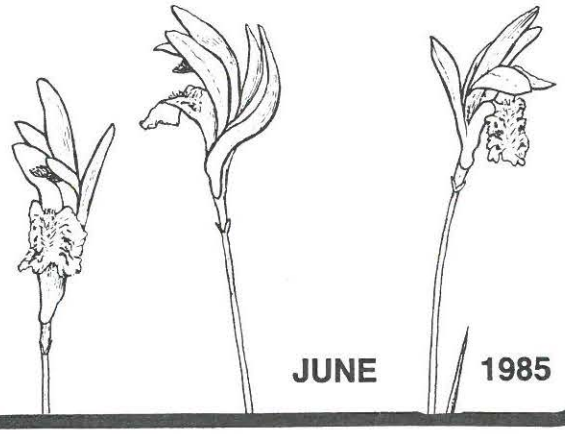
THE PLANT PRESS

FIELD BOTANY IN ONTARIO

Vol. 3 No. 2 JUNE 1985



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Front page illustration: Arethusa bulbosa (arethusa) orchids by Zile Zichmanis

NEWS

FIELD BOTANISTS OF ONTARIO OFFICERS

The FBO is pleased to announce that three willing nominees are proclaimed by acclamation and will constitute the officers of the FBO for 1985:

President - Robert Hounsell, 105 Moccasin Dr., Waterloo, Ontario N2L 4C2

Secretary - Rick Bobbette, 8 Cumberland St., Barrie, Ontario L4N 1P2

Treasurer - Harry Williams, Millbrook, Ontario L0A 1G0

GOOD NEWS ABOUT THE WYE MARSH WILDLIFE INTERPRETATION CENTRE

I was sorry to hear that one of the victims of Environment Canada's November '84 cutbacks would be the Wye Marsh Wildlife Interpretation Centre. This was the first government agency to subscribe to The Plant Press and the first to submit a paper. Recently the Wye Marsh made another "first": it will be leased from Environment Canada and run by the Friends of Wye Marsh, a non-profit organization which will need public support.

As outlined in the FBO supplement in this issue, there will be a field trip to the Wye Marsh this summer. If you would like more information or would like to make a donation, please contact Robert Whittam, c/o Friends of Wye Marsh, Box 100, Midland, Ontario L4R 4K6.

LETTERS

BOTH FORMS OF AUTUMN CORALROOT (*Corallorhiza odontorhiza*) IN LAWNS AT KETTLE POINT, LAMBTON COUNTY

"Both 'open' and 'closed' autumn coralroot discussed by Ross Brown [Plant Press 2(3):78-81] grow in lawns at Kettle Point. In 1983 we had 3 flowering stems - in 1984 we had more than 50 and three of our neighbours had more, bringing the total to over 130 plants of both kinds. Most of the plants can easily be photographed and many naturalists from Lambton and the United States have seen them."

A.H. Rider, Kettle Point, R.R. #2, Forest, Ontario NON 1J0

NEW PUBLISHER FOR GLEASON & CRONQUIST'S MANUAL OF VASCULAR PLANTS

"Regarding Dr. Pringle's letter in reference to 'Gray's Manual' [Plant Press 3(1):7-8], I should tell you that I recently bought a new copy of 'Gleason & Cronquist' and found that it is published by: PWS Publishers, Prindle, Weber & Schmidt, Willard Grant Press, Duxbury Press, Statler Office Building, 20 Providence Street, Boston MA 02116 (PWS Publishers is a division of Wadsworth, Inc.).

"So it seems that Van Nostrand Reinhold Company Inc. has given up 'Gleason & Cronquist'. It seems to be publishing more glossy material now."

Emily Hamilton, Toronto

POSSIBLE PROJECTS FOR FIELD BOTANISTS

"On a day sometime in 1919, at the age of 15, I started on a practice that has persisted until the present time. This involves making lists of dates and appearences, a sort of phenology, if I may call it that. Starting with birds it has spread to plants, frogs, and insects, including the tiny springtail or 'snow flea,' very numerous just now [8 March 1985] where we live..."

R.D. Ussher, Delta, Ontario

[Many of our readers are interested in phenology. We would be especially interested in hearing from those who have kept records for more than 10 years.]

"...You may know how greatly the Ontario Breeding Bird Atlas project has mobilized naturalists of all sorts...In our region we have been challenged to go into areas where I am sure no birder has ever ventured before, and to find these very rewarding. After the last season, in 1985, there will be a tangible gap in such people's lives. Include me in this, although my interests are very broad. A limited project on plants might induce participation and encourage more interest in this part of the world..."

Doug Sadler, Peterborough

[There is a growing number of individuals who are very interested in initiating an atlas project on plants. Are there enough people to make a limited project successful?]

the need to refer back to the text for the authorities.

A sourcebook of information on vernacular names for Canadian plant species that is probably not widely known by botanists is that produced by the federal government's Translation Bureau, Bureau des traductions (1974). The main text of this paperback, called Flore du Canada, lists alphabetically the English common names of species from across Canada (4,684 entries), followed by the botanical name and one or more French common or translated names. The English names also include both common names and translated names. The names that are included are taken from various technical and popular Canadian publications as well as from "Gray's Manual". The vernacular name, in some cases, refers to more than one species, or is simply the common name of the genus. The work also includes an index to botanical names and one to French names. It is not an inclusive list of all Canadian species.

Although a standardized list of common plant names might help popularize and perhaps create greater interest in the study of plants, it is a goal that cannot be easily attained, even if there were a sizeable lobby in favour of the proposal. Such a list, if it were to be at all meaningful, would eventually have to be international in scope. Consider the problems involved in reaching international agreement on plants that have a wide distribution such as the circumpolar, circumboreal, and pantropical species. There would even have to be a number of official lists to take into account the several major languages used by the scientific community. But even this is of no help to the layman who wants to know the name of a plant in his own language.

The main problem, however, is that of the vast number of vascular plants, in the order of 250,000 species, on a world-wide basis. This is in striking contrast to the numbers of vertebrates, less than 40,000 world-wide. Of these, only the birds, with about 9,000 species have a list of accepted English common names that are used internationally. This has been achieved only by virtue of the great numbers of birders who form the active majority of most naturalist groups throughout the world. Other vertebrates, the mammals, herps, and fish, generally have only regional or national lists of common names in the language of the country of origin. Except for the showy moths and butterflies, the innumerable invertebrates generally do not have common names applied at the specific level. Considering that not even the majority of the conspicuous vertebrates have internationally accepted common names, it is not surprising that the use of standardized common names for plants has lagged behind. In fact, even many of the showier horticultural plants have no common English names.

Even if we cannot agree on whether it is acceptable practice to use translated names, one important step that can be taken to make vernacular names more uniform in the manner in which they are written is to follow a standard set of rules. Such a set of rules was developed some time ago by Robert Hamilton, an amateur botanist and shrub breeder, when he was head of the Scientific Editing Section of the Research Branch at Agriculture Canada. A copy of these rules called The Spelling of Common Names was most recently reprinted in Agriculture Canada's publication Common and Botanical Names of Weeds in Canada (Alex et al. 1980). Hamilton's rules (Figure 1) are reproduced in their original published form as part of this article by the courtesy of the Research Branch, Agriculture Canada.

Hamilton's rules (Fig. 1) represent a very useful synopsis of logical editorial practice that should help standardize those common names that we are individually willing to accept. One point not directly mentioned in the rules is that dealing with the use of upper and lower case letters in writing names. Hamilton's preference, as is obvious from reading his article, is to use lower case letters exclusively when the names are part of a text. In our museum exhibits, we have followed this practice. When common names are used individually as captions, we have capitalized the initial letter for emphasis. There is no consistent typographic convention followed in the literature for writing common names, but as Jim Hodgins pointed out (The Plant Press 2(4):92, 1984), the Council of Biology Editors Style Manual also provides some guidelines for the writing of common names.

Another subject that I would like to comment on is the choice of common names. Some names are obviously misnomers that give the wrong impression of a plant's systematic relationship. An example of this is dog's-tooth-violet for Erythronium americanum. In this case, the name, especially when written "dog's-tooth violet", would be misleading to a novice botanist; as well, the name is almost identical to that for Viola conspersa, the dog violet. Yellow adder's-tongue,

The Spelling of Common Names

Robert A. Hamilton

1. Written as one word
   (a) When the modified word is *plant* or a type of plant, as in lead*plant*, skunk*bush*, pea*tree*, pea*vine*, jewel*weed*, lung*wort*; except when the modifier is more than one word, as in Kentucky coffee *tree*, or a hyphened word, as in silk-tassel *bush*, or a proper noun, as in Virginia *creeper*.
   (b) When the modified word is a part of a plant, as in june*berry*, tway*blade*, buffalo*bur*, cone*flower*, leather*leaf*, bladder*pod*, balsam*root*, bug*seed*, twisted*stalk*, blue*stem*, buck*thorn*, worm*wood*.
   (c) When the modified word is a part of animal anatomy, as in arrow*head*, blue*lips*, cat*tail*, beard*tongue*; except when the modifier is in the possessive case, as in bird's-*eye*, crane's-*bill*.
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   (b) When the modifier is the word *common*, *false*, *mock*, *wild*, as in *common* camas, *false* flax, *mock* pennyroyal, *wild* chives.
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With regard to the commemoration of persons in the vernacular names of plants, my feeling is that the wishes of the original author describing the species should be followed. The vast majority of persons commemorated in the generic names and specific epithets were eminent botanists, avid collectors, or individuals who significantly furthered the cause of the science in some way. The recognition of their contribution is just as valid as the use of personal names in the vernacular names of cultivars.

The "coining" of new names when established common names are available is a pointless task. However, because common names are useful in communicating with non-botanists, new vernacular names can serve a useful purpose. Some new names have had to be coined for vascular plants for which status reports were prepared for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). World Wildlife Fund Canada, an agency that regularly supports the preparation of status reports, prefers to use common names for all the species it lists in its publications as a means of communicating with the public and non-specialists.

Names coined today may very well, through use, become the accepted common names in the future. Just as botanical names undergo revision due to changes required by the adherence to the internatioanl Code or because of taxonomic re-evaluation, so too some progress should be made in establishing a broader database of vernacular names. We cannot forever rely solely on the limited number of names coined in the past by our forefathers.

Linnaeus' method of promoting ease of communication with his colleagues at a time when vast numbers of new species were coming to light through worldwide explorations was to coin "trivial" names for the species that he described. Such binomials are now the universal basis for the naming of all organisms. However, the proper names of plants to Linnaeus and other botanists of those times were the descriptive polynomial phrases that were used to discriminate among species. Inadvertent errors were made in the selection of some trivial names; for example, in Asclepias syriaca, a plant native to North America, not Syria. Errors such as this, of course, should not be perpetuated in the selection of common names.

As much as we value the botanical names for their preciseness in identifying a specific plant, there are circumstances when the use of common names can be of advantage in communicating with the public and non-botanist administrators and planners. The inclusion of common names in inventory lists, even if some of them are translated names, with the botanical names, may bridge the emotional gap created by the technical appearance of lists of Latin names that appear a incomprehensible jargon to the non-specialist. There is the risk, however, that the increased use of translated or newly coined names by individual workers would result in the proliferation of such names that would simply add to the existing confusion surrounding the use of common names. The availability of a comprehensive national list of vernacular names for each species that included accepted common names and newly coined names could serve as an important reference work potentially eliminating much of the confusion that exists in the use of common names in this country. An international list would be preferable, of course, but one has to start somewhere.

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SOME FLOWERS OF YELLOW LADY'S-SLIPPER (*Cypripedium calceolus* L.) PROBABLY BROWSED BY DEER IN CENTRAL ONTARIO

Frank Keim, 13 Mill St., #605, Mississauga, Ontario L5M 1Y2

June is the month when my wife, Rosemary, and I know for certain that summer is finally here, with its warm, sunny days, mosquitoes, humidity, and, most of all, flowers everywhere. During the first week of this month, year after year, we seek out one of our favourite wildflowers, yellow lady's-slipper (*Cypripedium calceolus*). As hikers we are familiar with many localities where these orchids are to be found. However, in a recent June at one of our favourite haunts off the Bruce Trail in Central Ontario, we found approximately 30 plants, healthy as ever, but with not one single flower!

Close examination with the "opposite" end of our binoculars (which are more than an adequate substitute when you forget a hand lens, as I had) revealed that each flower had been clipped off as if with a pair of scissors. But why, we wondered? Offered no plausible explanation from naturalist friends, we eventually concluded that these flowers had not been clipped by humans. They had been neatly nipped by teeth as sharp as scissors.

A few weeks later, while again reading Edwin Way Teale's (1960) *Journey into Summer*, I came upon this passage in "The Orchid Ridges" chapter, page 100: "Of all we saw that day, the memory that lingers most vividly in our minds is coming suddenly upon a half a hundred showy lady's-slippers...all around the air was filled with a faint, indescribable perfume. Among these orchids we came upon a number with severed stalks where flowers had been nipped off by deer. The animals, browsing here, seemed to choose such flowers as a special delicacy."

Although we have no positive proof that the flowers of our yellow lady's-slippers had been eaten by deer, this seems a probable explanation. We are looking forward to hiking, again this year, to our yellow lady's-slipper localities. We hope that the flowers will not have been browsed, but better a "nipping" deer than a "clipping" human. Or still worse, destructive humans, digging up entire plants for wildflower gardens!

Reference

Teale, E.W. 1960. Journey into Summer. Dodd, Mead. New York. 366 pp.◆

THE 5% SOLUTION - A GUIDELINE FOR COLLECTORS OF VASCULAR PLANTS

Daniel F. Brunton, 2704 Marie Street, Ottawa, Ontario K2B 7E4

The best documentation of the occurrence of a plant species at a particular location is a properly dried and arranged specimen, accompanied by complete and accurate label data. While the techniques for doing this are well-documented (cf. D.B.O. Savile. 1962. Collection and care of botanical specimens. Research Branch, Department of Agriculture, Ottawa), there have been far fewer guidelines to help one decide *when* to collect, and just as importantly, *when not* to.

With tremendous and increasing pressure on natural areas and on native flora and fauna across southern Canada, it is quite obvious that we can no longer "hay-bale" specimens indiscriminately and still maintain credibility as intelligent and reasonable advocates for resource protection. This is particularly true for rare taxa in certain groups (such as orchids and ferns), as the pressure from collecting by zealots has literally led to the extirpation of some.

So what is a botanist to do when confronted with a rare and/or significant plant that really should be authoritatively documented? Photography is not necessarily the answer; the technology is not yet good enough, nor are the costs low enough to make this practical in more than a small fraction of cases. To collect or not to collect, that is the usual question!

Here is a rule-of-thumb guideline which I call the "5% solution". I do not collect more than 5% of the *visible* population of any taxon under consideration. In other words, if there are less than 20 plants present, I leave them be. This is an arbitrary figure, to be sure, but after preparing some 11,000 specimens over the years, I find it to be a practical and effective approach.

There are exceptions to this rule. I may know that a species is common in the immediate vicinity, therefore I collect. I also generally exclude non-native, weedy species from my "5%" considerations; such plants are often part of the negative forces against which our native flora must compete. In isolated, rarely collected or previously unvisited areas, such as parts of northern Ontario, I tend to waive the "5% limits" since collecting pressure in such areas is so light. I balance the negative effect that these collections might have with the knowledge that they provide particularly important contributions to our understanding of plant distributions.

Sometimes a specimen is desirable in order to document a particularly significant record, even though the collection would break the "5% rule". The impact of this can be minimized by taking only a portion of a plant, e.g. a leaf and a flower spike. This is particularly important when dealing with suspected hybrids and forms which may be unique and/or sterile.

There will always be situations which do not fit comfortably with the limits of any rule or protocol. Such cases must be evaluated on the basis of the factors in each individual case. It is important to recognize our responsibility to be accountable and sensitive collectors of vascular plants. We must attempt to maximize benefits and minimize impacts. I have found that the "5% solution" gives me a general rule to follow that simplifies decision-making and provides a workable basis upon which to take reasonable and responsible action.◆

THE VEGETATION AND FLORA OF COPELAND FOREST RESOURCES MANAGEMENT AREA, SIMCOE COUNTY

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Background

This 1,760 ha property, located about 120 km north of Barrie (Fig. 1), is a predominantly treed complex of rolling uplands, valleys and stream headwater wetlands. After a relatively long history as a privately-owned timber production area, Copeland Forest was purchased by the Ontario Ministry of Natural Resources (OMNR) in 1978-79. The property is being utilized as an active forest harvesting and management area. Internal reserves and multiple-use zones have been designated by OMNR in accordance with resource significance, compatability of use and requirements of multiple resource use.

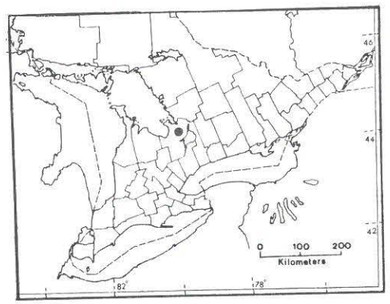


Figure 1. Location of Copeland Forest Resources Management Area in southern Ontario.

As part of Huronia District/OMNR planning and resource management policy, we were hired to conduct a botanical inventory of Copeland Forest (Bobbette & Webber 1979). We were delighted to have Bill Cattley, Fran Westman, and Tony and Susan Reznicek as our "irregular" companions during field work.

Vegetation

Copeland Forest is located in the Great Lakes - St. Lawrence Forest Region (Rowe 1972). Although this forest region is characterized by mixed deciduous-coniferous forest, a variety of vegetation cover types and component plant communities occurred here (see Table 1). Variation in moisture regime, microclimate, substrate (mostly sandy loams and organics) and the history of disturbance were responsible for the many types of plant communities present.

The Huron Indians cleared much land around the Copeland Forest in the first half of the 1600's, but the steep, sandy slopes and swamps of the property were principally used for hunting and transportation. The lumber operation at Copeland, which began in the mid 1800's, also had a major effect which is still evident on present-day vegetation. Logging altered species composition and physiognomy. Later, conifer plantations were established. An internal road system was developed, and changes in drainage patterns occurred as a result of sawmill construction. A line of the C.P.R. and Highway 400 have also altered drainage in northwestern parts of the property.

Table 1. Vegetation cover types (or classes), per cent area and component plant communities of Copeland Forest Resources Management Area.

vegetation cover type	per cent area (%)	component plant communities
Forest	37	birch cedar maple/hemlock hemlock maple/beech maple/cedar
Woodland	27	trembling aspen cedar sugar maple balsam poplar maple/cedar
Anthropogenic	13	roadsides & waste areas
Riparian	10	mixed woodland herbaceous scrub
Wetland Herbaceous	5	freshwater marsh sedge flat
Scrub	3	alder/willow
Aquatic	2	
Dryland Herbaceous	1	poverty grass/bracken
Lakeshore	1	
Parkland	1	

Flora

The diversity of habitats at Copeland Forest is reflected in the diversity of vegetation cover types and the flora. Tape recorders were used to record species seen and habitat descriptions in the field. Vascular plants known to be taxonomically difficult, as well as significant records, were collected. The specimens were deposited in TRTE, CAN and the personal herbarium of R.S.W. Bobbette.

Of the 599 vascular plant species recorded, less than 19% were alien; a low percentage compared with values of up to 50% in the Toronto area (Kaiser 1983), where there has been a longer history of establishment of alien species and demise of native ones. Notable vascular plants are listed in Table 2.

Table 2. Notable vascular plants of the Copeland Forest Resources Management Area (alien taxa indicated by "+").

		STATUS	
SCIENTIFIC NAME	COMMON NAME	RARE IN ONTARIO *	RARE IN SIMCOE CO. **
Dryopteris goldiana	Goldie's fern	x	
Dennstaedtia punctilobula	hayscented fern		x
Potamogeton obtusifolius	blunt-leaved pondweed		x
Elymus riparius	riverbank wild-rye	x	
Muhlenbergia frondosa	muhly grass		x
Stipa comata ***	spear grass		x
Panicum boreale	northern panic grass		x
Eleocharis intermedia	spike-rush	x	x
Rhynchospora capitellata	beak-rush	x	
Carex cephalophora	sedge		x
C. crawfordii	"		x
C. cryptolepis	"		x
C. cumulata	"		x
C. debilis	"		x
C. deflexa	"		x
C. laevivaginata	"	x	
C. merritt-fernaldii	"		x
C. schweinitzii	"	x	
C. umbellata	"		x
Zygadenus glaucus	wild camass		x
Platanthera orbiculata	round-leaved orchid		x
Polygonum punctatum	water smartweed		x
Phytolacca americana	pokeweed		x
Stellaria calycantha	chickweed (genus)		x
Arabis drummondii	Drummond's rock cress	x	x
A. laevigata	smooth rock cress		x
Hypericum ellipticum	pale St. John's-wort		x
H. mutilum	dwarf St. John's-wort		x
Panax quinquefolius	ginseng	x	
Mimulus moschatus	muskflower	x	x
Scrophularia lanceolata	figwort		x
Conopholis americana	squaw-root	x	
Galium brandegei Gray (=G. palustre L. var. minus Lange)	marsh bedstraw		x
Valeriana uliginosa	swamp valerian	x	x
Lobelia spicata	pale-spike lobelia		x
Erechtites hieracifolia	fireweed		X
Solidago altissima	tall goldenrod		x
+ Gnaphalium uliginosum	low cudweed		x

* All ferns and members of the sedge family (Cyperaceae) listed above as rare in Ontario (Argus & White 1977) have been deleted from the "Atlas of the Rare Vascular Plants of Ontario" (Argus & White 1982 and 1983). All grasses listed above as rare (Argus & White 1977) have been deleted from the 1984 installment of the "Atlas" (pers. comm., A.A. Reznicek). The status of other rare plants listed above should be checked with future installments of the "Atlas".

** Rarity in Simcoe County based on Reznicek & Bobbette (1979).

*** Webber et al. 1985.

In addition to identification of vascular plants, an attempt was made to document the mosses and hepatics, lichens and fungi. Specimens of 58 moss species were identified/confirmed by Christine Manville and/or Agneta Burton. The 21 lichen taxa were identified by Agneta and 41 fungi were identified by Clark Ovrebo and Bruce McGauley.

Documentation of plant values included a list of nursery prices of particular species which occurred in Copeland Forest. A listing of food and medicinal uses of some of the common plants was prepared by Landa King.

Anyone wishing more information on Copeland Forest may contact Mr. W. Dan Mansell, Huronia District Manager, Ontario Ministry of Natural Resources, Midhurst, Ontario L0L 1X0. We are grateful to Huronia District for initiating this study and encouraging documentation in The Plant Press.

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FLOWERING DATES FOR ORCHIDS OF THE BRUCE PENINSULA

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Since 1964 I have recorded flowering dates for orchids of the Bruce Peninsula, i.e. those portions of Bruce and Grey counties north of a line between Southampton and Owen Sound, including Flowerpot Island. Joe Johnson has helped considerably with several recent additions and revisions to the chart (Fig. 1). Vince Elliott, Les and Isobel Greenop, Nels Maher, Dennis Rupert and Rob Simpson have all provided valuable input.

For each taxon listed in Figure 1, first and last dots represent earliest and latest observed flowering. Solid lines indicate approximate peak flowering period. By using the chart, and making some allowance for seasonal weather conditions, anyone should be able to predict, quite accurately, the orchids in flower at a given time on the Bruce.

Whiting & Catling (1984) list 46 orchid taxa for Bruce County, 3 of which are not included in Figure 1:

Platanthera Xmedia (P. dilatata X P. hyperborea)

This hybrid between the tall white bog-orchid and tall northern green orchid apparently peaks in late June to early July. There is not enough data to include it in Figure 1.

Platanthera orbiculata var. orbiculata (large round-leaved orchid)

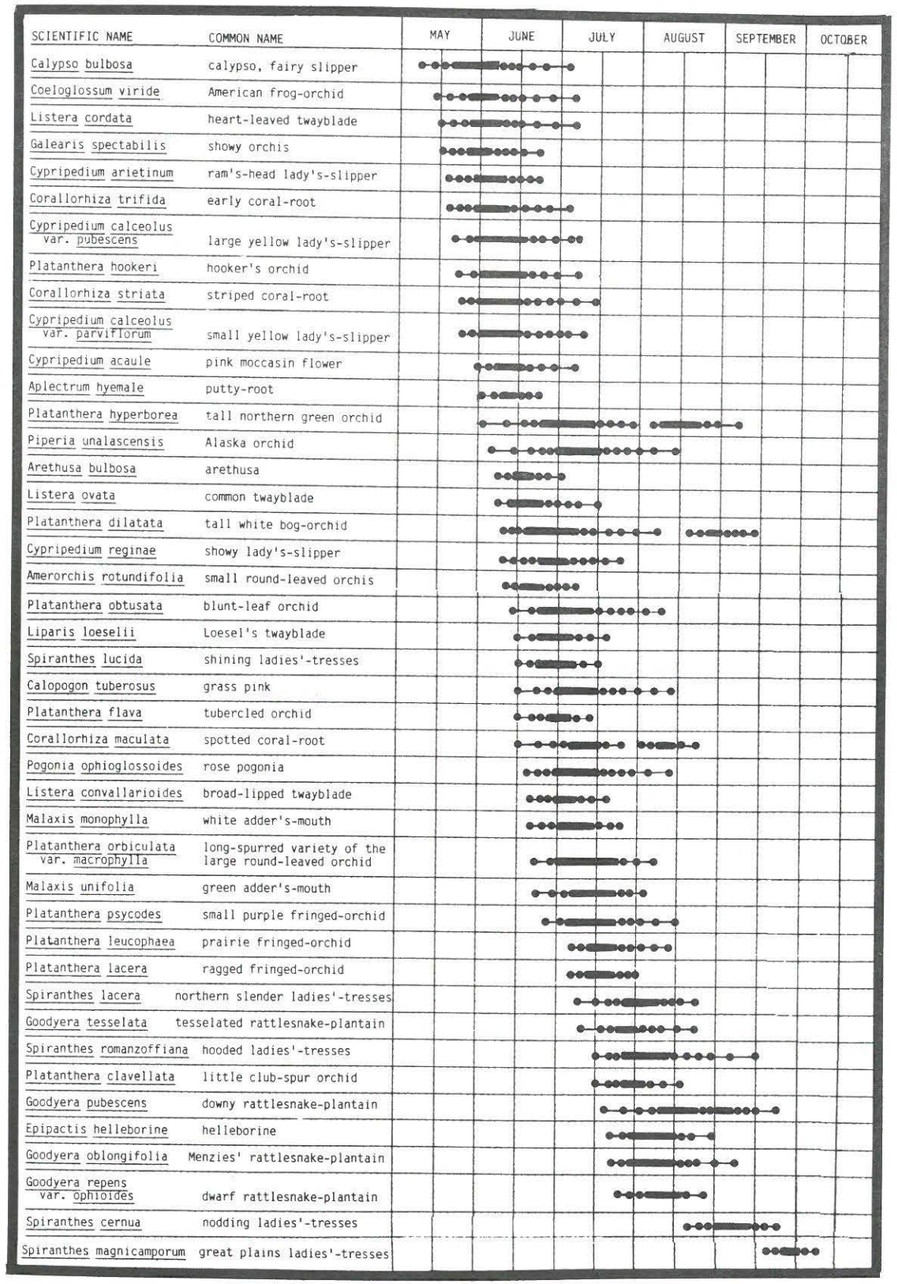
I have not seen this orchid in flower in the Bruce. Consequently, chart dates are for P. orbiculata var. macrophylla. Joe Johnson reports that the 2 varieties flower more or less concurrently. Current research on this species by Joyce and Allan Reddoch will hopefully add to our knowledge of these plants.

Platanthera blephariglottis (white fringed-orchid)

This orchid occurs in Bruce County, but south of the Bruce Peninsula proper.

At least 4 additional, infraspecific entities have been discovered in the Bruce. All appear to be morphologically distinct, and thus deserve mention.

Figure 1. Chart of flowering dates for orchids of the Bruce Peninsula.



Dots indicate first and last flowering dates; solid lines indicate peak flowering periods. All data collected since 1964. Scientific and common names follow Whiting & Carling (1984).

1. Intermediates between Cypripedium calceolus var. parviflorum and C. calceolus var. pubescens

These orchids are called hybrids in Case (1964). An especially fine stand grows on the banks of the Saugeen River. Flowering peaks in early June.

2. Intermediates between Goodyera oblongifolia and G. repens var. ophioides

This apparent hybrid between menzies' and dwarf rattlesnake-plantain is an extreme rarity of interdunal cedar thickets. It peaks in early August, a week or so later than G. tesselata, which evolved from this hybrid (Kallunki 1976).

3. Intermediates between Goodyera repens var. ophioides and G. tesselata

Several plants of this intermediate, which can be frequent in parts of the Great Lakes region (Case 1964), have been seen in moist conifer forest near Dorcas Bay. Again, peak flowering is in early August.

4. "wide-lipped" Corallorhiza maculata

This attractive orchid, illustrated by Susan Reznicek on the cover of The Plant Press Vol. 1, No. 2, has been reported from Dorcas Bay, Tobermory and Flowerpot Island. It flowers in late June and early July. Although common in western and southwestern North America (John Freudenstein, personal communication), it is apparently quite rare in the Bruce Peninsula.

The dual flowering peaks exhibited by Platanthera dilatata, P. hyperborea, Corallorhiza maculata, and Goodyera pubescens are quite interesting. Possible explanations include atypical habitats, hybridization, the presence of more than one race or ecotoype, and local climatic variations. Further study of such examples might provide interesting insights.

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Pohlia sphagnicola (B. & S.) Lindb. & Arne. A MOSS NEW TO ONTARIO

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During field work in Cochrane District in the summer of 1982, J.K. Jeglum and I collected several specimens of a small, scruffy, erect moss which resembled Pohlia nutans (Hedw.) Lindb. Specimens were sent to the National Herbarium (CANM) and R.R. Ireland identified them as P. sphagnicola (B. & S.) Lindb. & Arne. This species was new to our records and does not appear on the checklist of mosses of Ontario (Ireland & Cain 1975).

Pohlia sphagnicola (Fig. 1) was treated in detail in a recent monograph by Shaw (1982). It is distinguished from P. nutans (Fig. 2) by its dioecious habit; thus, fruiting material is necessary for a positive identification. Less reliable determination can be made with vegetative material. Pohlia sphagnicola tends to have shorter leaf cells, smaller leaf serrulations, and smaller spores than P. nutans. Pohlia sphagnicola appears to occur exclusively on the crests of Sphagnum hummocks in fen or bog habitats. Although P. nutans may be found in such places, it can also be found in other habitats.

Shaw (1982) mapped P. sphagnicola records from the Boreal Forest Region of western and central Canada and the Maritime Provinces. Ireland (1982) concurred with this distribution. Crum & Anderson (1981) discussed a depauperate collection of P. sphagnicola from from New York State. None of these authors have documented this species for Ontario, however. Prior to our discovery, the only previous record for Ontario appears to be a specimen collected nearly 30 years ago by W.G. Dore & J.M. Gillett in Frontenac County. In 1983 J. Kaiser collected P. sphagnicola in Kenora District.

Although our records for Pohlia sphagnicola are recent, it is likely that this moss has been present in Ontario all along. It is probably more abundant than records indicate. Found in habitats where access is difficult, its small size and resemblance to P. nutans. which is very common, are factors suggesting that it has likely been overlooked.

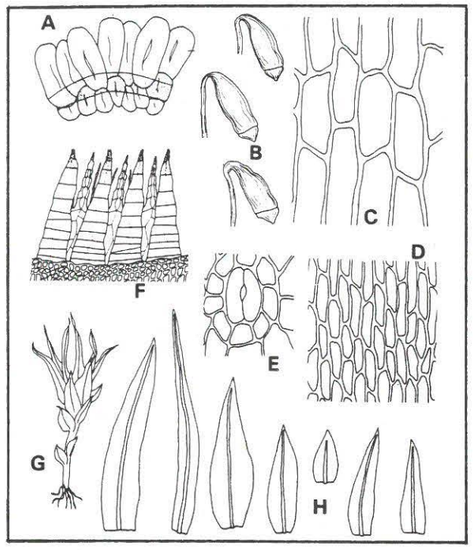
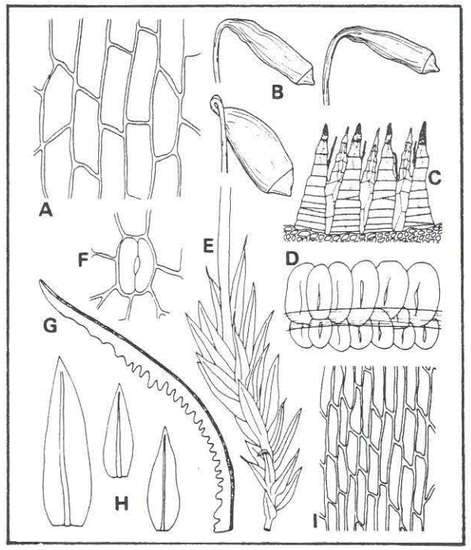


Fig. 1. Pohlia sphagnicola. A. Annulus, X170. B. Capsules, X9. C. Exothecial cells, X170. D. Upper leaf cells, X170. E. Stomate, X170. F. Peristome, X47. G. Male plant, X9. H. Leaves, X13. (Reproduced with permission from Shaw (1982), p. 227; scale revised for this publication.)



ig. 2. Pohlia nutans. A. Exothecial cells, X170. B. Capsules, X9. C. Peristome, X47. D. Annulus, X170. E. Female plant, X3. F. Stomate, X170. G. Exostome tooth, lateral view, showing relative thickness of dorsal and ventral plates and trabecula, X146. H. Leaves, X13. I. Upper leaf cells, X170. (Reproduced with permission from Shaw (1982), p. 230; scale revised for this publication.)

Documentation: Ontario: Cochrane District, Hicks Tp., ca. 60 km NNW of Timmins, on top of Sphagnum hummocks in fens and bogs, 20 July 1982, J.K. Jeglum & S. Taylor 6081, 20 July 1982, J.K. Jeglum & S. Taylor 6184, 29 July 1982, J.K. Jeglum & S. Taylor 6400, 19 July 1982, J.K. Jeglum & S. Taylor 6418, (specimens determined by J. Shaw) NH, CANM; Frontenac County, Palmerston Tp., Snow Road, peat bog, 11 Sept. 1947, J.M. Gillett & W.G. Dore 1505, (determined by G. Bellolio-Trucco in 1978), CANM; Kenora District, ca. 45 km SE of Ignace, peatland 52G-119, Sphagnum hummock, 21 July 1983, J. Kaiser 1347.

Acknowledgments: I am grateful to R.R. Ireland, J. Shaw and C. Manville for specimen identifications and comments on a preliminary draft of this paper. J. Shaw and H. Crum kindly gave permission to reproduce the illustrations in Shaw (1982).

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ADDITIONS TO THE NATIVE FLORA OF ONTARIO SINCE 1965: ANOTHER VIEW OF PLANT COLLECTING

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Past issues of The Plant Press have included several papers * outlining areas of Ontario where plant collecting is needed. These areas were outlined because few specimens had been collected there and because it is desirable to have a good representation of the flora of all areas of the province in herbaria. These ± remote areas are not, however, the only areas where field botanists can contribute to our knowledge of the Ontario flora. This article was prompted by our feeling that the search for as yet undiscovered native species, and new stations for various rare species, is just as important as filling in modest gaps in the distributions of species in ± remote regions.

Where are the areas in Ontario where botanical field work is likely to turn up new native species, in particular, and also new stations for rarities? To obtain answers to this question, we have compiled a list (Table 1) of all native species known by us to have been discovered in the province since 1965. Figure 1 A & B shows, for southern and northern Ontario, respectively, where all those species were found. Larger-sized symbols are used when a single locality represents more than one new native species record. Clearly, the maps in Figure 1 indicate different areas of interest than previously published maps outlining where collecting in Ontario has been the least. Since areas that have provided new records in the past few years are likely to provide new and valuable records with more field work, we feel that our maps also indicate areas where field botanists can make significant conttributions to our knowledge of the flora.

Six areas stand out in our maps (Fig. 1): the "Carolinian Zone" of soutehrn Ontario; the area just north of the eastern end of Lake Ontario, east of Kingston; extreme eastern Ontario; the eastern Georgian Bay region; around Thunder Bay near Lake Superior; and along Hudson Bay, in the far north.

Except for extreme eastern Ontario, noted by Bill Cody as needing more work, all of these areas are within zones, whose flora, according to the previous papers in The Plant Press *, is well represented in herbaria. We do not encourage indiscriminate collecting in these "hot spots", but we do think that careful search associated with discriminating documentation will be fruitful.

Comments on the list of additions to the flora (Table 1)

We hope that our list of additions is complete and that it will thus serve as an informal update to the known native flora of Ontario. However, information is scattered and we may have overlooked earlier records for some species or missed new records.

The criterion for inclusion on the list is that the species must have been first collected in Ontario as a native plant since 1965. Thus, a number of recently reported species such as Hibiscus laevis (halberd-leaved rose mallow), Juncus interior (a rush), Potamogeton hillii (a pondweed), Quercus ellipsoidalis (hill's oak), and Spiranthes magnicamporum (great plains ladies'-tresses), among many others, are not included since pre-1965 specimens exist. Conversely, a number of species long reported for the flora, for example Aristida purpurascens (a needlegrass), Carex retroflexa (a sedge), Lycopus virginicus (a water-horehound), Muhlenbergia sylvatica (muhly grass), and Woodsia obtusa (obtuse woodsia), are included because previous specimens were from introduced populations or were mistakenly labelled as being from Ontario. Two species, Solidago sempervirens (seaside goldenrod) and Aster subulatus (an aster) are not included because their occurrence is dependent on recently created, man-made saline habitats and they are not considered to be native (although A. subulatus is known from one non-saline area in Kent County). Other species are omitted due to misidentified specimens (e.g. Myriophyllum pinnatum, a water-milfoil). Several newly discovered varieties of species long known in the Ontario flora (e.g. Oxytropus deflexa var. sericea) are also omitted.

* Shchepanek, M.J. 1983. Plant Press 1:26-27; Cody, W.J. 1983. Plant Press 1:27-28; and Riley, J.L. 1983. Plant Press 1:75-76.

Table 1. Native vascular plant species discovered in Ontario since 1965. (The "area" codes refer to localities mapped in Figure 1).

GROWTH FORM	SCIENTIFIC NAME	COMMON NAME	AREA	REFERENCE
TREES				
	Aesculus glabra	ohio buckeye	6	Darbyshire & Oldham 1985
	Quercus shumardii	shumard oak	6	Waldron 1983
SHRUBS & WOODY VINES				
	Kalmia microphylla	swamp laurel	1	Riley & Walshe 1985
	Phyllodoce caerulea	purple mountain-heather	1	Riley 1979
	Rhododendron canadense	rhodora	4	
	Rosa alcea	prairie rose	Bruce Peninsula	
	Salix arbusculoides	willow	1	Riley & Walshe 1985
	Vitis vulpina	frost grape	6	
FERNS & ALLIES				
	Cystopteris protrusa	bulblet fern	6	Britton, Stewart & Cody 1985
	Isoetes eatonii	quillwort	3	Kott & Bobbette 1980
	Thelypteris simulata	massachusetts fern	4	Catling 1983; Catling 1985
	Woodsia obtusa	obtuse woodsia	5	Britton 1977
FORBS				
	Ammannia robusta	loosestrife	6	Campbell & Reznicek 1977
	Arnica cordifolia	arnica	2	
	Aster alpinus	aster	1	Riley 1979
	Aster praealtus	aster	6	
	Aster radula	aster	northern Ontario	Riley & Walshe 1985
	Astragalus tenellus	milk vetch	northern Ontario	Riley & Walshe 1985
	Bartonia paniculata	screw-stem	3	Reznicek & Whiting 1976
	Eupatorium altissimum	thorough-wort	6	Campbell & Reznicek 1977 (see Pringle 1974 and McIntosh & Catling 1979 for introduced occurrences)
	Euphorbia obtusata	wolf's-milk	6	Campbell & Reznicek 1977
	Hypericum sphaerocarpum	St. John's-wort	6	
	Isotria medeoloides	smaller whorled pogonia	6	Stewart 1977; Stewart 1978
	Koenigia islandica	koenigia	1	

GROWTH FORM	SCIENTIFIC NAME	COMMON NAME	AREA	REFERENCE
FORBS (continued)				
	Linum striatum	flax	3	
	Lycopus virginicus	water horehound	6	Campbell & Reznicek 1977
	Minuartia groenlandica	sandwort	1	Riley 1979
	Myosotis macrosperma	forget-me-not	6	Campbell & Reznicek 1977
	Paronychia fastigiata	whitlow-wort	6	Cody 1970
	Senecio glabellus	ragwort	6	Campbell & Reznicek 1977
	Stellaria crassipes	chickweed	1	
	Thaspium trifoliatum	meadow-parsnip	6	Ball 1979
	Trichostema dichotomum	bastard pennyroyal	6	Montgomery & Morton 1973
	Triosteum angustifolium	feverwort	6	Duncan 1973
	Valerianella intermedia	corn salad	6	Duncan 1973
	Valerianella umbilicata	corn salad	6	Duncan 1973
	Viola rafinesqui	violet	6	
GRAMINOIDS				
	Agrostis borealis	bentgrass	1	Riley 1979
	Aristida basiramea	needlegrass	3	Catling, Reznicek & Riley 1977
	Aristida longispica	needlegrass	6	Catling, Reznicek & Riley 1977
	Aristida purpurascens	needlegrass	6	Catling, Reznicek & Riley 1977
	Calamagrostis deschampsioides	reed-bentgrass	1	Riley 1979
	Carex alata	sedge	6	Reznicek & Catling 1982
	Carex assiniboinensis	sedge	Lake of the Woods	
	Carex bigelowii	sedge	1	Riley 1979
	Carex emmonsii	sedge	6	Reznicek & Catling 1984
	Carex emoryi	sedge	6	
	Carex festucacea	sedge	6	
	Carex frankii	sedge	6	
	Carex nigromarginata	sedge	6	Reznicek & Catling 1982
	Carex obtusata	sedge	Lake of the Woods	
	Carex retroflexa	sedge	6	
	Carex rotundata	sedge	1	
	Carex seorsa	sedge	6	Reznicek & Catling 1984
	Carex supina	sedge	2	
	Carex virescens	sedge	6	
	Cyperus dentatus	sedge	4	
	Cyperus flavescens	sedge	6	Reznicek & Catling 1982

GROWTH FORM	SCIENTIFIC NAME	COMMON NAME	AREA	REFERENCE
GRAMINOIDS (continued)				
	Dichanthelium meridionale (=Panicum meridionale)	panic grass	6	
	Dichanthelium spretum (=Panicum spretum)	panic grass	3	
	Eragrostis spectabilis	tumble-grass	6	Catling, Reznicek & Riley 1977
	Hierochloe alpina	holy grass	1	Riley 1979
	Juncus biflorus	rush	6	
	Kobresia myosuroides	sedge	1	Riley 1979
	Leptoloma cognatum		6	Catling, Reznicek & Riley 1977
	Luzula confusa	woodrush	1	Riley 1979
	Muhlenbergia sylvatica	muhly grass	5,6	
	Paspalum setaceum		6	Crins, Pratt & Brunton 1977
	Poa sylvestris	blue grass	6	Webber, McLeod & Bobbette 1985
	Stipa avenacea	black oat-grass	6	
	Vahlodea atropurpurea	mountain hairgrass	1	Riley 1979
AQUATICS				
	Utricularia geminiscapa	bladderwort	3,4	Haber 1979
	Utricularia ochroleuca	bladderwort	1,2	

The list of additions, for obvious reasons, includes a higher proportion of plants in "difficult" groups that are either ignored or liable to be overlooked by many field botanists. Graminoids (grasses, rushes and sedges) and aquatics provide 34 of the 73 species.

We have cited references of first reports for these species when available. However, we have not cited articles or books that mention the species only incidentally or that do not give details of the discoveries. A number of the species are the subjects of articles being written. We do not provide documentation for these reports here, and our mention of a species is not to be construed as a citable first report. However, we have examined specimens for all records not previously reported in the literature.

Comments on the maps (Fig. 1)

In mapping these records, we have combined nearby sites to simplify the overall picture. In a few cases where a species has both native and introduced sites in Ontario, only the native sites have been mapped. Six areas where many new records have been found are outlined with dashes. In addition, the Lake of the Woods region of extreme western Ontario may harbour additional new records, although only two new sedges, Carex assiniboinensis and C. obtusa have been discovered there recently.

Most of the areas of interest are along the edges of the province, where, obviously, species with ranges which barely enter Ontario are being found. The discovery of these species usually represents only a slight range extension. These plants form the main and most predictable source of additions. In two areas, around Thunder Bay and in the eastern Georgian Bay region, the new records do not simply represent slight range extensions for species. Rather,

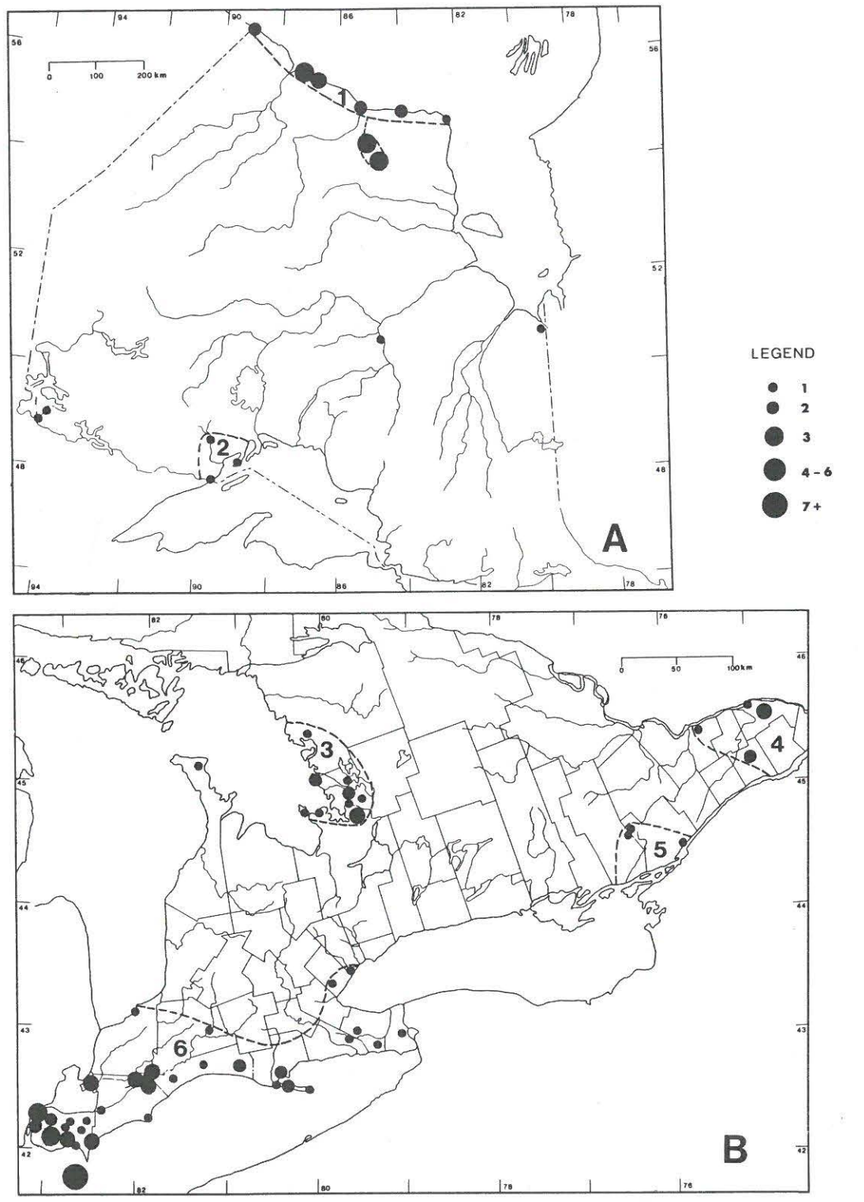


Figure 1. Localities where additions to the native vascular plant flora of Ontario since 1965 have been discovered. The maps of northern Ontario (A) and southern Ontario (B) are shown at different scales, however the dots indicating the number of species from each locality agree with the legend.

they are usually disjunct occurrences. In the Thunder Bay area, arctic-alpine disjuncts and western disjuncts are found. Recent discoveries include Carex supina in the former category and Arnica cordifolia in the latter category. In the Georgian Bay area, disjuncts from the east and south are prevalent, including many species most frequent on the Atlantic coastal plain. Recent discoveries here include Bartonia paniculata, Dichanthelium (Panicum) spretum, and Linum striatum.

Of the 73 additions to the Ontario flora listed here, 40 species were discovered in the "Carolinian Zone," 16 in the far north along Hudson Bay, 6 in the Georgian Bay area, 4 in extreme eastern Ontario, 3 in the Thunder Bay area, and 2 in the Kingston area. Sites for 4 additional species were scattered in northern Ontario and 1 occurred in the Bruce Peninsula. (Note that the numbers add to more than 73 since a few species occur in more than one area.)

As well as being areas where species new to the flora are being discovered, the areas outlined on maps A and B (Fig. 1) are also notable for their concentrations of rare species, as can be readily seen by leafing through the Atlas of the Rare Vascular Plants of Ontario. Also of interest is the fact that the four areas in southern Ontario (Fig. 1, B) approximate, wholly or in part, the distributions of many species in Ontario. The distributions of Phytolacca americana (pokeweed) and Saururus cernuus (lizard's-tail) (Soper, J.H. 1955. Trans. Roy. Can. Inst. 31:69-90), and Triodanis perfoliata (=Specularia perfoliata, venus's looking-glass) (Cody,W.G. 1982. Nat. Can. 109:63-90) for example, match this pattern very well. The phytogeographical significance of this is unclear.

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WHY Carex?

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W.J. Crins, Botany Department, Erindale Campus, University of Toronto, Mississauga, Ontario L5L 1C6

Many field botanists choose to specialize in certain plant groups: trees, shrubs, ferns or orchids. By sticking with a particular group, it is possible to become quite knowledgeable about identification and ecology. In a recent survey of botanical interests of readers of The Plant Press, many respondents indicated an interest in grasses and sedges. The largest genus in the sedge family (Cyperaceae) is Carex. We hope that this brief introduction to the genus will stimulate further interest in the Carex species of Ontario.

Before beginning the study of Carex, it is necessary to understand flower structure and arrangement in the genus. Carex flowers are unisexual. As shown in Figure 1, the male flower consists of 3 stamens and an associated scale (the latter is sometimes called a glume). The female flower, also subtended by a scale, consists of a pistil surrounded by a bract which is fused to form a flask-shaped structure, the perigynium (sometimes called a utricle) (Fig. 2). Each pistil has 2 or 3 stigmas and the achenes (or nutlets) which develop from the ovaries are lenticular or trigonous, respectively (Fig. 3).

The grouping of male and female flowers within and among spikes is important in the separation of sections within Carex. In many of our species, the male and female flowers occur in separate spikes on the same plant (i.e. these plants are monoecious). In such cases, male spikes occur at the top of the inflorescence (Fig. 4a). Other monoecious species of Carex have the sexes partioned within each spike, (Fig. 4b).

Carex has been misunderstood and has suffered from the stigma (!) of being "difficult": (a) because the characters used to distinguish species in many cases must be viewed with a lens or microscope; (b) because many herbarium specimens are immature and not covered by existing keys; (c) many keys for our area are out of date (e.g. Scoggan 1978); and (d) other keys include many species which do not occur in Ontario (e.g. Fernald 1950; Gleason 1952). In our opinion, the best Carex

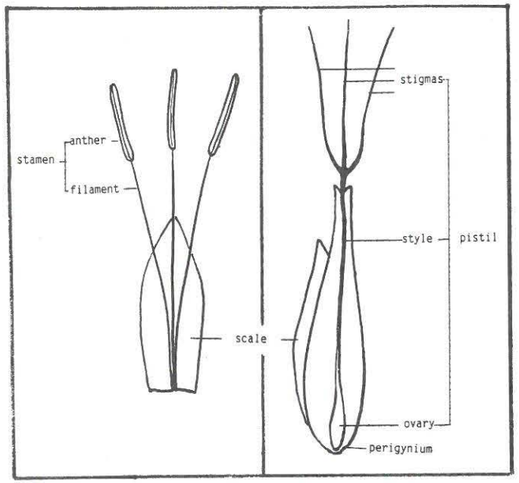


Figure 1. Structure of a male flower of Carex.

Figure 2. Structure of a female flower of Carex.

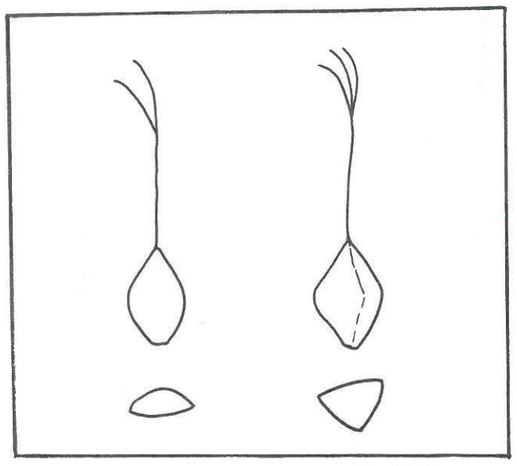


Figure 3. Carex achenes, each of which develop from an ovary within the perigynium, may be lenticular or trigonous in cross-section depending on whether the species has 2 or 3 styles, respectively.

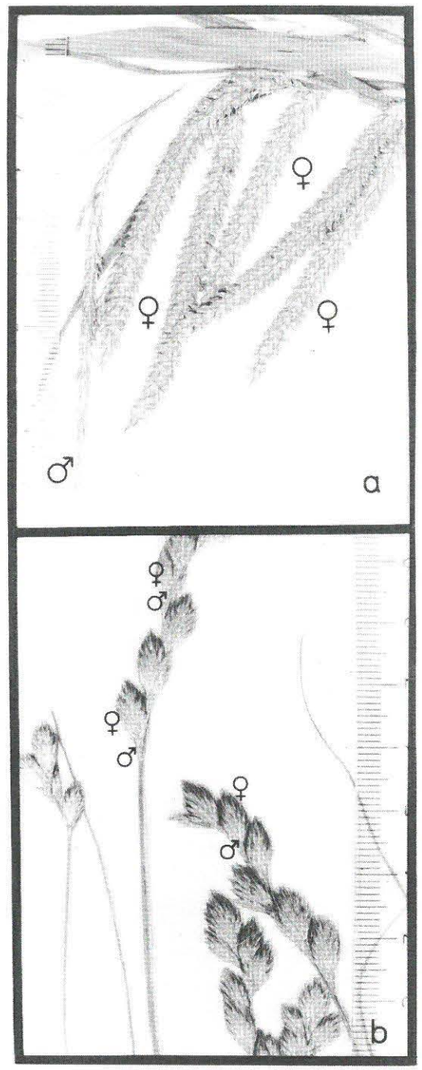


Figure 4. Grouping of male and female flowers in monoecious Carex infructescences (developed from inflorescences). a. Carex crinita with male and female flowers in separate spikes on the same plant. b. Carex scoparia with male and female flowers partitioned within each spike. The scale shown is in centimetres; specimens from TRTE. (photos by Jeff Kaiser).

key for Ontario is Voss' (1972) in part one of the Michigan Flora. Most of the common species in southern Ontario are included in Voss 1972; the distribution of rare species in Ontario which may not occur in Michigan may be determined from the Atlas of the Rare Vascular Plants of Ontario (Ball et al. 1982).

One of the common myths about Carex is that they are plants of wet habitats. Some of the species are dominant in marshes, but more are found in woodlands and meadows. One of the advantages of making a study of this genus is that a great variety of habitats can be investigated. When collecting sedges, be sure to obtain mature, complete samples. Many species are cespitose; they grow in dense clumps, and taking a few culms to make a specimen will not harm a population. Specimens are easily made by placing the culms between sections of old telephone books until a suitable press is bought or constructed. Sedges press well under such conditions, but remember that you must do the necessary tasks of making herbarium labels with appropriate locality, habitat, date and name(s) of collector(s).

The summer of 1985 is a good time to start a serious study of the genus Carex in Ontario. On the opposite page (Fig. 5) are some photographs of common Ontario Carex species. These photographs are not intended to be used for identification purposes in themselves, but are provided here mainly to illustrate the major types of inflorescence arrangement within the genus.

We hope to have further installments dealing with more specific topics regarding Carex in future issues of The Plant Press.

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Figure 5. Infructescences of some Ontario carices. A. Carex sparganioides. B. C. disperma. C. C. molesta. D. C. flava. E. C. paupercula. F. C. pensylvanica. G. C. buxbaumii. H. C. pauciflora. I. C. grayii. The scale shown is in centimetres; all specimens are from the Erindale College herbarium (TRTE). (photos by Jeff Kaiser).

tute of Science and University of Michigan Herbarium. pp. 246-328. [This publication is still available for $ 12.50 US funds plus $ 1.25 US for postage and handling from the University of Michigan Herbarium, North University Building, Ann Arbor, Michigan 48109.] ◆

NOTICE: Michigan Flora II

Part II of Michigan Flora, E.G. Voss, will cover the first half of the dicots, families Saururaceae through Cornaceae (exactly the same coverage as Gleason's Vol. 1 "Illustrated Flora"). The work is now in press and is expected to be available late in the summer period. It includes full keys, 971 distribution maps, 97 pages of figures, 9 coloured plates, and follows closely the format of Part I (Gymnosperms and monocots), published in 1972.

Persons wanting to receive a copy as soon as it is published may order Bulletin 59 from Cranbrook Institute of Science, Attn. publications, Box 801, Bloomfield Hills, Michigan 48013. The price is $ 12.50 US, $ 1.25 postage and handling. Add 50¢ sales tax for orders to be sent to a Michigan address. (Visa and mastercard accepted.)

AN ANNOTATED KEY TO THE GENUS Arabis (ROCK-CRESS) IN ONTARIO

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The genus Arabis (rock-cress) belongs to the family Cruciferae (mustard family). All but one of the species in Ontario, A. caucasica, are native. Members of the genus are typically found in open, woodland habitats, on rock outcrops, or on sand dunes.

Native members of the genus Arabis have small, white, purplish or cream coloured flowers and long, thin fruits. Most species have branched hairs and the stem leaves clasping the stem. Readers who are unfamiliar with the general appearance may refer to the illustrations in Newcomb's Wildflower Guide (Newcomb 1977; pp. 136, 138, and 150) and/or A Field Guide to Wildflowers (Peterson & McKenny 1968; pp. 86 and 158).

The available keys to Arabis are very dependent upon mature fruit, consequently it is difficult to reliably identify flowering specimens. In practice I find that fruiting specimens are often misidentified as well because some of the characters that are used, especially the attitude of the fruit, can be much more variable than the keys allow.

The following was designed as a key to flowering specimens, but fruiting material can also be determined provided basal leaves are still present (even somewhat shrivelled leaves will do). Ideally a X15 hand-lens is needed to observe the hairs, but in most species a X10 lens is adequate (dichotomies 5 and 6 are the most hazardous from this point of view). Figure 1 illustrates the hair types that can be found in the genus.

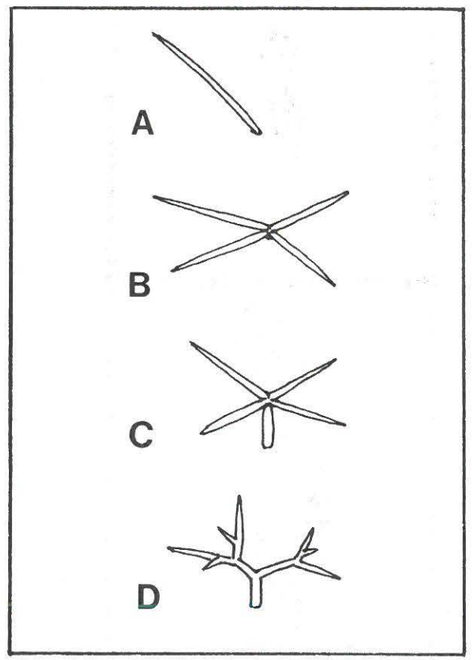


Figure 1. Hair types in the genus Arabis. A. Simple. B. Sessile stellate. C. Stalked stellate. D. Dendritic.

key to Arabis in Ontario

1. Cauline leaves tapering to the base 2
1. Cauline leaves cordate or sagittate at base, clasping the stem 4
2. Fruit 50-100 X 2.2-4 mm, pendent; anthers 0.9-1.4 mm; cauline leaves 25-130 X 15-40 mm . . . . . 12. A. canadensis
2. Fruit 12-45 X 0.9-2 mm, spreading or ascending; anthers 0.4-0.8 mm; cauline leaves up to 50 X 7 mm 3
3. Petals 3-5 X 1.5-2 mm; fruit 1.2-2 mm wide, the valves 1-nerved almost to the apex; basal leaves entire or dentate . . . . 1. A. arenicola
3. Petals 5-8 X 2-3 mm; fruit ca. 1 mm wide, the valves 1-nerved to the middle; basal leaves usually lyrate-pinnatifid . . . . 2. A. lyrata
4. Indumentum consisting or irregularly branched dendritic hairs often with more than 4 branches . . . . . 3. A. holboellii
4. Indumentum consisting of simple or stellate hairs with 2-5 rays, or plant glabrous 5
5. Leaves glabrous or sparsely hairy; hairs simple or sessile-stellate . . . 6
5. At least the basal leaves hairy; hairs stalked-stellate sometimes mixed with simple hairs 8
6. Basal leaves with sparse simple hairs; petals 3-6 mm, equalling or slightly exceeding the sepals; lower cauline leaves coarsely toothed . . . 11. A. laevigata
6. Basal leaves glabrous or with 2-4 rayed stellate hairs; petals 5-10 mm, 1.5-2 times as long as the sepals; lower cauline leaves entire or subentire . . 7
7. Basal leaves with 2-4 rayed stellate hairs; fruit ascending or spreading; style 0.2-0.7 mm . . . . .9. A. divaricarpa
7. Basal leaves glabrous or with very sparse 2(3)-rayed stellate hairs; fruit erect or suberect; style 0.7-1.4 mm . . . . . 10. A. drummondii
8. Petals 7-15 X 2-7 mm, very conspicuous; fruit 1.5-2 mm wide 9
8. Petals 2-6 X 0.7-1.5 mm, inconspicuous; fruit 0.7-1.3 mm wide 10
9. Sepals 3-4 mm; petals 7-9 X 2-4 mm; cauline leaves sparsely to moderately densely hairy . . . . 4. A. alpina
9. Sepals 4-6 mm; petals 9-15 mm; cauline leaves densely hairy . . . 5. A. caucasica
10. Cauline leaves, except sometimes the very lowest, glabrous 11
10. Cauline leaves, at least the lower and middle, pubescent 12
11. Sepals 2-3 mm; anthers 0.4-0.8 mm; basal leaves with both simple and stellate hairs . . . . . 7. A. pycnocarpa
11. Sepals 3-5 mm; anthers 0.8-1 mm; basal leaves with mainly stellate hairs . . . . . 8. A. glabra
12. Fruit spreading or ascending, stellate hairy; petals 2-3 mm . . . 6. A. shortii
12. Fruit erect, more or less appressed to the stem; petals 4-6 mm . . 7. A. pycnocarpa

1. A. arenicola (Richards.) Gelert. *

Both glabrous and pubescent individuals occur in Ontario. Hudson Bay coast.

2. A. lyrata L. *

Most Ontario specimens are var. lyrata which is fairly densely hairy, and has quite large flowers with petals 5-8 mm long. Some collections from Thunder Bay District are glabrous or only sparsely hairy, which has resulted in them being treated as var. kamchatica Fischer. This variety is supposed to have smaller flowers than var. lyrata, but the glabrous Thunder Bay specimens have flowers the same size as those from the rest of the province.

3. A. holboellii Hornem.

All of our specimens are var. retrofracta (Graham) Rydb., with the fruits only 1-2 mm wide.

4. A. alpina L.

The cauline leaves are not always clearly amplexicaul so some caution is necessary when keying out this species. Flowering specimens of some of the white-flowered species of Draba can be confused with this species. Hudson Bay coast.

5. A. caucasica Schlecht. (wall-cress)

The commonly cultivated white-flowered Arabis often persisting as a relict; appears to be naturalized in limestone cliffs and in abandoned quarries in a few places in southern Ontario.

* Arabis arenicola and A. lyrata are now placed in a separate genus, Cardaminopsis, by most non-North American botanists. In addition to the characters mentioned in the key, the testa of the seeds of these species becomes mucilaginous when moistened. They appear to be more closely related to Arabidopsis thaliana than to other species of Arabis.

6. A. shortii (Fern.) Gl.

Gleason is followed in treating this as a species distinct from A. perstellata E.L. Br. Point Pelee and Lake Erie Islands.

7. A. pycnocarpa Hopkins

Part of a circumboreal complex that has yet to be studied over its entire range. B.M.G. Jones (in Flora Europaea, Vol. 1) recognized 5 species in Europe with an additional 5 binomials treated as taxa of uncertain status. Compared with European A. hirsuta (L.) Scop. A. pycnocarpa has a comparatively longer and narrower fruit with a longer style. There are also subtle indumentum differences.

In Ontario it is possible to recognize two taxa: the widespread var. pycnocarpa has spreading hairs, which are fairly dense at the base, and at least some with 3 or 4 rays; var. adpressipilis Hopkins, occurring in a few localities in the extreme southwest, has mainly adpressed hairs, usually sparse, and the branched hairs with only 2 rays.

8. A. glabra (L.) Bernh. (tower-mustard)

The commonest species in the southern half of the province and often mistaken for others. The plant is usually glabrous except for the extreme base of the stem and the basal leaves.

9. A. divaricarpa Nels.

(See comments under the following species.)

10. A. drummondii Gray

This species and the above appear to be very closely related and are difficult to distinguish. Different authors use different combinations of features, the only consistent character being erect versus spreading fruits. The other characters used in this key are those which appear to correlate best with fruit attitude in Ontario specimens.

11. A. laevigata (Muhl.) Poir. (smooth rock-cress)

(See comments under the following species.)

12. A. canadensis L. (sicklepod)

This and the preceding are two distinct species which do not present any difficulties.◆

THE POISON SUMAC SWAMP IN ESSEX COUNTY

Wilfred Botham, R.R. 1, Cottam, Ontario
NOR 1BO

Essex County is located in the most southerly part of Ontario, and of Canada. It has few remaining natural areas compared to other parts of southern Ontario. Wetlands are scarce as many were drained for agriculture. Although there are a number of marshes in Essex County, the only other type of wetland is swamp, according to the classification of Pringle (1980). If one ignores the swampy borders of most marshes, there is only one swamp in the entire county. This is part of a 40 ha tract of forest, swamp and marsh, located 5 km southeast of Harrow in Colchester Township (Figure 1). Known as (Oxley) Poison Sumac Swamp, it is of interest because it has suitable habitat for plants known nowhere else in Essex County (Table 1).

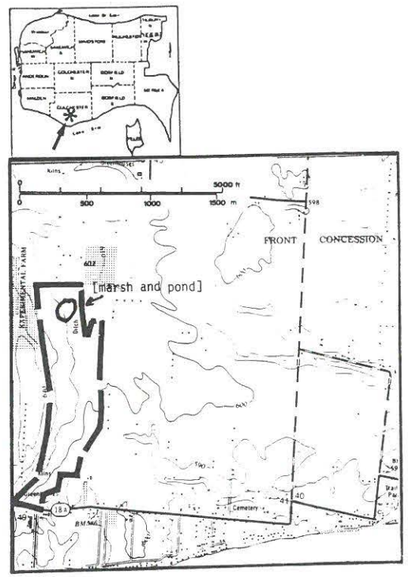


Figure 1. Location of (Oxley) Poison Sumac Swamp in Essex County, Ontario. (Map from Oldham (1983) reproduced here with permission of the Essex Region Conservation Authority).

Recent exploration of Poison Sumac Swamp began with work for the Essex Region Conservation Authority by Joe Johnson and Wayne Wannick (Johnson & Wannick 1977). They made only two or three visits to the swamp but they listed well over 100 plants. Following their work were visits by me and Mike Oldham. On some trips we were accompanied by Tony Reznicek, from the University of Michigan, Ann Arbor; the naturalists from Point Pelee National Park; or other naturalists who happened to be visiting in the area.

We very quickly doubled the list of plants reported by Johnson and Wannick, until it reached around 300. Additional species are found on almost every visit to the swamp. There are 29 provincially rare species known from the site according to Argus & White (1977). All of these discoveries have been documented in Mike Oldham's (1983) environmentally significant area study for the Essex Region Conservation Authority. That document has also been of great benefit to me in my revision of the list of plants for Essex County (Botham 1981).

Table 1. Vascular plants of Poison Sumac Swamp known from nowhere else in Essex County.

Scientific Name	Common Name
Betula pumila var. glandulifera	swamp birch
Bromus ciliatus	fringed brome
Carex interior	sedge
C. leptalea	sedge
C. prairea	sedge
Cypripedium reginae	showy lady's-slipper
Dryopteris Xboottii	hybrid woodfern
D. intermedia	glandular woodfern
Epilobium strictum	downy willow herb
Geum rivale	purple avens
Hypericum mutilum ssp. boreale	dwarf St. John's-wort
Lonicera canadensis	fly honeysuckle
Parnassia glauca	grass-of-parnassus
Rhus vernix	poison sumac

Although it is the plant species, the flora, which interests me most, some readers may be interested in descriptions of the vegetation. These are given below.

Forest

A narrow fringe of trees, shrubs and herbs occurs on drier uplands surrounding the swamp. This fringe is presumably part of a deciduous forest that at one time stretched away from all sides of the swamp. The soil of this forest is sandy loam, and adjacent areas are completely under cultivation at the present time.

This forest includes trees (Table 2) which are common in Essex County; as well as white elm (Ulmus americana), sassafras (Sassafras albidum), red cedar (Juniperus virginiana), beech (Fagus grandifolia), sycamore (Platanus occidentalis), mulberry (Morus alba), black walnut (Juglans nigra) and butternut (Juglans cinerea).

Table 2. Trees at Poison Sumac Swamp which are common in Essex County.

Scientific Name	Common Name
Acer negundo	manitoba maple
A. rubrum	red maple
A. saccharinum	silver maple
A. saccharum	sugar maple
Fraxinus nigra	black ash
F. pennsylvanica	red or green ash
Populus deltoides	cottonwood
P. grandidentata	big-tooth aspen
P. tremuloides	trembling aspen
Quercus alba	white oak
Q. macrocarpa	bur oak
Q. rubra	red oak

Shrubs in the understory are also numerous. These include alternate leaved dogwood (Cornus alternifolia), witch hazel (Hamamelis virginiana), three viburnums (Viburnum spp.), virginia creeper (Parthenocissus inserta and P. quinquefolia), staghorn and smooth sumac (Rhus typhina and R. glabra), and poison ivy (R. radicans), to name only a few. Most of these shrubs are also found in the swampy part of the area.

The southeastern part of the tract is also a deciduous forest. It is dominated by yellow birch (Betula alleghaniensis), the largest stand of this tree in Essex County.

Swamp

The swamp portion of the centre of Poison Sumac Swamp (Fig. 1) qualifies as swamp because it is sometimes inundated. Walking is always difficult due to the spongy nature of the surface, hummocks and debris. It is covered, except for one small area, with a variety of woody plants and herbs.

The most numerous shrub in the swamp is poison sumac (Rhus vernix, shown in Figure 2). In some parts it is impossible to walk without touching them. Luckily, only one person among us has reacted positively to this plant's poison. (Unluckily for that one person!) Swamp birch (Betula pumila var. glandulifera) is also a common shrub in the swamp. It, like poison sumac, is limited to this one spot in Essex County.

Figure 2. Poison sumac (Rhus vernix) in Poison Sumac Swamp, Essex County. Note the compound leaves and berries in loose panicles (photo by Mike Oldham, 23 July 1981).



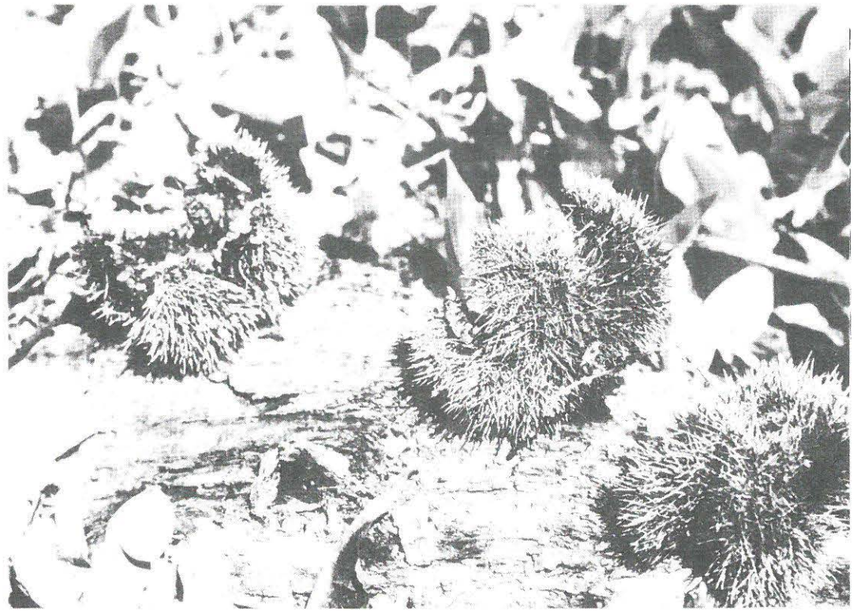


Figure 3. Chestnut (Castanea dentata) nuts are enclosed in spiny bur-like husks approximately 5 cm across (photo by Gary Allen).

Marsh marigold (Caltha palustris) is common, but the most abundant herb in the swamp is skunk cabbage (Symplocarpus foetidus). This dominates the herb layer from one end of the swamp to the other. It numbers in the thousands, if not tens of thousands. Undoubtedly more than half of the skunk cabbage in Essex County is in Poison Sumac Swamp.

The most surprising discovery, for me, was a chestnut (Castanea dentata) growing out in the middle of the swamp. I say "growing", but that needs a little explaining. A very old chestnut log was lying on the ground, thickly covered with mosses and debris. One lateral branch, also on the ground, had developed a single branch at the tip which rose 4 m from the ground. This branch had flowered and fruited; we found catkins and burs (Fig. 3) on the ground below.

Marsh

One small area in the northeastern part of the tract supports a marsh (Fig. 1) with grasses and sedges making up much of the vegetation. This borders a man-made pond.

Sedges of the genus Carex are common in the more open areas. A total of 38 species of this genus have been found in the entire tract. No other area in Essex County of similar size has yielded anywhere near this number of species of Carex.

We hope to explore Poison Sumac Swamp some more in future years, and we fully expect to find species that have eluded us up until now. A final total of at least 350 species is not an impossible dream.

Acknowledgments: Much of the material for this report is included in Mike Oldham's (1983) report. Dr. John Gillett of the National Museum (CAN) confirmed the identification of Hypericum mutilum ssp. boreale. I am grateful to the property owners for permission to visit the area. Inspiration (and considerable coaxing) was provided by other members of the Editorial Committee.

References

Botham, W. 1981. Essex County Plants: A Preliminary List. Essex Region Conservation Authority, Essex, Ontario. xviii + 224 pp.

Johnson, J.W. & W. Wannick. 1977. Oxley Poison Sumac Swamp. pp. 235-249 In: A study of Biologically Significant Natural Areas of the Essex Region. Unpublished report. Essex Region Conservation Authority, Essex, Ontario. 563 pp.

Oldham, M.J. 1983. Oxley Poison Sumac Swamp, Site 22, pp. 225-234 In: Environmentally Significant Areas of the Essex Region. Essex Region Conservation Authority, Essex, Ontario. viii + 426 pp.

Pringle, J.S. 1980. An introduction to wetland classification in the Great Lakes Region. Royal Botanical Gardens. Technical Bulletin No. 16. Hamilton, Ontario. 11 pp. ◆

[Poison Sumac Swamp was accorded an AAA ranking in the recently released report "Critical Unprotected Natural Areas in the Carolinian Life Zone of Canada" by the Identification Subcommittee of Carolinian Canada. It is also one of the Ontario Ministry of Natural Resources "Areas of Natural and Scientific Interest" (ANSI) sites, tentatively to be studied in detail in 1985.]

DISCOVERY OF THE OLDEST SPECIMEN OF A CANADIAN PLANT IN A CANADIAN HERBARIUM

Daniel F. Brunton, 2704 Marie Street, Ottawa, Ontario K2B 7E4

The oldest known herbarium specimens from Canada are all to be found in European collections and date back to the late 17th century. The oldest of these are from Quebec and Newfoundland. These were collected by M. Sarrazin in 1697 and are now preserved in the National Museum of Natural History, Paris (P) and the Druce Herbarium, Oxford University (OXF) (Boivin 1980).

The oldest specimens from Canada held by a Canadian collection were for years believed to be those of a Mrs. Percival, collected in 1820 at Quebec City (Gillett 1972; Boivin 1980). In 1981, however, I came across a specimen of spikenard (Aralia racemosa L.) in the National Museum of Natural Sciences (CAN) that predated Percival's material by about 20 years. This specimen was collected by Francis Masson between 1799 and 1802 and is simply labelled "Canada" (Fig. 1). Since discovering the specimen I

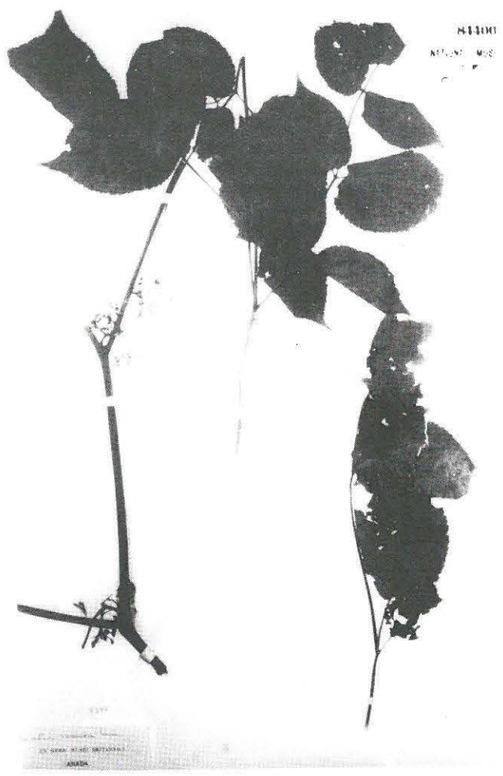


Figure 1. Photograph of the oldest specimen of a Canadian plant in a Canadian Herbarium: stamped "84400 National Museum of Canada" on upper right; bearing the label "Aralia racemosa Linn., EX HERB. MUSEI BRITTANICI. CANADA. F. MASSON. 1799-1802." at lower left with the number "9390".

have corresponded with a number of researchers in Canada and Europe regarding this collection and have developed a better understanding of the circumstances surrounding the collection, the collector and how the specimen came to be in the National Herbarium.

Francis Masson (1741-1805) was a self-educated Scottish botanist who was a skilled collector and became the first "King's Collector" at Kew Gardens, London. He worked directly for the famous botanist Sir Joseph Banks (H.B. Carter, personal communication). He is perhaps best known today for the extensive studies he undertook in what is now South Africa during the 1770's and again in the 1790's (Karsten 1958). He also collected in the Azores, the Canary Islands, Spain, Portugal, Morroco and North America. Masson was sent to North America near the end of his long career by Sir Joseph Banks, arriving in New York (after a lengthy journey involving a fight with pirates and a severe shortage of drinking water) in January 1798 (Karsten 1959). He travelled overland to Lake Ontario and explored the south shore before travelling on to Niagara and, ultimately, to Montreal. Masson collected in what is now southern Ontario and southern Quebec for the next seven years, returning each winter to Montreal. His collections (primarily from Niagara) for 1798 were brought back to England by the explorer and fur-trader, Sir Alexander Mackenzie (H.B. Carter, R.H. Jarrell, personal communications). Mackenzie and others in the Northwest Company of Montreal were to provide transportation for a number of his subsequent trips into the "interior" of Canada (H.B. Carter, personal communication).

Richard Jarrell at York University has developed a chronology of Masson's travels (as far as is possible from archival information). He believes that Masson travelled to the Upper Great Lakes (Huron and Superior) in 1799, returning to Niagara in September and Montreal (via Kingston) in November. His travel in 1800 is unclear, but was at least partially spent at Niagara. He seems to have reduced his activities in 1801, but probably visited Virginia and Pennsylvania. There is no evidence of his travels thereafter. It seems clear that in these last few years he was not well. At over 60 years of age (a ripe old age in those days) and following a life of great physicall trial and adventure, he appears to have slowed down considerably. In a letter from Joseph Banks to Masson on 11 February 1802 (delivered by Sir Alexander MacKenzie) there is the statement "...the collection you have sent is, as you are aware, of very little importance...", followed by a suggestion that he would have to do better with subsequent collecting if his specimens were to impress the King! Banks goes on to suggest that he collect nearer to his residence, perhaps implying that Masson was not up to arduous journeys any longer (Banks to Masson, 11 February 1802, British Library Add. MSS 33981.1). It seems probable that 1800 was Masson's last good collecting year and it also seems that in those last years Masson had requested to be brought back home. In 1805 Sir Joseph Banks wrote Masson a sadly ironic letter which said, in part:

> "I have asked his Majesty's permission for you to return home, in consequence of the indifferent state of healthy you have lately suffered, which has prevented you from doing so much for the Royal Gardens as you always used to do when in good health. I have received a most gracious answer; you are therefore at liberty to come home whenever you choose and by such conveyance as may suit your convenience; if you receive this in time you will probably choose to bring home the collections you have made in the present field season." (Banks to Masson, 5 July 1805; British Museum).

Unfortunately, he never made it. Francis Masson died on 13 December 1805 and the fate of his last years' specimens is unknown.

Masson's collection of Aralia racemosa does not appear to be a part of a series of specimens at CAN but rather a miscellaneous sheet acquired by the National Museum when John Macoun was conducting exchange programs with British institutions in order to obtain early Canadian material (Fletcher 1889). The most likely time for the specimen's return to Canada could be 1887 when over 500 sheets of early Canadian collections (including those of Richardson from western Canada, Banks from Labrador, and Douglas from British Columbia) were sent (H.A. Ridley to John Macoun (1887) (National Herbarium correspondence).

It is unlikely that Masson collected the Aralia in 1801 or 1802 when illness was severely curtailing the quantity and quality of his work. Since this is a flowering specimen, it must have been collected in or about July and most likely 1799 or 1800. Richard Jarrell (personal communications) noted references to two Aralia sp. specimens in the list of 1800 collections sent to Banks on 1 November 1800. The label of CAN 84400 clearly indicates the

collections sent to Banks on 1 November 1800. The label of CAN 84400 clearly indicates the specific name was added in a different hand than the generic name. Therefore the specimen was processed as "Aralia sp." and identified as A. racemosa at a later date. It seems a reasonable supposition that this was one of those two Aralia sp. specimens (No. 2 or 64) that Jarrell noted. We know too that in 1800 Masson collected at Niagara again and if he were already beginning to lose his health (which apparently was poor by at least 1801), it also seems likely that his collecting would have been confined to the Lake Ontario - Niagara area.

Certainly there is a fair degree of speculation in all of the above, but it seems most likely that Masson collected the Aralia racemosa specimen in July or early August 1800 in the vicinity of Niagara-on-the-Lake. Regardless of its precise location and date, it remains the oldest known Canadian collection of a Canadian herbarium and is an interesting relict of an important pioneer botanist.

Acknowledgments: This investigation would not have been possible without the assistance of Dr. B. Boivin of Universite Laval, Quebec, who provided important literature and invaluable leads for further investigation. My thanks too to Dr. R.A. Jarrell of York University, Toronto; H.B. Carter of Bristol, England; and G.B. Ballance of the Botany Library, British Museum, London, for other important information and leads; and to M.J. Shchepanek of the National Herbarium, Ottawa, for assistance in reviewing the correspondence files there.

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Gillett, J.M. 1972. Two new records for pinedrops (Pterospora andromeda Nutt.) for Ontario and Quebec. Can. Field-Nat. 86:172-175.

Karsten, M.C. 1958. Francis Masson, a gardener-botanist who collected at the Cape. Part I. Journal of South African Botany 24:203-218.

-----. 1959. Francis Masson, a gardener-botanist who collected at the Cape. Part II. Journal of South African Botany 25:283-310.◆

NEWS OF FIELD BOTANISTS

FROM DONALD AND JOAN GUNN - A PRICELESS GIFT

Roy Wilson (an updated version of Pappus 3(1):7 (1983) reprinted here with permission of the Royal Botanical Gardens, P.O. Box 399, Hamilton, Ontario L8N 3H8)

When Oakville resident Donald R. Gunn wants to take nature photos he does not have to look any further than the backyard of his waterfront home in central Oakville, where as many as 440 mourning doves may gather at one time on the ground beneath his specially-designed, squirrel-proof bird feeders.

Donald Gunn began taking natural history photos in 1958, when he borrowed his brother's camera to record the first visit to the Toronto area of a western tanager. Two years later, he purchased his own camera equipment, and began seriously compiling his own photographic records of Canada's plant and animal wildlife.

However, he and his wife Joan do, in fact, travel much further away than their own homeland. Since retiring from his position as Superintendent of the Lakeshore Psychiatric Hospital in Toronto in 1972, Dr. Gunn, now 79, has criscrossed the entire continent in his quest to photograph plants, birds, insects, solar and lunar eclipses and amphibians.

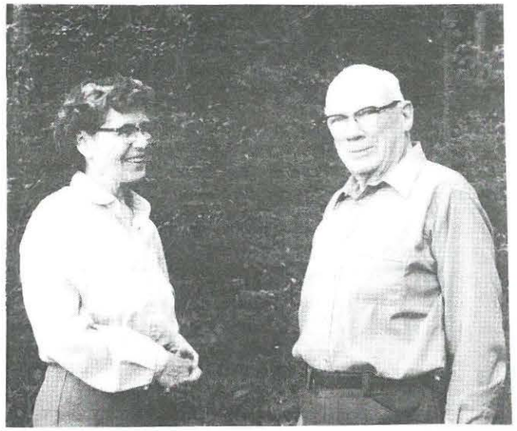
His quest has taken him coast to coast in Canada, from the tip of Newfoundland's northern peninsula, to Vancouver Island and the Yukon. Before he retired, he and Joan used their annual vacation to drive in their trailer to such locations as Texas and Florida during bird migration periods. "When I look back at the amount of time we've spent on the road, I'm flabbergasted," he says.

Orchids quickly became the focal point of his interest - after birds - when he discovered it simply was not feasible to attempt to photograph all the different plant species growing wild in Canada. There are 3,000 plants in Ontario alone.

"It made more sense to try to photograph all the types of orchids found in Canada. At that time, there were only 64 recognized species, although now there are 71," he explained. Although many people think of orchids as exotic, fragile plants which only grow in tropical climates, there are many hardy species found all across Canada. "It took 15 years to get them all, although in a sense I'll probably never be finished, because you can always get a better picure," he says.

The search for orchids ranged from mountain peaks near Prince Rupert, B.C., where Dr. Gunn climbed 550 metres up through a rain forest to find one of the last on his list, and to a wooded area near Aylmer, Ontario, now a protected area not open to the public. The photographs of the final two species on his list were obtained on a memorable long weekend in 1975, when Dr. Gunn slipped away early from a conference in London, Ontario. By Thursday he was 50 km from Chilliwack, British Columbia, photographing the pure white phantom orchid. On Friday he was in Dawson City, Yukon, recording the pink-spotted lady's-slipper. On Tuesday morning he was back at the conference - with his orchid list complete.

Donald Gunn's personal collection of 35 mm colour slides now fills more than 150 special boxes, each holding about 60 slides. Each slide is colour-coded as to type of film, and technical and other information for each slide is recorded in a special notebook. "I may discard 30 of the 36 slides I shoot on a roll of film - the wastebasket is the most important part of my filing system," he says. Slides of the Orchidaceae are stored separately in special ring-binders.



Joan and Donald Gunn in the woodland garden of their home in Oakville.

As his hobby developed, Dr. Gunn has become a recognized expert on wildlife photography. He has given more than 100 public talks. His work was recently featured in the Niagara Escarpment Commission's Cuesta magazine. He is widely regarded as one of the country's orchid experts. His interest in photography dates back to early childhood, when he took pictures with a simple box camera and did all his own processing and printing. Now, he uses three camera bodies and sends the film out for processing at two or three day intervals to minimize the chance of loosing more than one roll because of faulty processing. He buys his film in bulk and checks it immediately for quality.

[Roy Wilson wrote the above as an expression of appreciation for Dr. Gunn's generous contribution to the Royal Botanical Gardens of hundreds of slides of fungi, orchids, birds, plant and animal life - a gift which the RBG regards as priceless. Most recently, Dr. Gunn's photographs illustrate the second revised edition of The Flora of Manitoulin Island (Morton & Venn 1984). Good slides not needed for the main collection are kept as "spares" and are given away to those especially interested in them. All slides in the main collection are mounted in glass binders and these have been made available, for copying, to the National Museum of Canada, various universities, provincial and national parks, and to many of his friends. His pictures have appeared in Seasons, Reader's Digest, Equinox, and other publications as well as a number of books.]

The story above is not complete without more information about the "other half" of this energetic couple. A knowledgeable botanist, naturalist and photographer in her own right, Joan Gunn often finds the plants which Donald seeks. While Don prepares for close-ups, Joan documents the background with habitat shots. Joan's collection of slides, sorted in her own collection, have also been loaned to other naturalists and teachers.

For 20 years Joan worked with the Girl Guides of Ontario retiring as Provincial Commissioner in 1968. She has presented talks to Girl Guide leaders and to naturalists on many aspects of natural history. Always modest and soft-spoken, Joan Gunn's enthusiasm for nature and its discovery by others make a lasting impression on all who have the pleasure of her company.◆

INFORMATION & REQUESTS

MAY-APPLE WITH MULTIPLE OVARIES

Some years ago I came across a patch of may-apple with multiple ovaries in the flower rather than the usual one. It was in mid-June and the petals had just fallen. The fruits had barely started to enlarge, but they could easily be counted, varying from 4 to 7. Judging from herbarium records available to me, this occurrence must be the sole one for forma polycarpum of Podophyllum peltatum in Canada. The bunches of ripe, yellow fruits must present a spectacular sight, but I have never been able to revisit the same site to see.

It would be interesting if somebody familiar with the flora and terrain of the Campbellford [Northumberland County] area could visit the area and see if this particular patch (clone?) of plants still exists. Also, one would like to know if there is anything about the locality or habitat which would indicate whether the multi-fruited plants evolved there or were carried in from some other place - and when. From my memory and records I would be glad to direct someone to the exact site.

Wm. G. Dore,
60 Carlyle Ave.,
Ottawa, Ontario K1S 4Y4

CANADIAN LAND RECLAMATION ASSOCIATION

Walter E. Watt, Vice-President, Ontario Chapter, c/o TransCanada PipeLines Limited, P.O. Box 54, Commerce Court W., Toronto, Ontario M5L 1C2

The recent report on efforts to revegetate Rondeau Bay (Plant Press 2(4):99-101) ended with a request from Ed Hanna for readers to share with him their related knowledge and experience. This is clear evidence both of an overlap in the information requirements of field botany and land reclamation and of the need for a forum within which such information might be exchanged.

Since 1975 the Canadian Land Reclamation Association has offered just such a forum. Through scientific and technical presentations at annual meetings, through field trips to active reclamation projects, through regular newsletters, and through practical workshops at chapter meetings, the CLRA has assisted those concerned with reclamation to exchange information, ideas, and experience. Today's membership includes specialists from some thirty disciplines and from a variety of private industries, consulting firms, universities, and government agencies. Each memaber is concerned with practical aspects of reclamation in its broadest sense - returning disturbed and derelict lands to such productive end uses as agriculture, forestry, residential, parkland, or wildlife habitat. Current issues of potential concern to field botanists include the screening and propagation of native species for reclamation purposes, and the use of exotic wildflowers in commercial seed mixes.

Any field botanists interested in participating may obtain further details from Mrs. Marika Hare, Chapter Secretary, at 416-869-2797. Ask about the CLRA's annual meeting, too, which will be held this year in Quebec City, and have as its theme 'Environment and Reclamation; Ten Years of Achievement.'

COMPILATION OF VASCULAR PLANT CHECKLISTS FOR NORTHERN ONTARIO

[See Richard Sims' request on page 40 of this issue.]

ONTARIO PLANTS IN PRINT

In the first issue of The Plant Press (1(1):15-16) the titles of 67 periodical publications that potentially contain articles about field botany in Ontario were listed. To date only 13 of these have been reviewed for compilations pertaining to plants in Ontario. Needless to say there is still much ground to be covered as we would like to compile titles from 1980 inclusive.

Listed below are the titles of some publications that we would especially like to see in future issues of The Plant Press. Compilations of references should include only those papers which deal with field botany in Ontario. The style and format of compilations should follow that in previous issues of The Plant Press. We would appreciate two copies of all material submitted to this column.

BOTANICAL GAZETTE
NATURE CANADA
ECOLOGICAL MONOGRAPHS
OHIO JOURNAL OF SCIENCE
(MANY NATURALIST CLUB NEWSLETTERS)

If you would like to submit a review and/or receive an expanded list of publications to be covered, please drop me a line.

Bruce Ford,
24 Zircon Ct.,
Willowdale, Ontario
M2H 2A1

LE NATURALISTE CANADIEN REFERENCES FROM 1980 - 1983

compiled by Joyce M. Reddoch, 548 Rivershore Crescent, Gloucester, Ontario K1J 7Y7

Gagnon, D. 1980. Addition de Claytonia virginica L. a la flore de l'Outaouais au Québec. 107(4):301-302. (station opposite Ottawa; distribution map of eastern Ontario and western Quebec)

Thorn, G. 1981. The conspicuous fungi of Algonquin Provincial Park, Ontario: A preliminary flora. 108(1):79-95. (751 species of fungi are listed)

Riley, J.L. 1981. The vascular flora of Akimiski Island, James Bay, N.W.T. 108(3): 229-235. (86 species are added and all 211 taxa are listed; floristic affinities to Ontario and elsewhere are discussed)

McNeill, J. 1981. Taxonomic, nomenclatural and distributional notes on Canadian weeds and aliens. 108(3):237-244.

Cody, W.J. 1982. A comparison of the northern limits of distribution of some vascular plant species found in southern Ontario. 109(1): 63-90. (discussion and distribution maps of 33 mainly Carolinian species; habitat correlations and relation to climatic conditions)

Bernard, J.-P. & B. Boivin. 1982. Aster divaricatus L. au Canada. 109(1):119-121. (occurs in Canada in southwestern Quebec and the Niagara Peninsula; distribution map)

Cody, W.J. & G.A. Mulligan. 1982. Chromosome numbers of some Canadian ferns and fern allies. 109(2):273-275. (44 taxa from seven families; based on quite a few Ontario collections)

Catling, P.M. 1982. New combinations for forms and varieties of some North American orchids. 109(2):277-278. (one new form is described, and seven new combinations are proposed)

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Riley, J.L. 1982. Hudson Bay lowland floristic inventory, wetlands catalogue and conservation strategy. 109(3):543-555.

Cowles, S. Preliminary results investigating the effect of lichen ground cover on the growth of black spruce. 109(3):573-581.

McAndrews, J.H., J.L. Riley & A.M. Davis. 1982. Vegetation history of the Hudson Bay lowland: a postglacial pollen diagram from the Sutton Ridge. 109(3):597-608.

Sims, R.A., D.W. Cowell & G.W. Wickware. 1982. Use of vegetational physiognomy in classifying treed peatlands near southern James Bay, Ontario. 109(3):611-619.

Jeglum, J.K. & D.W. Cowell. 1982. Wetland ecosystems near Kinoje Lakes, southern interior Hudson Bay lowland. 109(3):621-635.

Pala, S. & W. Weischet. 1982. Toward a physiographic analysis of the Hudson Bay - James Bay lowland. 109(3):637-651.

-----& A. Boissonneau. 1982. Wetland classification maps for the Hudson Bay lowland. 109(3):653-659.

Catling, P.M. 1983. Autogamy in eastern Canadian Orchidaceae: a review of current knowledge and some new observations. 110(1): 37-53. (autogamy is reported for three species; various mechanisms of autogamy are discussed)

Brouillet, L. 1983. Nombres chromosomiques ches les Aster du groupe Heterophylli (Asteraceae-Astereae). 110(2):171-178. (includes chromosome numbers of five Ontario species)

Founded in 1868 by Léon Provancher, Le Naturaliste canadien (revue d'écologie et de systématique) is a scientific periodical edited by Université Laval. Papers in French and English are published. These are based on original research dealing with: aquatic and terrestrial ecology; systematics of plants and animals; and agriculture, forest and aquatic resources. This journal is published four times a year with a yearly total of approximately 500 pages.

The cost of a 1985 subscription is $ 19.00 for individuals in Canada and $ 10.00 for students (supply institution and student I.D. card number). Fees for multiusers, those outside Canada, and back issues may be obtained from: Le Naturaliste canadien, Département de biologie, Pavillon Vachon, Université Laval, Saint-Foy, Québec G1K 7P4.

THE CANADIAN FIELD-NATURALIST REFERENCES FROM 1983 - 1984

compiled by Charles Cecile, R.R. #1, Cambridge, Ontario N1R 5S2

Toohey, J.I. 1983. Fungus fairy rings in soil: etiology and chemical ecology. Can. Field-Nat. 97:9-15. (30 species of fungal sporophores identified in association with fungus fairy rings on abandoned farm land in Rideau Lakes region of Ontario)

Timoney, K.P. 1983. Island biogeography of seed plants in Lake Nipigon, Ontario. Can. Field-Nat. 97:16-25. (islands supporting boreal forest in Lake Nipigon, Ontario, were sampled for presence of angiosperms and gymnosperms by a timed random walk of constant duration)

Fraser, D. & J.K. Morton. 1983. Aquatic plants in Lake Superior Provincial Park in relation to water chemistry. Can. Field-Nat. 97:181-186. (species of submersed and floating-leaved aquatic plants and chemical composition of the water were studied in 14 lakes on the Canadian Shield in Lake Superior Provincial Park, Ontario)

Keddy, C.J., P.A. Keddy & R.J. Planck. 1983. An ecological study of Cypripedium passerinum Rich (Sparrow's Egg Lady-slipper, Orchidaceae) on the north shore of Lake Superior. Can. Field-Nat. 97:268-274. (an ecological study of C. passerinum was conducted in the summer of 1979 on the north shore of Lake Superior near the mouth of the Pic River)

Crowder, A.A. & G.J. Taylor. 1984. Characteristics of sites occupied by wild lily-of-the-valley, Maianthemum canadense, on Hill Island, Ontario. Can. Field-Nat. 98:151-158. (one hundred and thirteen sites on an island in the Thousand Islands region of the St. Lawrence River were studied to determine the environmental factors active in controlling the local distribution of Maianthemum canadense var. canadense)

Reznicek, A.A. & P.M. Catling. 1984. Notes on Canadian sedges, Cyperaceae. Can. Field-Nat. 98:209-214. (sedges Carex seorsa and Fuirena pumila, found in the Niagara Peninsula are additions to the Canadian flora; reports of C. suberecta in Canada are confirmed in Essex County; C. emmonsii and C. atlantica subsp. capillacea are additions to the Ontario flora; the European C. sylvatica is reported from four localities in southern Ontario)

Dale, H.M. & C.E. Garton. 1984. The aquatic macrophyte vegetation of an isolated island lake adjacent to Lake Nipigon, Ontario: a comparative study after a fifty-six year interval. Can. Field-Nat. 98:444-450. (description of aquatic vegetation in 1926 is compared with that of 1982; changes in vegetation are related to physical factors and beaver activity)

Morsink, W.A.G. & P.D. Pratt. 1984. Shumard oak, Quercus shumardii, in Essex County, Ontario. Can. Field-Nat. 98:470-478. (leaf, acorn, bark and habit characters are discussed with suggestion that hybrid complexes with pin oak (Q. palustris) and red oak (Q. rubra) may be present; 25 localities for shumard oak are given for Essex County) ◆

BOTANICAL STUDY OF THE NIAGARA FRONTIER: REVIEWS OF FOUR PUBLICATIONS FROM THE BUFFALO SOCIETY OF NATURAL SCIENCES

Patricia M. Eckel, Clinton Herbarium, Buffalo Museum of Sciences, Humboldt Parkway, Buffalo, New York 14211

The Niagara Frontier Region, as defined by activities and publications of the Botany Division, Buffalo Society of Natural Sciences, comprises the area of a circle (Fig. 1) with a 50-mile

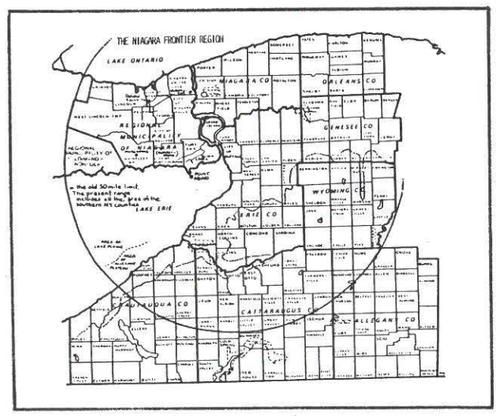


Figure 1. The Niagara Frontier Region, centred on Buffalo, New York State.

If you would like to submit a review and/or receive an expanded list of publications to be covered, please drop me a line.

Bruce Ford,
24 Zircon Ct.,
Willowdale, Ontario
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compiled by Joyce M. Reddoch, 548 Rivershore Crescent, Gloucester, Ontario K1J 7Y7

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Riley, J.L. 1982. Hudson Bay lowland floristic inventory, wetlands catalogue and conservation strategy. 109(3):543-555.

Cowles, S. Preliminary results investigating the effect of lichen ground cover on the growth of black spruce. 109(3):573-581.

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Catling, P.M. 1983. Autogamy in eastern Canadian Orchidaceae: a review of current knowledge and some new observations. 110(1): 37-53. (autogamy is reported for three species; various mechanisms of autogamy are discussed)

Brouillet, L. 1983. Nombres chromosomiques ches les Aster du groupe Heterophylli (Asteraceae-Astereae). 110(2):171-178. (includes chromosome numbers of five Ontario species)

Founded in 1868 by Léon Provancher, Le Naturaliste canadien (revue d'écologie et de systématique) is a scientific periodical edited by Université Laval. Papers in French and English are published. These are based on original research dealing with: aquatic and terrestrial ecology; systematics of plants and animals; and agriculture, forest and aquatic resources. This journal is published four times a year with a yearly total of approximately 500 pages.

The cost of a 1985 subscription is $ 19.00 for individuals in Canada and $ 10.00 for students (supply institution and student I.D. card number). Fees for multiusers, those outside Canada, and back issues may be obtained from: Le Naturaliste canadien, Département de biologie, Pavillon Vachon, Université Laval, Saint-Foy, Québec G1K 7P4.

THE CANADIAN FIELD-NATURALIST REFERENCES FROM 1983 - 1984

compiled by Charles Cecile, R.R. #1, Cambridge, Ontario N1R 5S2

Toohey, J.I. 1983. Fungus fairy rings in soil: etiology and chemical ecology. Can. Field-Nat. 97:9-15. (30 species of fungal sporophores identified in association with fungus fairy rings on abandoned farm land in Rideau Lakes region of Ontario)

Timoney, K.P. 1983. Island biogeography of seed plants in Lake Nipigon, Ontario. Can. Field-Nat. 97:16-25. (islands supporting boreal forest in Lake Nipigon, Ontario, were sampled for presence of angiosperms and gymnosperms by a timed random walk of constant duration)

Fraser, D. & J.K. Morton. 1983. Aquatic plants in Lake Superior Provincial Park in relation to water chemistry. Can. Field-Nat. 97:181-186. (species of submersed and floating-leaved aquatic plants and chemical composition of the water were studied in 14 lakes on the Canadian Shield in Lake Superior Provincial Park, Ontario)

Keddy, C.J., P.A. Keddy & R.J. Planck. 1983. An ecological study of Cypripedium passerinum Rich (Sparrow's Egg Lady-slipper, Orchidaceae) on the north shore of Lake Superior. Can. Field-Nat. 97:268-274. (an ecological study of C. passerinum was conducted in the summer of 1979 on the north shore of Lake Superior near the mouth of the Pic River)

Crowder, A.A. & G.J. Taylor. 1984. Characteristics of sites occupied by wild lily-of-the-valley, Maianthemum canadense, on Hill Island, Ontario. Can. Field-Nat. 98:151-158. (one hundred and thirteen sites on an island in the Thousand Islands region of the St. Lawrence River were studied to determine the environmental factors active in controlling the local distribution of Maianthemum canadense var. canadense)

Reznicek, A.A. & P.M. Catling. 1984. Notes on Canadian sedges, Cyperaceae. Can. Field-Nat. 98:209-214. (sedges Carex seorsa and Fuirena pumila, found in the Niagara Peninsula are additions to the Canadian flora; reports of C. suberecta in Canada are confirmed in Essex County; C. emmonsii and C. atlantica subsp. capillacea are additions to the Ontario flora; the European C. sylvatica is reported from four localities in southern Ontario)

Dale, H.M. & C.E. Garton. 1984. The aquatic macrophyte vegetation of an isolated island lake adjacent to Lake Nipigon, Ontario: a comparative study after a fifty-six year interval. Can. Field-Nat. 98:444-450. (description of aquatic vegetation in 1926 is compared with that of 1982; changes in vegetation are related to physical factors and beaver activity)

Morsink, W.A.G. & P.D. Pratt. 1984. Shumard oak, Quercus shumardii, in Essex County, Ontario. Can. Field-Nat. 98:470-478. (leaf, acorn, bark and habit characters are discussed with suggestion that hybrid complexes with pin oak (Q. palustris) and red oak (Q. rubra) may be present; 25 localities for shumard oak are given for Essex County)◆

BOTANICAL STUDY OF THE NIAGARA FRONTIER: REVIEWS OF FOUR PUBLICATIONS FROM THE BUFFALO SOCIETY OF NATURAL SCIENCES

Patricia M. Eckel, Clinton Herbarium, Buffalo Museum of Sciences, Humboldt Parkway, Buffalo, New York 14211

The Niagara Frontier Region, as defined by activities and publications of the Botany Division, Buffalo Society of Natural Sciences, comprises the area of a circle (Fig. 1) with a 50-mile

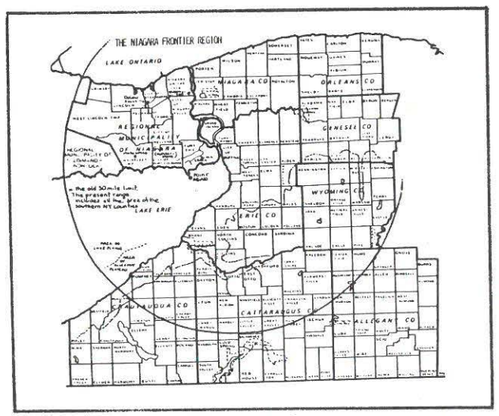


Figure 1. The Niagara Frontier Region, centred on Buffalo, New York State.

species and 58 infraspecific taxa). Notes are appended regarding the exclusion of several taxa from previously published reports. This booklet is mainly a guide for students and workers interested in the native flora.

The list is arranged alphabetically by genus, then species, and it provides the major substance of the text. Nomenclature follows Gleason & Cronquist's (1963) Manual of Vascular Plants.

A 28-page listing of synonomy and excluded names is appended as an aid for those wishing to evaluate the nomenclatural status of particular specimens in the light of present and past citations.

This booklet is a useful resource for quickly finding the common names of plants, author citations, status (native/alien as well as the legal status in New York State), and rarity. The booklet is a good editorial resource for papers and reports, as it provides orthographically correct names. Family names are listed next to each genus.

Local botanists have carried the booklet into the field to evaluate the advisability of collecting or leaving field material. Although there is no differentiation between Ontario and New York State, Canadian botanists should find this list useful for evaluating the significance of species in the Niagara Peninsula.◆

Environmentally Significant Areas of the Essex Region prepared by Michael J. Oldham. 1984. Produced by the Essex Region Conservation Authority, 360 Fairview Avenue West, Essex, Ontario, N8M 1Y6. viii + 426 pp. $ 25.00.

reviewed by John M. Gillett, Curator Emeritus, Botany Division, National Museum of Natural Sciences, Ottawa, Ontario K1A 0M8

Environmentally Significant Areas of the Essex Region is a background report to the Essex Region Conservation Plan, produced by the Essex Region Conservation Authority. The report, field work, site selection and literature review were prepared by biologist Michael Oldham with the aid of adviser Dr. Paul Eagles, Department of Recreation, University of Waterloo.

A number of well-known professionals from universities and government agencies are named in the acknowledgments. As a result of this expertise, the report turned out to be well-prepared and well-documented, meticulously produced and edited, in short, a model for consultants or naturalists engaged in the prepareation of similar studies.

The report is divided into three parts: an introduction with methodology, conclusions and recommendations; individual reports on 33 environmentally significant areas (ESA's) (63 were considered as candidates); and seven appendices which include lists of mammals, birds, reptiles, amphibians, butterflies, rare vascular plants and bryophytes. The 33 ESA's were selected on the basis of whether or not they fulfilled two or more of ten criteria set up beforehand. These were: significant landform, linkage systems, migratory stopover points, communities, habitats, diversity, species, size, research/education, and aesthetic/historical. All the sites qualifying as ESA's were mapped. Each ESA write-up includes information on location, topographic map reference, air photo reference, approximate area, ownership, site description, disturbance and human history, criteria fulfilled, evaluation and recommendations, and sources of information.

While undoubtedly this work brings together a great deal of information on Essex County, the most important statement in my opinion appears in the introduction: "...Between 1955 and 1972 the acreage of scrubland in the region decreased at an average rate of 2.7% per year and forests at close to it. Some townships are virtually devoid of forest cover."

Although I am not familiar with the terms of reference nor the powers of the Essex Region Conservation Authority, it seems evident to this reviewer that it is time to make any proposed change to the vegetation subject to approval of the authority whether or not this includes private land holdings. This method is employed in England where the influence of man is total. There, I am informed, to remove a tree even from one's own backyard requires local council approval.

In conclusion, this is a large and thorough report, but do not allow its quality to obscure the urgency of its conservation message.◆

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4. monitoring publications about plants in Ontario with reviews where appropriate;
5. encouraging publication by field botanists, both in The Plant Press and other publications.

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