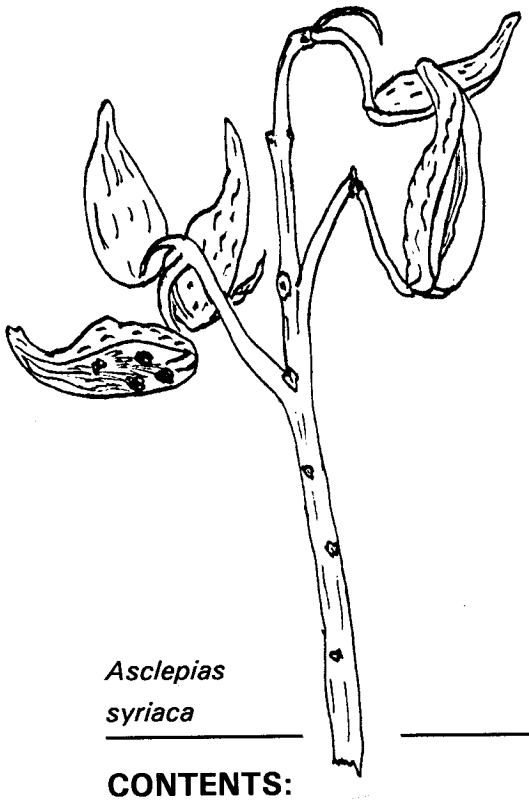


Asclepias syriaca

FIELD BOTANISTS OF ONTARIO

ISSN: 1180-1417

NEWSLETTER

Winter 1992/93

CONTENTS:

UPCOMING EVENTS

MOSS WORKSHOP

The first FBO event for 1993 will be a bryophyte workshop held at the University of Western Ontario on March 27-28. In formation and an application form are included with this newsletter. Spaces are limited, so apply early to avoid disappointment.

....•••....

A CALENDER FOR FIELD TRIPS IN 1993
WILL BE DISTRIBUTED WITH THE SPRING NEWSLETTER IN MARCH

....•••....

The FBO Annual General Meeting for 1993 is planned for the weekend of September 25-26 at the Royal Botanical Gardens in Hamilton. Mark your calender now!

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.

CHANGES TO THE FBO EXECUTIVE

We welcome Bill Crins, Mary Gartshore and Irene McIlveen as new members of the FBO executive. Bill Draper and Deborah Metsger have resigned. Special thanks are due to both of them for the time and effort they dedicated to building a suberb field events program. Irene McIlveen takes over as field events coordinator.

ANOTHER SUCCESSFUL ANNUAL MEETING WEEKEND

The 1992 Annual General Meeting weekiend of the Field Botanists of Ontario was held at the Delawana Inn, Honey Harbour, Muskoka, from Friday September 11 to Sunday September 13. About 30 members enjoyed the best weather of the summer, the hospitality of the Delawana, and the staff of Georgian Bay Islands National Park.

Greg Gemmel of the Park's interpretive staff spoke to the group on Friday evening. He described the attractions of Beausoleil Island and the usual problems of balancing the conservation of the park's natural resources with heavy recreational use. He urged members of the FBO to contribute to a new master plan now being prepared for the park.

Saturday evening, after a successful day trip to Beausoleil Island, Mirek Sharp and Bill Crins presented a slide show featuring the habitats and many of the rarer plants of the island. They emphasized the efforts being made to preserve habitats and thus some of the endangered plant species. Both have conducted detailed studies of the flora of the park. A short General Meeting was held afterwards.

The highlights of the weekend were, of course, the field trips, to Beausoleil Island on Saturday and to Big Chute on the Severn River on Sunday.

Bob Bowles and George Bryant led the trip to Big Chute. The season dictated that considerable attention be paid to asters and goldenrods. We also looked at a few aquatics that are abundant in the quiet waters both above and below the rapids. Some of the specialities that we saw: Lizard's-tail (*Saururus cernuus*); Yellow-pimpernel (*Taenidia integerrima*); Bulbous Buttercup (*Ranunculus bulbosus*); Narrow-leaved Spleenwort (*Athyrium pycnocarpon*); Rock Spikemoss (*Selaginella rupestris*); Eaton's Quillwort (*Isoetes eatonii*). Several members took a few minutes from "botanizing" to admire the ingenious marine railway that lifts boats over the Big Chute rapids of the Severn River.

The FBO owes a big "thank you" to Bob Bowles who organized the weekend and somehow managed to conjure up two whole days of blue skies, bright sunshine, lots of interesting plants, and a Massasauga (*Sistrurus catenatus*). We also appreciated the leadership of Mirek Sharp, Bill Crins and the park staff at Beausoleil Island.

Frank Cook

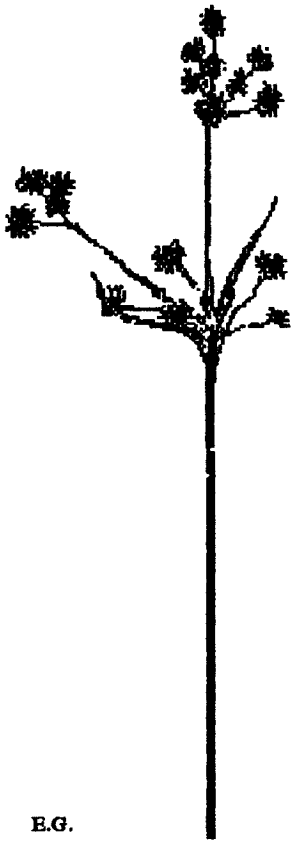
BOTANY WALK ON BEAUSOLEIL ISLAND

When you ask a very ill-informed FBO member to write up a botany walk you have to put up with the consequences. Large snakes, beautiful scenery, interesting boat trips and birds are liable to be included beside the botanical specimens which were the object of the trip to Beausoleil Island, on Saturday September 12, as part of the weekend of the FBO Annual General Meeting.

We were fortunate to have botanists galore ready at hand to unravel the complexities of all manner of plants. Naturally with so many plants and so much knowledge, our guides, Bill Crins and Merik Sharp, found it difficult to keep the group together as each new area provided countless species.

We began our exploration on the sandspit south of Cedar Springs on Beausoleil Island, an area which is much used by visitors to the park. Tim Sweeting, the ranger who accompanied us, told us that it is only recently the beach has not been subjected to ploughing

with a disk to keep the sand "clean". Now the natural vegetation is being allowed to return to part of this beach. Small *Scirpus smithii* (Smith's Club-rush) has been found on flats there and is spreading. It is a rare species. *Sagittaria graminea* (Grass-leaved Arrowhead) and *Agalinis purpurea* (Purple Agalinis) also grew in this area. (It isn't purple, it's pink). Since Bill Crins was along we found many sedges, called "confusing fall sedges". *Juncus alpinoarticulatus* (Alpine Rush) was growing among the sedges. Bill found the shore so exciting, it was difficult to drag him away. I was pleased to discover that *Juncus balticus* (Baltic Rush) was familiar from our marsh. Also *Scirpus cyperinus* (Wool-grass), a tall, drooping sedge, turned out to be an old friend. The spreading peaks on the ends of the beaks of the perigynea of *Carex comosa* (Bristly Sedge) were pointed out as were the dark brown scales of *Cyperus bipartitus* (Shining Cyperus). We saw *Aster lanceolatus* ssp. *lanceolatus* (Tall White Aster), once called *Aster simplex*, and *Aster pilosis* var. *pringlii* (Aster).



Juncus canadensis

Growing among the grasses and sedges further along the shore was *Spiranthes cernua* (Nodding Ladies'-tresses) which has a frilled lip. *Bidens cernua* is Nodding Burr-marigold.

We ate our lunch among these plants and looked out at the rocks and islands of the Georgian Bay. *Gentiana andrewsii* (Closed Gentian) and *Solidago hispida* (Hairy Goldenrod) also appeared here.

Sprianthes cernua

Our guide took us away from the shoreline to where, he told us, the campers don't bother to go. The centre of the island is bisected by a drumlin left by the glaciers that passed over these islands. There is a change in vegetation from north to south due to changing geology. On this section of the walk we saw a large Massasauga (*Sistrurus catenatus*) who rattled at us from the middle of the path. We were careful to give her a wide berth as we passed by. Do you suppose there is a relation to the Rattlesnake Manna Grass (*Glyceria canadensis*) we saw? We also saw *Agrostis gigantea* (Redtop) and *Agrostis scabra* (Tickle Grass). Large patches of *Solidago caesia* (Blue-stemmed Goldenrod) appeared beside the path.

I had not noticed the red bulblets in the axils of *Lysimachia terrestris* (Yellow Loostrife) before. Bill said they are genetically the same as the parent plant. *Linum medium* (Stiff Yellow Flax) has evolved as an endemic of the Great Lakes shoreline.

Solidago caesia

Out on the Bay again Bill pointed out a small bladderwort that had no bladders and no flowers either. *Utricularia intermedia* (Flat-leaved Bladderwort) is the name for this tiny plant found under the water.

We all managed to reach the wharf in time to catch the boat back to the Delawana Inn, except for one hardy soul who missed the turn in the path and had an extra walk around the top of the island. He did, however, arrive in time for dinner.

Ed and I counted over 100 species of plants which had been pointed out to us, and there were probably many others recognized by the more experienced botanists.

Elizabeth Gillan

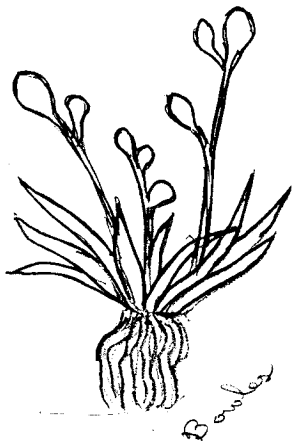
A LITTLE AQUATIC IN MUSKOKA

Last summer in Muskoka I was introduced to a diminutive, but interesting plant that was new to me. The Musquash River west of Bala has several rare and unusual plants, that we have found over the years, growing along the shore and in the river itself. Along the shore we have recorded *Panicum spretum* (Panic Grass), the sedge *Carex folliculata*, *Rhyncospora fusca* (Beak-rush), *Linum striatum* (Yellow Flax), and *Rhexia virginica* (Meadow Beauty). At the water's edge and in the water we have found *Elatine minima* (Waterwort), *Gratiola aurea* (Hedge-hyssop) and *Sagittaria graminea* var. *cristata* (Grass-leaved Arrowhead).

Late last summer Hydro Ontario had to do some repair work to one of the generating plants on the rivet. To complete this work they had to drain a section of the river above the plant. Al Sinclair happened to be working in the area during the few days that this section of the river was drained, and found large stands of *Subularia aquatica* also called Water Awlwort. I was able to visit the site before the water was restored to this section, and was quite impressed by this little aquatic species. In this section alone there were five stands of about 10 metres square of this tiny plant, which grows not more that 2 cm tall in one to two metres of water. It makes one wonder how many plants grow along the total length of the river.

The next time that a section of the river is drained I will inform any member of the FBO who is interested in observing these stands. This little plant has probably been growing in this area for years, but I would not have believed that it could have been so abundant, yet completely undetected until the river was drained.

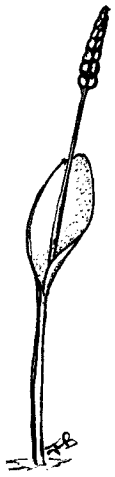
Bob Bowles



Subularia aquatica

FERNS AND FERN ALLIES OF MONO CLIFFS PROVINCIAL PARK

Mono Cliffs Provincial Park, in Dufferin County, is a tricky place to find, but it is well worth the effort. This lovely gem of a park contains two escarpment outliers, with a wetland area on the glacial spillway running between them, and a kettle lake in the hills beside them. The combination of thin-soiled bedrock on the pavement rim, limestone cliffs, talus slopes, mixed and deciduous forest, swamp, marsh, ponds and streams provides such a wide variety of habitats that the park is well known for its diverse fern flora. The park supports 44 of the 96 species of ferns and fern allies that grow in Ontario (Britton, pers. comm.), and ferns and fern-allies make up 9.4% of the total flora (470 species) of the park (Lindsay, pers. comm.).



Ophioglossum vulgatum

John Riley, Kathy Lindsay and Dr. Don Britton were the leaders for this trip, held on July 18, 1992. Kathy conducted a botanical survey of the park for the ANSI report on the area (Lindsay 1991), and was able to lead us to many special habitats and specimens. John is also very familiar with the park, and was able to supply many interesting tidbits about its physiography, geology and natural history. Dr. Britton, as many will know, is co-author of the excellent new fern book, Ferns and fern allies of Canada (Cody and Britton 1989). His expertise at identification was most helpful in several instances. Approximately 23 people were present for this trip. Nelson Maher distributed a lovely one-page illustrated fern hike checklist containing 29 fern species of Grey and Bruce Counties.

We kept a running tally of ferns and fern allies observed. By 11:30 a.m. we had picked up 21 species, and by lunchtime (12:20) we had seen 27 species. From that point on, we visited special habitats, such as the limestone cliffs and trout ponds, to pick up the last several species. We eventually found a total of 33 of the ferns and fern-allies in the park.

As we started into the park we noticed *Pteridium aquilinum* (Eastern Bracken). Someone remarked that this species was eaten in Japan, and a lively discussion ensued of the carcinogenic effects of both this species and of *Matteuccia struthiopteris* (Ostrich Fern), the familiar fiddlehead eaten in Canada. *Dryopteris intermedia* (Glandular Wood Fern), *Equisetum arvense* (Field Horsetail) and *Lycopodium lucidulum* (Shining Clubmoss) were also observed just off the path under the cedars.

We then entered a mixed forest bordering a large swamp, and there we were fortunate to discover two very closely linked species of clubmoss, *Lycopodium dendroideum* (Round-branched Ground-pine) and *L. obscurum* var. *obscurum* (Flat-branched Ground-pine), conveniently growing beside each other for easy comparison. The sharp eyes of Dr. Britton picked out the flatness of the *L. obscurum* branchlets, which distinguished it from the *L. dendroideum*. *Lycopodium obscurum* var. *obscurum* had not previously been recorded in the park.

In this same area we found two more woodferns, *Dryopteris carthusiana* (Spinulose Woodfern), and *Dryopteris clintoniana* (Clinton's Woodfern), as well as the largest of the grape ferns, *Botrychium virginianum* (Rattlesnake Fern). Here too, our attention was pulled away from ferns by the sight of a *Platanthera hyperborea* (Tall Northern Orchid). Also in this forest were *Osmunda cinnamomea* (Cinnamon fern), *Onoclea sensibilis* (Sensitive Fern), *Gymnocarpium dryopteris* (Oak Fern), and another clubmoss, *Lycopodium clavatum* (Running Clubmoss), also known as Wolf's Claw because the long hairlike scale tips form a claw at the growing tip of the plant. We also encountered a small patch of *Mitchella repens* (Partridge-berry), interesting because it had both flowers and fruit on the same plants.

Farther along the path under another stand of cedars, we found a large patch of *Lycopodium*

digitatum (Crowfoot Clubmoss). This moss was once known as *Lycopodium complanatum* var. *flabelliforme*, and Dr. Britton informs us that it is soon to be designated as a new genus.

We then moved into a pine plantation on a sandy area that was once the bottom of a river which flowed between the two escarpment outliers. Kathy showed us a picture of the area, taken before the pines were planted, in the 1930's. At that time, it was an open field, the site of the annual town picnic. Now, the mature plantation is known as McCarston's Grove, and it provides habitat for several of the small grape ferns. We fanned out and spent several minutes searching for some of these elusive ferns. We were rewarded by the sight of two species growing side by side, *Botrychium multifidum* (Leathery Grapefern), and *Botrychium matricariaefolium* (Daisy-leaved Grapefern).

On the rocky slopes at the base of the west-facing escarpment we found *Dryopteris marginalis* (Marginal Wood Fern), *Asplenum trichomanes* (Maidenhair Spleenwort) and *Cystopteris bulbifera* (Bulbet Fern). The most determined members of the group climbed a steep (and slippery!) trail to the base of the cliffs on the east side of the valley to peer at some specimens of *Pellaea glabella* (Smooth Cliff-brake) growing out of cracks in the cliff, just above our heads.

Back down in the plantation again, we searched a sunny opening for *Ophioglossum vulgatum* (Northern Adder's-tongue), which was found in this location several years ago. We had no luck, it seems to have disappeared, possibly because the glade is now closing in with woody shrubs.

At the base of the western outlier, in an uncommon Butternut/Basswood/Birch forest community, were scattered small groups of *Athyrium thelypteroides* (Silvery Spleenwort). Here, along the bottom of the east-facing cliffs, on the talus slopes where large boulders lay scattered about, there were several specimens of the rare *Phyllitis scolopendrium* var. *americanum* (Hart's Tongue Fern) growing out of cracks on the sides of the large mossy limestone boulders. In 1908 J.F. Calvert found 8 plants in this area; in 1934, T.M.C. Taylor said there were hundreds (Riley, pers. comm.). On our visit, we observed approximately 17 plants, but this was not an exhaustive search. John informed us that this fern is rare worldwide; most of its world population occurs in Ontario (Argus et al. 1982-87). This is a different species from *P. scolopendrium* var. *scolopendrium*, the Hart's Tongue Fern that is found in abundance in Ireland and which is sold in plant stores in Canada.

In the damp ground by the spring near the trout ponds were three more species growing in close proximity to each other: *Dennstaedtia punctilobula* (Hay-scented Fern), *Phegopteris connectilis* (Northern Beech Fern), and *Athyrium filix-femina* (Lady Fern). In the woods nearby were colonies of *Asplenium rhizophyllum* (Walking Fern), and *Polypodium virginianum* (Common Polypoidy) sitting up on a mossy boulder for easy viewing, as well as some *Cystopteris tenuis* (Mackay's Fragile Fern).

We stopped in an open field area beside a trout pond for lunch, and picked up another species, *Equisetum fluviatile* (Water Horsetail) growing in the marshy border of the pond. Here the park warden had to intercept a couple of all-terrain vehicles, and talk turned to the destruction of the fragile habitats caused by bicyclists and rock climbers or scramblers. This has been, and continues to be, a serious problem in the park. The debris which accumulates over the decades in the small crevices on the cliff edge and face provides habitat for some unusual plants, but is often pulled out by rock climbers and scramblers. Some of the cedar trees growing in these crevices on the cliffs near the *Pellaea* have been found to be over 300 years old; the oldest one was 428 years old. A popular trail for mountain bikes follows the bottom of the cliff face, meandering through the talus and loose organic material on the slope, destroying vegetation in this very sensitive habitat.

After lunch, a group branched off from the main party and went down into a lovely mature Beech/Sugar Maple forest to view a patch of the tiny, curled *Equisetum scirpoides* (Dwarf Scouring-rush) growing under leaves on the mossy upper bank of Sheldon Creek.

Thelypteris palustris (Marsh Fern) was found in a small marshy spot in an open field area, and *Polystichum acrostichoides* (Christmas Fern) on

the higher slopes along the west side of the park.

We visited McCarston's Lake, a kettle lake that is the only natural lake in Mono Township. Exploratory coring conducted by the OMNR has revealed forest peat, indicating that a pine forest once lay 20 metres down under the muck of the lake bottom. John Riley informed us that 9,000 year old bones of Marten (*Martes americana*) and Pika (*Ochotona* sp.) have been found in caves in Mono Township; it appears that this area was at one time covered in talus slopes and pine forest. Glacial meltwater from the Georgian Bay lobe and the Lake Huron lobe of the the Wisconsin ice sheet north of Mono, flowed down the Violet Hills spillway scouring hundreds of feet of till from the Orangeville and Singhampton-Gibralter Moraines right down to the bedrock, thus exposing the escarpment outliers in the park. This is the only place in Dufferin County where the escarpment is not buried. This sequence of events has resulted in a variety of unusual habitats all in one small place, now designated as Mono Cliffs Provincial Park. It is a truly remarkable park, and the fern trip was highly enjoyable - many thanks to the excellent and informative leaders!

References:

Argus, G.W, K.M. Pryer, D.J. White & C.J. Keddy [eds.] (1982-1987) Atlas of the rare vascular plants of Ontario. Four parts. National Museum of Natural Sciences, Ottawa. (looseleaf)

Cody, W.J. and D.M. Britton (1989) Ferns and fern-allies of Canada. Research Branch, Agriculture Canada. Publ. no. 1829/E. 430 pp.

Lindsay, K.M. (1991) Biological inventory and evaluation of Mono Cliffs Provincial Park, Dufferin County. Ontario Ministry of Natural Resources, Parks and Recreation Branch, Richmond Hill.

Vicki H. Young

BOTANIZING THE ALTBERG NATURE RESERVE

Over the years the "rain or shine" policy of FBO field event has been put to the test many times. But it is doubtful that any field trip has ever experienced such foul weather as we encountered this day. Hurricane Andrew was expending his final energies when we arrived at the site on Saturday August 29, 1992.

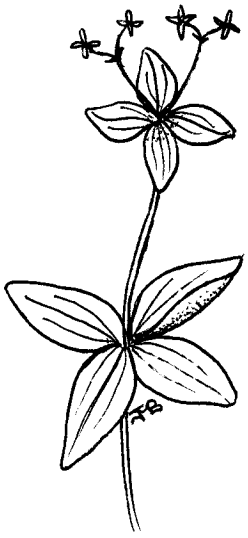
Our arrival at the departure point was accompanied by high winds, black clouds and lashing rains. Finding a short lull amongst the rain squalls we set out into the drenching vegetation. Our leader, Donald Kirk, provided participants with a copy of a preliminary vegetation description and botanical survey which he had prepared earlier in the year for the FON Nature Reserves Committee.

The Altberg Southern Shield Nature Reserve is a 100 hectare property on the southern edge of the Canadian Shield in northern Victoria county. Title to the property was received by the FON only in the past few years. Because of the size of the property and the time involved, a complete botanical inventory had not yet been taken. One of the purposes of our visit was to explore some of the more remote parts of the reserve and inventory the plants. Somewhere between 20 and 30 plants new to the inventory were discovered and identified on the trip.

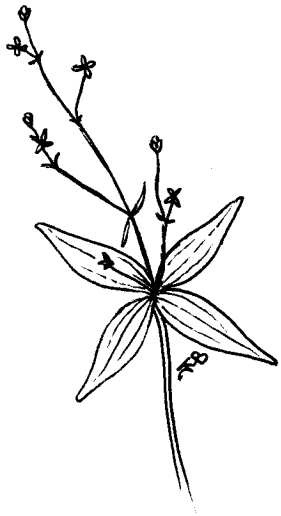
One of the most bizarre discoveries of the day was Ladder Lichen (*Cladonia cervicornis* var. *verticillata*) which somebody described as looking like several golf tees struck on top of the other. This fantasy from a Dr. Seuss fable was tentatively identified in a field guide fortuitously produced by Kathy Miller.

We were surprised and pleased by the evidence of considerable use of the site by big game. Scat from Moose (*Alces alces*), Black Bear (*Ursus americanus*), and White-tailed Deer (*Odocoileus virginianus*) were identified with great gusto by Jim Wilson who clearly is an expert on the subject. The Black Bear had been dining extensively on Common Blackberry (*Rubus allegensiensis*) as evidenced by the many seeds. The concentration of deer scat under a stand of Eastern Hemlock (*Tsuga canadensis*) indicated that they had been using the site as a wintering yard.

Don Kirk pointed out that one of the most unusual features of Altberg is that it is on the contact zone between the granite rocks of the Canadian Shield and the calcareous bedrock of the Great Lakes-St. Lawrence Lowlands, with outcrops of both on the site. At one point on highway 503, which is the north boundary of the property, outcrops of both limestone and Precambrian rock can be seen. Over the 100 hectare property habitats include beaver meadows, cedar swamp, maple hardwood, old fields and bare rocky knobs.



Galium circaezans



Galium lanceolatum

As is often the case on FBO outings, there was a keen, but recalcitrant, coterie of botanist prepared to become isolated from the main group, and chance getting lost in the wilderness, in order to discover some of the finer points of distinction in sedges and grasses. Notwithstanding our leader pressed on. In quick order Don Kirk pointed out Wild Licorice (*Galium ciraezans*), and then, to our delight, found Lance-leaved Wild Licorice (*Galium lanceolatum*). Both these species had been missed during the earlier survey.

One of the most interesting comparisons to be made was the contrast between trillium fruit. One kind was brilliant red like a Bunchberry (*Cornus canadensis*) fruit and the other was purple. The reason that red fruited trillium is rarely seen is that it belongs to Painted Trillium (*Trillium undulatum*) a species found almost exclusively on the acid shield areas. The purple fruit belonged to Red Trillium (*T. erectum*).

We retired to our vehicles for lunch accompanied by the usual horizontal rain and gale-force winds. This continued for an hour whereupon George Bryant, as representative the FBO executive, advised participants that the inclement weather precluded the continuation of our trip that afternoon. So motivated were the majority of attendants, that they headed back into the bush. This proved to be a most propitious move, for after only another hour or two of continuous downpour, the rain began to abate. In fact when we got back to our cars at 5:30 pm, the sun had almost emerged.

Among the plants of interest observed in one swamp, we encountered very large patch of Wood Nettle (*Laportea canadensis*), a stinging nettle with alternate leaves, and immediately adjacent to it some Marsh Pennywort (*Hydrocotyle americana*), a diminutive member of the Umbelliferae (Parsley family) which bears its flowers in very small umbels in the axils of the leaves.

Returning through an old field we observed Grey Goldenrod (*Solidago nemoralis*) in good condition, with each flowering stem leaning in the same direction. This plant is characteristic of old field sites.

Following a compass heading due south we crossed ridges, swamps outcrops and eventually found an old logging trail which may have gone for miles through the otherwise trackless bush. Eventually we headed west and then south to return to the highway. A dampening but memorable way of experiencing the remnants of a hurricane.

G.B.

ST. THOMAS RAILWAY YARDS

Explore the plant life in a railway yard and one can discover inhabitants new to town. For not only do seeds travel via bird, animal or wind, but many hitchhike on the mud or grease of a railway car, while others arrive as contaminants in a load of grain. If they are bumped or spilled off, they put down roots on site. Thus the greatest concentrations of interesting alien plants and weeds can grow in railway switching yards.

Many prairie species thrive in the relatively sterile open ground or cinder base of a railroad track, for it simulates the burn conditions they need to perpetuate in the prairies of the West. Other salt-tolerant plants flourish near the round-houses. One might find plants here that are not found anywhere else, a plant to add to County lists perhaps, or a new species for Ontario.

These are the encouragements leader Mike Oldham gives the participants before our tour of the railway yards on 15 August 1992. He tells us the St. Thomas railway yard was once a big centre of activity, and the way it was maintained, without spraying or bulldozing, is an important factor in the diversity and richness of plant life now. We are eager to find a bizarre new species at best, at worst a plant with a destructive reputation back home and therefore an indicator of a potential problem to natural landscapes here.

Mike shows us an example of a western grass, Wild Rye (*Elymus elongatus* ssp. *ponticus*) which has started to colonize along the highway and the railway tracks within the last ten years. Easily recognized by its 1.75 m height and its growth in clumps, its seed probably rode east by rail. Mike also gives us a plant list, including site locations, that looks after spelling. All we have to do is check off each plant discovered, and jot a brief description in the margin. He invites us to take a specimen for identification purposes, since these are not native plants and many of them are quite numerous.

We car-pool to the main active St. Thomas railway yard where co-leader Dave McLeod joins us. As if to validate the waiver we signed for permission to be on these tracks, a small freight engine glides by. While we wait, we examine a large patch of Downy Cinquefoil (*Potentilla inclinata*) with cheerful yellow flowers, common around railway tracks but not elsewhere. Colonies of Black Medic (*Medicago lupulina*) and White Sweet-clover (*Melilotus alba*) abound. Everything is flourishing this year due to the abundant rainfall.

When we step around the tall brick building on our left, a patchwork quilt of grasses and plants in all heights and shades of green spreads before us. Like an arena, this space is flanked by another building to the distant right, and in front by a low building whose brickwork patterns and arched windows are of architectural interest. About ten sets of tracks converge and diverge, and we rove the smooth flat surface while Mike gives a running commentary on the plants we encounter. Here is a Dwarf Snapdragon (*Chaenorrhinum minus*) with pale blue flowers, very predictable, there a vigorous patch of Sprangletop (*Leptochloa acuminata*). Here is Three-awn (*Aristida oligantha*), and Mike shows us with his fingers how the three awns splay. This, we are told, is known also from along tracks at Niagara Falls. A patch of Dropseed (*Sporobolus* sp.) has not matured enough to be identified to species. It looks like a cropped pasture. Other odd-shaped grasses stand out by their differences; Brome (*Bromus* spp.), Long-spined Sandbur (*Cenchrus longispinus*), Scratch Grass (*Muhlenbergia asperifolia*), Switchgrass (*Panicum virgatum*), Fall Panic Grass (*Panicum dichotomiflorum*) and Tall Oat Grass (*Arrenatherum elatius*). This trip has really piqued my interest in grasses.

We see the three most common Foxtails (*Setaria viridis*, *S. pumila* and *S. faberi*), and three Love Grasses are present; *Eragrostis minor, Eragrostis pectinacea*, and Purple Love Grass (*Eragrostis spectabilis*) which is a rare adventive. "Adventive" is a new word for me, and means "casual, an introduced plant not fully naturalized". Thus I know that Purple Lovegrass will never emulate the introduced dandelion and take over the landscape. Pity!

This is an easy way to learn about grasses and I stay close to the leader to hear everything. The alternative is, as Bill Draper says, to search for a plant in a guidebook, burrowing deep into the text to find mention of this rare species, if indeed it is mentioned at all, then asking oneself how this plant differs from the drawing.

Comparisons are easy. Mike holds both Russian Thistles, also called Tumbleweed, together and we see the appressed thorns of *Salsola collina* and the spreading thorns of *Salsola kali*.

We see Tall Thoroughwort (*Eupatorium altissimum*), a rare introduced species, while yet another rare adventive from the southern U.S and Mexico, Prostrate Vervain (*Verbena bracteata*) shows typical pinky-blue flowers. This is its only known site in Elgin County.

Our route is a wide arc that leads us back toward the cars, botanizing all the way. A quick stop at an abandoned set of tracks yields the memorable Skeleton Weed (*Chondrilla juncea*) with virtually no leaves, as if an insect has eaten them. Otherwise this plant is unusually lush because of the plentiful rainfall. It is a rare European introduction and we are at one of its two sites in Ontario.

After lunch, at Pinafore Park in St. Thomas, we travel to an abandoned railway yard with tracks removed. Lots of Mugwort (*Artemisia vulgaris*), Bouncing Bet (*Saponaria officinalis*), and Tyrol Knapweed (*Centaurea nigrescens*) grow around the barricaded entrance, and the walk through shoulder high White Sweet-clover is a pleasure.

Another species of Three-awn, *Aristida dichotoma* grows here, one of only two sites in Canada. Both yellow and white varieties of Moth Mullein (*Verbascum blattaria*) stand side by side. We examine Centaury (*Centaurium pulchellum*), a rare European introduction. A large selection of rushes are present, including Black-grass (*Juncus gerardii*) which is salt-tolerant and is rare in Elgin County; also Path Rush (*J. tenuis*), Baltic Rush (*J. balticus*), Toad Rush (*J. bufonius*), Dudley's Rush (*J. dudleyi*), Torrey's Rush (*J. torreyi*) and Narrow-leaved Cattail (*Typha angustifolia*). We see four kinds of Umbrella Sedge or Cyperus (*C. lupulinus*, *C. odoratus*, *C. strigosus* and *C. schweinitzii*).

One plant of *Juncus torreyi* has a strange seed-like look that turns out to be a gall, and is host to an unknown bug that lays its eggs in the spring. Dave McLeod explains that the chemical reaction that causes abnormal tissue creates habitat and food for the larva. It is a reminder of the interrelationships between plant and insect world.

The group spreads out now, and interests diverge. Some members examine the young shrubs beginning to take hold, others identify bugs. We find a gravid Brown Snake (*Storeria dekayi*) sheltering under a large piece of plywood with a small colony of wasps and a mouse. A large American Toad (*Bufo americanus*), notable for the orange colour (and some see green) on its hind quarters, vibrates with the release call that identifies it as a male.

We regroup on a high note to examine tiny plants of Conobea (*Leucospora multifida*) spotted by Dave McLeod. This is first ever sighting for Elgin County and only the third for Ontario.

As we leave this specialized habitat, the rain begins. Nine of us meet at the New Salam Diner for a family-style meal. We are sorry that the day has ended, but now railway tracks hold a new allure, for we botanizers from this trip are alert to the possibilities of unusual plants. We owe this appreciation to the enthusiasm and knowledge of our leaders and our fellow travellers. My thanks, also, to Wayne McShane for taking such good field notes.

Elaine McShane

THE DRAWINGS IN THIS ISSUE OF THE FBO NEWSLETTER ARE BY BOB BOWLES, JANE BOWLES AND ELIZABETH GILLAN.

GALLS, GALLS, GALLS

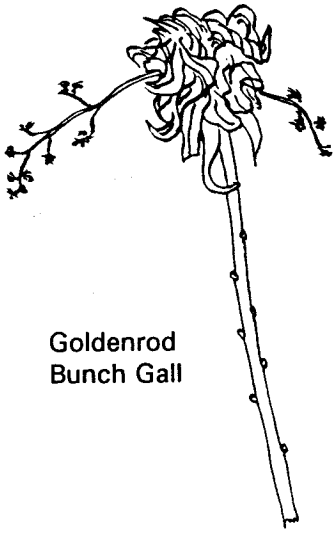
Gall are abnormal growths of plant tissue caused most commonly by insects or mites, whose young find food and shelter inside the gall, but sometimes by eelworms (Nematoda) or fungi. There are thousands of different kinds of galls, found on members of most plant families. Oaks (*Quercus*) support more types than any other genus. Simple galls involve only one plant organ while complex galls use two or more organs and are usually confined to buds.

Familiar galls on Goldenrods (*Solidago*) include round swollen Goldenrod Ball Galls caused by a small fruit fly *Eurosta solidaginis*, Bunch Galls formed by the larva of a midge *Rhopalomyia solidaginis*, and Elliptical Goldenrod Galls formed by a moth caterpillar, *Gnorimoschema gallaesolidaginis*. Other galls which are easy to find in winter include the fuzzy Robin's-pincushion or Moss Galls on roses (*Rosa* spp.) formed by Mossy-rose Gall Wasp *Diplolepis rosae* and the Pinecone Willow Gall caused by a gnat *Rhabdophaga strobiloides*. In summer, two common leaf galls are the reddish Bean Gall on Willow (*Salix*) leaves, which provide shelter for the eggs and young of Bean-gall Saw-flies (*Pontania* spp.), and the bizarre, tubular Nail Galls found on the leaves of many tree species, which are caused by various kinds of mites.

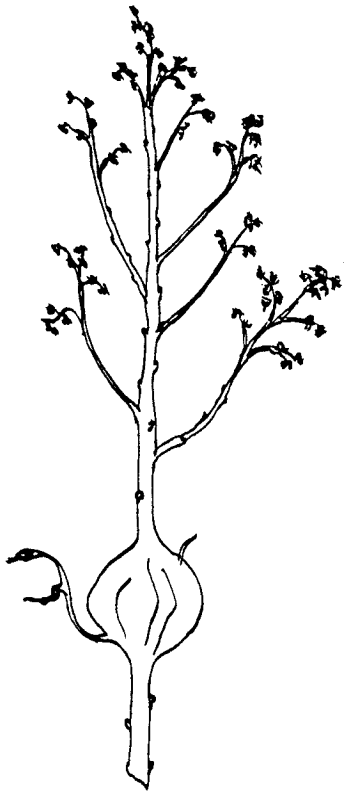
The process of gall formation is not completely understood, and it differs depending on the type of gall. One thing that all galls have in common is that they are not "made" by animals, but are formed by abnormal growth in the plant, and are composed entirely of plant tissue. Plant growth is controlled by hormones, called auxins, and local anomalies in auxin levels cause the gall growth. In some cases, the presence of the gall forming organism causes the plant itself to produce excessive auxins, while in other galls, chemicals which simulate plant auxins are injected into the plant by the female insect when she lays her eggs, or are produced by the larvae when they hatch.

The ecology of galls is a fascinating topic. The creatures inhabiting a gall do not always belong to the gall-forming species. Specialized parasitic or predatory insects may kill the original inhabitants and take over occupation.

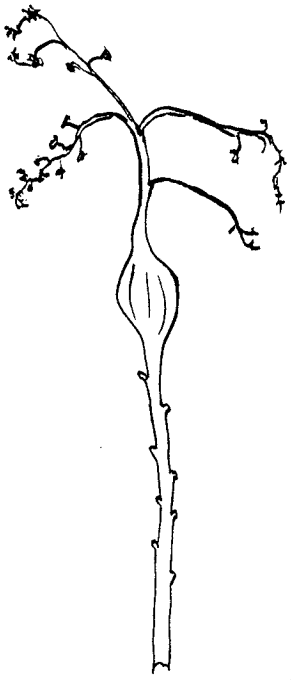
Jane Bowles



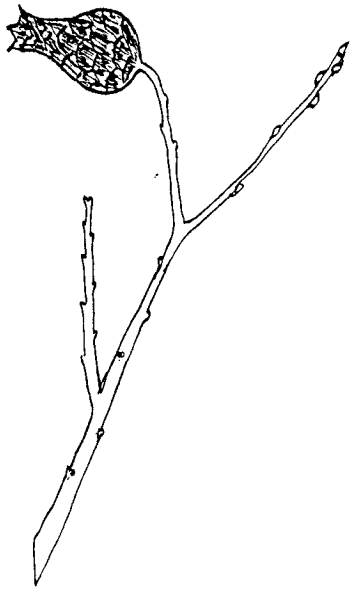
Goldenrod Bunch Gall



Goldenrod Ball



Elliptical Goldenrod Gall



Willow Pine Cone Gall

GOLDENRODS OF ONTARIO

Semple, John, C. 1992 The Goldenrods of Ontario: *Solidago* L. and *Euthamia* Nutt. Revised Edition. University of Waterloo Biology Series No. 36. $10.00 (paper) 82 pp.

This book provides updated information on the occurrence, distribution, taxonomy and cytology of the goldenrods found in Ontario. Since the first edition was published by John Semple and Gordon Ringius in 1983, much has been learned about all aspects of the systematics of goldenrods. Thus, this revision will serve to bring field botanists up to date on the state of knowledge in this group of composites, considered by many to be confusing and difficult.

We are fortunate in Ontario to have systematists like Semple working on the more complex groups of plants found in our own native flora, and producing not only numerous scientific publications, but also popular monographs such as this one, that are accessible to a larger audience. Here, we have a synthesis of years of research on the goldenrods of Ontario and nearby regions condensed into readable and useable form.

This book is similar in general layout and production format to the first edition, and to his book on the asters of Ontario (Semple, J. C. and S. B. Heard, 1987). Apparently, it has been produced in a desk-top publication format. The type-face is a major improvement over that used in the earlier books, being much more appealing to the eye. One potential drawback of using a desk-top approach (or of not having a copy editor readily available) is the ease with which typographical and format errors can creep in. This book does contain a number of such errors, but, considering the readability and usefulness of its contents to field botanists, I feel that the errors do not detract appreciably from its value.

The book begins with introductory sections including explanatory notes and helpful hints on the key, text, illustrations, and maps. There are also brief discussions on the biogeography and biology of Ontario's goldenrods. Although the author may have felt that much of this subject material was beyond the scope of an identification monograph, I would have preferred to see fuller treatment of some of these topics, particularly regarding the autecology and evolutionary relationships of the species.

The introduction also includes a figure illustrating several of the morphological terms used in the key and species descriptions. A glossary concluding the book is cross-referenced to this figure. Therefore, by using these two features, anyone, regardless of their level of botanical expertise, should be able to use this book effectively. The key is generally well written, with most leads providing clear and parallel distinctions. I am not a big fan of using geographical distributions within keys. Semple uses them a few times, but they are usually accompanied by one or more morphological characters, so there should be little danger of misidentifying extralimital goldenrods.

The bulk of the text comprises the species descriptions, accompanied by illustrations and range maps. The morphological descriptions are completely parallel, facilitating direct comparisons, if necessary. The illustrations are very good, and all of them have a similar layout, again making comparison of structures a simple task. The habitat descriptions are limited, although they provide a general sense of where a species grows. The "Comments" section of each species description is where the interesting taxonomic, biological, and biogeographic information is summarized. If varieties or subspecies are recognized within a species, this is the section that will provide information on their distinctive features, distribution, and cytology.

As is the nature of floristic and monographic works, they run the risk of becoming out-dated as soon as they are published. Just as this book was coming off of the press, a new Ontario goldenrod was being discovered (and much to Semple's credit, the discovery of that species was predicted in this book!). Since the details of that discovery are likely to be published elsewhere, I will not elaborate on it here. Suffice it to say that there will continue to be discoveries made about the distribution, ecology, and biology of Ontario's goldenrods, and as Semple acknowledges, field botanists can play a role in this discovery process.

This book will be invaluable to field botanists throughout Ontario, and also in adjacent areas,

especially in Quebec, New Brunswick, Manitoba, and northeastern border states. Aside from a few minor production errors and a lack of depth of coverage in some of the introductory sections (which, arguably, may be beyond the scope of the book), this book provides an excellent treatment of the goldenrods of Ontario. Hopefully, we can look forward to another revision of this most useful book in the future.

References:

Semple, J. C. and S. B. Heard. (1987). The Asters of Ontario: Aster L. and Virgulus Raf. (Compositae: Astereae). University of Waterloo Biology Series 30. 88 pp.

Semple, J.C. and G.S. Ringius. (1983) The Goldenrods of Ontario: *Solidago* L. and *Euthamia* Nutt. University of Waterloo Biology Series No. 26. 84 pp.

Bill Crins,
Ministry of Natural Resources,
Box 9000, Huntsville,
Ontario P0A 1K0

Copies of this book may be obtained from:
Department of Biology,
University of Waterloo,
Waterloo, Ontario N2L 3G1.
for a total cost of $13.91 (incl. p&h + GST).

MEMBERSHIP DUES

FBO memberships fall due at the beginning of the calender year.

If you have not yet renewed your membership for 1993, please do so as soon as possible. Use the membership form enclosed with your fall Newsletter.

NEW FBO PAMPHLET

Enclosed with this newsletter is a copy of the new Field Botanists of Ontario pamphlet. Please use the pamphlet to promote the FBO. If you would like extra copies to distribute at meetings or give to your friends, please contact:

George Bryant (416)-223-6284.

FIELD BOTANISTS of ONTARIO

Membership in the Field Botanists of Ontario includes subscription to the FBO Newsletter and the privilege of attending field trips and workshops. Annual Membership Fees are $12.00 single and $15.00 family.

Send applications for membership to:

W.D. McIlveen
Membership Chairman
R.R. #1, Acton, Ontario L7J 2L7