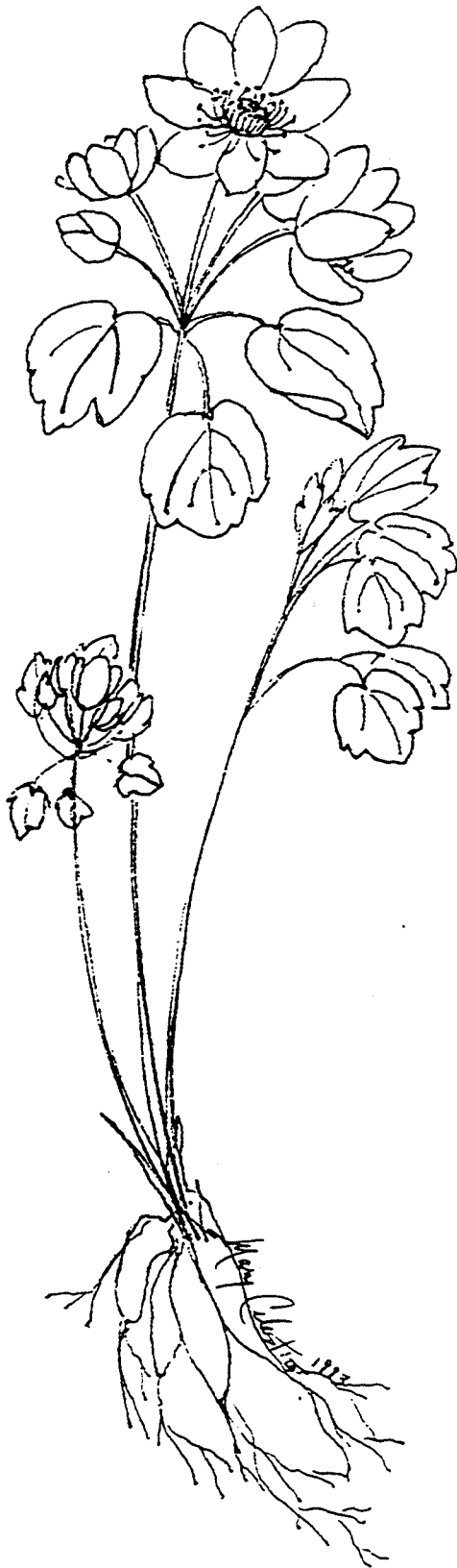


Field Botanists Of Ontario

Newsletter

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NEWSLETTER

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

President:	Claudia Schaefer 92 Waterloo Ave., Apt. B, Guelph, Ont. N1H 3H8 (519) 837-8206 email: cschaefe@uoguelph.ca
Treasurer:	Ilmar Talvila 12 Cranleigh Crt., Etobicoke, Ont. M9A 3Y3 (416) 231-1752
Vice-President:	Madeline Austen (519) 856-2089
Secretary:	Heather Mackey (416) 465-1324
Past President:	Bob Bowles (705) 325-3149
Membership:	Bill McIlveen (519) 853-3948 RR#1, Acton, Ont. N1H 4A6
Field Trips:	Ken Ursic (519) 763-8101 296 Suffolk St. W., Guelph, Ont. N1H 2K3
	Sarah Mainguy (519) 822-5221
Executive Member:	Wasył Bakowsky (705) 740-2498
Editor:	Ed Morris Box 2, Site 29, RR#3, Sudbury, Ont. P3E 4N1 (705) 522-9523 email: edmorris@ican.net
Associate Editors:	Michael Oldham (705) 755-2160 Jeff Warren (416) 267-4803

The **deadline** for submissions for **Volume 10(2) - Summer 1997** is **June 7, 1997**.

Standard sources for Latin names:

Morton, J.K. and J.M Venn. 1990. A Checklist of the Flora of Ontario: Vascular Plants. University of Waterloo Biology Series Number 34. 218 pp.

Additional source for common names (as needed) and authority abbreviations.

Gleason, H.A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada (2 ed.) New York Botanical Garden, Bronx, NY. 910 pp.

Cover:

Rue Anemone (*Anenomella thalictroides* (L.) Spach.) by Mary Celestino.

Newsletter Begins 10th Year!

Greetings! This marks the beginning of the 10th year for the FBO newsletter. It began as a one or two-page flyer, but quickly became the journal you see today. With the publication of this newsletter, I will have served as editor for one year. I have enjoyed this tremendously, and hope that I can continue to do this for as long as I am needed.

Illustrations in this issue are mainly seasonal, although one author was able to supply me with photos. Aside from a lonely Gray Goldenrod, all other illustrations are of spring flowers, and will hopefully make you anxious to get outside in a few weeks or so to see them 'in the flesh.'

Also, I'd like to offer some recognition to Anthony Goodban, who was close to submitting a field trip report on the Windsor Prairie, only to discover that *Acanthus Fennicus* had beat him to it. Hopefully, we won't repeat any miscommunications of this sort in the 1997 series of field trips.

Ed Morris

Regarding the Referendum...

The deadline has passed for returning referendum ballots on the donation of \$1,500 from the FBO for land conservation. "Voter turn-out" was good, with 75 ballots returned. The majority were in favour of the Nature Conservancy of Canada

receiving the donation. We will do our best to earmark the funds for purchase of a botanically-significant site in Ontario, and will report any future related news in the newsletter.

A couple of people asked about funding a flora of Ontario, so I'll take this opportunity to mention that John Morton and Joan Venn published "A Checklist of the Flora of Ontario, Vascular Plants" in 1990, as part of the University of Waterloo Biology Series. Plant names and synonyms are given in Latin.

Claudia Schaefer

I should also direct them to the project announced by Mike Oldham in the article on page 7 of this newsletter. -Ed

Apology and Thanks

In the last newsletter, I thanked the people that had written trip reports or otherwise contributed to the newsletter in 1996. I was very dismayed when I realized that my list was incomplete! Will Madeline Austen, *Acanthus Fennicus*, Mary Celestino, and Jane Bowles please accept my apologies and the FBO's sincere thanks for their contributions in 1996.

Claudia Schaefer

Field Trip Reports

AGM Trip to Presqu'ile Park

September 21, 1996.

It was one of the nicest orange sunrises when I set off for Presqu'ile Park at six am. My first stop was the tiny marshy area before the Park where I watched a Pied-billed Grebe with her two little striped young ones. I then went on to the Park and Beach Areas numbers one and four for some bird-watching.

I had misplaced the AGM trip directions, so I didn't know for sure when the Peterborough group would be coming, but thought it was 9:30. There was still lots of time for birding! On the beach were about 60 shorebirds; over half of these were sanderlings. I finally sorted them all out into nine species. The best birds for me were not these, but the six pipits that I saw around the algae dump.



Long-spurred Violet (*Viola rostrata* Pursh) by Irene McIlveen.

Then back to the gate at 9:30 - nobody there. I got a bit worried. Maybe I've screwed up again like earlier this year when I came to Presqu'île while the OFO trip was at Rondeau. Nothing to do but go back for some more birding. Finally at 10:45 the "Coffee Time Donut" people arrived and we (13 of us) left with our leader Sean Blaney for Beach Area number four. The temperature was now a pleasant 25°C.

At the parking lot we got a lesson on Presqu'île geology (nearly an island, limestone, sandspit, etc...) and a lesson on Asters. The closely related Bush Aster (*Aster dumosus* L.) and Panicked Aster (*Aster lanceolatus* Willd.) were growing very close together making for an easy comparison. It was easy to pick out the *A. dumosus* by its leafy branches. It is a provincially rare plant, but quite common in the Park. Also noted was the little Slender-leaved Gerardia (*Agalinis tenuifolia* (M. Vahl) Raf.) and a large patch of Grass-of-Parnassus (*Parnassia glauca* Raf.).

Everything was summerlike and idyllic, but now a little storm cloud came up in the person of Claudia, who whispered to me: nobody to write up

the trip-would I do it? In my state of euphoria, I said 'yes.' It's amazing how this concentrated my mind wonderfully for the rest of the trip, like a man who knew he was to be hanged in a fortnight.

We now walked down to the beach from the parking lot and took the nature trail in a long loop which would eventually bring us back to our cars. The path down to the dunes was full of interesting things to see. There were Common Shore Rush (*Juncus balticus* Willd.), Heart-leaved Willow (*Salix cordata* Michx.) with its leathery leaves and hirsute stems, and a large clump of 20-30 Common Soapberry (*Shepherdia canadensis* (L.) Nutt.). Leopard frogs leapt all about us, and dragonflies whizzed around us. I saw a bumble-bee frantically pushing its way into a Closed Gentian (*Gentiana andrewsii* Griseb.) just as Sean had finished saying that they do this. We also saw a number of Fringed Gentian (*Gentianopsis crinita* (Froel) Ma).

We paused now for a study session of the Goldenrods. Four species were growing close together and could be readily compared: Gray Goldenrod (*Solidago nemoralis* Ait.), Tall Goldenrod (*S. altissima* L.), Late Goldenrod (*S. gigantea* Ait.), and the commonest of all, Canada Goldenrod (*S. canadensis* L.). We compared the smoothness of the latter with the fuzziness of *S. altissima*. We polished up the *S. gigantea* stem until it shone like a golden-red apple. Then we headed down to the shingle beach, noting the Hound's-tongue (*Cynoglossum officinale* L.) and Wild Madder (*Galium mollugo* L.) on the way.

There are 10 species of willow in the Park. Right beside the shingle beach we saw the Park's only known specimen of Purple-Osier Willow (*Salix purpurea* L.) We noted the Sandbar Willow (*S. exigua* Nutt.) growing in dense thickets nearby, with its thin, silvery leaves. Then, down on our knees, all of us, to look at a small Beggar's-ticks (*Bidens frondosa* L.) growing right through the shingle. We had to find hairs (cilia) on the bracts (phyllaries) to be sure. We found two. Whew! It was a close thing! Nearby, another plant grew through the shingle: the uncommon¹ Lady's-thumb (*Polygonum*



Gray Goldenrod (*Solidago nemoralis* Ait.)
by Irene McIlveen.

¹ Status codes (rare, common) used in this article refer only to the Park area.

persicaria L.).

By this time, we were approaching Owen Point, and the birding urge was becoming insistent. Caspian Terns were flying about. Hundreds of Double-crested Cormorants could be seen on the island in the channel. Black-bellied Plovers were calling. Bonaparte's Gulls, Blue-winged Teal, and a Black Tern were observed, but not one sign of a Knot (another shorebird) for Bruce's and my year list...naught a one.

We walked the trail beside the area fenced off for the protection of shorebirds. Large clumps of Bur-marigold (*Bidens cernua* L.) with their large beautiful flowers and the pink Nodding Smartweed (*Polygonum lapathifolium* L.) were twined together along the trail to create a lovely picture. The rare goosefoot, Coast-blight (*Chenopodium rubrum* L.), a succulent leaved halophyte was noted. This was new for all of us, even to that omniscient botanist Mike Oldham. Then we cut our fingers on the leaves of Rice Cutgrass (*Leersia oryzoides* (L.) Sw.) just to prove to ourselves that it cuts ones fingers.

Frequently, we had to take the botanist's stance: on your knees in mud with your nose to the ground. This brought us close to such uncommon low-lying plants as Water-purslane (*Ludwigia palustris* (L.) Elliot), Rough Cyperus (*Cyperus strigosus* L.), and River Cyperus (*C. bipartitus* Torrey). From time to time, we would stop to admire brilliant green tree crickets and the dragonflies that Bruce was identifying.

We had now arrived at the algae pile where I had seen the Pipits earlier. No birds, but lots of interesting plants. We were most excited by the very rare Cinquefoil (*Potentilla paradoxa* Nutt.) and the Clammy Ground Cherry (*Physalis heterophylla* Nees) which was new to the Park plant checklist. Also noted was the Marsh Yellow-cress (*Rorippa palustris* (L.) Besser) and Torrey's Rush (*Juncus torreyi* Cov.) before we headed for the parking lot and the picnic tables for lunch.

After lunch we drove to the marsh boardwalk parking lot to look at some typical panne (wet meadow) plants. Gray Tree-frogs were trilling loudly, reminding me of that embarrassing trip where I spent a long time looking for a Red-bellied

Woodpecker before the light dawned on me. Ignorance is not always bliss. We found the very rare Nut-rush (*Scleria verticillata* Muhl. ex Willd.), a kind of sedge from the coastal plain, with its little white globular achenes.

Other panne plants included:

Arctostaphylos uva-ursi (L.) Spreng.
Bearberry

Carex viridula Michx.
Greenish Sedge

Cladium mariscoides (Muhl.) Torr.
Twig Rush

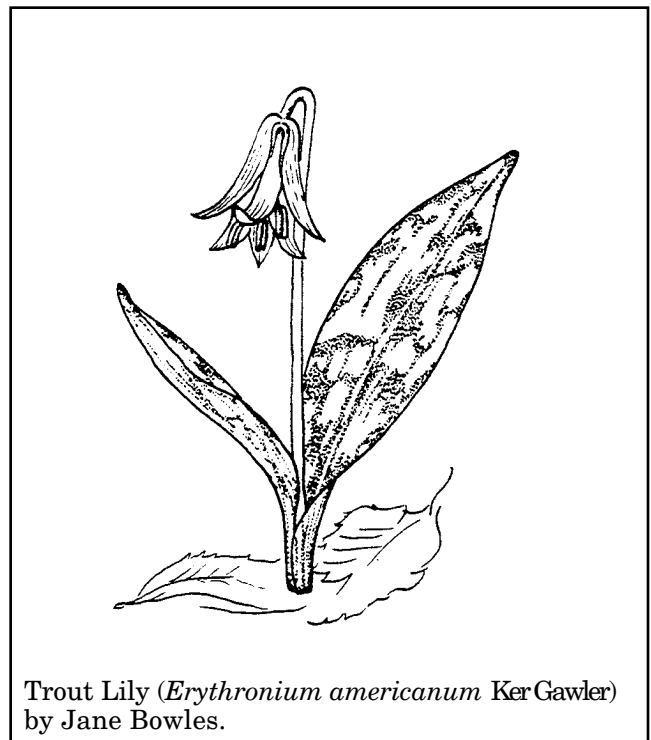
Panicum flexile (Gatt.) Scrib.
Witch Grass

Rhynchospora capillacea Torr.
Beak-rush

Sporobolus vaginiflorus (Torr. ex A. Gray) Torr. ex Wood
Ensheathed Dropseed

Viola nephrophylla E. Greene
Northern Bog Violet

Many more sedges (*Carex* sp.) were present, but I can't remember much about these plants - maybe it was the cheese and salami - but I do remember that Meadow Spikemoss (*Selaginella apoda* (L.) Fern.) grew everywhere, and there were large patches of the Pale Purple Obedient-plant



Trout Lily (*Erythronium americanum* Ker Gawler)
by Jane Bowles.

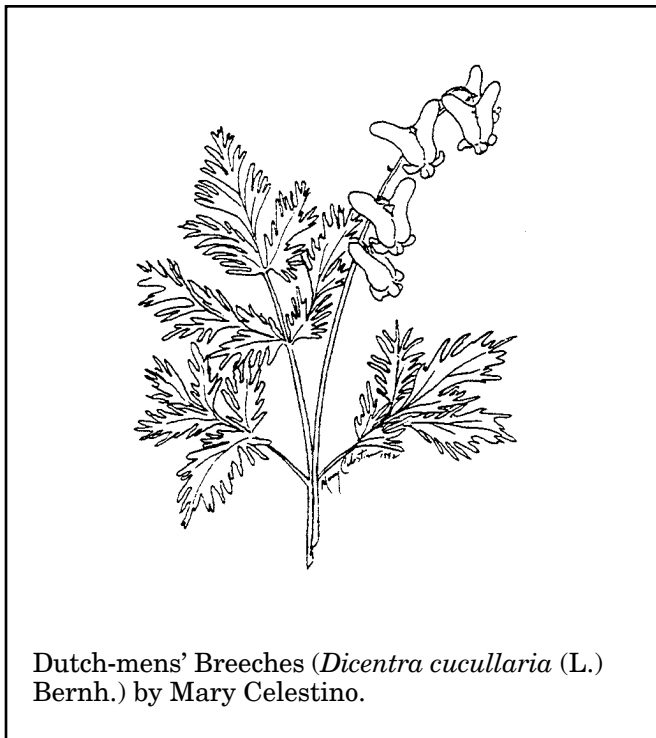
(*Physostegia virginiana* (L.) Benth.).

We made two more quick stops before the trip was over. First we stopped at the Fingers area to look into a northern White Spruce-Eastern White Cedar forest. Most of the understory forest plants had long since bloomed, but we did find Mexican Muhly-grass (*Muhlenbergia mexicana* (L.) Trin.) and Ebony sedge (*Carex eburnea* Boott).

On the way out of the Park, we made one of final stop at probably the rarest plant of the trip and perhaps the most insignificant looking one as well. Only a botanist would have found it - the grass Three-awn (*Aristida longespica* Poiret). It was first discovered in Canada growing near Thamesville in 1976 (reported by Catling, Reznicek, and Riley in 1977) and later found in the Park by Brunton in 1980. It was a very small, dark thing which I finally saw after it was pointed out to me a few times.

Then it was "Thanks!" to our excellent leader, Sean Blaney, for a very rewarding trip and for an excellent plant list that he gave to each one of us, and off to Francesco's Restaurant for a veal marsala.

Acanthus Fennicus



Dutch-mens' Breeches (*Dicentra cucullaria* (L.) Bernh.) by Mary Celestino.

AGM Trip to Rice Lake Plains

Leader: James Kamstra

Sept. 22, 1996

Although it was a cloudy day, we started out enthusiastically. At the first of four planned stops, James pointed out a sparse stand of Black Oak (*Quercus velutina* Lam.) as well as many interesting species in the adjacent meadow. These included:

Anemone cylindrica A.Gray

Long-fruited anemone

Aster pilosus Willd.

Heath Aster

Helianthemum bicknellii Fern.

Frostweed

Scrophularia marilandica L.

Maryland Figwort; Carpenter's Square

Verbena stricta Vent.

Hoary Vervain

Moving down a slope through Canada Bluegrass (*Poa compressa* L.) we came across an open sandy expanse supporting mainly Prairie-buttercup (*Ranunculus rhomboideus* Goldie). As we headed back to our cars we came across...

Cyperus lupulinus (Sprengel) Marcks

Sedge

Hedeoma hispidum Pursh

Pennyroyal

Sporobolus cryptandrus (Torr.) A.Gray

Sand-dropseed

Acinos arvensis (Lam.) Dandy

Mother-of-thyme

Getting to the next site proved interesting. We found ourselves on at the precipice of a daunting hill that deserved 4-wheel all-terrain vehicles. The trench lined road had exposed rocks at inconvenient points which made us grateful to arrive at the bottom with our mufflers intact. As we hopped a poison-ivy barrier we traipsed through a blanket of Sweetfern (*Comptonia peregrina* (L.) Coulter.) to view the Grooved Yellow Flax (*Linum sulcatum* Riddell) and New Jersey Tea (*Ceanothus americanus* L.). At a point halfway up the hill we discussed identification characteristics of Prairie Heart-leaved Aster (*Aster oolentangiensis* Riddell). Other species

found were:

Danthonia spicata (L.) P. Beauv. ex Roemer & Schultes
Oatgrass

Helianthus divaricatus L.
Divaricate Sunflower

Lespedeza capitata Michx.
Bush-clover

Polygonum douglasii Greene
Slender Annual Knotweed

Potentilla arguta Pursh
Tall Potentilla

Sorghastrum nutans (L.) Nash
Indian Grass

The rain had been holding off all morning but we felt a few droplets at the next site near the hydro lines. Most of this sandy plain was covered in planted Scots Pine (*Pinus sylvestris* L.) and Wild Basil (*Clinopodium vulgare* L.).

We then took a small side trip into a hardwood forest containing Tall Milkweed (*Asclepias exaltata* L.), Rounded Shinleaf (*Pyrola americana* Sweet), and Butterfly-weed (*Asclepias tuberosa* L.).

At our final stop, the Red Cloud Cemetary located at the south edge of the Rice Lake Plains, it had begun to rain in earnest. Of course this didn't stop gonzo botanists. This tract of land is a rare prairie remnant saved from the plow by virtue of being a cemetery since the mid-1800's. Prairie species found included

Andropogon gerardii Vitman.
Big Bluestem

Asclepias tuberosa L.
Butterfly-weed

Liatris cylindrica Michx.
Few-headed Blazing Star

Ranunculus rhomboideus Goldie
Prairie-buttercup

Salix humilis Marsh.
Upland-willow

Schizachyrium scoparium (Michx.) Nees
Little Bluestem

There are more details on the Red Cloud Cemetary in the Summer 1996 issue of Seasons (pg. 8). James Kamstra led us on a very informative and diverse view of the Rice Lake Plains.

Bill Kilburn & Carole Ann Lacroix

Features:

County Distribution of Southern Ontario Vascular Plants

Michael J. Oldham¹

The Natural Heritage Information Centre (NHIC) has been working on a compendium of county (and Regional and District Municipality) vascular plant lists for southern Ontario. John Riley in 1989 produced a checklist of vascular plants for the former Ministry of Natural Resources (MNR) Central Region. This publication provided columns for each county (or sometimes groups of counties) and an indication of presence/absence, and where known, county rarity, for each species. Similar publications for southwestern Ontario (Oldham 1993) and southeastern Ontario (Cuddy 1991) were produced, but only in a draft form. These checklists have proven to be very useful and popular, and are frequently referred to in order to determine regional and local rarity for plant species, and overall distribution and status in the areas covered.

A number of recent floristic publications (e.g. Goodban 1995, Bruce-Grey Plant Committee 1995) have made the above-mentioned checklists dated. We are attempting to update these county lists and combine them into a single publication which will cover all of southern Ontario. To do this we have created a large spreadsheet (table) listing the plants of southern Ontario with columns for each county. County columns have been populated from a variety of sources including county floras, Area of Natural and Scientific Interest (ANSI) reports, provincial park checklists, other checklists, herbarium searches, and personal communications with botanists working in southern Ontario. This process began last summer with the assistance of summer students Rebecca Martin, Elaine Mathews, and Lori Reker, and has been continued through the fall and winter by Lori and myself. We have already received a great deal of assistance from many

¹ Natural Heritage Information Centre, Ontario Ministry of Natural Resources, P.O. Box 7000, Peterborough, Ontario K9J 8M5

email: oldhammi@epo.gov.on.ca

Ontario botanists and would welcome input from others knowing of new county records, floristic publications or checklists we may not have seen, or working on the flora of an area of southern Ontario. We would be happy to exchange information with individuals working on local floras in order to make the publication as complete as possible. All contributors will be acknowledged and will receive a complimentary copy of the finished product.

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- Oldham, M.J. 1993. Distribution and Status of the Vascular Plants of Southwestern Ontario. Draft. Ontario Ministry of Natural Resources, Aylmer. February 1993. 150 pages.
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Additions to the Vascular Flora of the Hamilton–Wentworth Regional Municipality, Ontario.

Michael J. Oldham¹

During 1995 I had several opportunities to botanize in Hamilton. Because of an interest in weeds, I visited habitats such as roadsides, railway yards and other disturbed sites. These habitats are often neglected by botanists compiling local floras, as more attention is justifiably paid to natural areas. Although not as diverse in their flora as natural areas, roadsides and railways can produce some interesting plant species, many of which are rarely encountered in other habitats. In order to compile a relatively complete local list a field botanist will sooner or later have to visit these habitats!

¹ see previous article for address.

The excellent Hamilton–Wentworth checklist compiled by Anthony Goodban (1995) is based largely on James Pringle's (1969) Royal Botanical Gardens checklist and the recent Hamilton–Wentworth Natural Areas Inventory (Heagy 1993, 1995). The 18 vascular plant additions are not listed in Goodban (1995); and four species (*Distichlis stricta*, *Salsola collina*, *Solidago sempervirens*, *Suaedacalceoliformis*) are not listed for the former MNR Central Region by Riley (1989). Although several are native to Ontario, all 18 additions are probably non-native to Hamilton–Wentworth Regional Municipality.

Families are listed in the same order as Morton and Venn (1990), and species are listed alphabetically by scientific name. Voucher specimens are cited for each species using the following herbarium acronyms: DAO – Agriculture Canada, Ottawa; HAM – Royal Botanical Gardens, Hamilton; MICH – University of Michigan, Ann Arbor; NHIC – Natural Heritage Information Centre, Peterborough; TRTE – University of Toronto, Erindale Campus, Mississauga; WAT – University of Waterloo. All collections were made within the City of Hamilton unless otherwise noted. Additional collection details are available from the author.

GRAMINEAE (POACEAE) Grass Family

Aristida oligantha Michx.

Three-awn Grass

An uncommon weed in Ontario, almost exclusively along railways. First reported from Ontario by Catling *et al.* (1977) from Niagara R.M., with additional southwestern Ontario records documented by Oldham *et al.* (1996). In Hamilton it was found in the CN railway yard where it was quite local, but with several hundred plants in one area. *M.J. Oldham 18308* (DAO, HAM, MICH, NHIC, TRTE).

Distichlis stricta (Torrey) Greene

Alkali Grass

A single well-established colony in gravel beside the tracks in Hamilton's CN railway yard is only the second Ontario record of this western North American halophytic grass, the first being from London (Webber *et al.* 1985). *M.J. Oldham 18304* (DAO, HAM, MICH, NHIC, TRTE).

Leptochloa acuminata (Nash) Mohl.*Sprangletop*

This weedy, halophytic grass was found at four different sites in Hamilton and Stoney Creek, along roadsides and railways. Only fairly recently reported in Ontario by Catling *et al.* (1977), it seems to have spread rapidly since then (Oldham *et al.* 1996). *M.J. Oldham 18218* (DAO, HAM), *18281* (DAO, HAM, MICH), *18298* (DAO), *18307* (DAO).

Muhlenbergia asperifolia (Nees & Meyen ex Trin.) Parodi*Scratch Grass*

A halophytic grass widely distributed in western North America (Reznicek 1980) which is turning up with increasing frequency along Ontario roadsides (Oldham *et al.* 1996). It was collected along the QEW highway and from along a railway in downtown Hamilton. *M.J. Oldham 18293* (DAO, HAM, TRTE), *18324* (DAO, HAM).

JUNCACEAE Rush Family**Juncus gerardii** Loisel*Black Grass*

A halophytic rush collected from moist ditches and roadsides in Hamilton and Stoney Creek. The migration and establishment of this rush in the interior of North America area are discussed by Stuckey (1980). *M.J. Oldham 18219* (DAO, HAM), *18297* (DAO, HAM).

CARYOPHYLLACEAE Pink Family**Silene cserei** Baumg.*Bladder Campion*

A rather rare weed in southern Ontario, largely along roadsides and railways. *M.J. Oldham 18301* (MICH).

Spergularia marina (L.) Griseb.*Saltmarsh Sand Spurrey*

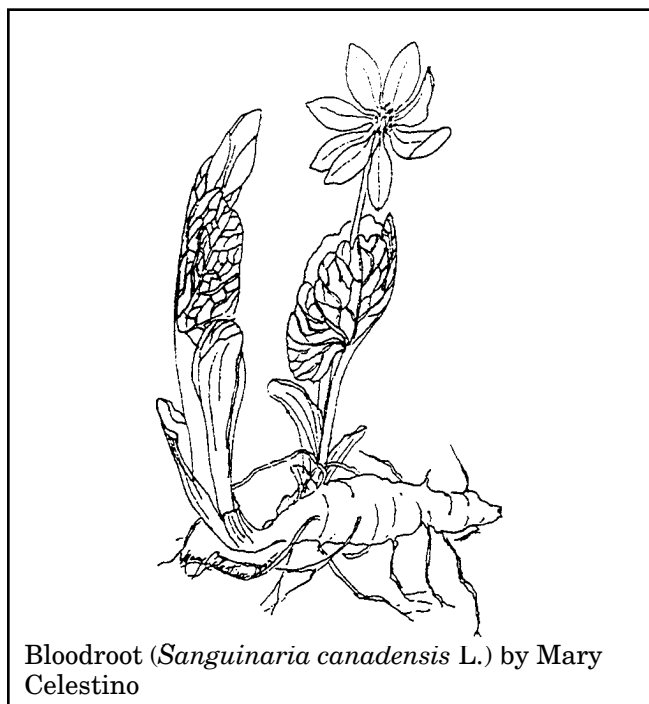
Apparently native in James Bay salt marshes (Argus *et al.* 1982–1987) this small plant is also introduced along salted highways in southern Ontario (Catling & McKay 1980). *M.J. Oldham 18338* (HAM, MICH, NHIC, WAT).

Spergularia media (L.) C. Presl ex Griseb.*Sand Spurrey*

Similar in habitat and appearance to the preceding species, this sand-spurrey has larger flowers and winged seeds. In Hamilton–Wentworth it was collected from saline roadsides in Hamilton and Stoney Creek. *M.J. Oldham 18220* (HAM, MICH, WAT), *18334* (HAM, MICH, NHIC, WAT).

CHENOPODIACEAE Goosefoot Family**Chenopodium botrys** L.*Jerusalem Oak*

Although locally common along southern Ontario roadsides and occasional along railways, this small goosefoot species is seldom reported. *M.J. Oldham 18349* (HAM).



Bloodroot (*Sanguinaria canadensis* L.) by Mary Celestino

Cycloloma atriplicifolia (Sprengel) J. Coulter*Winged Pigweed*

Although a native plant, the presence of this plant in a highly disturbed site and not in more natural sand beach habitat nearby suggests it is adventive in Hamilton–Wentworth. *M.J. Oldham 18343* (HAM, NHIC).

Salsola collina Pallas*Russian Thistle*

Although very seldom reported from Ontario, this species is quite widespread along railways in southern Ontario. It is easily confused with the abundant *Salsola kali* and is greatly overlooked. *M.J. Oldham 18279* (HAM, MICH).

Suaeda calceoliformis (Hook.) Moq.*Sea-blite*

Another halophyte, reported previously from only one other southern Ontario location, London, where first reported by Catling and McKay (1980). Sea-blite is a rare native along James Bay (Argus *et al.* 1982–1987). An extensive sward was located along the QEW highway just west of the Niagara R.M. border, growing with other halophytes such as *Atriplex patula*, *Atriplex prostrata*, *Chenopodium glaucum*, *Kochia scoparia*, *Leptochloa acuminata*, and *Puccinellia distans*. *M.J. Oldham 18217* (DAO, HAM, MICH, NHIC, TRTE).

COMPOSITAE (ASTERACEAE) Composite Family**Artemisia vulgaris** L.*Mugwort*

Locally abundant in disturbed, saline ground beneath the Burlington Bay Skyway. *M.J. Oldham 18337* (HAM).

Cosmos bipinnatus Cav.*Cosmos*

This showy garden escape was found to be established along a railway behind a residential area with other cultivated species such as *Euphorbia marginata* and *Ipomoea japonica*. This colony probably originated from material thrown out from a nearby garden. *M.J. Oldham 18286* (HAM).

Senecio viscosus L.*Sticky Groundsel*

A weedy, yellow-flowered groundsel easily distinguished from the superficially similar *Senecio vulgaris* (Common Groundsel) by its sticky glandular stems. In Ontario it is uncommon and found largely along railways. *M.J. Oldham 18280* (HAM, MICH).

Solidago sempervirens L.*Seaside Goldenrod*

Until recently this large goldenrod was only known in Ontario from the Amherstburg and Windsor areas of Essex County where first reported by Catling and McKay (1980). Although included in the Ontario Rare Plant Atlas (Argus *et al.* 1982–1987), it is now generally thought to be non-native to Ontario (Morton & Venn 1990; Oldham 1994). Single clumps have been located in saline highway ditches in four additional counties. In Hamilton a single plant was found beneath the Burlington Bay Skyway with other halophytes. *M.J. Oldham 18327* (HAM, WAT).

CRUCIFERAE (BRASSICACEAE) Mustard Family**Sisymbrium loeselii** L.*Hedge Mustard*

This yellow-flowered weedy mustard is quite rare in the province. *M.J. Oldham 18342* (HAM, MICH, NHIC, TRTE).

ROSACEAE Rose Family**Potentilla inclinata** Villars*Cinquefoil*

Not uncommon in southern Ontario but almost exclusively along railways and sometimes roadsides. *M.J. Oldham 18348* (TRTE).

ACKNOWLEDGEMENTS

The following botanists assisted with specimen identification or confirmation: Peter Ball (TRTE), Paul Catling (DAO), John Morton (WAT), Richard Rabeler (MICH), Tony Reznicek (MICH), and John Semple (WAT). Jim Pringle provided comments on an earlier version of the article and provided access to the Royal Botanical Gardens herbarium (HAM).

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Notes on Some Adventive Species in the Flora of Hamilton, Ontario.

James S. Pringle

This paper is included as a supplement to the more extensive list of additions to the known flora of

the Hamilton-Wentworth region by Mike Oldham, appearing in this issue of the Newsletter, as well as being a sequel to my earlier paper in this Newsletter on naturalized species in Ontario. It lists a few more recent discoveries that appeared noteworthy, all from the city of Hamilton, in the Regional Municipality of Hamilton-Wentworth, and all representing naturalized rather than native species.

ANACARDIACEAE Cashew Family

Cotinus coggygria Scop.

Smoke-tree

Between Cootes Drive and abandoned railway bed, at southbound exit from West Campus of McMaster University. *Pringle 2651*, 12 July 1995 (HAM). *Cotinus coggygria* was not listed in the Flora of Ontario by Morton & Venn (1990), but was cited as a 'garden escape' by Goodban (1995). At this site, *C. coggygria* was found among weedy roadside vegetation in an area that had not been landscaped, therefore appearing to be a case of having spread some distance from cultivation, rather than merely persisting where planted.

CARYOPHYLLACEAE Pink Family

Silene cserei Baumg.

Glaucous Campion; Smooth Catchfly.

Disturbed site between small park and Canadian Pacific Railway Aberdeen Yard, by Studholme Road. *Pringle 2670*, 11 July 1996 (HAM). This and the specimen cited by Oldham (1997) are the first records for Hamilton-Wentworth, his representing a slightly earlier discovery. This species is easily overlooked because of its similarity to the Common Bladder Campion, *S. vulgaris* (Moench) Garcke (*S. cucubalus* Wibel).

COMPOSITAE (ASTERACEAE) Composite Family; Aster Family

Artemisia absinthium L.

Absinthe; Wormwood.

Disturbed site between small park and Canadian Pacific Railway Aberdeen Yard and Studholme Road. *Pringle 2655*, 8 August 1995 (HAM). (Noted again 11 July 1996). There is a 1956 record of this species from a disturbed area near the south shore of Cootes Paradise (HAM), but it does not appear to have been found in the Hamilton-Wentworth Region in the interim.

Helianthus petiolaris Nutt. **ssp. petiolaris.**

Prairie Sunflower

Disturbed site between small park and Canadian Pacific Railway Aberdeen Yard, by Studholme Road; several plants present. *Pringle 2668*, 11 July 1996 (HAM). This appears to be the first authentic record of any subspecies of *H. petiolaris* for Hamilton-Wentworth. Specimens previously identified as this species, all dating from 1956 (HAM), have subsequently been re-identified as *H. tuberosus* L.

Iva xanthifolia Nutt.

Big Marsh-elder; Burweed Marsh-elder; False Ragweed.

Disturbed site between small park at end of Canadian Pacific Railway Aberdeen Yard, by Studholme Road; numerous plants present. *Pringle 2669*, 11 July 1996 (HAM). First record for Hamilton-Wentworth; previously reported elsewhere in Ontario, but still uncommon in eastern North America.

ROSACEAE Rose Family

Rosa rugosa Thunb.

Rugose Rose; Beach Rose

Along northeast (harbour) side of Canadian Pacific Railway, just east of Desjardins Canal bridge. *Pringle 2649*, 29 June 1995 (HAM). First record for Hamilton-Wentworth outside cultivation; basis for its listing from Goodban (1995).

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Rose Galls of Ontario.¹

Scott Brooks

Anybody who has taken the time to stop and smell the roses may have noticed a wide assortment of structural oddities growing where you would normally expect to find ordinary leaves, stems or roots. These structures, referred to as **galls**, are atypical plant growths resulting from the egg-laying or feeding activities of highly specialized herbivores. Many different types of organisms have evolved the ability to induce plant galls including viruses, bacteria, nematodes, protozoans, and mites (Dreger-Jauffret and Shorthouse 1992); however, galls induced by insects are the most structurally complex and diverse.

A variety of plant taxa provide suitable hosts to **gall inducers** and galls have been recorded from angiosperms, gymnosperms, pteridophytes, bryophytes, algae, and fungi. Angiosperms have the

¹ Photographs accompanying this article printed with permission from J.D. Shorthouse.



Figure 1. Leaf galls of *Diplolepis bicolor* on *Rosa blanda*.



Figure 2. Leaf galls of *D. nebulosa* on *R. blanda*. The enlarged galls on the left have been modified by inquilines, whereas the gall on the lower right contains a *Diplolepis* larva.

species are restricted to inducing galls on the leaves (Figs. 1, 2, and 3), stems (Fig. 4, 5, and 6) and roots (Fig. 7) of the genus *Rosa* L. Approximately 30 species occur in the Nearctic region (Burks 1979), of which 10 species form galls on leaves, 14 on stems and four on roots. Ten species of *Diplolepis* are found in Ontario including five leaf gallers, four stem gallers and one root galler. The galls of some species are single-chambered, whereas others are multichambered. However, in all *Diplolepis* galls, larvae are in individual chambers (Shorthouse 1993).

The biology of several species have been studied and the life cycles of each are similar (see references in Shorthouse 1993). *Diplolepis* have one generation per year and overwinter inside their galls in a prepupal stage. The pupal stage lasts approximately two weeks and occurs once diapause has been broken in the early spring. The adult wasps emerge inside their galls from mid-May to mid-June (in central Ontario), chew a tunnel to the outside and search for host plant

greatest diversity of associated gall-inducing insects with over 90% occurring on dicots, mostly in the families Asteraceae, Fagaceae, and Rosaceae (Mani 1964).

Rose galls are formed by wasps of the genus *Diplolepis* Geoffroy (Hymenoptera: Cynipidae). Adult *Diplolepis* are small, inconspicuous insects ranging from 3 to 6 mm in length with colouration varying from entirely orange-red to reddish-brown and black to entirely black (Shorthouse 1993). *Diplolepis*

tissues suitable for **oviposition** (egg deposition).

The emergence of adults is synchronized with the stage of host plant development that is optimum for gall initiation. *Diplolepis* adults live for only 3-5 days (Kinsey 1920); however, most populations have an extended period of emergence which overlaps the period of host plant tissue susceptibility (Shorthouse 1982). Female *Diplolepis* wasps deposit eggs on or within the immature tissues of the host plant organ with their long needle-like **ovipositor** (egg-laying

organ). The egg stage lasts from 7-15 days and galls are initiated once the freshly hatched larvae begin to feed (Shorthouse 1982). Each larva becomes encapsulated in its own chamber and feeds on specialized nutritive cells which line the chamber surface. The gall and the larvae are mature in approximately 2-3 months and the larvae enter the prepupal stage in the fall.

Diplolepis galls are susceptible to attack by a number of phytophagous and parasitic wasps. Wasps that feed on tissues of the gall inducer are referred to as **parasitoids** (most of which belong to the superfamily Chalcidoidea) and those that feed on gall tissue are referred to as **inquilines** (cynipid wasps of the genus *Periclistus* Förster). Adult parasitoids and inquilines emerge shortly after *Diplolepis* and search for newly developing galls in which to deposit their eggs. Upon finding a suitable host gall, females use their needle-like ovipositor to drill through the outer gall wall and into the chambers containing *Diplolepis* larvae. Parasitoid eggs are generally deposited on or within gall inducer larvae. Once hatched, parasitoid larvae feed on the tissues of the gall inducer until it is entirely consumed.

Attack by *Periclistus* also results in death of gall inducer larvae as they are impaled by the inquilines' ovipositor. *Periclistus* not only kill *Diplolepis* larvae during oviposition, but the resulting inquiline larvae cause anatomical modifications to the gall structure as they feed on gall tissues. All of the leaf galls and two stem galls, i.e. galls of *D. fusiformans* (Ashmead) and *D. nodulosa* (Beutenmüller), are commonly modified by *Periclistus* inquilines. Typically, inquiline modification results in an increase in gall size (Figs. 2 and 4).

The Ontario species of *Diplolepis* are generally restricted to the two most widely distributed wild



Figure 3. Leaf galls of *D. rosaeifolia* on *R. acicularis*.

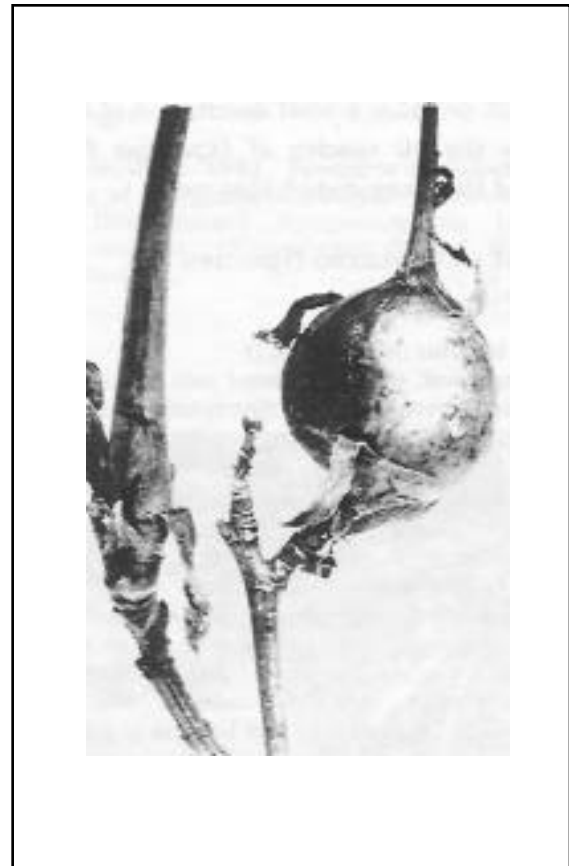


Figure 4. Inducer inhabited (left) and inquiline-modified (right) galls of *D. nodulosa* on *R. blanda*.

roses: *Rosa acicularis* Lindl. and *R. blanda* Ait. However, it is not necessary to visit patches of wild



Figure 5. (left) Stem gall of *D. trifurca* on *R. acicularis*.

Figure 6. (below) Stem galls of *D. spinosa* on *R. blanda*.

roses in order to find galls as several species have moved on to the Rugose or Beach Rose, *R. rugosa* Thunb., including *D. spinosa* (Ashmead) (Shorthouse 1988), *D. radicum* (Osten Sacken) (Shorthouse 1988) and *D. polita* (Ashmead) (Shorthouse 1994). The following list provides a brief description of the galls induced by the 10 species of *Diplolepis* found in Ontario and their associated host roses.

Checklist of Ontario Species of *Diplolepis*.

Diplolepis bicolor (Harris), (Fig.1)

Induces spherical, single-chambered galls ranging 7-11 mm in diameter, covered with stiff stout spines. Galls typically occur in clusters on the adaxial surface of the leaf, but do not typically coalesce. Galls modified by *Periclistus* are slightly enlarged and contain about 9 inquiline larvae each in its own chamber (Shorthouse 1975). Host: *Rosa blanda*.

Diplolepis fusiformans (Ashmead)

Galls appear as irregularly rounded swellings situated on one side, or completely encircling a stem or sucker shoot, ranging 4-12 mm in length and 4-9 mm in diameter. Galls can occur singly or in a coalesced row arranged longitudinally. Typically the bark adjacent to galls is split longitudinally (Beutenmüller 1907). Galls modified by *Periclistus* inquilines are externally identical to inducer-inhabited galls. Host: *Rosa blanda*.

Diplolepis nebulosa (Basset), (Fig. 2)

Induces spherical, single-chambered, spineless leaf galls 5-7 mm in diameter, occurring singly or in clusters on the abaxial surface of leaflets (Shorthouse 1982). Galls modified by *Periclistus* are slightly enlarged and contain approximately three inquiline larvae each in its own chamber (Shorthouse 1975). Host: *Rosa blanda*.



Diplolepis nodulosa (Beutenmüller), (Fig. 4)

Galls are single-chambered, fusiform, spineless, appearing as a barely detectable, even swelling at the base of the stem. Mature galls range from 2.5-5 mm in diameter and are circumscribed by a series of stunted leaflets at proximal end. Sometimes galls also occur along the mid-stem region, in which case circumscribing leaflets are absent. *Periclistus*-

modified galls are greatly enlarged, multichambered, spherical structures ranging from 6 to 20 mm in diameter and contain an average of 17 inhabitants per gall (range: 1 to 146 inhabitants per gall). Mature inquiline-modified galls are smooth, mottled red-brown in the fall, becoming grey-tan by the following spring. Host: *Rosa blanda*.

Diplolepis polita (Ashmead)

Induces spherical, single-chambered galls ranging 3.5-4.5 mm in diameter, covered with short weak spines, typically found in clusters on the adaxial surface of leaflets. Galls growing close together often coalesce (Shorthouse 1993). Galls modified by *Periclistus* are slightly enlarged and contain about five inquiline larvae each in its own chamber (Shorthouse 1975). Hosts: *R. acicularis*, *R. rugosa*.

Diplolepis radicum (Osten Sacken), (Fig. 7)

Induces smooth, globular, multichambered root/sucker shoot galls ranging from 25-60 mm in diameter which occur at the soil surface. Galls of *D. radicum* are extremely variable in size and shape (Shorthouse 1988). Hosts: *R. acicularis*, *R. rugosa*.

Diplolepis rosae (L.)

Induces multichambered, globular leaf galls, measuring 25-50 mm in diameter, densely covered with long green filaments producing a mossy appearance (Beutenmüller 1907). Commonly referred to as the "mossy gall" or "bedeguar". *D. rosae* was accidentally introduced into North America (Burks 1979) and it is thought that the galls were inadvertently brought over with *R. eglanteria* by European settlers. Host: *R. eglanteria* L.

Diplolepis rosaefolii (Cockerell), (Fig. 3)

Induces single-chambered, lentil-shaped galls ranging 4.5-6.0 mm in diameter and 2-2.5 mm in thickness, protruding from both the adaxial and abaxial surfaces of leaflets. Galls may occur singly or so densely coalesced that leaflets are entirely transformed into masses of gall tissue. Galls modified by *Periclistus* are slightly enlarged and contain 2-3 inquiline larvae, each in its own chamber. Host: *R. acicularis*.

Diplolepis spinosa (Ashmead), (Fig. 6)

Induces spherical or irregularly rounded, multichambered stem galls ranging 15-40 cm in diameter, covered with stout sharp spines (Shorthouse 1988). Hosts: *R. acicularis*, *R. rugosa*.

Diplolepis triforma Shorthouse & Ritchie (Fig. 5)

Induces fusiform multichambered stem galls, 5-41 mm in length that occur in three types. Galls of the first type appear as stout, usually spineless, swellings located at the base of the stem

with no distal twig growth. Galls of the second type appear as stout, spiny, swellings located at the base of the stem with some distal twig growth. Galls of the third type appear as spiny elongate swellings of twigs distal to their base (Shorthouse and Ritchie 1984). Host: *R. acicularis*.

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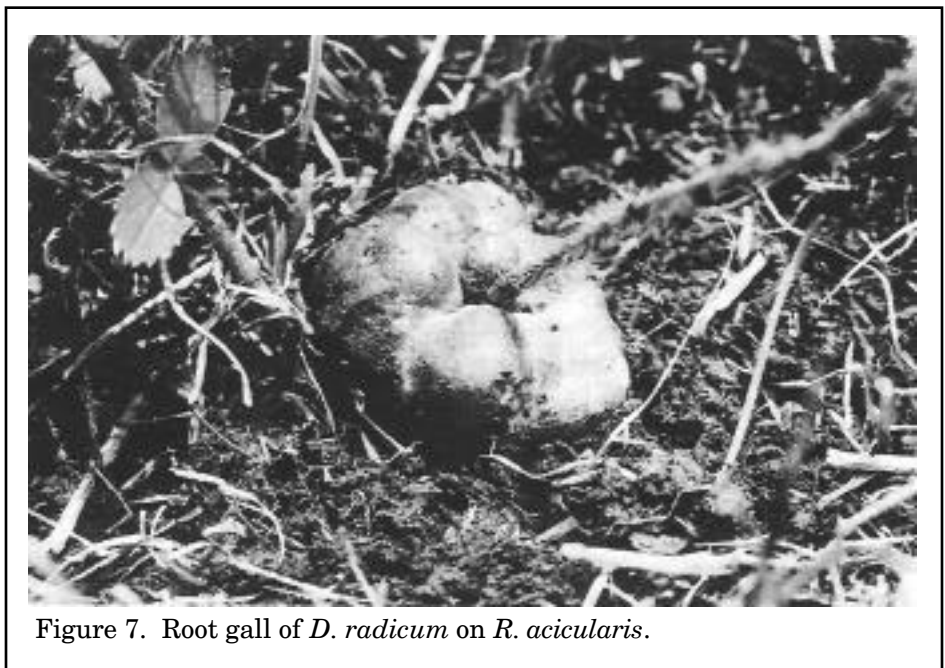


Figure 7. Root gall of *D. radicum* on *R. acicularis*.

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The Wainfleet Bog Area of Natural and Scientific Interest.¹

Sarah Mainguy

The Wainfleet Bog, one of the centrepieces of this year's AGM field trips, has become the focus of recent conservation efforts because of its outstanding diversity. It was recently purchased in part by the Federation of Ontario Naturalists. The Bog contains peatland elements common to both bogs and fens, which support a rich flora more usually found in northern Ontario. Because of the bog's location within the Carolinian life zone of Ontario, these characteristically northern floristic affinities are adulterated by southern elements of both flora and fauna, many of which are rare. Moreover, the surrounding diverse marsh, shrub, thicket swamp and wet meadow communities, characteristic of the Haldimand clay plain physiographic region, support an extraordinarily diverse assortment of plants and animals, also including many species of both southern and northern affinities

True ombrotrophic bogs, those which derive their water exclusively from rainfall, are a rare feature in Ontario; particularly in southern Ontario where peatlands are commonly enriched by groundwater. All peatlands, however, are highly sensitive to changes in moisture and nutrient regime, and are thus becoming increasingly rare in Ontario's settled

¹ Much of the information presented in this article was found in Macdonald (1992).

landscape. The Wainfleet Bog is the most extensive example of peat bog and fen in the Niagara Peninsula, and the largest occurring in the Carolinian life zone. Many of the plants common in bogs and fens are considered rare in Niagara Region. Examples of locally rare species dominating the Wainfleet basin are the characteristic peatland sedges *Carex magellanica* Lam. ssp. *irrigua* (Wahlenb.) Hultén., *Carex limosa* L., and *Carex trisperma* Dewey. Also present are the ericaceous shrubs Leatherleaf (*Chamaedaphne calyculata* (L.) Moench) and Labrador-tea (*Ledum groenlandicum* Oeder), and insectivorous plants such as Pitcher-plant (*Sarracenia purpurea* L.) and Round-leaved Sundew (*Drosera rotundifolia* L.), which do not wholly depend on soil for nutrients.

Examples of provincially rare Carolinian plants growing incongruously in this boreal microhabitat are Virginia Yellow Flax (*Linum virginianum* L.) and Virginia Bartonian (*Bartonia virginica* (L.) Britton, Sterns & Pogg.). Other provincially and regionally rare species such as Southern Tickseed (*Bidens coronata* (L.) Britton), Pin Oak (*Quercus palustris* Muenchh.), Tapered Rush (*Juncus acuminatus* Michx.) and Many-fruited False-loosestrife (*Ludwigia polycarpa* Short & R. Peter) appear in the wetland-dappled thickets and successional woodland surrounding the bog. In all, 10 species of provincially rare plants have been found in the Wainfleet Basin.

The basin is generally highly disturbed; mainly by peat cutting but also by burning, grazing, and dirt biking. Channels in the centre of the bog, created to drain the wetland to aid in peat cutting, are changing the water regime; lowering the water table. The peat is drying out and beginning to decompose in some portions of the wetland; allowing the plant community contact with the mineral soils underlying the peat and promoting invasion by plants adapted to more nutrient-rich conditions. These conditions have been constant for many years, however, with the bog still supporting its assemblage of rare flora. Many of the rarest species, for example Virginia Bartonian, inhabit the most disturbed areas of the bog, in channels created by peat cutting. Ownership of the bog by the

Federation of Ontario Naturalists is certain to provoke a difficult balancing act between conservation and restoration of the remaining wetland areas.

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Letters Section:

Lately, I have received a number of submissions in the form of letters. This is great! Obviously, the opinions and statements contained in each letter are those of the author, and may not reflect the position of the FBO. I want to keep the newsletter as accessible as possible for all members, and this section is a great place for members to share their thoughts. -Ed

The Burning Question

January 24, 1997

Dear Ed,

I just wanted to comment briefly on an article that appeared in the Fall 1996 issue of the *Field Botanists' of Ontario* (Volume 9(3)). In his article on the Dry Oak Woodlands, Forests and Prairies in Hamilton-Wentworth, Jeff Matheson mentioned the Ancaster Prairie (Paddy Green Prairie). I haven't seen this prairie and was pleased to hear that a high quality habitat like this remains in the Hamilton area. At the same time, I was concerned to hear that a spring burn is being considered to control woody vegetation on the site.

My concern about burning prairie fragments revolves mostly around disrupting the arthropod diversity on the sites. There is no doubt that fire played an important historical role in maintaining both the plant and animal diversity of prairie ecosystems; however, when these prairie patches are fragmented to the degree that they are in



Sharp-lobed Hepatica (*Hepatica acutiloba* DC.) by Irene McIlveen

southwestern Ontario, fire can decimate the fauna in an area. Non-native insects tend to move in and take over after such disturbances. To avoid the eradication of native insects which are every bit as interesting and rare as the flora of the site, habitat managers may want to consider small patchwork burns (so that less than 20 percent of the area is burned in any one year) or mowing the site. If a burn is selected, don't be a perfectionist. It's OK to miss spots here and there, even within the designated patch. These missed areas act as refugia where insects can survive the fire.

People interested in managing prairie habitats to preserve the insect fauna may contact me at 36 King Crescent, Hickson, Ontario, N0J 1L0 (e-mail: sharrich@execulink.com). I have been studying the prairie insect fauna in Lambton county for a few years now. Better yet, since I am moving to Australia in mid-March, contact Dr. Andy Hamilton at the Biosystematics Research Centre, Central Experimental Farm, K.W. Neatby Building, Ottawa, Ontario, K1A 0C6 (phone: 613-759-1835). Dr.

Hamilton studiesoppers found on Ontario prairies and is particularly interested in the conservation of these habitat fragments. He is happy to offer his advice. Dr. Ann Swengel is another person that you may wish to contact. She recommends the following reading for those interested: *Habitat Management for Invertebrates: A Practical Handbook* (make your orders via: Conservation Management Advisory Service, Royal Society for the Protection of Birds, The Lodge, SANDY, Bedfordshire SG19 2DL United Kingdom). Ann can be contacted at the following address: 909 Birch Street, Baraboo, Wisconsin, 53913 USA.

Jeff Skevington
36 King Crescent
Hickson, Ontario
N0J 1L0

Claude Eugene Garton (1907-1996).

In the summer issue, Alan Harris and Mike Oldham wrote an article "New Plants for the Thunder Bay District." (Volume 9(2):6-10). Much of the early work in that area had been conducted by Mr. Claude Garton. It was recently brought to my attention, from Ms. Joan Crowe, that Mr. Garton is no longer among us. He passed away January 1st, 1996. Here is her letter.

January 9, 1997.

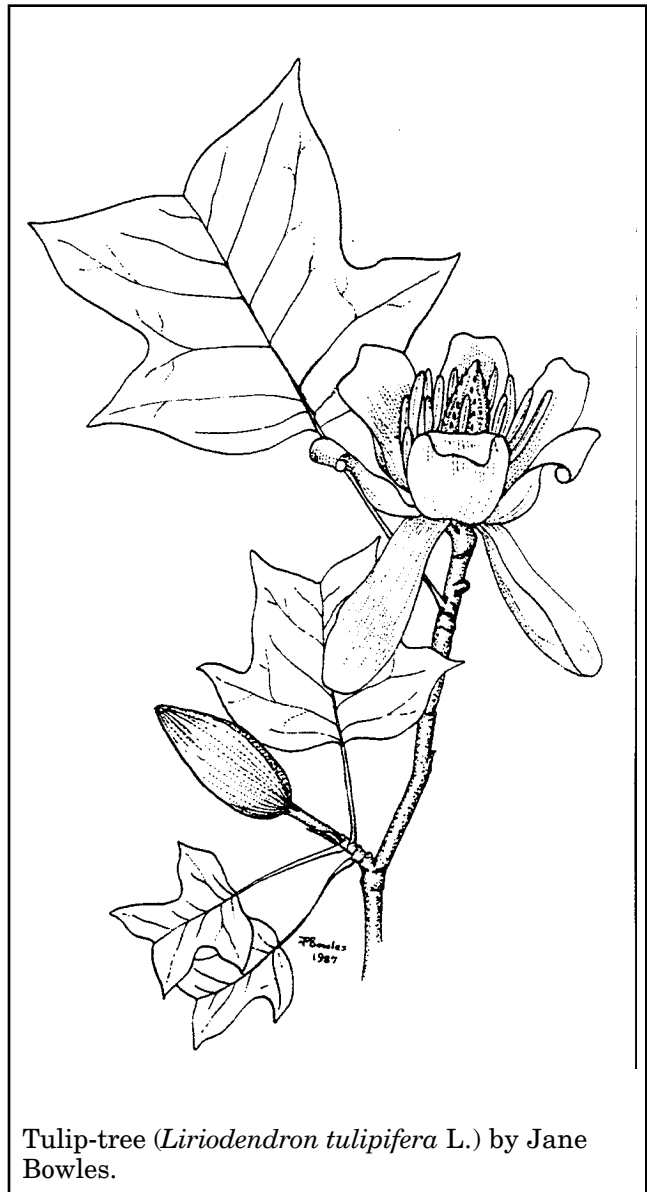
Dear Ed,

I am enclosing an article about Claude Garton which appeared in *Nature Northwest* (by Joan Hebden, Thunder Bay Field Naturalists) recently. I don't suppose you would want to print the whole article, but I thought a *précis*-especially of his botanical adventures might be of interest to members. He was the amateur botanist *par excellence*. Botany has always depended on amateur botanists-not having the glamour of the high-tech science-and he was an outstanding example.

Joan Crowe

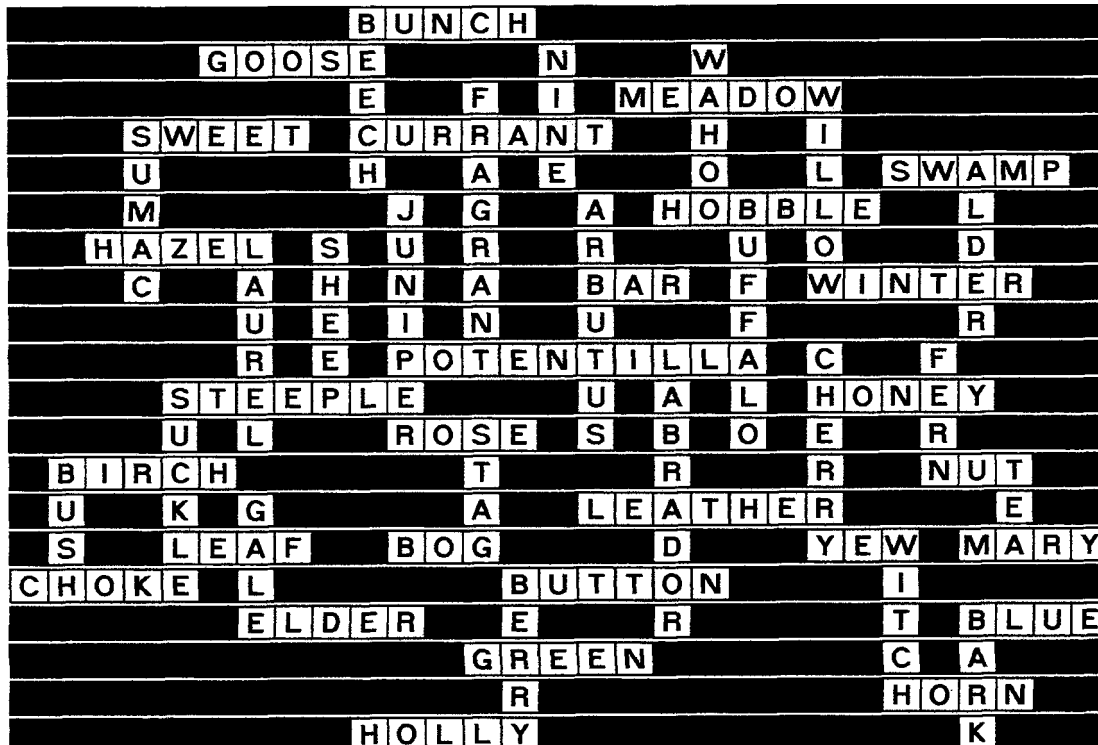
Apparently, the same article was also published in Canadian Field-Naturalist (Vol. 110(3):554-557).

Unfortunately, the article is a bit long for this newsletter, and I don't have enough time to write a condensed version. The Canadian Field-Naturalist is widely available, and I recommend looking up this and many other articles within it.-Ed



Tulip-tree (*Liriodendron tulipifera* L.) by Jane Bowles.

Solution to Shrubs Crossword
from previous issue.



Common shrub names derived from crossword solutions.

Dear Ed,

Enjoyed your botanical time waster crossword puzzle. I wasted all that time, then realized it wasn't even a contest! However, I feel that I must share my fabulous list of shrubs with you anyway.

Alder, Arbutus, Barberry, **Beech Nut***, **Blue Beech***, Blue-leaf Willow, Blueberry, Bog Laurel, Bog Rosemary, Bog Willow, Buffalo Berry, Buffalo Currant, Bunchberry, Bush Honeysuckle, Buttonbush, Choke Berry, Choke Cherry, Elderberry, Fragrant Sumac, Gooseberry, Green Alder, Hazel Nut, Hobblebush, Holly, Juniper, Labrador Tea, Labrador Willow, Leatherleaf, Meadowsweet, Ninebark, Potentilla, Sheep Laurel, Staghorn Sumac, Steeplebush, Swamp Birch, Swamp Currant, Swamp Honeysuckle, Swamp Rose, Swamp Sumac, **Sweet Birch***, Sweet Fern, Sweet Gale, Tea Berry, Wahoo, Willow, Winterberry, Wintergreen, Witch-hazel, Yew

Well, that certainly was a waste of time, but fun! Thanks.

Sue Bryan

*Not really shrubs *per se*, but we kept them in the list for fun's sake.

Botanical Time Wasters!

PUNgent-PUNdity

by Gerry Bennett

This quiz asks you to match common (English) names of flowering plants found in Ontario to the clues. I've applied 'poetic licence,' and have ignored the use of hyphens: the answers are phonetic, not hyphentic! An example solution has been included for one clue. Many are native or naturalized plants, but a few are ornamentals! Answers are on the bottom of this page...*no cheating now!*

Clues

Ex.	Keep me in mind	Forget-me-not_____
1.	Race proficiently	_____
2.	Common breakfast items	_____
3	Streetwalker's corsage	_____
4.	Wise man's official stamp	_____
5	Cure everybody	_____
6	Sailor sermonizing	_____
7	Servile factory	_____
8	Cookie magic puff	_____
9	Saintly British monarch	_____
10	Adorable Bill	_____
11	Odoriferous spring pest	_____
12	Planet's mirror	_____
13	Kitty pinch	_____
14	God-bless-you plant	_____
15	Rabid rover's beanie	_____
16	Equine anger	_____
17	Feline digits	_____
18	Melancholy gong	_____
19	Azure star	_____
20	Panhandler's mattress	_____

Answers to Pungent Pundity

1. Speedwell; 2. Butter & Eggs; 3. Hooker's Orchid; 4. Solomon's Seal; 5. Heal-all; 6. Jack-in-the-Pulpit; 7. Obedient Plant; 8. Snapdragon; 9. Good King Henry; 10. Sweet William; 11. Stinking Mayweed; 12. Venus' Looking Glass; 13. Catnip; 14. Sneezeweed; 15. Mad-dog Skullcap; 16. Horse Nettle; 17. Pussytoes; 18. Bluebell; 19. Sky Blue Aster; 20. Beggarticks.