this committee. 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: Nathalie Dechaine
Co-chair: Valerie Elliott
Speakers:. Moralea Milne
Treasurer: Joan Varley
Newsletter: Moralea Milne
Plant Rescue: Todd Doherty
Field Trips: Jean Forrest
Pat Johnston
Membership: Agnes Lynn
Publicity: Valerie Elliott
Room Set-up: Pat & Wayne Robertson
Plant Draw: . Heather Pass
List-serve: Linda Beare & John Olafson
Refreshments: Pat McMahon
Archives: Brenda Pilon

VHS Liaison: Heather Pass

Native Plant Study Group members are required to become members of the Victoria Horticultural Society. Fees are $25.00/yr and help pay for insurance to cover field trips. Send $ to Box 5081 Stn. B, Victoria, V8R 6N3

The NPSG Newsletter is produced by Moralea Milne

Victoria Natural History Society: www.vicnhs.bc.ca
Native Plant Society of BC: www.npsbc.org
South Vancouver Island Mycological Society: svims.ca