



**FIELD
BOTANISTS of
ONTARIO**
Newsletter

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Deer Mouse in an oak (*Quercus rubra*) grub, Walpole Island - Jane Bowles

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President's Message

An organization like the FBO is run by volunteers. It's sometimes hard to fathom how much time our volunteers spend to make this organization work. People join the FBO for different reasons, but one of the primary ones is that we look for field trips that will help us learn to identify plants accurately. The field trip co-ordinators Carol Brotman and Jim Lane have continued to recruit experienced botanists who can show us where to find significant and sensitive plants that indicate habitats that need to be preserved. This year's field trips led us all over the province, and there were some trips that focused on some of Ontario's most difficult groups of plants, led by experts in the group. We owe Jim and Carol thanks for continuing to put so much time into organizing these trips and co-ordinating the registrants. There is one small consideration we would like to ask of registrants: most of the trips have been booked to the maximum this year, with large waiting lists, but when the trip actually sets out there are many no-shows. Please call well in advance if you can't make a trip, so there is time to let someone else know there is a space.

The Annual General Meeting also provides an opportunity for the last gasp of botanical exploration just as the season is ending, as well as providing us with an opportunity to hob-nob with other botanists of like mind. The flurry of field trips focusing on a location theme, as well as a dinner with a guest speaker, is a challenge for the organizer. This year's AGM was organized by Bill Crowley in Owen Sound, and was a springboard for activities that centred on the Niagara Escarpment. There were field trips to learn to identify ferns, to learn about native use of plants, and to study mosses and lichens. The guest speaker talked about old growth trees on the Niagara Escarpment. Many thanks to Bill Crowley, who patiently contacted prospective leaders and guest speakers in the vicinity of Owen Sound, and drew them together for us in mid-September.

Sarah Mainguy, President

Standard source for most scientific names of vascular plants:

Newmaster, S.G., A. Leheld, 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.

Membership forms can be found on the FBO website www.trentu.ca/org/fbo. Annual memberships are \$15.00 for individuals and \$18.00 for families.

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Erratum: *The front page photo of Rubus odoratus in Vol. 19 (2) was taken by Walter Crowe. Thanks to Bill Crowley for drawing this to my attention. CJH*



The FBO is a non-profit organization founded in 1983 for those interested in botany and conservation in Ontario.

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Field Trip Reports

Royal Botanical Gardens September 18, 2005

Worthy of notice is the last excursion led by Carl Rothfels of the Royal Botanical Gardens (RBG) before his move to North Carolina. The day began with a hands-on introduction to the RBG herbarium and an invitation to its use. Carl expressed his opinion on the superiority of Voss' *Michigan Flora* as his reference of choice to identify plants in the herbarium. When queried on the conspicuous absence of the naphthalene-scented aroma of mothballs used in some herbaria to control insects, Carl responded that all specimens were frozen once dry as the preferred method of keeping the collection insect-free.

Provincial conservation concern ("rarity") or S-ranks

Authors in this issue refer to plants as "S1", "S3", etc. These are S-ranks and refer to subnational conservation status as used by the Natural Heritage Information Centre (NHIC). Ranks as they refer to degree of conservation concern ("rarity") in Ontario may be summarized as follows:

S1 – **Critically Imperiled**—Critically imperiled in Ontario because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2 – **Imperiled**—Imperiled in Ontario because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 – **Vulnerable**—Vulnerable in Ontario due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 – **Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 – **Secure**—Common, widespread, and abundant in the nation or state/province.

Other S-ranks: SH – historically known (often not seen in at least 20 years), not recently verified but may still occur; SR – reported but without persuasive documentation; SU – Status uncertain; SX – extirpated; SE – exotic; SU – unranked; ? – uncertainty about assigned rank For a detailed discussion of these ranks, see Newmaster *et al.* as cited in the inside front cover or the NHIC web page (http://nhic.mnr.gov.on.ca/nhic_.cfm).



American Columbo *Frasera caroliniensis* - Alan Procter

En route to one of our sites, Carl pointed out the little roadside weed Picris Hawkweed (*Picris hieracioides* ssp. *hieracioides*), which he deems an underdocumented import.

The highlight of highlights was a newly-discovered site for American Columbo (*Frasera caroliniensis*), an S1 rarity in Ontario and uncommon elsewhere. The preserved site adjoins RBG land near Hamilton.

This community of plants grows vegetatively as basal rosettes for two to four years before synchronously sending up stalks to flower, set seed and die. So we were doubly fortunate that 2005 was their year. In an open but canopied woodland setting there were perhaps a dozen scattered plants more than a meter tall bearing not flowers (this was September) but scores of seedpods in terminal clusters as well as on shoots arising from leaf axils. The leaves were characteristically gentian, deep green in whorls of four up the stem.

At the same site, Carl discussed the divergence of opinion over whether Red Hickory (*Carya ovalis*) is a variety of Pignut Hickory (*Carya glabra*), a distinct species, or a hybrid between *C. glabra* and *C. ovata* (Shagbark Hickory). Red Hickory differs from Pignut Hickory in often having seven rather than five leaflets, and that the husk of the nut splits only part way and falls intact, while Pignut Hickory splits and falls in pieces. He also

...cont'd on p. 4

Walpole Island, June 2, 2007

It was a hot muggy day on June 2, 2007, when about 12 FBO members gathered at 10:00 AM at the Heritage Centre on Walpole Island. We had come from as far away as Peterborough, Guelph, Port Hope, Bradford, Hamilton, and Sarnia. Bill Crowley was our Club Representative. After asking in vain for a volunteer to write up the trip, Bill nabbed the undersigned.

Dr. Jane Bowles, Adjunct Professor of Biology and Curator of the University of Western Ontario Herbarium, and Clint Jacobs, Natural Heritage Coordinator of the Walpole Island Heritage Centre (WIHC) greeted us. Clint welcomed us to the Island and Jane gave us annotated plant lists, prepared from work done by Gary Allen *et al.*, for the Triangle Prairie and Highbanks Savannah, our sites for the day.

The list was in alphabetical order of scientific names and included supporting columns for common name, family, S-Rank (provincial conservation status), Coefficient of Conservatism, and Weediness Coefficient. Jane explained that Coefficients of Conservatism are scores from 0 to 10 that indicate how particular a plant is about where it grows. High scores (8-10) indicate a specialist plant, in this case a prairie or savannah specialist, and a low score 0-2 indicates a generalist plant that could be found growing almost anywhere. Numbers after the plant names below indicate the Coefficient of Conservatism. The designations -1, -2, -3, for weeds (exotics) mean bad, worse, and really bad. Jane led our party, accompanied by Cam Williams, who, for the summer, is Environmental Officer Assistant at the WIHC.

Triangle Prairie presented itself as a yellow haze of Golden Alexanders (*Zizia aurea*, 7). Jane said that in a few weeks the Prairie would be white with Northern Bedstraw (*Galium boreale*, 7) and later in the summer the Spiked Blazing-star (*Liatrix spicata*, 9) and prairie grasses would make the prairie a soft purple. Triangle Prairie is leased from the landowners, part of the 125 ha that have been secured as natural areas from the 24,000 ha that make up Walpole Island First Nation.

The path was well marked with Broad-leaved Plantain (*Plantago major*, 1) which Natives have called "White Man's Footsteps" (since it was one of the first weeds to be brought to the New World. Its prostrate form allows it to withstand foot traffic and is therefore commonly found on paths - CJH)

Jane identified a small beautiful pale orange flower as Canada Hawkweed (*Hieracium canadense*, 7). Others in



***Comandra umbellata* (Bastard Toadflax) - Jane Bowles (JB)**



***Hypoxis hirsuta* (Eastern Yellow Star-grass) - JB**

bloom were Eastern Yellow Star-grass (*Hypoxis hirsuta*, 10), Bastard Toad-flax (*Comandra umbellata* 6), Canada Anemone, (*Anemone canadensis*, 3), Carrion Flower, (*Smilax herbacea* 5 or 6) White Beaked-rush (*Rhynchospora alba*, 10), Smooth Spiderwort (*Tradescantia ohioensis*, 10), Montane Blue-eyed-grass (*Sisyrinchium montanum*, 4), Larger Blue-flag (*Iris virginica*, 5), Sweet Grass (*Hierochloa odorata*, 5), Brown Sedge (*Carex buxbaumii*, 10).

Not in bloom, but identifiable, were Round-headed

Bush-clover (*Lespedeza capitata*, 7), Virginia Culver's-Root (*Veronicastrum virginicum*, 10), Ironweed (*Vernonia missurica*, 7) and Showy Tick-trefoil (*Desmodium canadense*, 5). Tall Cordgrass (*Spartina pectinata*, 7) was easily identified by its very finely attenuated leaf. Clustered Snakeroot (*Sanicula odorata*, 6), Rigid Goldenrod (*Solidago rigida ssp. rigida*, 9), Swamp Lousewort (*Pedicularis lanceolata*, 9), Switch Grass (*Panicum virgatum*, 6), Few-flowered Panic Grass (*Panicum oligosanthes*, 7), Broad-leaved Panic Grass (*Panicum latifolium*, 6), Marsh Vetchling (*Lathyrus palustris*, 6), Golden Ragwort (*Packera aureus*, 7) were some of the other species present at this diverse site.

The flowers on Small White Lady's-slipper (*Cypripedium candidum*, 10 - listed as Endangered in



***Smilax herbacea* (Carrion Flower) - JB**



***Tradescantia ohioensis* (Smooth Spiderwort) - JB**

Canada) were dried and brown and so too were those on Small Yellow Lady's Slipper (*Cypripedium parviflorum*, 7). The identification of the Baltic Rush *Juncus balticus* (5) was confirmed by its habit of individual shoots growing in a straight line. Virginia Mountainmint (*Pycnanthemum virginianum*, 8), giving off a strong minty odour when trampled, Field Thistle (*Cirsium discolor*, 9), Wild Bergamot (*Monarda fistulosa*, 6), Spotted Crane's-bill (*Geranium maculatum*, 6), which Jane considers to be a Carolinian indicator, were there too, as well as plenty of ticks and mosquitoes.

We were surprised to find a large patch of Royal Fern (*Osmunda regalis*, 7) in a damp spot. Nearby were the helter-skelter fronds of Marsh Fern (*Thelypteris palustris*, 5).

While examining an oak grub (the name for a short -1m tall - multistemmed growth form caused by frequent burning) we were charmed to watch a little mouse climb right up to the top of one of the stems.

In the far corner of the Prairie we entered the wooded area to see Kentucky Coffee-trees (*Gymnocladus dioica*, 6), listed as Threatened in Canada and very rarely found fruiting. Jane had raised 60 seedling trees at UWO, from Walpole Island seeds, and they had been added to the existing mature trees to make a more viable population of this dioecious species. On the way out of the wooded area John Tiedje characteristically wandered off by himself and discovered a large population of Squawroot (*Conopholis americana*, 9) a parasite on the roots of the Oak tree hanging over it.

Walking back beside a corn field on the way out we saw balls of white fluff from the Eastern Cottonwoods (*Populus deltoides*, 4) and we passed Yellow Water Buttercup (*Ranunculus flabellaris*, 7) in a little pond.

At lunch in the Heritage Centre, Clint Jacobs gave an excellent Power Point presentation to fill us in on all aspects of Walpole Island First Nation, Bkejwanong, meaning "Where the waters divide".

In the afternoon we went to Highbanks Savannah. The canopy of the open-grown Oaks is filling in so much that Jane feels that it is now technically a woodland, although floristically still a savannah. Jane said that the Black Oak group hybridize freely but the White Oak group do not do so as much.

Right off we saw Carolina Vetch (*Vicia caroliniana*, 10) in flower. Although Bracken Fern (*Pteridium aquilinum*, 2) is still the dominant plant, the Wild Indigo (*Baptisia tinctoria*, 10) seems to be holding its own and we found a large patch of Wild Lupine (*Lupinus perennis*, 10) in bloom. We also saw Sassafras (*Sassafras albidum*, 6),

Whirlpool and Niagara Glen

July 14, 2007

Witch-hazel (*Hamamelis virginiana*, 6), Early Meadowrue (*Thalictrum dioicum*, 5), Woodrush (*Luzula multiflora*, 6), Smooth Solomon's-seal (*Polygonatum biflorum*, 8), Wild Sarsaparilla (*Aralia nudicaulis*, 4), and a nice patch of Interrupted Fern (*Osmunda claytoniana*, 7). Of special interest were some leaves of Arrow-leaved Violet (*Viola sagittata*, 9). Showy Goldenrod (*Solidago speciosa*, 10, which grows in Canada only on Walpole Island and is listed as Endangered in Canada) and American Grass-of-parnassus (*Parnassia glauca*, 8) were recognized by their leaves.

Someone spotted a groundhog climbing a tree a couple of hundred feet away. It rested on a big sloping branch so that we all had time to see it. There was much speculation as to what it was doing more than 3 m off the ground.

We continued on to the open low area at the end of the trail to see the large colony of Prairie Dock (*Silphium terebinthinaceum* var. *terebinthaceum*, 10) with its leaves only about 30 cm high.

Back at the cars most of us walked along the road a short way to see Pin Oak (*Quercus palustris*, 9) and the Black Gum (*Nyssa sylvatica*, 9) easily recognized by its shiny leaves.

Bill Crowley warmly thanked Jane, Clint, Cameron, and Bkejwanong, on behalf of our group. 🌿

Dorothy (and Henry) Tiedje

....RBG cont'd from page 1

mentioned that Scarlet Oak (*Quercus coccinea*) has been reported but not confirmed for Ontario.

Carl also led us to Canada's largest remaining stand of Red Mulberry (*Morus rubra*), another Ontario rarity (S2) severely threatened by hybridization with the successful alien White Mulberry (*M. alba*). We examined an understory tree growing in shallow soil covering a limestone substrate.

In another RBG area closed to the public Carl pointed out other Ontario rarities including American Chestnut (*Castanea dentata*), Sharp-leaved Goldenrod (*Solidago arguta*), Fern-leaved False Foxglove (*Aureolania pedicularia*) and a rare hybrid, *Geum x catlingii*, a cross between the common White Avens (*G. canadense*) and the uncommon alien Wood Avens (*G. urbanum*).

Thanks to Carl; the entire day was memorable. 🌿

Alan Procter and Cheryl Hendrickson

This was the most demanding FBO outing I have experienced and arguably the most strenuous ever undertaken by the club. We descended a slippery track from the top of the escarpment to the Niagara River, returned almost to the top across a talus slope, back down to the river and finally climbed to the top via a never-ending staircase. For background noise we had incessant sightseeing helicopters, jet boats and the rapids themselves. At times, our co-leaders, Michael Oldham and Robert Ritchie feared they would lose their voices to the competition! Nevertheless by the end of the day I can confirm that their and our efforts were richly rewarded.

Mike first distributed a vascular plant list for the Niagara Gorge and Whirlpool. In the introduction, it states that the 65 historically documented plant species of provincial conservation concern makes the area one of the largest concentrations of rare plants ever documented in Ontario. During extensive field surveys in 2006 by Mike, Wasyl Bakowsky and others recorded only about 20, despite thorough searching. Sadly, as stated by John Riley, the Niagara Gorge has "a greater proportion of extirpated rare plants than any location in Canada!"

Niagara Falls is the most visited natural feature tourist destination in North America so there is huge pressure on native plants. Many non-native plant species, particularly trees and shrubs, have been introduced. These include Sweet Cherry (*Prunus avium* -SE4), Sycamore Maple (*Acer pseudo-platanus* -SE1), Horse Chestnut (*Aesculus hippocastanum*), Swedish Whitebeam (*Sorbus intermedia*), London Plane-tree (*Platanus X acerifolia*); the last two are not noted in the *Ontario Plant List* (Newmaster *et al.* 1998).

Elsewhere in the gorge, the escarpment wall creates a microclimate and prevents ready access to the forest floor. We observed some very tall, old and truly magnificent Tulip Trees (*Liriodendron tulipifera*), Bitternut Hickories (*Carya cordiformis*) and Black Walnuts (*Juglans nigra*).

We had lunch beside the Whirlpool and Rob explained the mechanics of the foaming torrent. The Whirlpool is actually deeper (180') than the falls are high (165'). Amazingly, water levels drop 8' at night when 50 percent of the water is diverted for hydro-electric generation. At its lowest flow, the Whirlpool actually changes direction.

I viewed 16 plant species new for my “Ontario list”—about as many as I observe in some years. Here are a few of them with comments:

Black Cohosh (*Cimicifuga racemosa* - S2) —unlike most Carolinian species, this plant does not occur in extreme south-western Ontario (i.e. the counties of Essex, Chatham-Kent, Lambton, Elgin, Middlesex, or Norfolk). We encountered a stand of two to three stems of this 2 meter ill-scented member of the Buttercup family.

Giant Blue Cohosh (*Caulophyllum giganteum* - S5) —another Cohosh but this one in the Barberry family. Compared to Blue Cohosh (*Caulophyllum thalictroides*), this species has fewer larger flowers with purple (not green) sepals and blooms up to two weeks earlier. All comparative features, you need the two species almost together to make these distinctions—I relied on Mike’s identification! Cohoshes were important in herbal medicine—their roots traditionally used by midwives to induce labour.

Winter Creeper (*Euonymus fortunei* - SE1) —there was just one patch of this new invasive in the glen, the white and green-patterned veins are quite distinctive.

Violet Bush-clover (*Lespedeza violacea* -S1) —this species is close to being extirpated in Canada. We noted two small patches near the Whirlpool helicopter pad.

Perfumed or Mahaleb Cherry (*Prunus mahaleb* - SE2) —another horticultural species, described by Mike as an “up-and-coming invasive species”, this small tree has tiny curled leaves and attractive silvery bark.

Blunt-scaled Sedge (*Carex albicans* - S2) —the checklist

showed 39 *Carex* species, this is one of six of conservation concern.

Deerberry (*Vaccinium stamineum* - S1) —we found two plants of a species now on the verge of extinction in Niagara. The only other location in Ontario is in the Thousand Islands where it is managed.

Red Mulberry (*Morus rubra* - S2) —a few individuals grew in the shaded portions of the gorge, some of the lower basswood-like leaves were the size of dinner-plates.

Many thanks to Mike Oldham and Rob Ritchie for meticulous preparation and enthusiastic leadership to one of most botanically dramatic places in Ontario. 🌿

George Bryant

2008 Field Trip Schedule

Dear FBO Members,
We are very busy preparing FBO 2008 Field Trip Schedule. The trip season has been expanded and more workshops are to be offered. We want members to suggest potential trip leaders and sites. Please contact us.

We hope you will all find a trip or two that excites your passion. Look for the 2008 Field Trip Schedule in your mailbox after April 1.

Looking forward to Spring,
Jim Lane & Carol Brotman
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86 Botanists Threatened with Extinction!

For 86 FBO Members, this will be their last issue unless they send in their renewal now! If your address label has an “06” on it you are one. Actually, because of our period of editorial re-organization in 2007, you’ve now received all your *Newsletters* after your membership has lapsed. *Why not renew for 2007 and 2008 at the same time?*

169 Botanists on the “Concerned” List!

The remainder of our members will be receiving renewal notices with the next issue in Spring for their 2008 issues of the FBO Newsletter. *Why not renew early?*

Send your name, address and cheque for:

\$15.00 individual one year
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Bev McBride, Carol Brotman, Sheila Thomson and Jim Lane - Sheila Thomson (ST)

Larose Forest August 18, 2007

Grasses are an intimidating family of plants, as our leader Stephen Darbyshire acknowledged. He assured us, nevertheless, that many clear and distinguishing features become obvious with the use of hand lens or microscope. Before setting out from our meeting place, Stephen drew our attention to some of the more distinctive vegetative features of grasses, passing around examples for us to examine with hand lenses. This introductory lesson was reinforced throughout the day as we moved from stop to stop along the gridwork of bush roads that criss-cross Larose Forest. By the end of the outing, we had seen and examined in hand about thirty different species of grasses, with Stephen pointing out the salient features of each.

While we concentrated on the identification of grasses, other plant species of roadside and ditch caught our attention. Growing humbly in the dust, in company with common weeds, we found the beautiful Field Milkwort (*Polygala sanguinea*), its flowers suggesting rose-coloured hop clover. We puzzled

over its flower arrangement and the pollinating sequence of the individual flowers in its compact inflorescence. At another roadside stop, Whorled Milkwort (*Polygala verticillata*) was pointed out to us, a tiny scrap of unremarkable vegetation at first glance, but it did indeed have several minute *Polygala* flowers at the top of its miniscule stem. False Pennyroyal (*Isanthus brachiatus*) and perky little Eyebright (*Euphrasia* sp.) were in flower here and there. We stopped by a small dug pond where a colony of Nodding Ladies'-tresses (*Spiranthes cernua*) was flowering. Fringed Gentian (*Gentianopsis crinita*) was also found here. We were too early to see this fall-flowering Gentian in bloom, but many unopened buds foretold a good flowering to come. A bit of Roundleaved Sundew (*Drosera rotundifolia*) and a snippet of Northern Bog Clubmoss (*Lycopodiella inundata*) were unexpected surprises in a damp roadside ditch.

Late in the afternoon we stopped at an old pioneer cemetery, the final resting place of some of the folks who had cleared and attempted to farm this land.



***Polygala sanguinea* (Field Milkwort) - ST**



***Cyperus bipartitus* (Umbrella Sedge) - ST**

Their removal of the forest cover had led to loss of a thin layer of topsoil, followed by a desert-like landscape of blowing sand. Constructive reforestation in the 1940s culminated in today's healthy Larose Forest. However, our field trip was confined to the roadsides, the favourite habitat for many grasses. We did not investigate the forest itself.

Our drawing card at the cemetery was Tufted Love Grass (*Eragrostis pectinacea*), and we also noted a little orchid, Green Adder's-mouth (*Malaxis unifolia*), and a Grapefern which I put down as either a delicate Leathery Grapefern (*Botrychium multifidum*) or a coarse Cut-leaved Grapefern (*B. dissectum*). Clammy Ground-cherry (*Physalis heterophylla*) was flowering in the mowed grass of the cemetery.

At a small stream beyond the cemetery, Stephen showed us the final (thirty-first!) grass of the day, Melic Manna Grass (*Glyceria melicaria*). Following is the impressive list of grass species that we encountered on this outing: Quack Grass (*Elymus*

repens), Red-top (*Agrostis gigantea*), Fringed Brome (*Bromus ciliatus*), Awnless Brome (*Bromus inermis*), Canada Blue-joint (*Calamagrostis canadensis*), Poverty Oat Grass (*Danthonia spicata*), Smooth Crabgrass (*Digitaria ischaemum*), Small-spiked Barnyard Grass (*Echinochloa microstachya*), Sandbar Love Grass (*Eragrostis frankii*), Tufted Love Grass (*Eragrostis pectinacea*), Tall Fescue (*Festuca arundinacea*), Melic Manna Grass (*Glyceria melicaria*), Fowl Manna Grass (*Glyceria striata*), Sweet Grass (*Hierochloa odorata*), Rice Cutgrass (*Leersia oryzoides*), White Cutgrass (*Leersia virginica*), Perennial Rye Grass (*Lolium perenne*), Mexican Satin Grass (*Muhlenbergia mexicana*), a *Panicum* in the *P. acuminatum* complex, Panic Grass (*Panicum capillare*), Wiry Panic Grass (*Panicum flexile*), Gattinger's Panic Grass (*Panicum gattingeri*), Wood Panic Grass (*Panicum tuckermanii*), Reed Canary Grass (*Phalaris arundinacea*), Timothy (*Phleum pratense*), Common Reed (*Phragmites australis*), Canada Blue Grass (*Poa compressa*), Fowl Meadow Grass (*Poa palustris*),



Muhlenbergia mexicana (Mexican Satin Grass) - ST

Kentucky Bluegrass (*Poa pratensis*) and Yellow Foxtail (*Setaria pumila*).

Our grateful thanks to Stephen Darbyshire for sharing with us his impressive fund of knowledge and his intimate familiarity with our local grasses, both native and introduced. 🌿

Sheila C. Thomson



Albert Garafolo - ST

Inglis Falls Conservation Area

Inglis Falls on the Sydenham River at Owen Sound was the meeting place on June 10, 2006 for sixteen field botanists, keen to explore the Inglis Falls Conservation Area under the leadership of Joan Crowe. The trip was to focus on ferns and bryophytes, and Joan had prepared accounts for us of Nels Maher, Eugene Moxley, and John Macoun (Canada's first Dominion Botanist) — all keen field botanists who in decades past had preceded us here, unlocking some of the botanical secrets of this special habitat.

Warned to watch our step, as the terrain was criss-crossed with open cracks in Earth's crust, we started into the woods, navigating around crevices and scrambling over deadfalls. The first of the roofless crevice caves that we encountered was lined with the moss *Thamnobryum alleghaniense*. It is described in Howard Crum's *Mosses of the Great Lakes Forest* as looking like a stepped-on *Climacium*, but this identifying feature was lost to us in the densely matted colony on the crevice walls. (*Climacium dendroides*, the Northern Tree Moss, we found the next day at Petrel Point.)

The wall of another crevice cave supported a big colony of the liverwort *Conocephalum conicum*, and we sniffed at the aromatic fragrance of its crushed leaves. On the cool damp wall hung rosettes of our most beautiful native fern, Maidenhair Spleenwort, *Asplenium trichomanes*. This little fern, rather scarce in my part of Ontario, was abundant in this conservation area, decorating many a crevice and rocky cliff. Green Spleenwort, *Asplenium trichomanes-ramosum* was also found here.

Fragile Fern, *Cystopteris fragilis*, grew from the crevice walls. Later in the day another species of *Cystopteris* was found on a steep rocky cliffside. Discussion of the identity of the cliffside specimen (whether true Fragile Fern or Mackay's Fern, *C. tenuis*) centred around minute and hard-to-pin-down features. I think the tentative verdict favoured Mackay's Fern. A third species of *Cystopteris*, Bulblet Fern (*C. bulbifera*) we found later in the day, the young ferns just beginning to stretch out into long arching fronds.

Next discovered were several clumps of Northern Holly Fern, *Polystichum lonchitis*, and then Hart's Tongue Fern, *Asplenium scolopendrium* var. *americanum*, brilliant green in its first spurt of growth.

We followed Joan on a circuitous route through the woods, searching for a certain big pothole that had been a favourite haunt of Nels Maher, Eugene Moxley, and other keen seekers after ferns, mosses and liverworts. A

heavy wet snowfall last March had downed many trees and branches in these woods so that old trails were obliterated. We never did locate the big pothole.

This was a rock-strewn forest, and a curly little moss, *Tortella tortuosa*, grew thickly over the rocks, as well as on stumps and cliff walls. Rose Moss, *Rhodobryum ontariense*, and two other moss genera, *Fissidens* and *Brachythecium*, were also encountered here.

At one point Joan pointed out a liverwort, *Frullania eboracensis*, growing on the trunks of standing trees. We were told to look for the little “jugs” on the back of its leaves, a feature which enables this liverwort to survive in its dry habitat. *Nowellia curvifolia*, a liverwort with clawed bulbous leaves, was found growing on damp decorticate logs on the forest floor. We were entranced by the tale of this liverwort’s namesake, a humble Yorkshire weaver named Nowell, who, back in the days of factory toil during the Industrial Revolution, spent his free Sundays roaming the Yorkshire countryside, collecting and studying bryophytes. The humble weaver has his name immortalized in this humble liverwort.

If this account begins to sound like ferns and bryophytes only — not so! We named, or attempted to name, the herbaceous plants, shrubs and trees along the trail as we scrambled to keep up. Much of our route was negotiated single file in rough terrain, so that identifications made at the head of the line were lost to those farther back. On the other hand, the head-of-the-liners missed the carefully considered identifications of the trailers-behind. Torn between the necessity to keep up with the group and the temptation to stop and puzzle over unknowns, it was frustrating to have to pass plants (especially unfamiliar fruiting sedges) without learning their names. Ferns and bryophytes were definitely this outing’s specialty. As we moved through the forest, more fern species were added to our list: Christmas Fern (*Polystichum acrostichoides*), a single plant of Rattlesnake Fern (*Botrychium virginianum*), a big colony of Maidenhair Fern (*Adiantum pedatum*), and, in a low-lying area, Marsh Fern (*Thelypteris palustris* var. *pubescens*) and Sensitive Fern (*Onoclea sensibilis*).

As the morning wore on, our leader decided that we must move forward more briskly if we were to get back by lunchtime. We quickened pace, crossed the Sydenham River on a small footbridge and hurried through a tangled woods, eventually coming out on the road to the Conservation Area. The road ran along the foot of a cliff of shale and siltstone, the Fossil Hill Formation, where streams of clear groundwater from cracks in the layered rock poured down into the ditch beside the road. In the seepage of the lower cliff grew gritty wet mats of a lime-encrusted moss, *Cratoneuron filicinum*. Across the road

the drier cliffs supported a big colony of the moss *Anomodon viticulosus*.

The afternoon’s outing took us to Black’s Park and the West Rocks, in another neighbourhood of Owen Sound. In these woods we came across a first colony of Oak Fern (*Gymnocarpium dryopteris*) and then various species of wood fern: Marginal Wood Fern (*Dryopteris marginalis*), Clinton’s Wood Fern (*Dryopteris clintoniana*), and in one place a fern that looked suspiciously like a hybrid between American Shield Fern (*Dryopteris intermedia*) and Marginal Wood Fern (*Dryopteris marginalis*). The delicately divided pinnae bore rows of strictly marginal sori. No one else would venture a guess, and the more expert fern students were elsewhere along the trail. We had to leave this mysterious fern unnamed.

As we climbed a rocky trail up a steep hillside, someone spotted Cliffbrake growing on the vertical rock below the trail. Several sure-footed stallwarts climbed down a precarious declivity to ascertain that it was Smooth Cliffbrake (*Pellaea glabella* ssp. *glabella*).

The decision was made to go on up over the top of the West Rocks, looking for a known occurrence of rare Ebony Spleenwort, *Asplenium platyneuron*. On up we went, but a good search along the hillside where it grew failed to produce it. Disappointed, we had started back when one determined searcher located our quarry. Three plants of Ebony Spleenwort were growing unobtrusively in the trailside vegetation, the only occurrence of this species recorded in the area by that intrepid fern hunter, the late Nels Maher. Upright perky fronds, they were not what I had been expecting, not at all like the prostrate rosettes of Maidenhair Spleenwort. But — only three plants in the entire area? “If there were any more, Nels would have found them” we were assured. This special find crowned our day’s botanical discoveries. 🌿

A sincere thanks to Joan Crowe for introducing us to this rich botanical area of Grey–Bruce.

Sheila C. Thomson

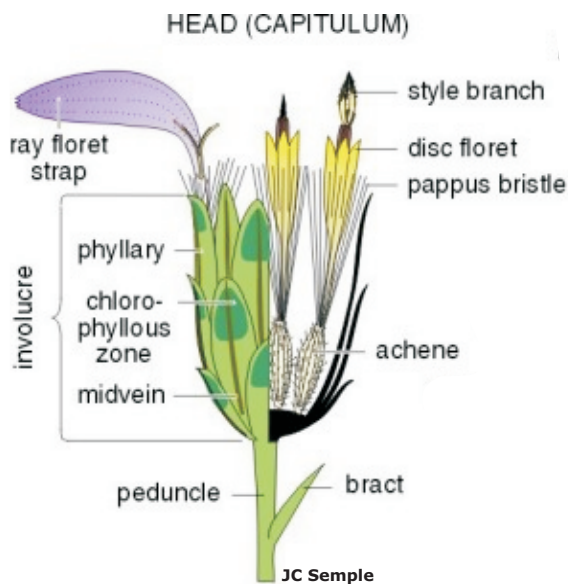
*Deadline for
FIELD TRIP REPORTS, ESSAYS
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February 15!*

Asters and Goldenrods September 29, 2007

Our trip leader was Dr. John C. Semple, Director of the WAT Herbarium, Professor of Biology at University of Waterloo, and principal author of *The Asters of Ontario* and *The Goldenrods of Ontario*, the definitive works for Ontario on the plants we'd come to learn about.

We gathered under clear, sunny skies at the University of Waterloo greenhouse where John took us inside for an overview. John began by unrolling a huge diagram displaying the genetic relationships of a cosmopolitan group of several hundred species as revealed by their DNA. John emphasized that molecular evidence shows that there are no true asters in North America, with one exception in the arctic and western alpine zone. The majority of species formerly placed in *Aster* actually belong to the genera *Eurybia* or *Symphyotrichum*. Then John showed us a series of potted specimens from around the world so we could see the range of variation. One of these was *Aster amellus* (Italian Aster), the type specimen of both the genus *Aster* and the family Asteraceae. A series of species in the genus *Sericocarpus* more closely resembled goldenrods than asters. Another genus is *Symphyotrichum* of which we saw *S. boreale* or the Northern Bog Aster as an example.

Species of Asteraceae are distinguished on the basis of habit, leaf shape and bases, involucre size, phyllary shape, chlorophyllous zone pattern and fruit traits. Species of aster have well defined habitat requirements. Importantly – growing conditions have a profound influence on field characters such as height, branching and ray floret colour.



Solidago ridellii (Riddell's Goldenrod) John Semple (JCS)

The variation in the size and number of flowers and flower parts or head size in asters is the result of ploidy level (the number of sets of chromosomes). Chromosome number will aid in species determination.

We also examined some rare goldenrods including *Solidago sempervirens* which occurs in Ontario only at salt works near Windsor and a few other spots on salted roadsides, and *S. odora* (Anise-scented Goldenrod) with its anise scent.

The rest of our day consisted of carpool convoys, northward before lunch and southward after, to visit a series of sites on the outskirts of Waterloo. Asters and Goldenrods have a helpful habit of growing in easy-to-get-to disturbed spots such as road verges and Sobeys' parking lots! With the help of some Google Maps printouts we covered eight such locations in all. This proved to be an excellent format as each site was chosen to focus on a small number of species and we were able to take plenty of time to study them carefully. As well as identification characteristics, John also covered the genetics of the various species — how they do and don't relate to others elsewhere in North America and a lot about their ecology.

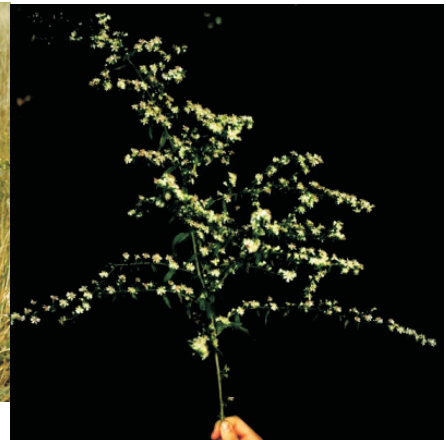
Even the most common, widespread species can be difficult as witness the tall, three-veined leaf goldenrods: Tall Goldenrod (*Solidago altissima*), Canada Goldenrod



***Symphyotrichum lanceolatum*
var. *lanceolatum* (Panicled Aster) - JCS**



***Symphyotrichum pilosum* var. *pilosum*
(Old Field Aster) - JCS**



***Symphyotrichum lateriflorum*
(Calico Aster) - JCS**

(*S. canadensis*) and Late Goldenrod (*S. gigantea*). *S. altissima* was still in bloom beside the Sobey's parking lot at our first stop providing a perfect opportunity for a review. *S. canadensis* blooms in mid August, before *S. altissima* which blooms from mid September onwards. *S. canadensis* has well-defined teeth at the leaf margin, hairs not pronounced on the underside at the bases of the leaves and rarely has galls. *S. altissima*, on the other hand, has very fine teeth at the upper leaf margin. It evolved as a diploid prairie species and this has allowed it to extend its range and blooming period.

A vacant lot amid suburban sprawl allowed comparison of the Panicled Aster (*Symphyotrichum lanceolatum* var. *hirsuticaule*, which is a Great Lakes endemic growing on glacial deposits with organic soil) and the Old Field Aster (*S. pilosum* var. *pilosum* both present with White Heath Aster (*S. ericoides* var. *ericoides*. Shining Aster (*Symphyotrichum puniceum* var. *puniceum*) with its hairy stem and stiff, large leaves was seen at a stop along a roadside bog and this allowed comparison of some goldenrods in adjacent patches of different habitat. The dry shoulder of the road yielded *Solidago nemoralis*, the Gray Goldenrod, with its heads bending conspicuously to the side, the only goldenrod that does this. In the nearby wet soil of the bog were Rough Goldenrod (*S. rugosa* ssp. *rugosa*; spreading by rhizomes) and Rough-leaved Goldenrod (*S. patula*; having large basal leaves with small forward pointing hairs which allow you to slide your fingers up the leaf but not down). By comparison to *S. patula*, Sharp-leaved Goldenrod (*S. arguta* var. *arguta*) has no leaf hairs and blooms in August in swampy areas or dry, open woods.

At the subsequent stops we observed and compared a series of aster species. Heart-leaved Aster

(*Symphyotrichum cordifolium*) has deep indentations on the base of the lower leaves at the petiole. Its flower heads are quite small with pale blue-violet rays, blooming in late September to October. Sky Blue Aster (*S. oolentangiense* var. *oolentangiense*) has leaves entire (compared with *S. cordifolium*). The upper stem leaves are reduced and the basal leaves heart-shaped. It grows in drier habitats of Southern Ontario. Arrow-leaved Aster (*S. urophyllum*) has leaves truncated at the base and a fairly open capitulescence with ascending branches of flowers in white ray florets. *S. laeve* (Smooth Aster) has leaves slightly clasping the stem which are very smooth to the touch. The rosette leaves are slightly spatulate. Blue-stem Goldenrod (*Solidago caesia*) has a reddish, smoothly glaucous stem with axial flowers and numerous small teeth on the leaf margins.

A focus of John's research is cytogeography, the analysis of geographic distribution of polymorphic cytological markers — an important tool in studying the evolutionary significance of chromosome variability within a species. This allowed us to appreciate something of why asters and goldenrods are both the identification headache and evolutionary success that they are.

We ended our day with a visit to John Semple's garden. He had said earlier that his house should be easy to find because once we got to his street we could just go to "the house where the botanist lives" and a colourful front yard garden certainly made that obvious. John is clearly somebody who brings his work home, having devoted many years to building up a collection of asters and goldenrods from all over the world. Among the species in John's garden were: New York Aster (*Symphyotrichum novi-belgii* var. *novi-belgii*); Schreber's Aster (*Eurybia schreberi*); White Wood Aster (*Eurybia divaricata*); Ohio

Goldenrod (*Solidago ohioensis*); and Riddell's Goldenrod (*Solidago riddellii*); and several species of European and Japanese asters. In fact we could easily have had an entire FBO outing without ever leaving his yard! 🌿

Jim Lane and Carol Brotman

Semple, John C., Stephen B. Heard, and Luc Brouillet, 2002. *Cultivated and Native Asters of Ontario*. University of Waterloo Biology Series 41: 1-34.

Semple, John C., Gordon S. Ringius, and Jie Jay Zhang, 1999. *The Goldenrods of Ontario*. University of Waterloo Biology Series 39.

Both publications are available from the Dept. of Biology, University of Waterloo, Waterloo, Ontario N2L 3G1.

Fens of the Lake Huron Shoreline

On Sunday, June 11, 2006, Joan Crowe led a group of field botanists on tour of a series of fens along the Lake Huron shoreline. At our first stop, it was a delight to see the richly coloured Indian Paintbrush (*Castilleja coccinea*) along with Small Yellow Lady's Slipper (*Cypripedium parviflorum*) and Blue-eyed Grass (*Sisyrinchium* sp.).

We visited the boardwalks at Petrel Point and were rewarded with some of the special plants of the fen. Spatulate-leaved Sundew (*Drosera intermedia*), Shrubby Cinquefoil (*Potentilla fruticosa*) and Arrowgrass (*Triglochin* sp.) were growing conveniently close to the boardwalk. More distant plants were a challenge to identify without stepping off the boardwalk. Binoculars were passed around to identify two different species of orchid, Tall White Bog Orchis (*Plantanthera dilatata*) and Loesel's Twayblade (*Liparis loeselii*). Pitcher Plant (*Sarracenia purpurea*) was flowering abundantly over the fen, instantly identifiable.

One of those puzzling sphagnum mosses, seen from the second board walk, was identified for us by fellow botanist Peter Beck, with a very welcome lesson on how to separate this species from *Sphagnum girgensohnii*. Close examination of the stem leaves shows the leaf tips of *S. girgensohnii* to be raggedly truncated (ripped, Peter called it) while the tips of the stem leaves of *S. capillifolium* are merely bluntly pointed.

From Petrel Point we moved farther north along the Lake Huron shore. The rare Hill's Thistle (*Cirsium hillii*) was our prize find on this lap of the tour. Dwarf Lake Iris (*Iris lacustris*) had finished blooming, and Ohio Goldenrod (*Solidago ohioensis*) had not yet come into flower. There were flowerings of Seneca Snakeroot (*Polygala senega*) here, and Bluets (*Houstonia caerulea*). The next thing to stop us in our tracks was not a rarity, but a common tamarack tree (*Larix laricina*), its branches so crowded with cones that it looked like a grossly over-decorated Christmas tree.

We ate lunch on the beach at Red Bay and then headed farther south to Oliphant Fen. At this stop, we added the tiny Spikemoss, *Selaginella apoda*, to the weekend's tally of pteridophytes. The aromatic plant Calamint (*Calamintha arkansana*) was found here, and Pale-spiked Lobelia (*Lobelia spicata*). To our delight, we also found several early flowering plants of Grass Pink (*Calopogon tuberosus*) freshly opened and richly coloured.

It was here that a humble plant on my wish list for many years unexpectedly turned up. Mermaid-weed (*Proserpinaca palustris*) was growing in a muddy seepage ditch that ran across the drying fen. I tried to hide my unwarranted excitement over this plant when Joan pointed out the native nondescript, its submerged leaves pinnately threadlike, while the emergent ones were well fleshed out and toothed on the margin.

On the opposite side of the road, it was distressing to see the drying condition of the fen. Much of the boardwalk ran above bare grey soil with few green plants growing in it. Botanists familiar with the area noted that the water table of the Great Lakes had gone down in recent years, and the effects are showing in adjacent habitats.

The drying fen was dotted with stunted Pitcher Plants, a fraction of the height one expects. Nevertheless, it was here, half hidden in a tiny oasis of green vegetation, that several flowers of Butterwort (*Pinguicula vulgaris*) were spotted. Binoculars were used to make out the little daubs of purple colour where Butterwort was holding out.

Our final visit was to a nearby rich damp area, the plants obviously thriving with a better water supply. A sturdy clump of Showy Lady's Slipper (*Cypripedium reginae*) poking above the surrounding lush greenery provided a happy finale to our day.

Grateful thanks to Joan Crowe (especially from those of us from farther afield) for the opportunity to experience this special botanical corner of the province. 🌿

Sheila C. Thomson

Botanical Roots



Roadside planting of Sugar Maple (*Acer saccharum* ssp. *saccharum*) near Everton, Ontario, September 2007 – W.D. McIlveen

Rural Roadside Trees W.D. McIlveen

*Have you ever wondered about the rows of Sugar Maples (*Acer saccharum* ssp. *saccharum*) that line some of our country roads? These tend to be all roughly the same size while the replacement population for these great trees is very limited. If one looks carefully, a fairly large number are now in a state of decline and some trees have broken branches, heart rot and decay. A number have been lost to expansion of the roadways and dead ones generally are removed. So how did we arrive at this situation?*

The origin of the roadside trees generally owes its existence to a period over a century ago. During that period, tree planting was encouraged by three sequential pieces of legislation passed by the Government of Ontario in the late 19th Century. The first of these¹ was designed “to encourage the planting of trees upon the highways” and to give the right of property in such trees to the adjacent landowners. The success of this act is unclear but seems to have been marginally effective at best.

The Province therefore passed *The Ontario Tree Planting Act, 1883*², to encourage planting and care of trees along public highways and along the boundary lines of adjoining farms. With a financial incentive paid to landowners of up to 25 cents for each tree, the legislation was much more successful. Costs of the program were to be shared equally by the municipality and the province. Landowners were only paid three years after planting if the trees were healthy. After the Act had been in effect for nine years, some 75,000 trees had been planted.

At that time, a new *Acr*³ was introduced to replace the existing legislation. The total numbers of trees that were planted is uncertain but the net result improved both the aesthetic appeal of the countryside and reduced soil erosion caused by wind.

When the trees were planted, they were simply dug up from the local woodlot because those came at no cost beyond the labor of digging them up, and because there was not the nursery system in place that there is today where they could be obtained.

Sugar Maples are not the easiest species to transplant, therefore it is suspected that the transplanting was less than one hundred percent successful. It was easy enough to go back to the same source to get replacements for those that did not survive and one can imagine that the inherent competitive nature and pride of farmers would not allow them to let a gap in a row stand apparent for long.

Then there was the financial incentive that the trees had to survive for at least three years. Unwittingly, the trees planted under the programs were actually of local provenance since they came from the local woodlots. In any case, rows of roadside and fence line trees came to be a common site in Southern Ontario.

If one considers the normal growing conditions for Sugar Maple it is soon realized that the forests with a closed canopy is the normal growing condition. When many trees are growing together, they develop their own microclimate in which they can thrive. By contrast, the trees that were planted in rows were much more exposed to the elements, particularly the wind. Being open-grown, they generally grow full crowns with many more branches and many more leaves than do their forest counterparts. This means a tree that is genetically disposed to forest growth now must face much more sun and wind in combination with an additional burden of extra foliage that can transpire large volumes of water each day.

The trees in the fencerows are therefore particularly

prone to suffering during periods of drought. As the tree crowns get increasingly larger, drought stress only gets worse. Foliage sometimes turns brown and necrotic along the edges of the leaves and the trees lack vigour to withstand attacks by insect and disease.

One can not dismiss the fact that the trees are also reaching a state of advancing maturity though they are overall far from any maximum age that the species is known to attain. Simple mathematics suggests that many of the trees planted during the programs of the late 1800's are now in the order of 125 years of age.



Avenue of the Maples, Punkeydoodles Corners, Waterloo Region - CJH

The current situation is not bright with respect to retaining the rural character of rural areas contributed by these roadside trees. Some landowners do their best but there not enough these people. Too often the newer plantings include the non native and potentially invasive Norway Maple (*Acer platanoides*) or frequently an ash (*Fraxinus*) species. Regrettably, the

Emerald Ash Borer will undo current efforts with respect to the latter species.

The mindset of recent governments has not been to provide direct funds to support tree plantings along roadsides but to leave the landowner to fend for themselves. Land owners should be encouraged as much as possible to get on with reestablishing these wonderful trees. Appropriate native trees (but not those subject to invading pests such as ash) should be planted away from the road lest they be wasted in the course of road expansion. We can only hope that conditions change in the near future so that a whole new initiative will be made to encourage the planting of such trees. 🌿

References

1. An Act to encourage the Planting of Trees along Highways, 1871. *Statutes of Ontario*. 34 Vict., c. 31.
2. The Ontario Tree Planting Act, 1883. *Statutes of Ontario*. 46 Vict., c 26.
3. The Ontario Tree Planting Act, 1896. *Statutes of Ontario*. 59 Vict., c 60.

Essay

Pines in the Port Franks Area

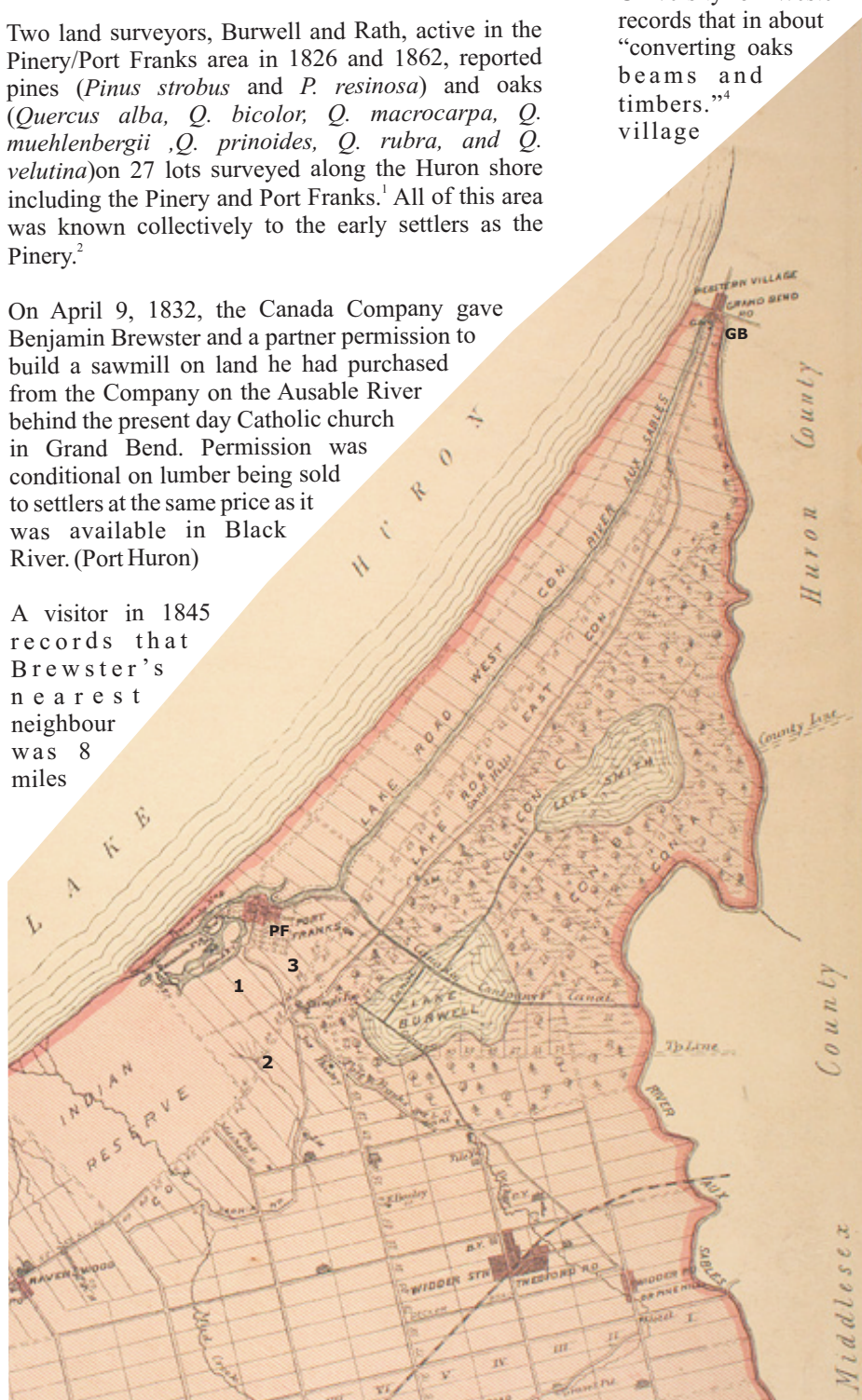
Two land surveyors, Burwell and Rath, active in the Pinery/Port Franks area in 1826 and 1862, reported pines (*Pinus strobus* and *P. resinosa*) and oaks (*Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. muehlenbergii*, *Q. prinoides*, *Q. rubra*, and *Q. velutina*) on 27 lots surveyed along the Huron shore including the Pinery and Port Franks.¹ All of this area was known collectively to the early settlers as the Pinery.²

On April 9, 1832, the Canada Company gave Benjamin Brewster and a partner permission to build a sawmill on land he had purchased from the Company on the Ausable River behind the present day Catholic church in Grand Bend. Permission was conditional on lumber being sold to settlers at the same price as it was available in Black River. (Port Huron)

A visitor in 1845 records that Brewster's nearest neighbour was 8 miles

away in one direction and 12 miles in the other. In 1850 he was employing 30 men and cut 3 million board feet of lumber.³ Sherwood Fox, the President of the University of Western Ontario from 1927 to 1947, records that in about 1850 Brewster was “converting oaks beams and timbers.”⁴ village

Prior to about 1868, the only outlet for this lumber was shipment by boat on the lake. The ring of sand dunes girdling the village was so high as to make haulage by wagon impossible.



Portion of “Map of Bosanquet Township”, 1880, showing Grand Bend (GB) to the north and Port Franks (PF) to the south near the center of the map. The area between was known as the Pinery, and is the modern-day location of The Pinery Provincial Park. Other historical landscape features on map do not necessarily correspond to contemporary features. Contemporary management areas are indicated by superimposed numbers as follows: 1. Port Franks Forested Dunes; 2. Karner Blue Butterfly Sanctuary; 3. Lambton County Heritage Forest. *The Canadian County Atlas Collections Program, Digital Collections Programme, Rare Books and Special Collections Division, McGill University 2001.*

The village of Sylvan became a prosperous logging town after the construction of a sawmill in 1852 “to process the exceptional pine trees of the area.”⁵ The largest pine cut was said to be 7 feet 4 inches in diameter and the London Free Press reported in 1944 that old buildings in the Sylvan area “could still be seen containing boards 3 feet wide and unblemished in any way.”⁶

Pinehill (later Widder) just south of Thedford, so named because of pines growing on a ridge⁷ acquired a sawmill in 1850 and post office in 1851 and was described as “the Metropolis of Bosanquet (Township)” prior to being bypassed by the Grand Trunk Railway in 1859.⁸

It seems clear that pines extended south from Port Franks and the Pinery in favorable locations at least as far south as Sylvan and Thedford about 12 kilometers away. Pines could not tolerate the heavy clay soil and poor drainage farther south in the county. The original oak-pine forest in the Pinery and Port Franks area survived to the present because it was impossible to create farm land in the sand dunes along the lake by clearing the trees.

Although the forest survived it has no doubt been continually “high graded” for 150 years to remove the biggest and best oaks and pines. The pines of the Pinery/Port Franks area must have been an important source of “barn boards” for the first settlers.

In 1995 the Natural Heritage Information Centre ranked the Oak-Pine Woodland in the Karner Blue Sanctuary as S-1 “indicating that this community is considered to be extremely rare in Ontario and G3 indicating rare to uncommon throughout its range globally”.⁹ Unfortunately, nearly half of this rare oak-pine (*Quercus velutina*, *Q. rubra*, and *Q. alba*; *Pinus strobus* and *P. resinosa*). woodland system has been destroyed over 18 years by cutting and burning in an attempt to reintroduce the Karner Blue Butterfly. There is no evidence of planted pines in the Karner Blue Sanctuary (KBS) or the Port Franks Forested Dunes, a Nature Conservancy property.¹⁰

It seems reasonable to assume that the nearly contiguous Oak-Pine woodland of the Lambton County Heritage Forest (which abuts the Port Franks Forested Dunes) deserves the same provincial and global rating as the Karner Blue Sanctuary. The Management Plan for the County Forest¹¹ shows pines (*Pinus banksiana*, *P. resinosa*, *P. strobus*, and *P. sylvestris*) as an important species in 8 out of 10 vegetative communities identified, but designates approximately 100 acres of Oak-Pine forest as anthropogenic since some pines had been planted and many removed over the years. If left to regenerate, this 100 acre segment of the County Forest

should gradually return to its pre-settlement balance of mature oaks (*Quercus alba*, *Q. bicolor*, *Q. macrocarpa*, *Q. muehlenbergii*, *Q. prinoides*, *Q. rubra*, and *Q. velutina*) and pines and fully justify the same rarity rating that the NHIC gave to the Oak-Pine woodland in KBS.

Any planted pines are probably only partial compensation for all of the pines removed over the past 150 years. If left to regenerate, this 100 acre segment of the County Forest should gradually return to its pre-settlement balance of mature oaks and pines and fully justify the same rarity ratings that the NHIC gave to the pine-oak forest in the Karner Blue Sanctuary.

It was a mistake to plant a million or so pines in the Pinery some 60 years ago and thus to destroy the savannah areas and their special vegetation. I feel that it is a similar mistake to remove the pines in the Karner Blue Sanctuary in an effort to create savannah where there had been Oak-Pine woodland.

It seems that pines have been an important part of the tree species in the Port Franks/Pinery area since early settlement times. 🌲

John Tiedge

¹Maps obtained from the Natural Heritage Information Centre, Peterborough.

²Stott, Greg, *Yon Sand Beaten Shore: The Story of Port Franks*, August 1998.

³Elford, Jean Turnbull, *Canada West's Last Frontier: A History of Lambton*, p. 107, 1982.

⁴Fox, W. Sherwood, “Tain't Runnin' No More”: *The Story of Grand Bend, The Pinery, and the Old River Bed*, 1946, pp. 30.

⁵Grainger, Jennifer. *Vanished Villages of Middlesex*, pp. 275-276, 2002.

⁶London Free Press, Sept. 30, 1944, p. 29.

⁷Nielsen, Eleanor, *et al. In Days of Yore: 10th Anniversary Special*, Lambton County Genealogical Society, 1994.

⁸Phelps, Edward, *Historical Atlas, County of Lambton*, 1880, Published 1973.

⁹Sutherland, D.A. and Bakowsky, W. *et al., Biological Inventory and Evaluation of the Karner Blue Sanctuary* Natural Heritage Information Center, Peterborough, 1995.

¹⁰Verbal assurance from Greg Stott that no trees were planted on the PFFD during the approximately 60 years that this property was owned by his uncle and aunt, Jim and Blanche Watson.

¹¹*Lambton County Heritage Forest Management Plan*, September 15, 1994.

Editor's Corner

Botanizing on the Right Side of the Brain

I discovered how the left and right sides of the brain are responsible for different kinds of thinking through a book called *Drawing on the Right Side of the Brain* by Betty Edwards. Edwards introduces would-be artists to the work of scientists who worked on the “split brain experiments” on patients who had the connective tissue – the corpus callosum – severed that allows the two hemispheres of the brain to communicate with each other. They found that the dominant left hemisphere is responsible for linear, logical thinking, and is the place where our language skills are kept. The speechless right brain holds information on spatial relations, shapes, and creative, intuitive thought.

As Paul Simon mentioned in his song *Think Too Much* – “They say the left side of the brain dominates the right” – most humans are ruled by their left brain, and the left brain is a crummy artist. It likes to name the parts you are drawing, but it has no sense of the distance between lines or where a nose is, say, in relation to lips or a forehead. Through exercises in her book, Edwards retrains her readers to be aware of and allow the right brain to come out to do what it does best. The bossy left brain will tell you that this is a stupid waste of time, but with practice and persistence, anyone can reproduce an image they see with accuracy.

Reading this, I realized that right brain function had a lot to do with how I identify plants, and perhaps even one of the reasons I am attracted to field botany. As an amateur field botanist, I started out using the *Audubon* field guides, the ones with colour photographs. I enjoyed turning the pages and looking at the pictures over and over as a pastime. I found when I was botanizing I knew the name of many flowering plants as soon as I saw them because the pictures stayed in my memory.

In the early days of my field botany career, I was introduced to *Peterson's*¹, again a reference that relies heavily on shape and colour to identify flowers. Its drawback, however, was that it left you hanging when confronted with a plant before or after flowering. *Newcomb's*² filled this gap if you use the simple three-part key and skipped the first part that describes the flower. Then when you go to the next step where the key is expanded, you just examine every combination of the last two digits, flip to the illustration and see if it matches up. The keys provided in *Newcomb's* – and pretty much

every other reference, are descriptive: they rely on the left side of the brain, the keeper of language and not of shape, to help with identification.

Most people find the genus *Salix* quite daunting – for me I find that looking at the leaf shape and overall growth form makes their identification effortless compared to internalizing the botanical terms necessary to accurately key them out. And I was heartened to read the words of the master *Salix* taxonomist George Argus:

We all identify objects we know, inanimate as well as animate, by instantaneously integrating a large number of characters. If you were asked how do you know that it is such-and-such it may be difficult to say, and you may list a few of the obvious features, but in reality your brain has integrated many characters and allowed for variability in the process. A taxonomic key is just for someone who doesn't know the species. Keys cannot allow for all the variability that occurs in nature so even after arriving at an identification it is necessary to compare it with correctly identified material³.

I began asking the botanists around me whether they relied more on pictures or keys to identify flowers. I posed the question to Sarah Mainguy on our AGM field trip to Inglis Falls this year. “Oh, you mean GISS”, she said. “General impression, size and shape. I think it's an airforce term they use to identify planes in flight.” After discussion, I think Sarah figured she used both sides of her brain to botanize. But there are some things about keys, she points out, that are unequivocal: for example, species in the genus ash (*Fraxinus*) most certainly have opposite branchlets and could never be mistaken for, say a hickory, (*Carya*) with alternate branching habits if that characteristic is used, even though both have compound leaves. But it is general impression, size and shape, I realized, that allows us to do roadside botany at 100 km/hour.

I ran into John Semple one Saturday and we stopped to chat about things botanical. I wasn't canvassing for information on the left/right brain botanizing, but John offered up the information without prompting. He used the word “gestalt” in reference to IDing plants. “What do you mean, gestalt?”, I interrupted. Gestalt is one of those words I remember cropping up in the parlance of the hip thirty years ago, and the meaning I had eked out without actually asking was “essence”. Gestalt is another, more

elegant way of describing right brain botanizing – identifying by the image of a plant as opposed to the description. “It’s fine if you’re dealing with a flora of a few hundred plants” John said, “but when you’re dealing with a flora of thousands of species, you have to use a key. It is also possible that what seems to be gestalt is also the instantaneous processing of internalized keys. Having said that, John Morton and I always agree that the fastest way to ID a plant is to look at illustrations first!!

The literal meaning of the German word “gestalt” is “shape”. The left brain has elbowed its way once again into the domain of the shy right hemisphere through those who have produced a body of work *describing* and *analyzing* how this kind of thinking works. All of this can be found by googling the word. They use some images to *illustrate* the different processes involved in shape and image recognition, but what is most impressive is how little information it takes for the right brain to make sense of the image so that the left brain can name it.

In the end, I think both sides of the brain share the task of naming plants. Certainly this is the case for genera that are split out on relatively tiny – even microscopic differences. I have made my peace with learning and using keys for the reward of knowing the plant’s name. But now that I know how it works, I enjoy observing how my right brain identifies not only plants, but other shapes and patterns on the landscape, passing on the information for my left brain to translate to others.

I picked up another book that I am about thirty years behind in reading, an early translation of quantum mechanics for the rest of us: *The Dancing Wu Li Masters: An Overview of the New Physics* by Gary Zukav. The new physics as started in motion by Einstein early in the last century is a departure from the classical Newtonian physics that dominated science for three hundred years that is a linear, rational, left brain approach to describing natural phenomena. More recently this has taken form in fractal geometry, which is able to explain the non-linear patterns of growth in sunflower disc florets, for example, and chaos theory that attempts to describe ecosystem-level phenomena and severe weather systems. Zukav states:

The subjective experience of wonder is a message to the rational mind that the object of wonder is being perceived and understood in ways other than the rational. The next time you are awed by something, let the feeling flow

freely through you and do not try to “understand” it. You will find that you *do understand*, but in a way that you will not be able to put into words. You are perceiving intuitively through your right hemisphere. It has not atrophied from lack of use, but our skill in listening to it has been dulled by three centuries of neglect.

Botanizing allows us to use both or either side of our brain to name plants. But when we use our right hemisphere, when we can identify a plant through some component of its two or three dimensional manifestation, we become connected to that part of ourselves that makes intuitive leaps, that can do creative problem solving, and that thinks outside the box. As Einstein said, “I never came upon any of my discoveries through the process of rational thinking”. This is the part of ourselves that experiences awe and wonder. This is the process that drives quantum mechanics and chaos theory. It has rescued natural processes from the sterile mechanistic model, explaining what field botanists already see – the enchantment of nature. ❀

Cheryl Hendrickson, Editor



White flower of *Viola striata* (Pale Violet) in hand - CJH

¹ Peterson, Roger Tory and Margaret McKenny (1968) *A Field Guide to Wildflowers: Northeastern and North-central North America*. Boston: Houghton and Mifflin.

² Newcomb, Lawrence (1977). *Newcomb's Wildflower Guide*. Toronto: Little, Brown and Company.

³ Argus, George 1992. *Salix in Ontario II. Field Botanists of Ontario Workshop on Willow Identification*. Unpublished.