

# Field Botanists of Ontario

Newsletter

Volume 17(3): Spring 2005

ISSN: 1180-1417



Lakeside Daisy (*Hymenoxys herbacea*) in flower on Manitoulin Island. Photo by C. Rigney.

## Field Trip Reports

Manitoulin Island Extravaganza  
(L. Collins).....3

Home Team Advantage at Bronte Creek  
(N. Hodges).....7

## Features

Flat-roof Flora  
(W. D. McIlveen).....9

Notes on Perfoliate Bellwort, *Uvularia perfoliata* L.  
(M. Thompson)..... 10

## Letters

Rocky Saugeen Feedback ..... 11

Errata ..... 12

## Notices

*Salix* Workshop with George Argus ..... 12





*FIELD*  
*BOTANISTS of*  
*ONTARIO*

**FIELD BOTANISTS OF ONTARIO NEWSLETTER**

Published quarterly by the FBO. ISSN: 1180-1417.

*The FBO is a non-profit organization founded in 1984 for those interested in botany and conservation in the province of Ontario.*

<b>President:</b>	Dirk Janas, 111 Raglan Ave, Apt 1503, Toronto, ON. M6C 2K9	<a href="mailto:djanas@gartnerlee.com">djanas@gartnerlee.com</a> 416-658-8070
<b>Vice President:</b>	Mary Ann Johnson c/o North-South Environmental Inc., PO Box 518, Campbellville ON. L0P 1B0	<a href="mailto:mjohnson@nseenvironmental.com">mjohnson@nseenvironmental.com</a> (519) 837-1767
<b>Treasurer:</b>	Bill Draper, 35 Hepbourne St., Toronto, ON. M6H 1K1	<a href="mailto:william.draper@sympatico.ca">william.draper@sympatico.ca</a> (416) 534-2892
<b>Secretary:</b>	Dan Barcza, P.O. Box 1510, Bradford, ON. L3Z 2B8	<a href="mailto:danbarcza@hotmail.com">danbarcza@hotmail.com</a> (905) 775-7633
<b>Past President:</b>	Carole Ann Lacroix, Botany Dept., University of Guelph, Guelph, ON. N1G 2W1	<a href="mailto:botcal@uoguelph.ca">botcal@uoguelph.ca</a> (519) 824-4120 ext. 8581
<b>Membership:</b>	Bill McIlveen, RR#1, Acton, ON. L7J 2L7	<a href="mailto:wmcilveen@aztec-net.com">wmcilveen@aztec-net.com</a> (519) 853-3948
<b>Field Trips:</b>	Nick Hodges, 18 Inkerman Street, Guelph, ON. NIH 3C5	<a href="mailto:nhodges.ecotec@aztec-net.com">nhodges.ecotec@aztec-net.com</a> (519) 823-5587
	Sarah Mainguy, RR#3, Guelph, ON. NIH 6H9	<a href="mailto:mainrod@sympatico.ca">mainrod@sympatico.ca</a> (519) 822-5221
<b>Newsletter Editor:</b>	Leslie Collins, 178 Burns Circle, Barrie, ON. L4N 6A8	<a href="mailto:fbo@lesliec.com">fbo@lesliec.com</a> (905) 833-1244
<b>Associate Editors:</b>	Michael J. Oldham, Natural Heritage Information Centre, Biodiversity Section, Ontario Ministry of Natural Resources, P.O. Box 7000, Peterborough, ON. K9L 1C8	<a href="mailto:michael.oldham@mnr.gov.on.ca">michael.oldham@mnr.gov.on.ca</a> (705) 755-2160
	Allan Harris	<a href="mailto:aharris@tbaytel.net">aharris@tbaytel.net</a> (807) 344-7213
<b>Website:</b>	Melinda Thompson	<a href="mailto:plantgirl2002@hotmail.com">plantgirl2002@hotmail.com</a> <a href="http://www.trentu.ca/fbo">www.trentu.ca/fbo</a>

The **deadline** for submissions for **Volume 17(4)** is **June 30, 2005**.

Standard source for scientific names and authorities of vascular plants:

Newmaster, S.G., A. Lehela, P.W.C. Uhlig, S. McMurray and M.J. Oldham. 1998. Ontario Plant List. Ontario Ministry of Natural Resources, Ontario Forest Research Institute, Sault Ste. Marie, Ontario. Forest Research Information Paper No. 123, 550 pp. + appendices



## Field Trip Reports

### Manitoulin Island Extravaganza

May 22 & 23, 2004.

#### Background

A small group of intrepid FBO members made their way to Manitoulin Island over the May 2004 long weekend to explore the diverse habitats and plant species present there. We were very lucky to have Manitoulin resident Judith Jones as our trip leader, who was able to take us to a variety of habitats in locations otherwise inaccessible to the general public.

Some stayed at bed and breakfasts, some camped on Judith's property, some arrived just in time to meet the group on Saturday, while others arrived late the night before to make time to take in some of the local sites. My party arrived late Friday night and took the morning to explore Little Current. We stumbled upon a farmer's market and soon found something we'd never heard of before – hawberry jelly. We learned that this jelly was made from the fruits of Hawthorns (*Crataegus* sp.). Intrigued, I immediately bought a jar.

We assembled at the tourist information centre in Little Current at noon on Saturday. Judith took this opportunity to get the group up to speed with some Manitoulin Island facts. Manitoulin Island is 130 km long and 40 km wide at its widest point. Approximately 430 million years ago it was a tropical reef in the middle of a shallow sea. This promoted the accumulation of limestone via the presence of crustaceans. Fossils on the island have been dated to as far back as the Silurian period.

Circa 20,000 years ago, Manitoulin Island was covered by glaciers, which melted approximately 11,000 years ago leaving the island under water. As portions of the island became exposed they were colonized with Arctic flora. Drier times on the island encouraged its colonization by prairie species. In addition, warmer periods encouraged the establishment of deciduous forest species. Manitoulin Island is currently home to over one-quarter of the flora present in Canada, with approximately 1,200 species of plants. This botanical diversity is the result of the presence of remnant Arctic, prairie and deciduous forest species, as well as maritime species and western disjunct species.

#### Bur Oak Prairie

Our first stop was a Bur Oak Prairie in close proximity to the Gore Bay airport. We were pleased to see stunted, loosely spaced Bur Oak (*Quercus macrocarpa*) surrounded by flowering Prairie Smoke (*Geum triflorum*), Early Buttercup (*Ranunculus fascicularis*) and two species of Pussy-toes (*Antennaria* sp.). The group noted that one species of Pussy-toes was shorter with a clumped umbel and whitish lower leaf surfaces, while the other was taller with a drooping umbel and greener leaves. We saw Early Saxifrage (*Saxifraga virginensis*), which we were told is typically tall when in the company of grasses, but short in more barren sites. Field Chickweed (*Cerastium arvense*), with its split petals, and leaves of Smooth Aster (*Symphyotrichum laeve*) were also present in the ground cover.



Stunted Bur Oak (*Quercus macrocarpa*) in the Bur Oak Prairie. Photo by C. Rigney.

Grasses included the caespitose Poverty Grass (*Danthonia spicata*), Tufted Hairgrass (*Deschampsia cespitosa*) and Flat-stemmed Spike-rush (*Eleocharis compressa*). Judith pointed out that Tufted Hairgrass has a membranous ligule with two "ears" and Flat-stemmed Spike-rush is flattened, twisted and leafless. Both of these species prefer wet locations. It had been raining steadily for some time and rubber boots were warranted in the Bur Oak Prairie, so these wet-loving species had a lot of habitat to choose from.

Shrubs were also present in this community, mostly located surrounding the scattered Bur Oak trees. The group was introduced to Snowberry (*Symphoricarpos albus*), Shrubby Cinquefoil (*Potentilla fruticosa*), Running Serviceberry (*Amelanchier humilis*), and Smooth Gooseberry (*Ribes hirtellum*). The Snowberry was very low in this habitat. We took some time to examine and note that Smooth Gooseberry has an entire leaf and individual flowers (setting it apart from many other *Ribes* species). We explored the possibility that the low and colonial *Amelanchier humilis* might actually be *A. laevis*.

The finishing touch on this extensive botanical list was the discovery of a *Drepanocladus* moss, which prefers wet areas. Judith told us that would mean we wouldn't be able to find the two other species on her list of potential finds in this habitat as those two species enjoyed drier habitats and would not grow where the *Drepanocladus* moss was present (the dry loving species we did not see included Screwcap Moss (*Tortella tortuosa*) and Irish Moss (*Cetraria* sp.; actually a lichen)).

Just as we were exhausting the list of plant species present in this community a large herd of cattle meandered through to check us out. Apparently Prairie Smoke is not palatable to cattle, which explained its dominance in the ground cover of the Bur Oak Prairie. We carefully let ourselves back out at the gate and proceeded to our next stop. Along the way, we stopped for some birding at the Lake Wolsey bridge. We were most fortunate to see an Osprey (*Pandion haliaetus*) with a live fish in its mouth and several Gulls (*Larus* sp.) in hot pursuit.



### Pavement Type Alvar

Destination number two on Saturday was a Pavement Type Alvar on the west side of Misery Bay. Old records indicate this alvar was present as an alvar as early as 1879. The rain tapered off for a little while during this leg of the trip, which was a nice change. It was at this time that our group of determined FBO members came face to face with an even more determined group of living organisms – plants that choose to grow in and around bare rock. Our caravan slowly and carefully made its way across an established trail along the pavement while golden flecks in the distance off the beaten path tempted us with thoughts of what species might grow there. Eventually the water was so deep along the trail we were worried we would drown some engines. When the going got tough, the tough started walking. We waded through this ankle- to knee-deep water for a very good distance.



FBO trip members exploring the Pavement Type Alvar. Note the linear bands of vegetation in the foreground. Photo by C. Rigney.

We certainly were not disappointed when we reached our destination. The golden flecks in the distance turned out to be Manitoulin Gold (*Hymenoxys herbacea*). Plants in this habitat do not really grow on the rocks, but out of cracks in the rocks, as evidenced by the linear bands of vegetation that spread before us. On the bare rock, between the bands, was a brownish-grey cryptogamic surface, most likely containing algae and/or cyanobacteria. *Nostoc* sp. was offered up as a probability. We tried our best to avoid disturbing these humble beginnings.

We saw some old favourites here, including Field Chickweed, Prairie Smoke, Early Saxifrage, and Shrubby Cinquefoil, and marveled at their adaptability. We also saw Wild Chives (*Allium schoenoprasum* var. *sibiricum*), Rock Sandwort (*Mimuartia michauxii*), Sand Cress (*Arabis lyrata*), Wild Columbine (*Aquilegia canadensis*), Goldthread (*Coptis trifolia* ssp. *groenlandica*), Large-leaf Wood-aster (*Eurybia macrophylla*), Gold-moss (*Sedum acre*), and Scarlet Indian-paintbrush (*Castilleja coccinea*). Goldthread has a single white flower with a trifoliate leaf. We noted that only the leaves of Large-leaf Wood-aster were present. Judith told us that Gold-moss is a common weed of alvars as it can reproduce vegetatively from fragments. Spring Whitlow-grass

(*Erophila verna*), an introduced species, was also present in this habitat. Of particular interest was the fact that there are no red Scarlet Indian-paintbrush flowers on the island, only orange and yellow flowers occur on Manitoulin.

Woody species were also represented on the alvar. Extremely stunted Jack Pine (*Pinus banksiana*) and Choke Cherry (*Prunus virginiana* ssp. *virginiana*) were scattered throughout, while prostrate shrubs were more difficult to quickly see. Closer examination led to the discovery of Sand Cherry (*Prunus pumila*), Bearberry (*Arctostaphylos uva-ursi*) and Creeping Juniper (*Juniperus horizontalis*) growing in the cracks. Sand Cherry is a dune stabilizer and is common in dunes and alvars. Someone wondered out loud how the Jack Pine in this location would propagate in the absence of fire. While we cannot entirely rule out fire as a factor at this alvar, apparently the low-grade heat produced by alvars is enough to allow Jack Pine cones to open in the absence of fire.

Members of the Cyperaceae present on the alvar included One-spike Sedge (*Carex scirpoidea*), Richardson's Sedge (*C. richardsonii*) and Ebony Sedge (*C. eburnea*). One-spike Sedge is dioecious and bears one spike per stalk. Richardson's Sedge bears red scales, blue-green leaves and we noted that the dead plant matter from the previous growing season was still present. Ebony Sedge is aptly named, as its seeds turn black at maturity.

Members of the Poaceae present on the alvar included Prairie Dropseed Grass (*Sporobolus heterolepis*), Little Bluestem (*Schizachyrium scoparium*), Alpine Bluegrass (*Poa alpina*), Poverty Grass, and Wild-rye (*Elymus trachycaulus*). Judith pointed out that Prairie Dropseed Grass has a ligule of cobwebby hairs. It and Little Bluestem were not in flower at the time of our trip. Alpine Bluegrass grew in low tufts along the trail. We learned that Wild-rye (*Elymus trachycaulus*) is similar to Quack Grass (*E. repens*), except its spikelets fall apart above the glumes, rather than below them. All grasses in alvar habitats are caespitose, or clumping, protecting them against fire and drought.



Several prostrate branches of Creeping Juniper (*Juniperus horizontalis*), assorted grasses and cryptogamic crust on the Pavement Type Alvar. Photo by C. Rigney.

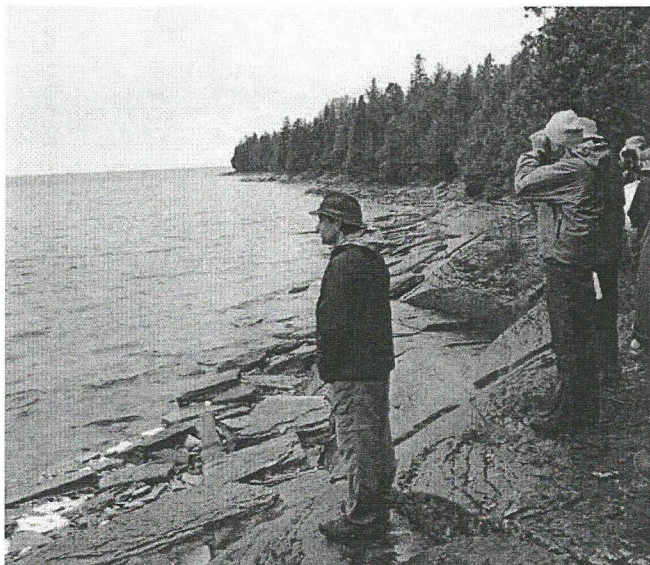


Two other interesting finds were Hill's Thistle (*Cirsium hillii*), which we had to really look for, and the lichen *Cetraria arenaria*. Hill's Thistle prefers to grow in the company of Poverty Grass and Reindeer Lichen (*Cladonia rangiferina*) and in our case we found it amongst some loosely spaced trees along the trail. Judith told us that it was good to see *Cetraria arenaria* as it is an Arctic/alpine species and an indicator of low disturbance.



Basal rosettes of Hill's Thistle (*Cirsium hillii*) surrounded by wisps of Poverty Grass (*Danthonia spicata*). Photo by C. Rigney.

Misery Bay loves company, so we ended this leg of our trip with a leisurely stroll down to the shore of Misery Bay, past a building with an interesting stone chimney. The story goes that the first settlers on the north side of Manitoulin Island chose a very hot day to explore the bay, and the heat combined with the proximity of a fen made for a terrible crop of blackflies. A second boat pulled in and these settlers were asked, "what is the name of this bay?" to which they answered "Misery Bay."



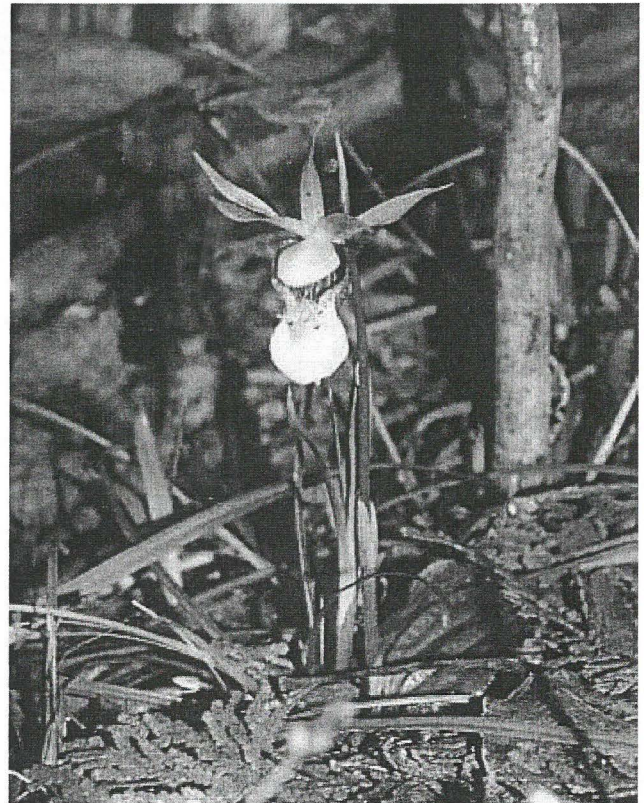
FBO trip members ponder Misery Bay. Photo by C. Rigney.

### Dry Mixed Uplands

Our final destination for Saturday was a dry mixed upland forest community on Clark Road near Gore Bay. This was "optional depending on the time and stamina of the group." Apparently no one had warned Judith in advance that intrepid FBO members have time and stamina to spare!

Common tree species in this forest included White Spruce (*Picea glauca*), Eastern White Cedar (*Thuja occidentalis*), Balsam Fir (*Abies balsamea*), Trembling Aspen (*Populus tremuloides*), Balsam Poplar (*P. balsamifera*), White Pine (*Pinus strobus*) and White Birch (*Betula papyrifera*). Choke Cherry was present in the understorey. We also noted Soapberry (*Shepherdia canadensis*) with its rusty, scaly lower leaf surfaces.

We strolled along a trail through the forest, seeking the elusive Ram's Head Orchid (*Cypripedium arietinum*). We finally found one, and once we had found one we found a few more, including one with a flower that was almost ready to open. The flowers of this species are maroon and white and blend in well with the leaf litter. We stepped off the trail and were delighted to find Calypso (*Calypso bulbosa*) in full flower. We made sure to step carefully until we were back on the beaten path.



Calypso (*Calypso bulbosa*) in flower. Photo by L. Collins.

Other species in this location included the yellow-flowered Barren Strawberry (*Waldsteinia fragarioides*), Chestnut Sedge (*Carex castanea*), Sharp-lobed Hepatica (*Hepatica acutiloba*), Sweet-coltfoot (*Petasites* sp.), Yellow Lady's Slipper (*Cypripedium calceolus*), Gaywings (*Polygala paucifolia*) and Bog Violet (*Viola nephrophylla*). Chestnut Sedge has pendant spikelets with a pubescent stem. The Coltsfoot and Yellow



Lady's Slipper were close to flowering. Gaywings greeted us with its cheery purple "wings." We noted that Bog Violet is stemless, with glabrous leaves and a deep purple flower.

It had been a very interesting and informative trip so far. The group fragmented for the night and we were amused to watch as our six cars performed a synchronized three-point turn. A number of us stayed together and went to dinner at a local restaurant. It was great to discuss the events of the day with like-minded people!

### Spring Ephemerals

Due to popular demand, our first stop on Sunday involved exploring a local forest in search of the more commonly known spring ephemerals. We found what we were looking for in a stand of Sugar Maple (*Acer saccharum* ssp. *saccharum*), Basswood (*Tilia americana*), American Elm (*Ulmus americana*), Yellow Birch (*Betula alleghaniensis*) and Ironwood (*Ostrya virginiana*). Judith told us that American Elm were once a major component of this forest and that recently they had started to reestablish.

Shrubs included Alternate-leaved Dogwood (*Cornus alternifolia*), a common understorey species on the island, as well as Beaked Hazelnut (*Corylus cornuta*), Leatherwood (*Dirca palustris*), Red-berried Elder (*Sambucus racemosa* ssp. *pubens*) and Prickly Gooseberry (*Ribes cynosbati*). We noted the cup-like annual nodes of the Leatherwood and we learned that the twigs of this species are difficult to break and will do in a pinch as a rope substitute.

Spring ephemerals present in the forest included Cut-leaved Toothwort (*Cardamine concatenata*), Starry False Solomon's Seal (*Maianthemum stellatum*), Canada Violet (*Viola canadensis*), Yellow Violet (*V. pubescens*), Spring Beauty (*Claytonia virginica*), Yellow Trout Lily (*Erythronium americanum*), Kidney-leaved Buttercup (*Ranunculus abortivus*), Jack-in-the-pulpit (*Arisaema triphyllum* spp. *triphyllum*), Solomon's Seal (*Polygonatum pubescens*), Blue Cohosh (*Caulophyllum thalictroides*), Two-leaf Toothwort (*Cardamine diphylla*), Wild Coffee (*Triosteum aurantiacum*), Early Coral Root (*Corallorhiza trifida*), Rattlesnake-root (*Prenanthes* sp.), Nodding Trillium (*Trillium cernuum*), Dutchman's Breeches (*Dicentra cucullaria*), Hybrid Toothwort (*Cardamine X maxima*), Bloodroot (*Sanguinaria canadensis*), Small Enchanter's Nightshade (*Circaea alpina*) and Purple Meadowrue (*Thalictrum dasycarpum*).

This area was also fern rich. Fern discoveries made by the group included the reddish-stemmed Bulblet Fern (*Cystopteris bulbifera*), Spinulose Wood-fern (*Dryopteris carthusiana*), Ostrich Fern (*Matteuccia struthiopteris*), Lady Fern (*Athyrium filix-femina*) and Maidenhair Fern (*Adiantum pedatum*). As we made our way further into the forest, the group was delighted to find a babbling brook as well as an old streambed. A keen-eyed member of the group stumbled upon an Eastern Red-backed Salamander (*Plethodon cinereus*) and we all stopped to meet it.

It was time to move on, but botanists still "botanize" while on the move. On the walk back to the car we noted Rough Horsetail (*Equisetum hyemale*) growing along the road edge.



Leaves of Dutchman's Breeches (*Dicentra cucullaria*) and Hybrid Toothwort (*Cardamine X maxima*). Photo by C. Rigney.

Once in the car we made one stop before our destination to examine a low wet area at the edge of a second road. Swamp Birch (*Betula pumila*) and Bog Rosemary (*Andromeda polifolia*) were making this low wet area their home. Upon closer inspection we decided the Swamp Birch was likely a hybrid between Swamp Birch and White Birch, known as Sandberg's Birch (*Betula X sandbergii*), as it was too tall to be true Swamp Birch.

### Sand Dunes

The rain kept falling, but that didn't prevent the group from thoroughly enjoying the sand dunes at Carter Bay. This dune system differs from other dune systems we are familiar with (eg. The Pinery), as it is continuous rather than linear. The wind block formed by adjacent trees assisted with the development of this dune system, causing sand to drop in this location.



Sand dunes at Carter Bay on Manitoulin Island. Photo by C. Rigney.

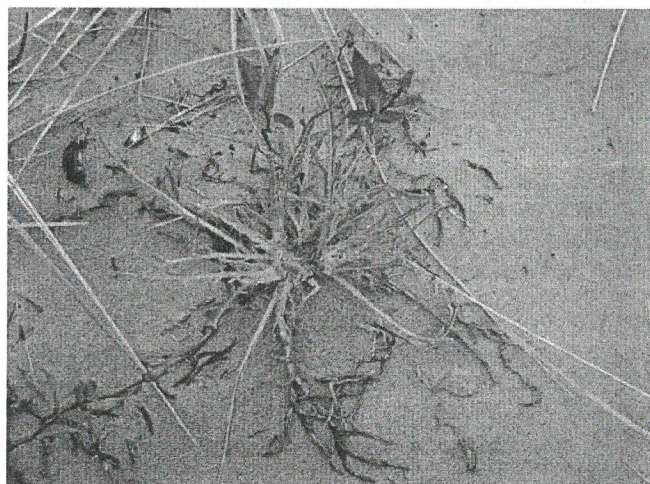


We made our way along the dunes and found Pitcher’s Thistle (*Cirsium pitcheri*), Wormwood (*Artemisia campestris*), Cut-leaved Anemone (*Anemone multifida*), Sea Rocket (*Cakile edentula*), Silverweed (*Potentilla anserina*), Stinking Wallrocket (*Diplotaxis muralis*), Bird’s Eye Primrose (*Primula mistassinica*), Sand Cress, Toad Flax (*Commandra umbellata*), Red-seeded Dandelion (*Taraxacum erythrospermum*), White Camas (*Zigadenus elegans*), Baltic Rush (*Juncus balticus*) and One-spiked Sedge. We learned that Pitcher’s Thistle plants have a three to eight year life span and they flower once and die. Several members of the group concluded that Pitcher’s Thistle and Wormwood look very similar to one another until they are observed side by side.

Shrubs included Sand Cherry, Heart-leaved Willow (*Salix cordata*), Kalm’s St. John’s-wort (*Hypericum kalmianum*), Ninebark (*Physocarpus opulifolius*), and Bearberry.

Grasses included Dune Grass (*Ammophila breviligulata*), Great Lakes Wheat Grass (*Elymus lanceolatus* ssp. *psammophilus*), Canada Wild Rye (*Elymus canadensis*) and Little Blue Stem. Dune Grass is a dune stabilizer and Great Lakes Wheat Grass is endemic to the Great Lakes.

The rain continued to fall as we made our way back to the cars.



Basal rosette of Pitcher’s Thistle (*Cirsium pitcheri*). Photo by C. Rigney.

**Rocky Lake Huron Shore**

Our final stop for Sunday and for this trip was the rocky Lake Huron shore at South Baymouth. We parked at the ferry parking lot and headed west along the shore. We soon found Dwarf Lake Iris (*Iris lacustris*) in flower and we learned that the ovary of these flowers is subterranean, resulting in a very inconspicuous fruit. Bird’s Eye Primrose and Wild Columbine were in flower here also. The Toad Flax flowers were almost open. Sweet Gale (*Myrica gale*) was in bloom and we noticed that Hoary Willow (*Salix candida*) has white lower leaf surfaces. We encountered One-spiked Sedge, Least Spike-rush (*Eleocharis acicularis*), Grass-of-parnassus (*Parnassia* sp.) and Hairy Rock Cress (*Arabis hirsuta*).

The group noted some small circular holes in the surfaces of the rocks along the shore and we discussed possible causes. It was suggested that higher magnesium content in the dolostone in these locations could result in differing rates of erosion,

causing holes to form. A second thought that if rain, which is primarily acidic, pooled in these locations, continued pooling over time could cause holes to form. We noticed that each hole had a small pebble or pebbles in it and it was pointed out that this would only hasten the erosion process in already established holes. The final thought was that these holes were very old as the rocks under three metres of water also had them. The group thought that overburden could have caused it, but we really did not settle on one option.



Manitoulin Island rocky shore area, directly west of the hamlet of South Baymouth. Photo by C. Rigney.

Some of the low wet areas between the rocks were home to Mermaid Weed (*Proserpinaca palustris*) and Spotted Touch-me-not (*Impatiens capensis*). Much to the amusement of the group, one of the group members managed to wrestle a Ninespine Stickleback (*Pungitius pungitius*) right out of the water in one of these deeper pools.

It was still raining and the group collectively decided it had been a wonderful trip, but that it was time to head home and change into some dry clothing. Some parted ways at the ferry terminal and others parted ways back at the tourist information centre in Little Current. All in all, and despite the weather, it was an amazing trip that won’t soon be forgotten by this intrepid botanist.

Thanks to Judith Jones for leading the trip, obtaining permissions to enter and providing us with helpful species checklists. The hawberry jelly was delicious and the jar is almost empty, so we will have to do it again sometime soon! ▲

Leslie Collins

**Home Team Advantage at Bronte Creek**

August 8th, 2004.

The home team reference is for our trip leader, Paul O’Hara. Growing up in Oakville has allowed Paul to become intimately familiar with the hidden botanical gems that the Bronte Creek valley has to offer. This was demonstrated at the very beginning of the trip when Paul led us to the back of a large industrial parking lot on Derry Road and into the



Tansley Forest, as he refers to it. We began by walking along a grassy area at the edge of the parking lot from which a small path leading through planted Black Walnut (*Juglans nigra*) trees was revealed by some branches being pulled aside that were hiding the entrance. The tiny path meandered through the black walnuts and intersected with another path that brought us into a pocket old-growth forest within 100 m of the parking lot. None of this appears to be visible from the road. It's one of those areas you just have to know about because you probably wouldn't come across it by any other means.

Situated in a region of fairly well drained clay loams, the old growth Beech-Hemlock-Sugar Maple forest remnant was estimated by the group to be several hectares in size. In addition to its namesake trees, the forest was also characterized by smaller populations of Shagbark Hickory (*Carya ovata*), Bitternut Hickory (*Carya cordiformis*), Red Oak (*Quercus rubra*) and Black Cherry (*Prunus serotina*).



Shagbark Hickory (*Carya ovata*) in fruit. Photo by W. D. McIlveen.

Clues to the aged stature of the old growth trees included balding bark on the lower trunk, soaring branchless trunks, towering tree heights and large trunk girths. In addition to numerous massive Sugar Maples (*Acer saccharum* ssp. *saccharum*), a Butternut (*Juglans cinerea*) that registered 66 cm diameter at breast height was observed. We learned from John Ambrose that Butternut is a recently declared endangered species in Canada. Other characteristics of old forest observed on the trip included downed large wood debris as well as pit and mound formations caused by wind-thrown trees. The resulting 'pit' where the root ball used to sit and the 'mound' of the overturned root mass create new micro-habitats where a variety of plants with different moisture tolerances and soil preferences are able to colonize. Restoration ecologists are experimenting with constructed pits and mounds in order to diversify the habitat of restored areas and to re-create natural features found in mature forests.

Other trees observed in the Tansley Forest included American Beech (*Fagus grandiflora*) complete with scars from a shotgun blast, a soaring Black Cherry featuring extremely large bark 'chips', an Eastern Hemlock (*Tsuga canadensis*), estimated to be approximately 200 years old, and numerous Bur Oak (*Quercus macrocarpa*) along the valley ridges. It is thought that poor accessibility for loggers may explain why this old-growth remnant exists today.

Groundwater seeps were noted along the steep valley slopes as indicated by extensive colonies of six-foot tall Pale Jewelweed (*Impatiens pallida*) along with smaller groupings of Spotted Jewelweed (*Impatiens capensis*). Other understory species included White Baneberry (*Actaea pachypoda*), Red-berried Elder (*Sambucus racemosa* ssp. *pubens*) and Lopseed (*Phryma leptostachya*). The ground flora appeared to be compromised in some areas as evidenced by the presence of Garlic Mustard (*Alliaria petiolata*).

The second part of the trip involved crossing to the south side of Derry Road where we surreptitiously entered Bronte Creek Provincial Park 'through the back door'. Paul showed us a variety of prairie species and dry White Cedar-Chinquapin Oak forest that is found growing on thin calcified soils, often on steep south facing slopes of the Bronte Creek valley. A dry White Cedar-Chinquapin Oak Forest community was included as a new community type in the Ecological Land Classification (ELC) mapping prepared by Anthony Goodban, based on extensive floristic surveys in this area (Goodban 2000; Goodban 2002). This fairly-open White Cedar (*Thuja occidentalis*) and Chinquapin Oak (*Quercus muehlenbergii*) community has developed on eroding Queenston Shale bluffs along the valley. Goodban noted that a 30-45 cm layer of sand over clay resulted in the growth of many of the prairie species in the park.

The path we followed coursed along the top of the valley rim and provided opportunities to see a variety of species including Nannyberry (*Viburnum lentago*), Staghorn Sumac (*Rhus typhina*), Flowering Dogwood (*Cornus florida*) and numerous saplings of Sassafras (*Sassafras albidum*).

Herbaceous species we saw included Hairy Bushclover (*Lespedeza hirta*), Big Bluestem (*Andropogon gerardii*), Butterfly Weed (*Asclepias tuberosa*), Black Huckleberry (*Gaylussacia baccata*), Hairy Goldenrod (*Solidago hispida*), Blue-stemmed Goldenrod (*Solidago caesia*), Buffalo Berry (*Shepherdia canadensis*), and New Jersey Tea (*Ceanothus americanus*). The New Jersey Tea and Black Huckleberry were growing amongst *Vaccinium* spp. along the valley rim. New Jersey Tea is the food plant of the Mottled Duskywing (*Erynnis martialis*), a provincially rare butterfly that occurs along the open rims of the Bronte Creek valley.



Flowers of New Jersey Tea (*Ceanothus americanus*). Photo by W. D. McIlveen.



As usual, Bill McIlveen took some great photographs. In addition to the ones accompanying this article Bill also photographed Indian Pipe (*Monotropa uniflora*), Early Goldenrod (*Solidago juncea*), Pinweed (*Lechea intermedia*), Virginia Yellow Flax (*Linum virginianum*), Whorled Milkwort (*Polygala verticillata*), Wand-like Bush Clover (*Lespedeza intermedia*), Woodland Sunflower (*Helianthus divaricatus*), Indian Tobacco (*Lobelia inflata*), Sawfly activity on an Aster leaf and anthracnose on Flowering Dogwood leaves.

A feature of the valley rim that had more than a few of us scratching our heads was the profusion of numerous mosses and lichens amongst the prairie species along the weathered path. In our limited familiarity with mosses and lichens we associated them only with damp places. Upon reviewing the habitat characteristics of some of the upright and prostrate mosses I noted that numerous species from the Hair Cap Moss and Dicranum families, amongst others, which occur on dry and/or disturbed soils. Perhaps these were amongst the ones we saw.

Overall the trip rewarded us with a glimpse into a lesser-known place, Tansley Forest, and a very well known and popular place, Bronte Creek Provincial Park. It was interesting to note that the heavy foot traffic of the provincial park appears to have caused more detrimental impact to the path side flora than was seen in the less traveled Tansley Forest.

Thanks for a great trip, Paul. 🌲

Nick Hodges

Goodban, A.G. 2000. *Draft*. A life science inventory and assessment of Bronte Creek Provincial Park (North Section). Bronte Creek Provincial Park, Burlington, Ontario Parks.

Goodban, A.G. 2002. *Draft*. Bronte Creek Provincial Park (North Section): Grasslands Study. Bronte Creek Provincial Park, Burlington, Ontario Parks.

## Features

### Flat-roof Flora

W. D. McIlveen

While I was visiting the McMaster University Hospital in Hamilton this past summer, I was impressed by the growth of mosses on the flat roof visible from a hall window. In fact, there appeared to be a number of different species of moss in the assortment (Figure 1). The roof was flat and covered by pea gravel but the mosses were more abundant in the shaded corner. There was even a small, branched willow tree about 50 cm tall on an open part of the roof. No doubt, other plant species could be found on other inaccessible parts of the roof.

It seemed highly probable to me that the environmental conditions on the roof surface would not be too different from those that prevail on an alvar. During periods of rain, water pools would develop on the lowest places of the roof but during drier times, the surface could become very hot and arid. Nutrients would be initially be in short supply but as precipitation falls on the roof, the small amount of dissolved materials in the water droplets, including nitrates and other nutrients, would become concentrated as successive rain events evaporate.



Figure 1. Mosses growing on flat roof of McMaster Hospital, Hamilton. Photo by W. D. McIlveen<sup>1</sup>.

This nutrient pool would be bolstered by nutrients in general airborne dust and in plant materials (e.g. leaves) that might reach the roof via the wind.

Moss spores, being extremely small and light, would readily be dispersed by the wind and fall on the roof. Plant seeds typically being larger would be less likely to reach the roof. Those species whose seed are dispersed by the wind (e.g. birch, poplar, fireweed) or species that are the most prolific seed producers would be most favoured with respect to developing on a roof. Plants are much more likely to become established where soil-like materials and organic debris accumulates. Where such materials accumulate, there would be greater pool of nutrients but more importantly, moisture would be retained for longer periods. Such conditions are most likely to be found in cracks and crevices. This is illustrated in Figure 2 where weedy plants are growing in the spaces between the concrete slabs. This is not unlike the conditions where vegetation is restricted to cracks in limestone pavement (Figure 3). A slightly larger version of this is known to most of us when tree seeds start to germinate in eaves troughs that are not cleaned out.



Figure 2. Plants growing in spaces between concrete slabs on roof of McMaster Hospital, Hamilton. Photo by W. D. McIlveen.

<sup>1</sup>The roofing material on this roof has since been removed. Consequently, the process of colonizing has to start all over again.



At one time, I was involved in a situation that relates to growth of plants, or at least to a plant-like material on a flat roof. In this instance, an extensive growth of blue-green bacteria (formerly considered to be algae) had formed on the roof of a flat-topped building. The roof had dried leaving large sheets of dried bacteria. The wind blew these sheets (up to 50 cm across) into the nearby parking lot and that raised concerns of local residents that did not understand what had happened. They imagined that they were being bombarded by industrial fall-out.

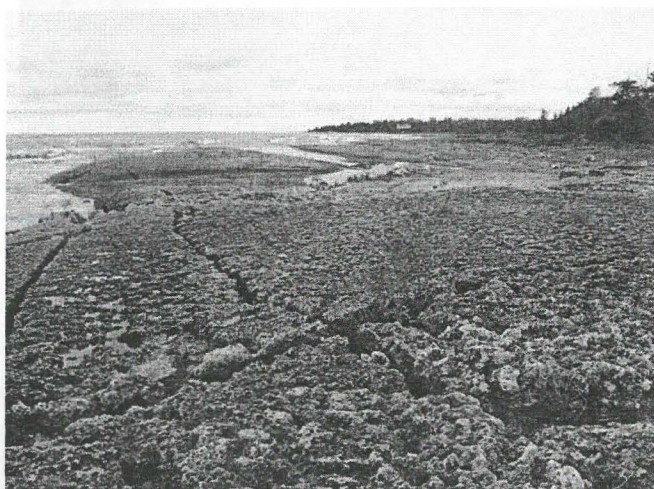


Figure 3. Plants growing in fissures in limestone at Dorcas Bay. Photo by W. D. McIlveen.

The purpose of this article was to make readers aware of the spread of plants into this new ecological niche. It was not intended to provide a list of species that occupy this habitat. Instead, it was hoped that it might spur further investigations into the species that can utilize the habitat. Such research might include documentation of the specific conditions that prevail on flat-topped roofs. ♣

### Notes on Perfoliate Bellwort, *Uvularia perfoliata* L.

Melinda Thompson

Many people that I have encountered through FBO are interested in plants that are considered rare in Ontario and Canada. Over the past 4 years, I have had the opportunity to work with many of these people and to become familiar with many of the rare plants of Southern Ontario. This article relates the details of some of my fieldwork and research on one particular species that is considered to be rare in Ontario. *Uvularia perfoliata* L. is currently ranked SIS2 (less than 5 to 20 occurrences) by the Natural Heritage Information Centre (NHIC 2004).

*Uvularia perfoliata* is one of five spring-flowering perennial herb species in a genus endemic to eastern North America (Wilbur, 1963). We often see three species of this perennial in forests in Southern Ontario. *Uvularia grandiflora* (Large-flowered Bellwort) is the more common species and closely resembles *Uvularia perfoliata*. These two species of *Uvularia*

are difficult to distinguish, but generally, *Uvularia perfoliata* is differentiated by the glabrous undersides of the leaves and sepals with glandular papillae on the inner surface. The similarity of the two perfoliate *Uvularia* species may have led to a low level of reporting of the rarer *Uvularia perfoliata*. *Uvularia sessilifolia* (Sessile-leaved Bellwort) is also found in Ontario although it is more distinctive in appearance (leaves are sessile, not perfoliate).

*Uvularia perfoliata* is a spring-blooming shade-tolerant deciduous perennial herb, which occurs in patches under completely closed canopy and in gaps (Wijesinghe & Whigham, 1997). Species of bellwort were sometimes used to cure throat problems because according to the "doctrine of signatures" it was thought that the blossoms look like the uvula, or palate (that pink appendage which hangs down the back of the throat). "Wort" is a name formerly given to plants used for food or medicine. When used as a suffix, it often just means "plant." The scientific name comes from "the flower hanging like the uvula" (<http://pss.uvm.edu/pss123/wwwuvul.html>).

*Uvularia perfoliata* occurs in Canada and the United States, from Ontario, south to Florida and Mississippi. Soper (1952) indicates that *Uvularia perfoliata* is found along the Allegheny Mountains and the coastal plain from New England to Georgia, with an extension westward to western New York and Pennsylvania in the Lake Erie region. In Canada, *Uvularia perfoliata* occurs only in southern Ontario with the majority of the populations concentrated on the Niagara Peninsula. There are only eight reported locations of this species in Ontario.



*Uvularia perfoliata* in flower. Photo by M. Thompson.

Members of this genus grow best in partially shaded areas in rich, moist, yet well-drained soil. *Uvularia perfoliata* forms patches in the understorey of mature deciduous forests (Wijesighe & Whigham, 1997). Gleason and Cronquist



(1991) indicate that this species inhabits moist woods and prefers acid soils. Soper (1952) indicates that in Ontario, the species prefers woods and thickets on upland sites, or the slopes of wooded hillsides. Deitz (1952) indicates that *Uvularia perfoliata* is found in open woods, in neutral or slightly acid soil, frequently under white oaks. In addition, Deitz (1952) states that this species has never been very abundant in its mature (flowering) form and most populations consist of seedlings and sexually immature individuals.

Most Ontario stations occur within the Niagara section of the deciduous forest region (Rowe, 1972). These forests are dominated by sugar maple and American beech, but contain red, white and black oaks, shagbark hickory, basswood and Carolinian affiliates. Populations of *Uvularia perfoliata* in the Niagara region occur within the Niagara Fruit Belt and Lake Erie Counties climatic regions of southern Ontario. This is one of the warmest regions in southern Ontario, with the longest growing season.

The average date for flowering of *Uvularia perfoliata* in Ontario is May 30. This was determined by Soper (1952) after examination of existing collections. The flowering date for *U. grandiflora* is earlier, peaking on or around May 15. *Uvularia perfoliata* requires three years of growing time before it reaches sexual maturity. Seed-producing individuals are mainly found under gaps in the forest canopy. Most individuals in patches under closed canopy conditions are non-flowering and produce 0-2 ramets per year (Kudoh *et al.*, 1999). The fruit is a three-angled pod. The mature capsule contains on average about four seeds that are shed in late summer and dispersed by ants (Wijesinghe & Whigham, 1997). Studies conducted by McCall and Primack (1987) and Whigham (1974) suggest that *Uvularia* is self-incompatible.

Almost all individuals reproduce asexually by stolons that begin to form at about the same time that aerial shoots appear above the ground in spring (Kudoh *et al.*, 1999). Apical buds of *U. perfoliata* elongate and emerge through the leaf litter in late winter to early spring (Whigham, 1974). *U. perfoliata* propagates clonally by producing one or two offspring ramets per season. Each offspring ramet consists of a shoot bud and a cluster of fleshy storage roots borne at the tip of a slender subterranean stolon (Wijesinghe & Whigham, 1997).

*Uvularia perfoliata* is pollinated solely by insects. Flightless insects belonging to the Coleopteran family Staphylinidae were collected inside the flowers and on the main stems of sexually reproductive plants (Whigham, 1974). These were the only insects seen visiting this species. Whigham (1974) found that the destruction of developing fruits by herbivores and by natural causes was extensive, and only 40% of fruits survived to shed seeds. Sexual reproduction of *Uvularia perfoliata* seems dependent upon faunal activities.

There have been no factors documented that indicate why this species is declining in Ontario, but it is likely due to habitat loss. The species' penchant for canopy openings may also be a factor limiting its growth and reproduction. The populations located adjacent to trails may be in danger of trampling. Additionally, soil compaction as a result of trails may prevent this species from reproducing asexually. As with many other woodland species, competition with *Alliaria petiolata* (Garlic Mustard) may be a threat.

*Uvularia perfoliata* survives in very small populations in close proximity to public use areas of southern Ontario. This species is unlikely to persist unless the habitat that it frequents is protected. Seventy percent of the historically reported Ontario populations have already been extirpated. This is largely due to habitat degradation and loss. The biology of this species is complex, as it appears to require canopy openings in order to produce viable seed, yet extensive disturbance in the forest quickly causes the species to disappear. ▲

#### Acknowledgements

Many thanks to Tyler Smith for accompanying me on field visits, reporting his own findings, and actually shedding blood in the pursuit of this plant. Thanks also to Bill Draper, Mary Gartshore and Ron Gould for submitting information and reports on the species. Thanks to Carl Rothfels for aiding me in my search for this rarity, and for providing comments on the full version of this report. Thank you to Deborah Metsger at the Royal Ontario Museum Vascular Plant Herbarium (TRT) and to Dr. Peter Ball at the University of Toronto, Erindale Campus (TRTE) for providing specimen label data. Thanks to Mike Oldham for reviewing the full version of this report.

- Deitz, Robert A. 1952. Variation in the Perfoliate *Uvularias*. *Annals of the Missouri Botanical Garden* 39(3): 219-247.
- Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*, Second Edition. The New York Botanical Garden, New York. 910 pp.
- Kudoh, H., H. Shibaie, H. Takasu, D.F. Whigham and S. Kawano. 1999. Genet structure and determinants of clonal structure in a temperate deciduous woodland herb, *Uvularia perfoliata*. *Journal of Ecology* 87: 244-257.
- McCall, C. and R.B. Primack. 1987. Resources limit the fecundity of three woodland herbs. *Oecologia* 71: 431-435.
- Natural Heritage Information Centre. 2004. Status of *Uvularia perfoliata*. Accessed October, 2004.
- Soper, J.H. 1952. Phytogeographic studies in Ontario, I. The genus *Uvularia* in Southern Ontario. *Rhodora* 54: 57-67.
- Whigham, D. 1974. An ecological life history study of *Uvularia perfoliata* L. *American Midland Naturalist* 91: 343-359.
- Wijesinghe, D.K., and D.F. Whigham. 1997. Costs of producing clonal offspring and the effects of plant size on population dynamics of the woodland herb, *Uvularia perfoliata* (Liliaceae). *Journal of Ecology* 85: 907-919.
- Wijesinghe, D.K., and D.F. Whigham. 2001. Nutrient foraging in woodland herbs: A comparison of three species of *Uvularia* (Liliaceae) with three contrasting belowground morphologies. *American Journal of Botany* 88(6): 1071-1079.



## Letters

### Rocky Saugeen Feedback

Dear Leslie,

What excellent, detailed botanical information is published in the FBO newsletters! We certainly appreciate Mike McMurtry's account of the day trip we guided on July 24<sup>th</sup>,



2004 to the Rocky Saugeen, the Maker-Weir homestead and Moss Lake in Grey County.

Here is some historical information on our property:

My great-great grandfather, Adam Weir, came from Scotland in 1850 and purchased from the Crown 300 acres of land spanning the Saugeen River. My parents, Will and Edna Weir, inherited 150 acres of that property in 1932. An area adjacent to the road and the swamp was reforested in pine around 1940.

After 20 years with the Royal Canadian Air Force and as a commercial pilot, my elder brother John Weir took over the property in 1972 from my parents and younger brother, Dixon. In the following years four lots were severed but John kept 50 acres through the middle from the road to the river. He had seven ponds dredged and, with Nelson's assistance, created the Rock Fern Garden.

In 1992 when his health was failing he entrusted the property to us. For the past ten years Nelson and I and our family have had the pleasure of owning and maintaining this wonderful nature reserve! We are the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> generation.

We still plant trees in the spring!

Sincerely,  
Jean Maher

Jean,

Thank you for providing our readership with further information on the history of the Maker-Weir homestead. Thanks also for sharing your Rock Fern Garden with us, it was lovely!

-Leslie

▲ ▲ ▲

## Errata

Re. "Wasaga Beach Provincial Park" (Fall 2004, FBO Newsletter Vol. 17(1): 7-8).

Trip leader Sarah Mainguy clarified that this article improperly identifies Hoary Puccoon (*Lithospermum canescens*) in both the text and in the accompanying figure caption. FBO members actually saw Carolina Puccoon (*L. carolinense*) that day.

-Leslie

Re. "Significant Plant Records from the Herbarium of the Royal Botanical Gardens (HAM): 2003" (Winter 2005, FBO Newsletter Vol. 17(2): 7-12).

An avid reader and resident of Bruce County, Joe Johnson, noted in a recent letter "*Cardamine pratensis*, *Carex livida*, *Scirpus cespitosus*, and *Proserpinaca palustris* are not significant on the [Bruce] peninsula. *Carex exilis* is merely 'very uncommon' there. However, *C. chordorrhiza* is 'rare' there."

This correction stems from confusion surrounding the map provided in the third edition of the Bruce-Grey Checklist, which made it difficult for the author to determine the exact location of the above species. These species are rare in Grey County, but as noted above, only two have status on the Bruce Peninsula.

Joe Johnson writes "in the checklist and in all works I've ever done, the peninsula is deemed to extend as far south as it can go without crossing provincial Highway 21 or extending into the City of Owen Sound or the former Town of Southampton (now the north part of Saugeen Shores). It includes all Lake Huron and Georgian Bay islands that are in Grey and Bruce except Chantry Island."

The author of the article, Carl Rothfels, confirmed that these species were found on the north side of provincial Highway 21.

-Leslie

## Notices

### Salix Workshop with George Argus

A three-day *Salix* identification workshop is planned for June 10-12 at Clarkson University, St. Lawrence County in New York State. The workshop will be led by Dr. George Argus (Curator Emeritus, Canadian Museum of Nature), a renowned *Salix* expert.

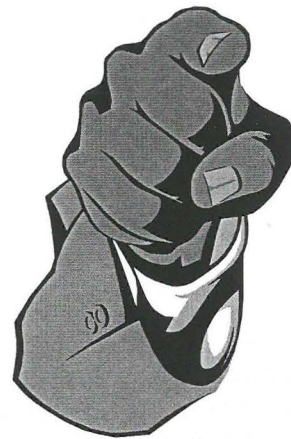
Each participant will be provided with a number of guides, handouts and software to assist with *Salix* identification. The workshop will include both field and lab exercises.

Workshop costs are \$75 for New York Flora Association (NYFA) members and students and \$100 for non-members, excluding lodging and meals.

Contact Troy Weldy with the New York Natural Heritage Program at weldy@nynhp.org or 518-402-8952 for more information.

**NOTICE TO ALL FIELD BOTANISTS  
OF ONTARIO MEMBERS  
THE VICE PRESIDENT POSITION WILL BE OPEN  
IN THE FALL**

No previous experience necessary  
Enthusiasm and a good sense of humour an asset



**NOMINATIONS WILL BE TAKEN AT THE  
ANNUAL GENERAL MEETING (SEPTEMBER 17 &  
18, 2005)**