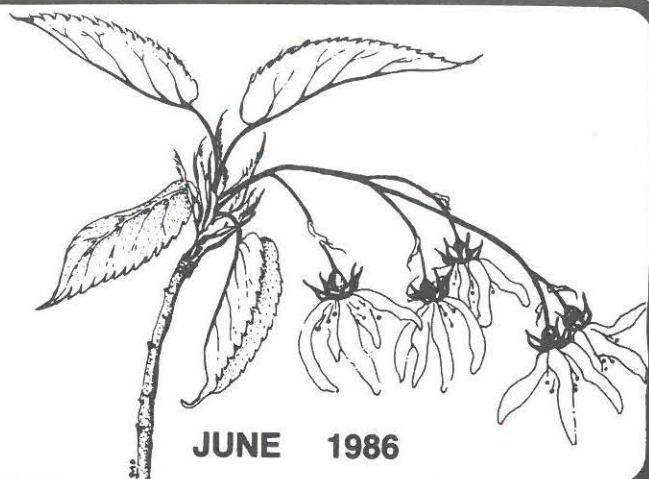


FIELD BOTANY IN ONTARIO

No. 2

JUNE 1986[illegible]

Front page illustration: Juneberry (*Amelanchier laevis*) by Leila Gad

NEWS

We regret that this issue is late!

Please accept our apologies that 1986 issues of *The Plant Press* have been behind schedule. This is disappointing to all of us because we have worked especially hard to ensure that previous issues appeared on time. The current delay is mostly due to the fact that the editor and the business manager have had their hands tied with David Kaiser, born in January. Also, there is a serious shortage of material for publication and, largely due to the demands of David Kaiser, little time to solicit input!

We need help from our readers!

To ensure continuity of *The Plant Press* we need material for publication as soon as possible. If you have something to contribute, preferably in "finished" form with photos, illustrations, maps, etc. ready to go, please contact us soon. The "Letters" column in this issue is very brief because so few letters to the editor have been received in 1986. We feel that it is important to include different points of view and we hope you will drop us a line.

The number of subscribers to *The Plant Press* still hovers around 400. We need to maintain at least this much support to continue publishing issues of the present length. Our printing costs have more than doubled in 1986 and our sole means of support remains from subscriptions, tax-deductible donations, and page charges (from those able to provide them). We have found that our best means of increasing the number of new subscribers, is by recommendation from our readers. Your help is greatly appreciated and needed.

As in past years, subscription fees for next year (1987) will be due in September (1986). We anticipate that the 1987 subscription fee will remain at \$ 15.00, however, this leaves us with deficit financing and we will again need extra funds from tax-deductible donations, etc. Prompt subscription renewal saves us time and money. Once again, we anticipate your co-operation.

We are delighted to report that Paul Willsteed of Mississauga has volunteered to prepare the second class mailings of each issue. This is a great relief. We hope that we can soon provide him with copies to be mailed on schedule.

LETTERS

"...an important matter is the question of reporting new botanical finds by others than those who make the finds. This is most complex, but, to my mind and regardless of who does the reporting, the important feature is that the report be accurate. Enthusiastic beginners may claim the presence of all sorts of plants, some of which have not been known within hundreds of miles from the location in which they say they have seen it...The identification of all such new records should be confirmed by a recognized authority with a voucher specimen deposited in some known herbarium. Under these conditions such information would be of great interest to all botanists. A column for this purpose in *The Plant Press* would be invaluable and, I believe, a first attempt at such a service - but could it be done?"

A.E. Garwood, Assistant Curator,
The Fowler Herbarium, Queen's University,
Kingston, Ontario

IDEAS

BOTANICAL GARDENS AND THEIR CONSERVATION ROLE

John D. Ambrose, University of Guelph Arboretum,
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Recent papers and letters in *The Plant Press* have addressed various questions about conservation of rare species. These have ranged from the controversial issue of transplanting, to whether botanical gardens might at least have a role in the propagation of rare species, with an apparent assumption that habitat conservation was beyond their realm. I think that we all agree that in situ (habitat) conservation is the first priority, with ex situ (off-site,

i.e. in a garden) conservation secondary. The good news is that the international botanical garden community agrees, and recently delegates from 42 countries made a formal declaration (see reference 1 below) to that effect, recognizing the trend of global destruction of the earth's vegetation, upon which human existence depends, and the role we must actively take to reverse this trend.

Prior to this conference, in which the botanical gardens' role in the World Conservation Strategy (see reference 2 below) was considered, several activities had already been initiated to first survey the potential role gardens could play through their collections and the regional or taxonomic responsibilities each might take in conservation. At the international level, the International Union for Conservation of Nature and Natural Resources (IUCN) has operated a Conservation Monitoring Centre at the Royal Botanic Gardens-Kew for several years. The Centre has been compiling rare plant lists for the various regions of the world. The outcome of the surveys has been that several "extinct" species have been rediscovered in collections, and each garden now has a better idea of the significance of their rare holdings.

In North America, two national centres recently have been established, the Center for Plant Conservation (at the Arnold Arboretum, Boston) and the Canadian Centre for Plant Conservation (at the Devonian Botanic Garden, Edmonton). These are serving as national networks to compile and communicate data on rare plants in cultivation, including inventories, regional responsibilities, and information on propagation and cultural requirements.

It is important to emphasize that these three programs are concentrating their efforts on ex situ conservation: compiling and coordinating data on rare plants in cultivation. It is well recognized that for meaningful conservation of rare species, not just isolated specimens of them, they must be conserved in their natural habitats. Thus, these garden-centred programs must be seen as complementing efforts for in situ conservation, not as a replacement for it. Much useful information can be gained from rare plants in cultivation, from the basics of how to grow them, to a better understanding of why they are rare, including their reproductive biology and their patterns of genetic diversity. All of these can provide information for developing a sound plan for the conservation manage-

ment of natural areas. The availability of plant material, propagated from documented, natural stands, leaves open the opportunity of possible re-introduction or enhancement of depleted populations of rare species, in natural habitats. Such plants in cultivation can also serve as sources of material for scientific study, or for economic evaluation or use, reducing the threat of further impact to the natural populations.

There are several recognized hazards to a singular dependence on ex situ conservation, from genetic depletion (even in collections propagated from numerous natural populations), to genetic erosion of plants re-propagated by seed (as well as the release from the evolutionary processes of natural selection). There are many unknowns. When we bring together individuals from different, isolated populations, we may be increasing the vigor of the progeny through heterosis, or we may be decreasing it by disrupting adaptive gene complexes. The unfortunate fact is that for many species of the world, their habitats have been destroyed and all we have is a few remnant specimens in cultivation.

Botanical gardens can and do participate in activities to promote in situ conservation. Many, especially in the tropics, manage adjacent or regional nature reserves. Some have taken on the rehabilitation of highly degraded remnants of nearly extirpated forest associations, as the Jardin Canario is doing with the Laurel Forest on Gran Canaria. We at the University of Guelph Arboretum have conducted several studies on rare Carolinian trees, leading to their official status, provincial recognition of critical habitats and action toward protection.

Botanical gardens have (or are becoming more aware of) an important role in conservation. They should be eager for suggestions or assistance from knowledgeable naturalists.

References

1. The Declaration of Gran Canaria, from the conference: Botanic Gardens and the World Conservation Strategy. Las Palmas de Gran Canaria, November 1985.
2. World Conservation Strategy. International Union for the Conservation of Nature and Natural Resources. Gland, Switzerland, 1980. ♦

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Kaiser (1984) questioned why southern Ontario wetlands are presently being evaluated prior to undertaking a comprehensive inventory of their numbers, natural features and values. This is a valid concern, as the results obtained when using the evaluation system (Ontario Ministry of Natural Resources and Environment Canada 1984) may have a significant impact on the future of a wetland. In this paper, the advantages and short-comings of the evaluation system are discussed and suggestions for inventory requirements are presented.

This evaluation system (Ontario Ministry of Natural Resources and Environment Canada 1984) attempts to convert technical scientific data into numerical scores or classes of quality. In my opinion there are three primary advantages to this approach and three disadvantages.

Advantages of the evaluation system

1. Decision-makers can understand scores and classes of quality. Most politicians, in order to provide proper protection for a particular wetland, will only want to know the wetland's class and not why it is significant.
2. People trained to use the evaluation system should reach similar conclusions when evaluating a given wetland. The initial assignment of scores for wetland functions and values was subjective, but was based upon the best available scientific knowledge, and becomes objective when the same scoring system is applied in the identical manner to different wetlands. If all southern Ontario plant species were assigned a point value, most experienced field botanists would obtain similar results if they scored wetlands based on the plant species they were able to find and totalled the points. If each field botanist assigned his own point values, a wide diversity of scores would probably be obtained.
3. It is much more expedient to use an evaluation system. It may take an entire season to prepare a comprehensive biological survey of a wetland, and up to two years to determine its hydrological functions. By comparison, a two-person crew can evaluate 40-

50 average-sized wetlands in a six-month field season.

Disadvantages of the evaluation system

The three disadvantages of the wetland evaluation system are related to its reliance on existing data and in the final interpretation of the scores.

1. In order to be time-effective, an evaluation system must use existing information as the primary data source. Field work for the wetland system focuses on defining outer boundaries and major cover types and minimizes the search for rare species. It is not likely that field workers will discover significant new information. Even with this rudimentary requirement for field work, it may take up to a week to evaluate a large (100 ha) wetland.

2. Wetlands for which there are no existing data do not have the capability of attaining as high a score as wetlands that have been well studied. The maximum number of points that may be obtained on the special features component is 70 out of 250 if there are no known rare species in the wetland. It may contain rare species, but, due to the lack of previous work, it is penalized on the special features component and also on its overall class standing.

3. The class system prepared by the Ontario Ministry of Natural Resources (1984) has a tendency to mask the true results. Seven classes of wetlands are recognized, with classes 1 and 2 being considered to be of provincial significance. Classes are determined by totalling the scores obtained on the four components (biological, social, hydrological, and special features).

The totalling of the component scores to obtain an overall ranking is questionable. Large swamps may be of hydrological and biological value, but are usually of low social value and may contain few special features. Wetlands on the Great Lakes usually score high on the biological, social and special features components, but extremely low on the hydrological component.

A wetland which is provincially significant for any one component should be considered a Class 1 or Class 2 wetland. Several wetlands that have been evaluated have contained provincially rare or even endangered species, but are Class 3 or Class 5 wetlands because they scored poorly on other aspects of the evaluation system.

Other considerations

The wetland evaluation process is accomplishing several things: all southern Ontario wetlands will be evaluated within the next few years; policies are in place to protect the top two classes of wetlands; policies identifying the level of protection necessary for lower classes of wetlands are planned; and areas that were not previously recognized as wetlands are being evaluated.

Once the evaluation system has been applied, inventory is essential. Because of some of the short-comings of the system, we should not accept the fact that a wetland is of poor quality due to the score it is given. Perhaps the greatest attribute of the evaluation system is that it will identify those wetlands (Classes 3-7) in which we need to do more work. By finding a single rare species it is possible to elevate many of the lower scoring wetlands to higher significance.

Effective in inspiring controversy, I hope that the evaluation system will prompt more research into the functions and values of southern Ontario wetlands. As Kaiser (1984) pointed out, we know very little about our wetlands and must make inferences based on literature from other areas. If we consider the evaluation system to be the final result, we will have lost a great opportunity to learn more about our wetlands, and we may also have lost some significant wetlands through lack of knowledge.

The next time you are planning a field trip, why not visit a wetland close to home that you have never visited, instead of driving to a well-known area? You may find some pleasant surprises and help save a wetland at the same time.

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 ---- & Environment Canada. 1984. An evaluation system for wetlands of Ontario south of the precambrian shield. Second Edition. Wildlife Branch, Ontario Ministry of Natural Resources and Ontario Region, Canadian Wildlife Service. 169 pp. ♦

NOTES & REPORTS

Tagetes minuta L. (ASTERACEAE),
 AN ADDITION TO THE ADVENTIVE FLORA
 OF CANADA

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Tagetes minuta L., known as wild marigold or muster john henry (sic), bears little of the aspect of the ornamental marigolds (derived from *T. erecta* L., *T. patula* L., and *T. tenuifolia* Cav.) in its flower heads, because these are less than 5 mm in diameter, with few (usually 3), tiny, inconspicuous rays. There is, however, considerably more resemblance to the ornamental marigolds in the foliage, both in form and in scent. *Tagetes minuta* is sometimes grown in home gardens, especially in the southern United States, as a culinary herb and as an insect repellent (hung over doorways, stuffed into mattresses). Commercially, its essential oils are important in the perfume industry (Morton 1976).

A native of South America, *Tagetes minuta* has become abundantly naturalized on the Atlantic Coastal Plain of the southeastern United States (Fernald 1937; Cronquist 1980), but its occurrence outside of cultivation remains sporadic in the uplands and in the northern United States. Seymour (1982), for example, reported only three records from New England, these being from Connecticut and Massachusetts and dating from 1912 to 1945. Drs. A.A. Reznicek and E.G. Voss, of the University of Michigan, knew of no Michigan populations of this species, past or present (pers. comm., 1985). Likewise, *T. minuta* has become well established in southern Europe but remains infrequent northward (Hansen 1976). Hitherto there appear to have been no records of *T. minuta* as an adventive or naturalized species in Canada, as indicated by the absence of its name from Boivin's *Enumeration des plantes du Canada* and from Scoggan's *The Flora of Canada*.

For the past several years, I have observed a wild population of *Tagetes minuta* (Fig. 1) among willows (*Salix fragilis* L.) along the south shore of the old Desjardins Canal, Dundas, near the eastern limits of vegetation on a narrow

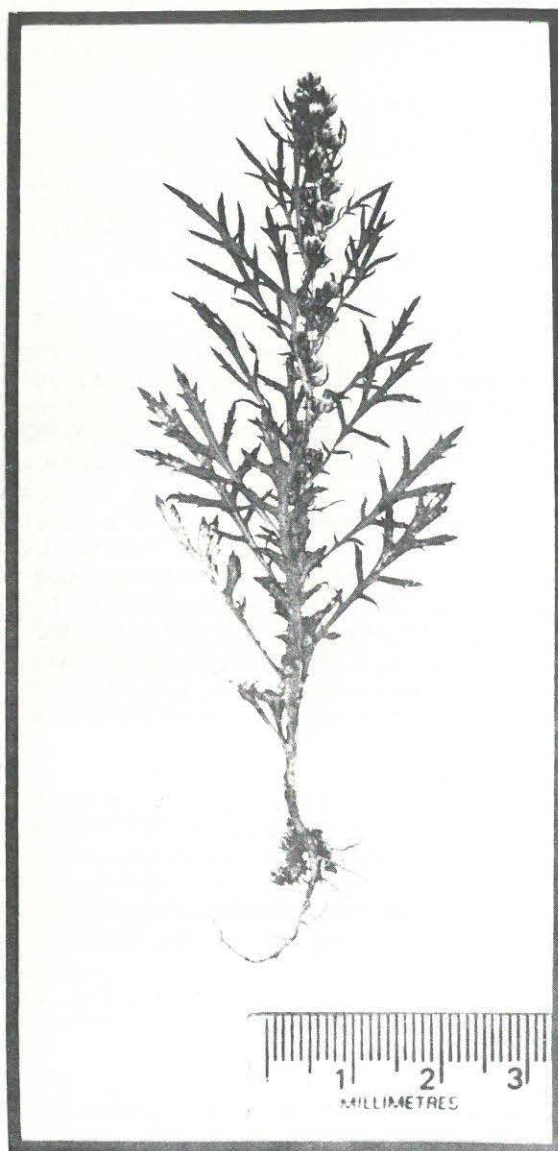


Figure 1. Herbarium specimen of *Tagetes minuta* from Coote's Paradise.

strip of land extending into Coote's Paradise or Dundas Marsh [located at the extreme western end of Lake Ontario]. This population is doubtless of recent origin, subsequent to the high water levels of 1972-1975 that inundated the site for most of the year. For probably at least six years, however, this species, of which the individuals are monocarpic, has perpetuated itself by seed at this site, with well over a hundred plants being present in

some years. About 80 plants were present in September 1985, but most of them were less than 10 cm tall, presumably because germination had been delayed by water levels that covered the site until July. (Elsewhere, with a longer growing season, *T. minuta* may reach a height of 1 m or more.)

It would not be correct to interpret the collection cited below as having come "from a botanical garden" and therefore presumably to represent cultivated material. Although the site is part of the properties of the Royal Botanical Gardens (R.B.G.), it is remote from any horticultural area and there has been no history of any planting by the R.B.G. at the site. The vegetation on this point of land is entirely spontaneous and is composed of species that are either native or long and abundantly naturalized in the Great Lakes region. The main human use of the site is by bird-watchers, who find it a good point for observing shore-birds on nearby mudflats in autumn.

Tagetes minuta may disappear from the south bank of the Desjardins Canal when the recurrent fluctuation of the level of Lake Ontario next approaches its high extreme, if not sooner. We may expect, however, that this species, having at least once become established for a time in Ontario, will be found at other more or less disturbed sites in the province.

Documentation: Ontario: Regional Municipality of Hamilton-Wentworth: Dundas, on property of the Royal Botanical Gardens, south side of the Desjardin Canal near the eastern limit of vegetation, 27 October 1985, Pringle 2553, HAM.

References

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- Seymour, F.C. 1982. The flora of New England: a Manual for the Identification of all Vascular Plants, Including Ferns and Fern Allies, Growing Without Cultivation in New England, ed. 2. *Phytologia Memoirs* 5. xvii + 611 pp.♦

TWO BRYOPHYTES NEW TO THE ONTARIO FLORA

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In August 1978 I spent a few days in the area of Sites 415 and 416 in Polar Bear Provincial Park, about 30 km south of Cape Henrietta Maria (Fig. 1). (Sites 415 and 416 were radar installations of the Mid-Canada Line, abandoned in 1965.) Because of the lack of published information on the bryology of this interesting area, permission was requested and obtained for me to make a limited number of collections. Of the bryophytes collected, two liverworts are apparently new to the Ontario flora: their occurrences are documented below. Collection numbers are underlined. All collections have been deposited in the National Herbarium (CANM). The collection sites are in the Patricia portion of the District of Kenora, Ontario.

Lophozia binsteadii (Kaal.) Evans

An arctic-alpine species, fairly frequent in sphagnum hummocks in the bog areas visited. Reported by Schuster (1969) from Greenland, Northwest Territories, Quebec, Labrador, and Nova Scotia. Site 415, E. shore of Lake "A" (Ministry of Natural Resources 1977), 54° 45' N., 82° 18' W., with *Lophozia incisa*, 3894; E. of Site 416, 54° 47' N., 82° 18' W., 3916, 3917, 3970.

Lophozia grandiretis (Lindb. ex Kaal.) Schiffn.

"A local to rare species of arctic-alpine distribution," (Schuster 1969). Reported in the latter work from Greenland, Manitoba, Quebec, Vermont, and Minnesota. In small quantity in rich hepatic sod composed mainly of *Lophozia heterocolpos*, with *Scapania cuspiduligera*, *S. gymnostomophila*, and *Tritomaria scitula*. Over calcareous gravel, near the shore of a small pond just west of the building at Site 416, 54° 47' N., 82° 18' W., 3994.

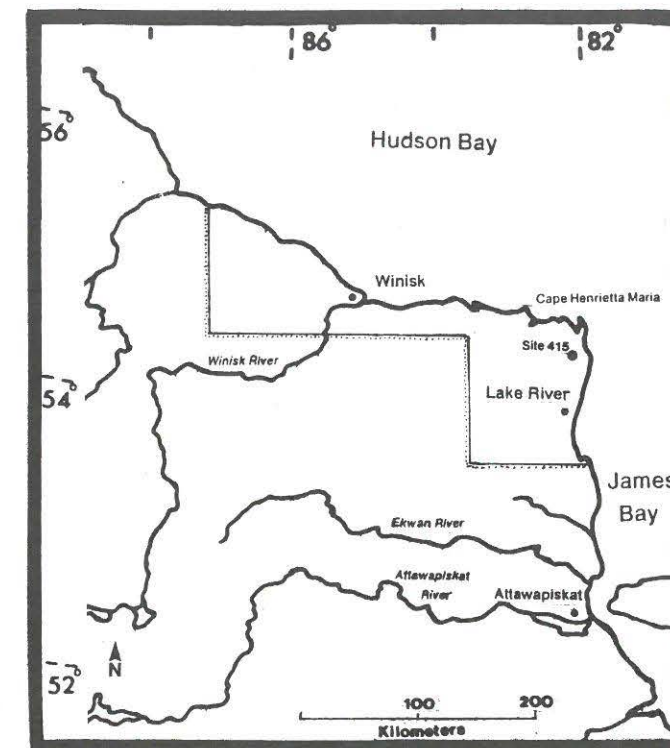


Figure 1. Location of Site 415 in Polar Bear Provincial Park, northern Ontario. (Site 416 is close to Site 415).

Acknowledgements

Thanks to Parks Branch, Ontario Ministry of Natural Resources, for permission to collect in Polar Bear Provincial Park.

References

- Ministry of Natural Resources [Ontario]. 1977. Polar Bear Provincial Park, Planning Proposal.
- Schuster, R.M. 1969. The Hepaticae and Anthocerotae of North America. Vol. II. Columbia University Press.♦

CULTIVATION OF NATIVE TREES, SHRUBS,
AND FORBS IN A YARD IN ESSEX COUNTY,
SOUTHWESTERN ONTARIO

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When we moved into this house in 1940 there were not many trees in the yard. A few apple, several dozen peach, and about three boxelder. Most of the peach trees died within a few years, and as the apple trees ceased to bear edible fruit they were removed.

The upstairs of the house was so hot in summer that it was difficult to get to sleep. It seemed to me that a few trees might improve the situation, at that time I was thinking only of the shade they might cast over the house. I planted anything that was available in the vicinity, and also sowed some seeds. None of the plants were bought, all they cost me was the time and some car gas, plus lots of water-carrying until the roots became established. The soil north of the house is heavy Brookston clay, plants on that side do not require so much watering. The soil south of the house is part sand, anything planted there requires frequent watering for the first few weeks, and longer if there is little rain.

When the boxelders and other saplings I had planted became tree-sized there was a dramatic change for the better inside the house. At present it can be uncomfortably cool in the lower part of the house early in the day. As soon as the sun warms the air a little in the mornings I open the windows to let in a little heat! Even if temperatures remain at 33°C for several days in a row it does not become too hot in the house.

Over the years I have learned that it is not the shade that makes the difference - not much shade falls on the roof anyway - it is the evaporation from the thousands of leaves that is cooling the house. The shade makes a pleasant place to sit on hot days, and the grass remains greener beneath the trees, but the shade probably does not contribute all that much to cooling the yard.

We also have a lot of juniper (*Juniperus virginiana*) in the yard, most of which were obtained from beneath the utility wires that cross over the yard. The junipers grow from seeds that have been voided by birds as they sit on the wires. As soon as I notice a little juniper showing itself in the grass, I transplant it to

another part of the yard - they cannot be left to grow under the wires. I do not know how much the junipers contribute to the cooling of the air, but they do help to break the force of the wind in the winter.

So much for the trees and their influence on the microclimate. Planting the herbs was, and is, done for an entirely different reason. When I began making regular botanical walks I got into the habit of writing down the names of all plants in flower. Collecting the flowering dates seemed to be a useful project and this information was included in my book, *The Plants of Essex County*. As I concentrated on herbs, other growth forms were neglected. Even so, I soon realized that some herbs would be visited so infrequently that I would not get a realistic picture of their flowering dates. That is when I began bringing home plants to transplant into the yard. Some of the rare plants were salvaged from areas slated for development. The flowering dates that I obtain from transplanted plants may not be exactly the same as those for wild plants, but they are close enough.

Other results of my propagation experiments, whether or not the plants survived, appear in Tables 1 and 2. The type of substrate (sand or clay) is indicated because it may have some bearing on plant survival. I have not included information about many of the species propagated in the last couple of years because their fate is yet to be determined.

Some readers may question why my experiments favour transplanting rather than use of seed. I have planted thousands of herb seeds but none have germinated. Most shrub seeds were similarly uncooperative. Cultivated plants are no problem - throw some seeds on the ground and up comes a plant. If they did not germinate easily they would not be cultivated.

Recently I have been trying a different method of propagation. That is, attempting to get twigs and stalks of herbs to develop roots. One method is to put the twig or stalk in water and wait for it to develop roots. House plants are often propagated this way. Another method is to stick the twig or stalk in the ground, place a jar over it, and a sunshade over that. I have some old tomato baskets that I use for shade. I water around the jars every day and when I see new leaves appearing, it probably means that roots are developing. I have had some successes and some failures with this method, but it is too early to make a meaningful report.

Table 1. Native and naturalized plants that continue to thrive in the author's yard. The symbol + indicates plants that are not native.

SCIENTIFIC NAME	COMMON NAME	METHOD OF PROPAGATION	SUBSTRATE	DATE
(TREES)				
+ <i>Acer platanoides</i>	norway maple	plant	sand	10 April 1955
<i>A. saccharinum</i>	silver maple	seed	sand	1960's
+ <i>Ailanthus altissima</i>	tree-of-heaven	seed	sand	1960's
+ <i>Catalpa</i> sp.	catalpa	seed	sand, clay	1960's
+ <i>Cercis canadensis</i>	redbud	seed	sand	1960's
Last winter (1984-85), for the first time, the rabbits did not chew off the tips of the branches. I have hopes that it may flower in 1986 (if I can protect it from the rabbits this winter!)				
<i>Fraxinus pennsylvanica</i>	green ash	plants	sand, clay	1940's
Both varieties have been planted and both do well.				
+ <i>Gleditsia triacanthos</i>	honey locust	seed	sand, clay	1940's
These are the thornless cultivar. The first one planted is sterile, the second is fertile and has produced up to 1500 pods in one year.				
<i>Juglans nigra</i>	black walnut	seed	clay	1960's
+ <i>Morus alba</i>	white mulberry	plants	sand	10 April 1955
There were 2 plants. One died about 10 years ago, but numerous seedlings come up each year. The remaining original tree has an interesting relationship with the cicadas that emerge each year. I collect the cast nymph skins each morning, and invariably the majority are from around this mulberry. There were more than 200 one year, from all trees in the yard. 544 in 1985!				
+ <i>Populus cinerea</i>	poplar	plant	sand	1974
<i>P. deltoides</i>	cottonwood	forgotten	clay	1960's
<i>Quercus rubra</i> *	red oak	seedlings	sand	ca. 1941
Six were planted, later thinned to three. The largest is still only 15 cm DBH.				
<i>Ulmus americana</i>	american elm	plants	sand	10 April 1955
Two plants, one is now dying from Dutch elm disease.				
<i>U. americana</i>	american elm	seedlings	sand, clay	13 May 1946
57 were planted along 3 sides of the yard. When the Dutch elm disease came through it spared 3 of them. The disease is again taking trees in the vicinity.				
* Since some of Essex County's "red" oaks have been identified as shumard oak (<i>Quercus shumardii</i>) it is possible that our three trees are that species.				

(Table 1 continued)

(SHRUBS & WOODY VINES)				
<u>Campsis radicans</u>	trumpet creeper	plants		17 July 1965
<u>Cephalanthus occidentalis</u>	buttonbush	plant	clay	25 April 1980
<u>Euonymus atropurpureus</u>	burning bush	seed	sand	1940's
It grew to about 5 m before the rabbits finally girdled it. It lives on in shoots coming up from the spreading roots.				
<u>Hamamelis virginiana</u>	witch hazel	plant	sand	6 Oct. 1974
<u>Menispermum canadense</u>	moonseed vine	plant	sand	7 July 1965
<u>Ptelea trifoliata</u>	hop tree	seed	sand	1960's
Numerous seedlings appear each year on the lawn, but the lawn mower gets most of them.				
+ <u>Rosa rugosa</u>	rugosa rose	twig		31 Aug. 1979
<u>R. setigera</u>	prairie rose	twig	sand	27 June 1979
<u>Smilax hispida</u>	bristly catbrier	plant	sand	6 July 1965
<u>Staphylea trifolia</u>	bladdernut	plant	sand	1970's
<u>Viburnum lentago</u>	nannyberry	plant	sand	1 July 1965
<u>V. rafinesquianum</u>	downy arrow-wood	plant	sand	1 July 1965
(FORBS)				
<u>Agrimonia parviflora</u>	agrimony	plant	sand	14 July 1981
<u>Allium canadense</u>	wild onion	plants	clay	?
<u>A. cernuum</u>	nodding onion	plant	clay	ca. 1970
<u>A. cernuum</u>	nodding onion	plants	sand	13 July 1974
<u>Amorpha fruticosa</u>	false indigo	plant		6 June 1975
+ <u>Artemisia vulgaris</u>	mugwort	plant	sand	30 Aug. 1978
<u>Asarum canadense</u>	wild ginger	plants	sand	1960's
For a number of years the patch increased in size, then in recent years it has been decreasing.				
+ <u>Campanula rapunculoides</u>	creeping bellflower	plants	clay	25 July 1971
These plants proved to be too aggressive and had to be very severely dealt with.				
+ <u>Centaurea maculosa</u>	spotted knapweed	seed	sand	1967
+ <u>Chrysanthemum balsamita</u>	costmary	plants	clay	24 July 1975
+ <u>Cichorium intybus</u>	chicory	plant	sand	28 June 1976
Slow to become established, after that it has to be spudded out to prevent its spreading all over the yard.				
<u>Cypripedium calceolus</u> var. <u>pubescens</u>	large yellow lady's-slipper	plant	sand	1976
<u>Dicentra canadensis</u>	squirrel-corn	tubers	sand	21 May 1978
Has not yet produced flowers.				

(Table 1 continued)

<u>Dioscorea villosa</u>	yam	plants	sand	7 July 1965
These plants are sterile, and numerous sowings of seeds have failed to produce fertile plants. The plants are handsome anyway.				
<u>Euonymus obovatus</u>	running strawberrybush	seed or plant		1 July 1965
<u>Erigenia bulbosa</u>	harbinger-of-spring	bulb	sand	7 April 1981
<u>E. bulbosa</u>	harbinger-of-spring	plant	sand	3 April 1982
<u>Erythronium albidum</u>	white trout lily	plant	sand	28 April 1976
<u>Eupatorium altissimum</u>	joe-pye-weed	plant	clay	26 Aug. 1975
<u>E. altissimum</u>	joe-pye-weed	plant	clay	1977?
+ <u>Euphorbia platyphylla</u>	broad-leaved spurge	plant	clay	15 July 1979
+ <u>E. platyphylla</u>	broad-leaved spurge	plant	clay	21 June 1980
<u>Galium obtusum</u>	bedstraw	plants?	sand	1970's
At first these increased, now there are only about 4 plants.				
+ <u>G. verum</u>	yellow bedstraw	plant	clay	15 July 1979
<u>Geranium maculatum</u>	spotted cranesbill	plants	sand	19 April 1976
<u>Geum vernum</u>	avens	?	sand	noted 12 May 1982
<u>Hepatica acutiloba</u>	liverleaf	plants	sand	1950's
At first they increased, but in recent years have been decreasing.				
+ <u>Heuchera americana</u>	rock-geranium	plant	clay	13 July 1974
<u>Hydrophyllum virginianum</u>	john's-cabbage	plants	sand	1960's
<u>Impatiens capensis</u>	spotted jewelweed	?	first recorded flowering in	1972
+ <u>Inula helenium</u>	elecampane	plant	clay	18 June 1979
+ <u>Iris brevicaulis</u>	lance iris	plant	sand	18 June 1979
+ <u>I. pseudacorus</u>	yellow iris	plants	clay	12 June 1981
<u>Lilium michiganense</u>	michigan lily	plants	clay	1 July 1965
Had increased to a very healthy patch, then in 1984 some animal cut each stalk down as it came into flower. In 1985 it produced no flowers, and the stalks that did appear soon turned brown. In 1986 it produced stalks and about a dozen flowers - presumably the bulbs had enough energy in them to make a recovery.				
+ <u>Linaria vulgaris</u>	yellow toadflax	plants	clay	1970's
<u>Liparis liliifolia</u>	lily-leaved twayblade	plant	sand	21 June 1968
+ <u>Lysimachia nummularia</u>	moneywort	plants		1948?
+ <u>Lythrum salicaria</u>	purple loosestrife	plant	clay	15 July 1979
+ <u>Mentha spicata</u>	spear mint	plants	clay	20 Sept. 1970
+ <u>Oenothera pilosella</u>	evening primrose	plant	sand	25 June 1979
+ <u>Papaver rhoeas</u>	corn-poppy	plant	sand	25 June 1979

(Table 1 continued)

<u>Phacelia purshii</u>	scorpion-weed	plant	sand	15 May 1980
<u>Phlox divaricata</u>	blue phlox	plants	sand	29 April 1976
<u>Platanthera flava</u>	tubercled orchid	plant	clay	19 July 1976
+ <u>Polygonum scandens</u>	climbing false buckwheat	? probably came in on some vehicle		
<u>Potentilla simplex</u>	cinquefoil	plant	sand	21 June 1968
<u>Pycnanthemum tenuifolium</u>	mountain mint	plant	sand	2 July 1980
<u>P. virginianum</u>	mountain mint	stalk in water	sand	July 1980
<u>Ratibida pinnata</u>	prairie coneflower	plant	clay	13 July 1974
<u>Sanguinaria canadensis</u>	bloodroot	plants		1960's
<u>Scutellaria nervosa</u>	skullcap	plants	sand	8 June 1974
Increased for some years, then decreased				
<u>Silphium terebinthinaceum</u>	prairie-dock	plant	clay	27 May 1976
This year (1985) it had 14 flowering stalks!				
<u>Thalictrum dasycarpum</u>	purple meadow-rue	plant	sand	1960's
<u>Thaspium trifoliatum</u>	meadow-parsnip	plant	sand	1976
+ <u>Torilis japonica</u>	hedge-parsley	seeds	sand	2 June 1978
Too aggressive. I am spudding them all out as they appear.				
<u>Veronicastrum virginicum</u>	culver's-root	plant	sand	21 June 1968
+ <u>Vicia tetrasperma</u>	four-seeded vetch	seeds	sand	27 July 1979
<u>Viola palmata</u>	violet	plant	sand	16 May 1982
<u>V. striata</u>	cream-violet	plant	sand	12 June 1982
+ <u>Vinca minor</u>	periwinkle	plants	clay	30 April 1963
Once established it becomes aggressive. It is in full sunlight, but I have seen it doing very well in shade.				
<u>Zizia aurea</u>	golden alexanders	plant	sand	20 May 1982

Table 2. Native and naturalized plants that have failed to thrive in the author's yard. The symbol + indicates plants that are not native. Plants died the same year they were introduced to the yard unless stated otherwise.

SCIENTIFIC NAME	COMMON NAME	METHOD OF PROPAGATION	SUB-STRATE	DATE INTRODUCED	DATE OF DEATH
(TREES)					
<u>Populus balsamifera</u>	balsam poplar	twig	clay	lived 1 or 2 years;	died 1978
+ <u>Robinia pseudoacacia</u>	black locust	plant	clay	Apr. 1977	

(Table 2 continued)

(SHRUBS & WOODY VINES)					
<u>Cephalanthus occidentalis</u>	buttonbush	twig	clay	20 July 1979; did not root	
<u>Clematis virginiana</u>	virgin's-bower	plant	clay	1940's; died about 1978	
<u>C. virginiana</u>	virgin's-bower	plant	clay	April 1977; died	
<u>C. virginiana</u>	virgin's-bower	twig	clay	2 Aug. 1979; did not root	
+ <u>Elaeagnus angustifolia</u>	russian olive	seedling	sand	May 1978; died 1979	
<u>Salix discolor</u>	pussy willow	twigs	?	15 Apr. 1981; did not root	
<u>S. discolor</u>	pussy willow	twigs	?	14 July 1981; did not root	
<u>Sambucus pubens</u>	red-berried elder	twigs	?	15 Apr. 1981; did not root	
<u>S. pubens</u>	red-berried elder	twigs	?	14 July 1981; did not root	
<u>Symphoricarpos albus</u>	thin-leaved snowberry	twig	?	24 June 1978; did not root	
(FORBS)					
<u>Agrimonia gryposepala</u>	agrimony	plant	sand	7 Sept. 1981; died	
<u>Amaranthus tuberculatus</u>	pigweed	plant	?	20 Aug. 1978; died	
<u>Anemone quinquefolia</u>	wood-anemone	plants	sand	1 May 1976; died	
<u>Anemonella thalictroides</u>	rue-anemone	plant	sand	15 May 1980; died 1983	
<u>Aquilegia canadensis</u>	wild columbine	seed	?	19 July 1979; did not germinate	
<u>Aralia nudicaulis</u>	wild sarsaparilla	plant	?	18 June 1978; died	
+ <u>Arenaria serpyllifolia</u>	thyme-leaved sandwort	plants	sand	29 Apr. 1976; died?	
<u>Arisaema triphyllum</u>	jack-in-the-pulpit	?	sand	? died in 1977	
<u>Aster macrophyllus</u>	large-leaved aster	?	sand	1970's; died ca. 1983	
<u>A. subulatus</u>	aster	plants	?	30 Sept. 1975; died	
<u>Campanula rotundifolia</u>	harebell	plant	?	13 July 1974; died same year	
+ <u>Carduus nutans</u>	nodding thistle	plant	clay	1975; died?	
<u>Centaureum pulchellum</u>	centaury	plants	sand	19 July 1976; died	
<u>Convolvulus sepium</u>	hedge bindweed	plant	?	April 1977; died	
<u>Coreopsis lanceolata</u>	coreopsis	plants	clay	1974?; died ca. 1980	
+ <u>Coronilla varia</u>	crown vetch	plant	sand	12 June 1981; died 1983	
+ <u>Cynoglossum officinale</u>	hound's-tongue	plant	clay	4 June 1978; died	
<u>Dioscorea villosa</u>	yam	seed	sand	13 Apr. 1981; did not germinate	
+ <u>Echium vulgare</u>	blueweed	plant	?	18 July 1978; died	
<u>Gentiana crinita</u>	fringed gentian	plants	?	30 Sept. 1975; died	
<u>Geum aleppicum</u>	yellow avens	plant	sand	3 July 1978; died	
<u>Hepatica americana</u>	liverleaf	plants	sand	22 Apr. 1975; died 1983	
+ <u>Hieracium caespiticium</u>	hawkweed	plants	?	27 May 1976; died	
<u>Hypericum punctatum</u>	spotted st. john's-wort	plants	?	14 July 1981; died 1983	
<u>Isanthus brachiatus</u>	false pennyroyal	plant	?	22 June 1975; died	
+ <u>Kochia scoparia</u>	kochia	plants	?	7 Sept. 1981; died	

(Table 2 continued)

+ <u>Lamium purpureum</u>	purple dead-nettle	plant	?	16 May 1975; died same year
+ <u>Lathyrus latifolius</u>	everlasting pea	plant	sand	23 July 1980; died
+ <u>L. latifolius</u>	everlasting pea	seed	sand	15 Sept. 1980; died
+ <u>Leucanthemum maximum</u>		plant	clay	5 July 1979; died 1980
+ <u>L. vulgare</u> (= <u>Chrysanthemum leucanthemum</u>)	ox-eye daisy	plant	clay	10 June 1976; died
<u>Leucospora multifida</u> (= <u>Conobea multifida</u>)		plant	?	13 July 1976; died
+ <u>Linaria dalmatica</u>	dalmatian toadflax	seed	clay	1977; did not germinate
<u>Liparis loeselii</u>	loesel's twayblade	plant	?	4 Aug. 1978; died
<u>Lonicera dioica</u>	limber honeysuckle	plants	sand	19 April 1976; died
+ <u>Lotus corniculatus</u>	bird's-foot trefoil	plant	?	20 June 1976; died
+ <u>L. corniculatus</u>	bird's-foot trefoil	seed	?	27 July 1979; did not germinate
<u>Lycopodium digitatum</u>	crowfoot clubmoss	plant	?	8 July 1980; died before winter
+ <u>Marrubium vulgare</u>	common horehound	plants	?	4 June 1978; died
+ <u>Matricaria chamomilla</u>	wild chamomile	plants	sand	22 July 1981; died 1983
<u>Mentha arvensis</u>	field mint	plant	?	17 August 1981; died 1982
<u>Mitchella repens</u>	partridge-berry	plant	sand	25 June 1974; died same year
<u>M. repens</u>	partridge-berry	plant	sand	9 May 1980; died April 1981
<u>Mitella diphylla</u>	coolwort	plant	?	20 May 1978; died ca. 1983
+ <u>Myosotis macrosperma</u>	forget-me-not	plant	?	15 May 1980; died
+ <u>M. verna</u>	forget-me-not	plant	?	18 May 1975; died
<u>Phyla lanceolata</u> (= <u>Lippia lanceolata</u>)	fog-fruit	plants	clay	2 July 1981; died 1984
<u>Phacelia purshii</u>	scorpion-weed	plant	?	18 May 1975; died?
<u>Phystostegia virginiana</u>	false dragonhead	plant	clay	24 July 1973; died ca. 1980
+ <u>Plantago psyllium</u>	psyllium	seeds	sand	2 July 1978; died 1983
<u>Pluchea purpurascens</u>	marsh-fleabane	plant	?	30 Sept. 1975; died?
<u>Polygonum hydropiperoides</u>	mild smartweed	plant	clay	17 Aug. 1981; died
<u>Potentilla argentea</u>	silvery cinquefoil	plant	?	18 May 1975; died?
<u>Pyrola elliptica</u>	shinleaf	plant	?	25 June 1974; died same year
<u>Ranunculus fascicularis</u>	early buttercup	plant	sand	1975; died ca. 1982
+ <u>Salvia nemorosa</u>	woodsage	plant	clay	16 Aug. 1974; died 1984
<u>Scutellaria lateriflora</u>	mad-dog skullcap	self-established		died in 1970's
<u>Senecio aureus</u>	golden ragwort	plant	clay	16 Apr. 1981; died 1983
<u>Sida spinosa</u>	prickly mallow	plants	?	6 Oct. 1975; died?
<u>S. spinosa</u>	prickly mallow	plant	?	20 Aug. 1978; died
<u>Silphium laciniatum</u>	compass plant	plant	clay	27 July 1975; died ca. 1982
<u>Sisyrinchium albidum</u>	blue-eyed grass	plant	?	27 May 1976; died
+ <u>Solidago sempervirens</u>	seaside goldenrod	plants	?	30 Sept. 1975; died ca. 1980
+ <u>Spergularia marina</u>	sand-spurrey	plants	?	6 Sept. 1975; died ?

(Table 2 continued)

+ <u>S. marina</u>	sand-spurrey	plant	?	22 Sept. 1976; died
+ <u>S. marina</u>	sand-spurrey	plant	?	15 July 1979; died
<u>Spiranthes cernua</u>	nodding ladies'-tresses	plant	clay	25 Aug. 1975; died?
+ <u>Tanacetum vulgare</u>	tansy	plant	clay	17 Aug. 1981; died
<u>Tiarella cordifolia</u>	foam flower	plant	sand	20 May 1978; died ca. 1982
<u>Triphora trianthophora</u>	nodding pogonia	plant	sand	25 Aug. 1975; died same year
+ <u>Tussilago farfara</u>	colt's-foot	plant	?	17 Apr. 1976; died
<u>Valerianella umbilicata</u>	corn-salad	plant	?	18 May 1975; died?
+ <u>Verbena simplex</u>	vervain	plant	?	13 July 1974; died same year
<u>V. stricta</u>	hoary vervain	plant	?	15 July 1974; died
<u>Vernonia gigantea</u>	tall ironweed	plant	clay	1975; died?
+ <u>Veronica arvensis</u>	corn speedwell	plants	?	29 Apr. 1976; died
<u>Viola conspersa</u>	dog-violet	plants	sand	1970's; died ca. 1980
<u>V. incognita</u>	white violet	plant	sand	16 Apr. 1981; died
+ <u>V. kitaibeliana</u>	field-pansy	plant	sand	15 May 1980; died
<u>V. papilionacea</u>	stemless blue violet	plant	sand	20 May 1978; died ca. 1983
<u>V. rostrata</u>	long-spurred violet	plant	sand	4 May 1982; died

AN INVENTORY OF PRIVATE HERBARIA
IN ONTARIO

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

When the late Bernard Boivin published his Survey of Canadian Herbaria (1980) he documented and identified the location of over 4.5 million plant specimens, both vascular and non-vascular. This extremely valuable work gives the botanist an easy way to locate particular collections, to assess the strengths of individual herbaria, to assess geographic representation in various institutional collections and to appreciate the development and history of Canadian botanical collections. Boivin also noted that almost 500,000 of the herbarium specimens in Canada were in private hands. He noted that many formerly private collections had found their way into public herbaria. This included the John Dearness collection of 50,000 fungi and the vascular plant collections of Claude Garton

(14,000 items), George Lawson (10,000), H.H. Brown (7,000), James Fletcher (3,000), and others.

Boivin's compilation was the first to document and describe private collections in Canada. A number of private herbaria were omitted from his work and a number more have been initiated since his study was published. This paper updates the list of private herbaria in Ontario.

With the 1985 renewal notice for The Plant Press, Jocelyn Webber, editor, circulated a short questionnaire requesting information on private herbaria held by subscribers. This effort yielded much of the information used in the summaries presented here. Where more recent information is not available, however, I have taken data from Boivin and provided the appropriate reference. Also, I have added a few summaries based on undocumented personal experience and these are indicated by an asterisk (*) following the name of the herbarium owner.

I have categorized private collections to reflect important similarities in their curation and/or ownership and their accessibility. The categories are: (A) Collections in private residences, (B) Collections in unidentified private residences, (C) Private collections in public institutions, and (D) Non-resident private collections.

A. Collections in private residences.

These collections are housed in private homes and are independent of any institutional support. For the most part, the material was collected during unsponsored botanical activities and is housed in privately acquired storage facilities.

1. Banks, P.M.
2958 Sunset Blvd., Bright's Grove,
Ontario NON 1C0
- fungi (boxed); no duplicates distributed.
- established in 1975.
- mostly polypores, mainly from Lambton Co.
- no other collectors represented.
2. Botham, Wilfred
R.R. 1, Cottam, Ontario NOR 1B0
- 1,700 vascular plants (unmounted); duplicates
in DAO, CAN, LKHD, TRT.
- established in 1981.
- mostly from Essex Co.; some from British
Columbia.
- no other collectors represented.
3. Brunton, Daniel F.
2704 Marie St., Ottawa, Ontario K2B 7E4
- 5350 vascular plants (mounted and stored in
steel cabinets); duplicates in DAO, CAN, TRT,
TRTE, WAT, OAC, MICH, US, UAC, ALTA, OTT, APM.
- established in 1968.
- from across Ontario (particularly northern
and southeastern), western Quebec, Alberta
and elsewhere in Canada and USA; includes
pteridophytes (850) from across N. America
and elsewhere, including 3 type specimens.
- collections by D.M. Britton, H.F. Coneybeare,
W.J. Crins, C. Frankton, J.D. Lafontaine,
M. Oldham, P. Pratt, A.A. Reznicek, D.A.
Sutherland represented.
4. Chamberlain, Debra
62 Bexhill Dr., London, N6E 1X2
- 300 vascular plants (unmounted); no dupli-
cates distributed.
- established in 1978; from across Ontario.
- no other collectors represented.

5. Cuddy, Donald
R.R. 4, Kemptville, Ontario K0G 1J0
- 500+ vascular plants (unmounted and filed in
steel cabinets); duplicates in DAO, CAN, QK.
- established in 1969.
- mainly eastern Ontario.
- no other collectors represented.
6. Cunningham, David
#2 - 42 Leduc Dr., Rexdale, Ontario
M6W 2A9
- 600+ vascular plants (mounted & unmounted);
duplicates in TRT and TRTE.
- established in 1979.
- from south-central Ontario.
- no other collectors represented.
7. Darbyshire, Stephen
201 Besserer St., #2, Ottawa, Ontario
K1N 6A9
- unnamed number of vascular plants; dupli-
cates in CAN, DAO, OAC, APM.
- established in 1969.
- from across Ontario and elsewhere in Canada,
USA and Jamaica; specializing in grasses and
ferns.
- collections by H.L. Dickson represented.
8. Draper, William
48 Brunswick Ave., Toronto, Ontario
M5S 2L7
- 250 bryophytes; no duplicates.
- established in 1984.
- from south-central Ontario.
- collections by R.F. Cain and R.R. Ireland
represented.
9. Fischl, Tim
66 Celestine Dr., Weston, Ontario
M9R 3N4
- 200 vascular plants (unmounted); no dupli-
cates.
- established in 1983.
- from Toronto and Vienna (Austria); many
urban weeds.
- no other collectors represented.
10. Hainault, Robert (from Boivin 1980)
Gloucester, Ontario
- 6,500 vascular plants and 500 bryophytes
(unmounted?); mostly duplicated in DAO, QK,
and some at QFF, TRT.
- established before 1974.
- mainly the Kingston area; across Canada.
- no other collectors represented.

11. Judd, W.W. (from Boivin 1980)
London, Ontario
- 800 vascular plants; duplicates in DAO.
- established in 1925.
- mostly southwestern Ontario; across Canada.
- collections by C.E. Atwood, R. Elliott, and
J.H. Soper represented.
12. Kirk, Malcolm D.
R.R. 1, Ravenna, Ontario NOH 2E0
- 150 vascular plants (mounted); 1,200 speci-
mens recently donated to CAN; duplicates in
CAN, TRT.
- established in 1940.
- from across Ontario.
- no other collectors represented.
13. Meyers, George
7 Bedford Park Dr., Grimsby, Ontario
L3M 2S1
- unnamed number of vascular plants (unmounted);
duplicates in HAM, OAC.
- established in 1965.
- mainly Niagara Peninsula; across Ontario and
Virginia (USA); many oaks (*Quercus* spp.).
- no other collectors represented.
14. Mosquin, Ted
Box 279, Lanark, Ontario K0G 1K0
- 1,000 vascular plants (unmounted in steel
cabinets); from eastern Ontario.
- no other collectors represented.
15. Moore, Mary I. (from Boivin 1980)
Deep River, Ontario
- 3,500 vascular plants; many duplicated in DAO.
- established before 1972.
- from upper Ottawa Valley and Algonquin Park.
- no other collectors represented.
16. Muma, Robert
625 Rushton Rd., Toronto, Ontario
M6C 1Y8
- 1,800 bryophytes (in packages); duplicates
in CANM.
- established in 1975.
- across Canada; others countries (unnamed).
- various other collectors (unnamed).
17. Oldham, Michael
R.R. 2, Ruthven, Ontario NOP 2B0
- 600 vascular plants (mounted and unmounted);
- duplicates at CAN, DAO, OAC, TRT, TRTE, UWO, WAT, DFB.
- established in 1979.
- mainly southern Ontario; many sedges and grasses.
- collections by S.J. Darbyshire, D.A. Sutherland,
D.F. Brunton, D. McLeod and W. Botham represented.

18. Scovell, T. Ronald
3 Sims Cres., Rexdale, Ontario M9V 2S9
- 500 pteridophytes from North America;
no duplicates.
- established in 1960.
- no other collectors represented.
19. Stewart, William G.
6 Yarwood St., St. Thomas, Ontario
N5P 2Y3
- 1,440 bryophytes (in packages); duplicates
in CANM, UWO, MICH.
- established in 1969.
- from Elgin Co. and southwestern Ontario.
- no other collectors represented.
20. Whiting, R.E.
74 Denison Rd. West, Weston, Ontario
M9N 1C2
- 4,000 vascular plants (mounted and stored in
steel cabinets); duplicates at TRT, CAN, DAO, OAC.
- established in 1950; willed to TRT.
- from Muskoka and across Canada.
- collections by WM. E. Cattley and J. Goltz
represented.
21. Williams, Harry
Millbrook, Ontario LOA 1G0
- 8,000 bryophytes (in packages); duplicates
in CANM, TRTC, US, BM.
- established in 1955.
- from Ontario, Quebec and Newfoundland; one
type specimen.
- no other collectors represented.

B. Collections in unidentified private residences

A number of subscribers who responded to the query about plant collections did not wish to be publicly identified. The data on their collections is reported below.

22. Anonymous No. 1
- 2,000 vascular plants (unmounted) from
southwestern Ontario and parts of New Bruns-
wick; presently being transferred to a
public herbarium.
23. Anonymous No. 2
- 150 vascular plants (unmounted) from south-
central Ontario; mostly duplicated in TRTE.

24. Anonymous No. 3

- 600 vascular plants (mounted on scrapbook sheets) from southwestern Ontario and elsewhere; some duplicates at UW0.

25. Anonymous No. 4

- 300 vascular plants (unmounted) from southern Ontario and high arctic; no duplicates.

C. Private collections in public institutions

A small number of university personnel have maintained personal herbaria that are developed incidentally to their academic studies and are housed at their own institution. These partially sponsored collections are treated separately from totally private herbaria.

26. Maycock, Paul F. (from Boivin 1980)
Erindale College, University of
Toronto, Mississauga, Ontario L5L 1C6

- 10,000 vascular plants (mounted and stored in steel cabinets); some duplicates in TRT, DAO, MTMG.
- established in 1954.
- mainly Ontario and Quebec; across Canada.
- collections by unnamed graduate students represented.

27. Morton, John K.
Department of Biology, University of
Waterloo, Waterloo, Ontario N2L 3G1

- 20,000 vascular plants (mounted and stored in steel cabinets); duplicates in WAT, CAN, TRT, SFS, MICH, VDB, LKHD.
- established in 1942.
- from across Canada, the USA and elsewhere; strong in Lamiaceae, Caryophyllaceae, and the *Solidago canadensis* complex.
- no other major collectors represented.

28. Ritchie, James C. (from Boivin 1980)
Scarborough College, University of
Toronto, Scarborough, Ontario

- 5,000 vascular plants (mounted?): no duplicates.
- established in 1974.
- from Nova Scotia, Manitoba, Yukon, and parts of the USSR; few Ontario collections.
- no other collectors represented.

29. Anonymous No. 5

- unnamed number of vascular plants from Canada, the USA, and Mexico; some duplicates in TRT and elsewhere.

D. Non-resident private collections.

A number of private herbaria outside Ontario contain collections from this province.

30. Crins, W.J.
4524 W. 11th Ave., Vancouver, B.C.
V0R 2M4

- 1,500 vascular plants (mounted); duplicates in TRTE, TRT, OAC, CAN, DAO.
- established in 1974.
- from southern Ontario; elsewhere in Canada, the USA, and Nigeria; rich in Cyperaceae, Poaceae, and Juncaceae.
- collections by D.F. Brunton, H.L. Dickson, M.E. Dyer, and D.A. Sutherland represented.

31. Coneybeare, H.F. *
44 Strathclair Rise, Calgary, Alberta
T3H 1G4

- 1,500 vascular plants (mounted and stored in wooden herbarium cabinets); duplicates in APM, DAO.
- established in 1972.
- from southern Ontario (mainly Algonquin Park and Wellington Co.), western Alberta, southern British Columbia.
- no other collectors represented.

32. Dickson, H.L. *
51 Lancaster Cres., St. Albert, Alberta
T8N 2N9

- 4,000 vascular plants (mounted and unmounted); duplicates in APM, CAN, DAO.
- established in 1973.
- from southern Ontario (mainly Ottawa and Algonquin Park areas), Northwest Territories, and Alberta.
- collections by D.F. Brunton, W.J. Crins, and S. Darbyshire represented.

33. Reznicek, A.A. and S.A.
University of Michigan Herbarium, North University Bldg., Ann Arbor, Michigan 48109

- 6,000 vascular plants (mounted and filed in steel cabinets); duplicates in TRT, CAN.
- established in 1967.
- mainly Simcoe Co.; across Ontario.
- collections by R.S.W. Bobbette represented.

34. Voss, Edward G.
University of Michigan Herbarium, North University Bldg., Ann Arbor, Michigan 48109

- 3,475 vascular plants (mounted and filed in steel cabinets); duplicates at MICH, TRT, CAN, DAO, LKHD, MSC, BLH, S, WAT, LE, SMJ, WIS.
- established in 1945.
- mainly from Michigan: across North America, including 275 from Canada (mostly Ontario).
- no other collectors represented.

Discussion

The number of specimens represented in the private Ontario herbaria listed (excluding non-resident collections) is summarized below:

	Fungi	Bryophytes	Vascular	Totals
Category A	75	12,000	24,250	36,325
Category B	-	-	3,050	3,050
Category C	-	-	35,800	35,800
Totals	75	12,000	63,100	75,175

Of the approximately 75,000 specimens in private Ontario herbaria, an unknown number are from outside the province. It seems clear, however, that a large majority of the material is from Ontario. These collections represent an important source of botanical data - one which is often overlooked by botanists doing research involving Ontario plant specimens. The project on rare and endangered plants of Canada of the National Museum of Natural Sciences is a notable exception. In the production of the *Atlas of the Rare Vascular Plants of Ontario* their specialists are making use of both public and private herbaria.

A large number of these private collections appear to be replicated in public institutions and this certainly reduces the loss of information when only public herbaria are surveyed. A potentially serious limitation of the long-term usefulness of the unduplicated material is the curation of the specimens. Many collections, particularly the smaller ones, do not contain mounted specimens. This can result in varying degrees of physical damage, as well as loss of label data that can be even more serious for the usefulness of the specimen.

The manner of housing the collection can also be of consequence to the long-term survival of the specimens. Few collections appear to be housed in insect-proof, air-tight cabinets. While small private collections may seem not to warrant such cabinets of steel or wood, without them material is rarely properly filed and cared for in a manner which assures relative

permanence and useful reference by the owner and/or other individuals. If for no other reason than for respect for the botanical resource, all collections should be securely housed with carefully and fully completed labels securely attached to the mounting sheet or packet. Lastly, arrangements should be made for disposition of private collections into public herbaria when the owner no longer has interest or need of the material. Only two owners, R.E. Whiting and the author, have apparently made arrangements along this line.

I would appreciate hearing of additional collections in the hands of Ontario botanists. I would also like to hear from those collectors listed in this paper if there are corrections or up-dates to be made of the information presented. I think that documentation of all private collections in Canada would be a very worthwhile project for an organization such as the Canadian Botanical Association.

Reference

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BLACK ALDER (*Alnus glutinosa* (L.) Gaertn.)
AN INTRODUCED TREE NEW FOR THE KINGSTON
REGION, EASTERN ONTARIO

A.E. Garwood, The Fowler Herbarium, Queen's
University, Kingston, Ontario K7L 3N6

In late October, while botanizing on Wolfe Island, at the eastern end of Lake Ontario opposite the city of Kingston, Ian Macdonald was surprised to find black alder (*Alnus glutinosa*). There was a single tree, about 4 m tall, growing on the crest of a low (3 m high) sand dune just back from the Lake Ontario shore on Big Sandy Bay. It had a pyramid shape, like a pear tree when seen from a distance, and was still holding on to about 70% of its leaves, whereas the speckled alders (*Alnus rugosa*) growing in the swamp thickets behind the dune

ridges had lost all their leaves at least a week previously. The leaves of the black alder were dark green, while those of the speckled alder were brown. Ian also noted that the tree bore male catkins for the spring of 1986 and female catkins contained some seeds, the fertility of which was unknown.

The black alder was growing in a loose association with an open grove/thicket complex of willow (*Salix fragilis* and *S. eriocephala*), cottonwood (*Populus deltoides*), grasses (*Poa compressa*, *Elymus canadensis*, *Ammophila breviligulata*) and white sweet clover (*Melilotus alba*).

Black alder was not reported for the Kingston region (Beschel et al. 1970) and I believe that Ian's discovery is the first record for eastern Ontario.

Documentation: Ontario: Frontenac Co., Wolfe Island Twp., Big Sandy Bay, 29 October 1985, Ian D. Macdonald 17138 (QK, CAN).

Reference

Beschel, R.E., A.E. Garwood, R. Hainault, I.D. Macdonald, S.P. Vander Kloet & G.H. Zavitz. 1970. A list of the vascular plants of the Kingston Region. Fowler Herbarium, Queen's University. ♦

[Ed. note: In *Shrubs of Ontario* Soper & Heimbürger (1982) reported records of black alder from the Regional Municipality of Haldimand-Norfolk, Elgin County, and Oxford County in southwestern Ontario. They also reported it as planted at Toronto Island in central Ontario. Black alder is well-established at the western end of Lake Ontario at the Royal Botanical Gardens. It has been planted by the Ontario Ministry of Natural Resources in central Ontario. Black alder was included in a list of alien species which are potentially detrimental to natural vegetation (supplement to *The Plant Press*, September 1985).]

A NEW, NATURALLY OCCURRING, INTERSPECIFIC HYBRID IN THE GRASS GENUS *Elymus* (WILDRYES AND WHEATGRASSES), TRIBE TRITICEAE, FROM SOUTHERN ONTARIO

S.J. Darbyshire, 201 Besserer St., #2, Ottawa, Ontario K1N 6A9
illustrated by B.S. Brookes, Steeple Hill Cres., R.R. #2, Richmond, Ontario K0A 2Z0

A recent Brant County, Ontario collection of a grass of the tribe Triticeae, does not fit the descriptions in Dore & McNeill (1980) and other manuals frequently used by Ontario field botanists (Fernald's (1950) "Gray's Manual," Gleason's (1952) "Britton & Brown Illustrated Flora," Gleason & Cronquist's (1963) "Manual of Vascular Plants," and Scoggan's (1979) "Flora of Canada"). Part of the difficulty in putting a name to the Brant County specimen was due to nomenclatural confusion within the tribe Triticeae (users of Dore & McNeill (1980) are advised to read the comments under the *Agropyron* genus account on page 179). The other part of the difficulty, which would certainly be encountered by field botanists finding such a specimen, was that the characteristics of the Brant County specimen did not match those given in recent floras. After investigating other herbarium specimens, it appears that the Brant County specimen may represent a new, naturally occurring, interspecific hybrid in the genus *Elymus*.

Realignment of generic concepts in Triticeae

In the past few years further realignments of generic concepts have been proposed for the Triticeae (Love 1984; see also the review of North American taxa by Dewey (1983)). Dispute over circumscription of genera continues and some species have been placed in several different genera by different workers (e.g., *Agropyron smithii* Rydb. (western wheatgrass) and *A. elongatum* (Host) Beauv. (tall wheatgrass)). Almost all members of the Triticeae are capable of wide intra-tribal hybridizations (Bowden 1967; Dewey 1982). Many of these hybrids occur in nature and may become abundant in disturbed habitats. Hybridization is known to be one of the major factors in the evolution of the tribe (Dewey 1982). Studies on hybridizations within Triticeae are especially important to systematists who study evolution within this economically important tribe of cereal grasses; to field botanists, new hybrids are of interest

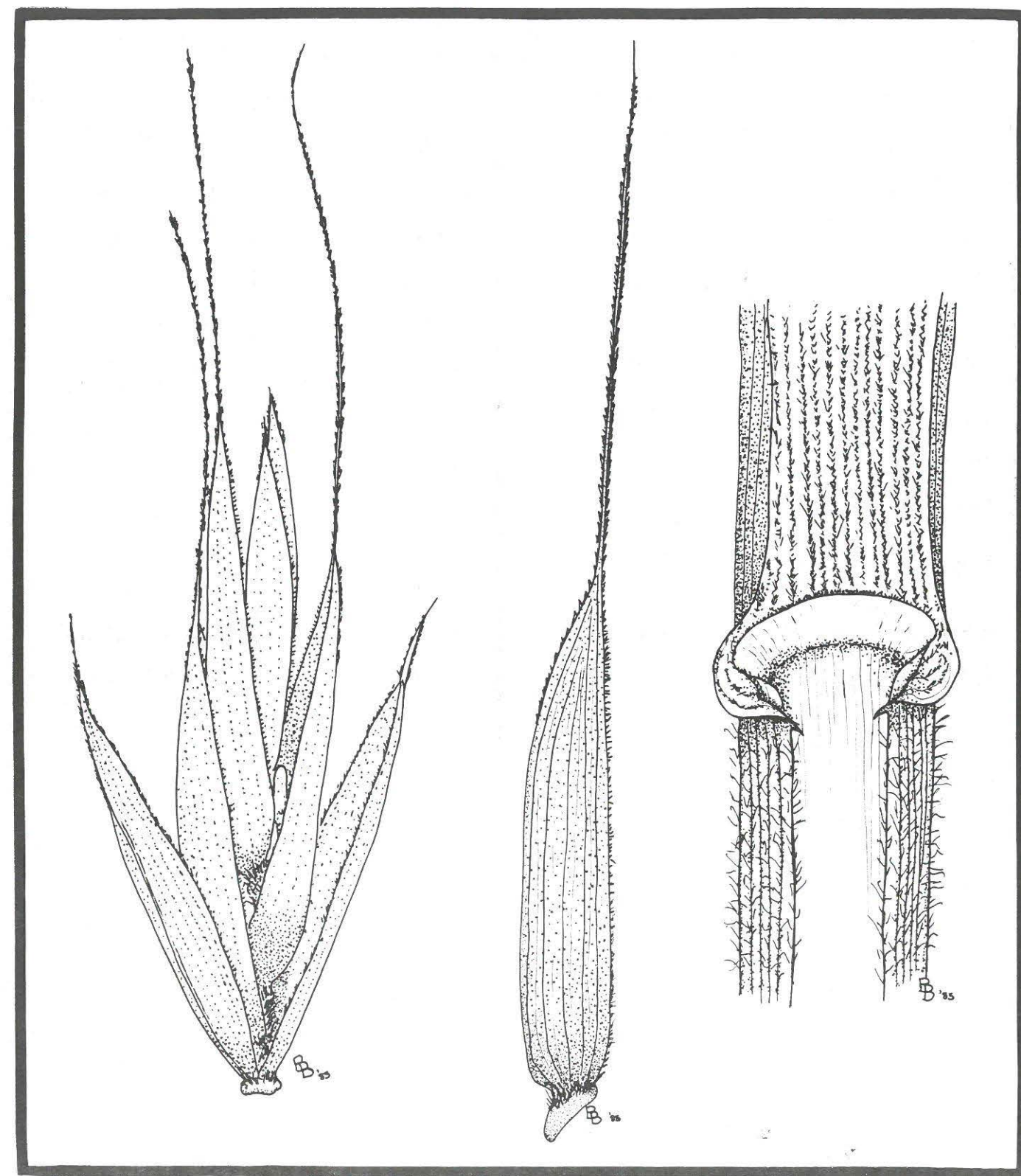


Figure 1. Floral and vegetative features of *Elymus trachycaulus* X *E. villosus* based on the specimen from Brant County, Ontario. A. Spikelet showing florets (X 9). B. Lemma (X 10). C. Leaf blade and sheath showing ligule and auricles (X 11). Illustrations by B.S. Brookes.

Table 1. Comparison of characters of the hybrid *Elymus trachycaulus* X *E. villosus* (based on Brant County specimen) with the parental species. Characters for the parental species are based on descriptions in the literature (Bowden 1964 and 1965) and measurement of specimens from DAO.

Character	<i>Elymus trachycaulus</i>	hybrid from Brant County	<i>Elymus villosus</i>
culms	caespitose	caespitose	caespitose
sheaths	glabrous	pilose	pilose
leaf blade width (mm)	-	to 5.5	6 - 10
leaf abaxial surface	glabrous to scabrous	sparsely villose and short hirsute	pilose, villose to sparsely villose
inflorescence aspect	stiffly erect	erect	erect but flexuous
inflorescence length (cm)	13 - 19.7	16	5 - 15
number of spikelets per node	1	1	2
number of florets per spikelet	-	3 - 4	1 - 2(3)
glume length (mm)	8.0 - 10.7	8 - 13	5.0 - 6.0(7.0)
glume texture	-	scabrous	scabrous-hispid
number of nerves in glume	(4)6 - 7	5 - 7	1(2)
glume shape	lanceolate to ovate	lanceolate to broadly lanceolate	subsetaceous
glume awn length (mm)	-	2 - 4.5	6 - 12
lemma length (mm)	8.0 - 10.7	10 - 11	-
lemma texture	glabrous (scabrid at base)	scabrous	(glabrous) scabrous to villose
lemma awn length (mm)	-	to 25	10 - 42
anther length (mm)	1.6 - 1.9(2.0)	ca. 2	2 - 2.7(3.5)

because of the possibility that they may be discovered elsewhere.

The taxon generally known to North American workers as *Agropyron trachycaulum* (Link) Malte (slender wheatgrass) was placed in the genus *Elymus* by F.W. Gould (Shinners 1954). Genome analysis by Dewey (1968) supports the conclusion of Gould. Genome analysis is the identification of similarities or dissimilarities (homologies and non-homologies) in gametic chromosome sets, accomplished through comparison of chromosome pairing behaviour in hybrids of the taxa under consideration. A summation of this work in the Triticeae can be found in Dewey (1984).

Determination of this new hybrid *Elymus*

The hybrid reported here (Fig. 1) is the product of a cross pollination between *Elymus trachycaulus* (Link) Gould (in Shinners 1954) and *E. villosus* Muhlenberg (hairy wildrye). *Elymus trachycaulus* is known to hybridize naturally with *Hordeum jubatum* L. (foxtail barley) (Lepage 1952) as well as *E. canadensis* L. (canada wildrye) (Boivin 1967; Lepage 1965). The latter grass is a close relative of *E. villosus* (Dewey 1982; Shinners 1954). *Elymus villosus* is also reported to hybridize naturally with the closely related *H. jubatum* (Pohl 1966), and artificially with *E. virginicus* L. (virginia wildrye) (Church 1967).

This is the first report of hybridization between *Elymus villosus* and *E. trachycaulus* (Bowden 1964; Knobloch 1968; Scoggan 1979). A comparison of the parental species and their hybrid, based on the Brant County specimen, is given in Table 1. The dehiscent anthers of the hybrid specimen contain well developed pollen indicating the possibility of back-crossing with parental species and, possibly, an F₂ generation.

Documentation: Ontario: Brant Co., South Dumfries Twp., 43°13'N, 80°20'W, along S side of abandoned railway bed, a railway bed prairie on rocky soil dominated by *Andropogon scoparius* - *Hieracium florentinum* - *Aster azureus* - *Poa compressa* - *Achillea millefolium*, 8 July 1982, D. Langendoen (DAO).

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THE FERNS OF MANITOULIN ISLAND:
NOTES AND A NEW RECORD

D.M. Britton, Department of Molecular Biology and Genetics, University of Guelph, Guelph, Ontario N1G 2W1 and
A.B. Anderson, Department of Botany, University of Guelph, Guelph, Ontario N1G 2W1

The Flora of Manitoulin Island (Morton & Venn 1984) is an excellent introduction to the ferns of the Island. Not only is the list of species and hybrids very complete, but also the grid maps give a quick picture of where the plants grow and how common each taxon is. Soper (1963) highlighted the fact that some species considered rare elsewhere in the province are relatively quite frequent in numbers if not in stations on Manitoulin, e.g., *Asplenium rutamuraria* (wall rue), *Pellaea atropurpurea* (purple cliffbrake) and *Woodsia cathcartiana* (cathcart's woodsia).

Conversely, it comes as a surprise to someone who has botanized along the Niagara Escarpment in the rich hardwoods and on shady talus further south, to find that *Camptosorus rhizophyllus* (walking fern) is only known at two localities; *Dryopteris filix-mas* (male fern) at three localities; *Adiantum pedatum* (maidenhair) is scarce, as is *Polystichum acrostichoides* (christmas fern); and such well known species from shady, moist stream beds and springy glades as *Athyrium thelypteroides* (silvery glade fern), *A. pycnocarpon* (glade fern), *Dryopteris clintoniana* (Clinton's woodfern) and *D. goldiana* (goldie's woodfern) are apparently absent (we are still looking!) - not to forget the famous hart's-tongue which seems to be very scarce in the upper Bruce (to Stoke's Bay from Soper 1954), appears to by-pass Manitoulin, and yet reappears in Chippewa County in Michigan. A frequent associate of *Phyllitis* (hart's-tongue) further south in Grey and Simcoe counties, *Polystichum lonchitis* (holly fern) (Soper 1954), has only been found once on Manitoulin. It is informative to look at the grid maps for such plants as *Fagus grandifolia* (beech), *Allium tricoccum* (wild leek), *Dentaria* spp. (toothwort), and *Dicentra* spp. to realize that rich maple-beech woods are not common on Manitoulin. Note also the absence of *Asarum canadense* (wild ginger).

Accordingly, we considered that Manitoulin Island has a definitely northern aspect. This view is tempered somewhat by the lack of some species

well known from Lake Superior, e.g., *Polystichum braunii* (braun's holly fern, from the Island proper), *Lycopodium selago* (fir clubmoss), *Gymnocarpium jessoense* (nahanni oak-fern), *Dryopteris fragrans* (fragrant woodfern), and such *Woodsias* as *W. alpina* (alpine woodsia) and *W. scopulina* (rocky mountain woodsia).

Two other species that one might expect on the Island if one is familiar with Parry Sound and Nipissing districts are *Thelypteris noveboracensis* (new york fern) and *Dennstaedtia punctilobula* (hay-scented fern), but again, dolomitic bedrock is usually near at hand, and the last two species are more typical of acid soils. One also realizes one is in limestone country when one notes the rarity of sphagnum bogs and hence *Woodwardia virginica* (virginia chain fern). Also, there are few records known for such familiar acid-loving species as *Osmunda cinnamomea* (cinnamon fern) and various lycopods.

One of the major changes in the species list from Soper (1963) to that in Morton & Venn (1984) is in the Ophioglossaceae. We now know of over ten localities for *Botrychium matricariifolium* (daisy-leaf grapefern) with extremely large numbers known at some localities, e.g., southwest of Burpee-Mills Cemetery in a sandy field with blow-outs. Almost as many localities are known for *B. minganense* (mingan moonwort) with large numbers known at Square Bay behind the first dune. Several good colonies of *B. simplex* (least moonwort) are known, e.g., southwest of Burpee-Mills Cemetery, 2.0 km W of Poplar and the road into Square Bay. There are also a few good colonies of *B. lunaria* (moonwort) known, e.g., behind the dunes at Square Bay. *Botrychium multifidum* (leathery grapefern) is scattered in sandy old fields under bracken and sumach. As yet, no *B. oneidense* (blunt-lobed grapefern) has been found and very few plants of *B. dissectum* f. *obliquum* (oblique grapefern) have been seen, with not a single collection of f. *dissectum* (dissected grapefern).

Ophioglossum was added to the list by the second author in 1983, when a colony was found in a grassy hollow behind the first dune at Square Bay, growing with *Botrychium lunaria*, *B. minganense*, and *B. matricariifolium*. The next year, J. Goltz found a second colony of *Ophioglossum* in a sandy, open field near the beginning of the road to Dean Bay. This field was noteworthy for extremely large *B. matricariifolium* and a very few *B. dissectum* f. *obliquum*.

One point became clear from detailed field work on *Botrychium* spp. over three years (1983-5). Some years are better *Botrychium* years than others. The small spring species are very susceptible to late frosts and depending on when these occur, the end result may be marked swings in apparent numbers of each species observed. For example, in 1983 we saw very few *B. lunaria* and one extremely large patch of *B. minganense* (at the Burpee-Mills Cemetery). Whereas in 1984 the *B. lunaria* were striking and the large patch of *B. minganense* had vanished. Also, good colonies of *B. simplex* at Poplar were not evident in 1984.

Does this complete the story of *Botrychium* spp. on Manitoulin? Probably not, because no *B. rugulosum* (ternate grapefern) and *B. lanceolatum* (triangle grapefern) have been found as yet, and Wagner (pers. com.) reports that a western species, *B. hesperium*, is present on the Island.

Manitoulin Island is also noteworthy for its limestone escarpments, and on these is usually found a rich assemblage of *Cystopteris* taxa. On the shady talus towards the base, one usually finds *C. bulbifera* (bulblet fern) and on shady ledges and in crevices *C. laurentiana* (laurentian fragile fern) is quite frequent, often associated with *Cryptogramma stelleri* (slender cliff-brake). The shady cliffs at the southwest end of Nameless Lake and also on the west side of Lake Mindemoya at the township line both have large and luxuriant stands of this *Cystopteris*. The smaller species, *C. fragilis* (northern fragile fern) and *C. tenuis* (mackay's fragile fern) are frequent, and for those who like to look at spores with a compound microscope, a number of collections have proved to have rugose spores rather than echinate spores and are referable to *C. dickieana* (dickie's fragile fern). Dr. C. Haufler of Kansas has an active research program on *Cystopteris* of North America utilizing isozymes. Recently he has become very interested in a small plant from the escarpment opposite Gore Bay (East Bluff). The cytology and the isozymes suggest that this is a newly derived, unique species. The plant was growing in a vertical dolomitic seam about two meters below the top of the escarpment. One of the associates of this plant was *Pellaea glabella* (smooth cliff-brake). *Woodsia cathcartiana* (cathcart's woodsia) is also quite frequent on this bluff in crevices and on the talus.

Gymnocarpium robertianum (limestone oak-fern) is another rare fern on Manitoulin. It is not an easy species to find. The first author has seen it growing at only two known localities and we have yet to add any new stations.

Our new record for Manitoulin Island is *Woodsia glabella* (smooth woodsia). This was collected by us on 15 May 1985 (Britton 10,393 and Anderson OAC) from the northwest-facing escarpment ca. 4 km south of Ice Lake Village. The plants were small, and crowded into shady crevices together with *Cystopteris fragilis* sens. lat., near the top of the escarpment close to a cable which seems to extend down to an old lime pit below the talus. Associated species included *Woodsia cathcartiana* (cathcart's woodsia), *Asplenium trichomanes* (maidenhair spleenwort), and *Cryptogramma stelleri* (slender cliff-brake). *Pellaea glabella* (smooth cliff-brake) is known from this escarpment, but we did not see this species. The record of *Woodsia glabella* is noteworthy as being a connecting link between those collected at Batchewana Falls in the Lake Superior basin (Taylor 1938) and the famous disjunct colony near Warsaw northeast of Peterborough.

We also report *Asplenium viride* (green spleenwort) (Britton 10,425 and Anderson OAC) and *Cystopteris laurentiana* from the shady, large block talus near Kaboni growing with already documented *Polypodium virginianum* (rock-cap fern), *Asplenium trichomanes* (maidenhair spleenwort), and *Camptosorus rhizophyllus* (walking fern). *Asplenium viride* (green spleenwort) is still a rare species on the island, best known from the other site on Manitoulin for the walking fern near the Cup-and-Saucer Trail.

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NEWS OF FIELD BOTANISTS

Information for this column is always welcome but difficult to come by. If you are changing jobs, moving to a new part of the province, receiving awards of recognition, obtaining a degree, etc., please let us know!

DON CUDDY BECOMES REGIONAL ECOLOGIST, ONTARIO MINISTRY OF NATURAL RESOURCES, EASTERN REGION

In early 1986 Don Cuddy became the Regional Ecologist at Eastern Region, Ontario Ministry of Natural Resources, Kemptville. Don has done contract work for the ministry for many years. He is well known for his conservation concerns, especially in eastern Ontario. Mr. Cuddy's address is Eastern Region, Ontario Ministry of Natural Resources, Kemptville, Ontario K0J 1J0.

JIM GOLTZ SETTLES IN NEW BRUNSWICK

We were very pleased to hear from Jim Goltz recently. After a number of years studying veterinary medicine at the University of Guelph, Jim completed his doctorate and, in June 1985, moved to New Brunswick to accept a position as provincial veterinary pathologist. About one of his favourite pursuits, field botany, Jim updated his activities as follows: "Upon my arrival here I was fortunate to meet Hal Hinds, who has just completed his Flora of New Brunswick and is about to have it published. Hal arranged my first encounter with *Pterospora* last summer, in a spot about 15 minutes from downtown Fredericton. While I look forward to botanizing in New Brunswick, I miss my home turf in Muskoka and especially my forays with Em Whiting, Dr. Britton, and Allan Anderson."

EMERSON WHITING: A SUPERB ONTARIO FIELD BOTANIST

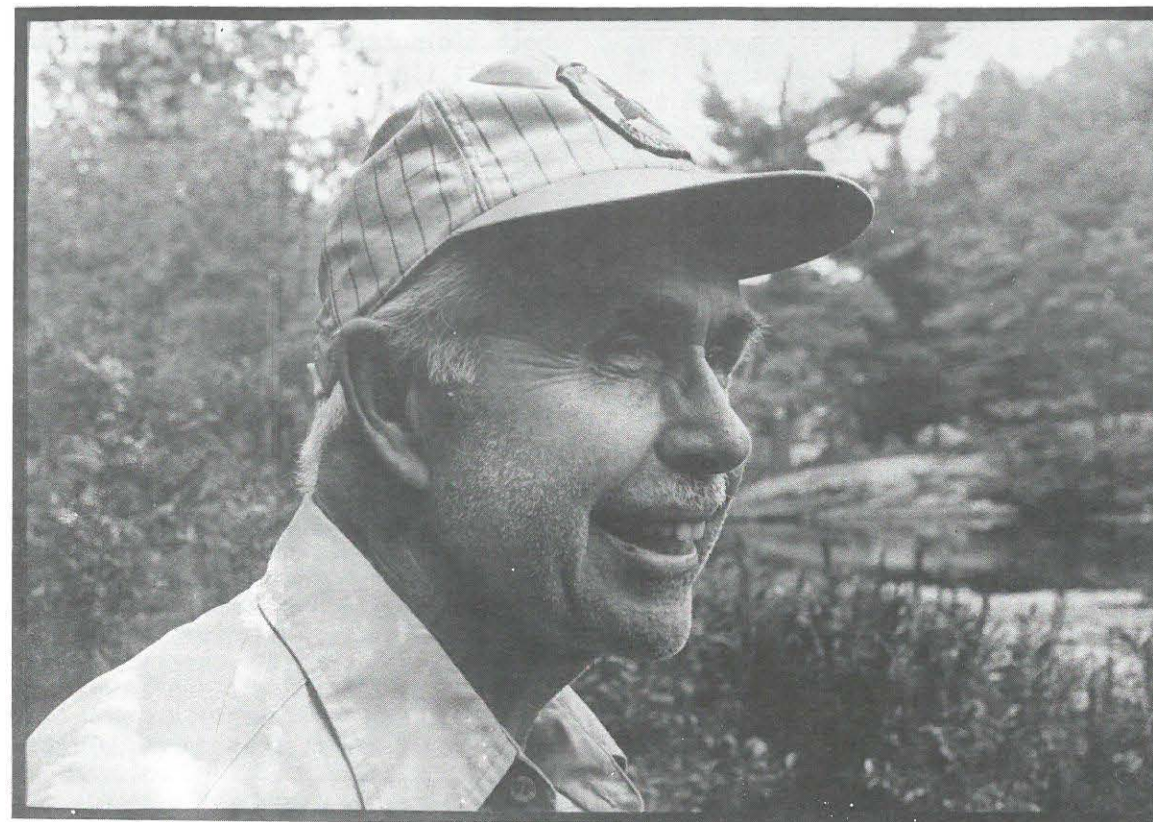
A.A. Reznicek, University of Michigan Herbarium,
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Emerson Whiting, Em to his friends, is no stranger to most readers of *The Plant Press*. Almost single-handedly, he has made the rich flora of Muskoka known to Ontario botanists.

Em majored in chemistry at the University of Toronto, where he subsequently took teacher training. He first taught for three years at Niagara Falls where he met Dorothy Emberson, who taught English on the same staff and became his wife. They then moved to Weston, now part of Toronto, where Em taught chemistry and physics at Weston Collegiate and Vocational School. There he was head of the science department but, fortunately for Ontario botanists, he took early retirement in 1963 in order to concentrate on botany.

Em had already developed a special interest in Ontario orchids, and evening extension courses in plant taxonomy and floristics, taught by James Soper and James Cruise at the University of Toronto, whetted his appetite for more. He began to focus his interests on the flora of Muskoka, where he and Dorothy have a cottage. Camping and canoeing while plant hunting have been favourite activities during summers in Muskoka; Em and Dorothy's interests are quite broad and also include music and beekeeping.

Em began cataloguing the plants of Morrison Township, in which the cottage is located, but later he covered all of what is now known as the District Municipality of Muskoka. His lists of the vascular plants of Muskoka are models of accuracy. These are periodically updated, most recently in collaboration with James Goltz. Mostly in the course of his work in Muskoka, Em has collected nearly 4,000 specimens of vascular plants. Duplicates of important specimens have been deposited in TRT, TRTE, OAC, CAN, and DAO. The bulk of the collection comprises his personal herbarium which is willed to TRT. He was one of the first botanists to bring to light the numerous species of southern and eastern affinity in the Muskoka flora. As shown in the *Atlas of the Rare Vascular Plants of Ontario*, the mapping for Muskoka of such rarities as *Listera australis* (southern tway-blade), *Panicum rigidulum* (panic grass), *Linum striatum* (yellow flax), and *Utricularia geminiscapa* (bladderwort), is testimony to his thorough



Emerson Whiting in Muskoka (photo by Bill Draper, 1985)

work in Muskoka. His discovery of *Bartonia paniculata* subsp. *paniculata* (*bartonia*) in Muskoka was a first record for Canada.

Em Whiting's other botanical interest, orchids, has also resulted in an important contribution to the study of field botany in Ontario. He has studied wild orchids throughout much of Ontario and Canada and, in collaboration with Paul Catling at the Biosystematics Research Centre in Ottawa, will soon be author of a published book on Ontario orchids. If you wish another view of Em Whiting, juxtaposed with orchids and orchidophiles, turn to page 107 of Carl Luer's *Native Orchids of the United States and Canada*, where Em can be seen examining *Spiranthes* in one of his favourite Muskoka haunts.

Another of Em's contributions to Ontario botanists is his company in the field, especially in Muskoka; and his enthusiasm for botany, both in the field and in the herbarium. My own first contact with him was in the fall of

1971. I had discovered his list for Morrison Township, Muskoka, directly adjacent to Simcoe County, then my "home territory" botanically. His list had about 100 species I had never seen in Simcoe County. Of course, I immediately wanted to know where these grew and to see them so I could find them myself. I was also able to report on about 100 species that occurred in northern Simcoe County, but had not yet been found in Muskoka. Naturally, this led to much enjoyable cooperation in field work.

Botanizing with Em is always a special experience: Em and Dorothy's hospitality at their cottage; the beautiful setting in Muskoka; and most enjoyable is Em's preferred method of travel by canoe, using lakes, rivers, streams, beaverponds, and even smaller bodies of water. No coincidence that so many of Muskoka's rare plants are aquatics! Em's completion and publication of "Vascular Plants of Muskoka" is much awaited; in the meantime he will continue to help others in the field in his area and find more unusual and interesting plants. ♦

INFORMATION & REQUESTS

WYE MARSH WILDLIFE FESTIVAL

On 20-21 September 1986 the Wye Marsh Wildlife Centre will be holding the first annual Wye Marsh Wildlife Festival. The main theme will be conservation and wildlife awareness.

There are many activities planned for the public, including displays and demonstrations, but one of interest to you may be the presentation and publication of scientific and technical papers. The Wye Marsh Wildlife Centre hopes to make this an annual event with yearly proceedings which will be published and circulated to interested individuals.

With increased use of our natural heritage, staff and volunteers at the Wye Marsh Wildlife Centre feel that topics dealing with the conservation of natural habitats, plants and animals are of utmost importance to all.

If you are interested in submitting a paper, please send an abstract of 200 - 500 words as soon as possible to: Academic papers, Wye Marsh Wildlife Centre, P.O. Box 100, Midland, Ontario L4R 4K6.

Final papers should have a 10,000 word maximum and should be suitable for a 20 - 30 minute presentation. Please feel free to call for more information or discussion of your chosen topic (705-526-7809).

THE PROTECTION OF ENDANGERED SPECIES

Recently I submitted a review of P.M. Taschereau's (1985) publication *The Status of Ecological Reserves in Canada* (Plant Press 3(4):147). Since that time I have had an opportunity to read an article by Hajo Versteeg (1984). The protection of endangered species. A Canadian perspective. Ecology Law Quarterly 11(3):267-304 that provides an excellent review of the endangered species and ecological reserve legislation in Canada. This article shows a remarkable synthesis of biological and legal

expertise that could be most informative to both biologists (in the legal content) and legal experts (in the clear statements about biological factors).

For those involved in drafting or administering legislation protecting species or habitat (biologists, lawyers, bureaucrats, politicians, and sportsmen) this article assists, not only in clearly defining the purpose and goals of such legislation, but also provides a guide to adequately fulfilling the purpose and goals in the drafting of such legislation.

Although published in a journal rarely encountered in Canadian libraries, the 37 pages are well worth the effort and expense of inter-library loan. This article is a superb companion to Taschereau's (1985) publication.

Stephen Darbyshire, Ottawa

LABWORK AND FIELDWORK WITHOUT VOUCHER SPECIMENS IS ALWAYS QUESTIONABLE!

The Association of Systematics Collections, c/o Museum of Natural History, University of Kansas, has recently circulated a notice reminding researchers to make voucher specimens.

"Systematics is a dynamic science that refines our understanding of species and their evolutionary relationships. This results in both new species names and changes in current names. Much research should therefore be tagged with both scientific names and voucher specimens. Failure to establish voucher specimens may present future workers with the problem: 'Just which organisms were you working with?' Without voucher specimens, the results of much costly, time-consuming, and otherwise well-conducted research may be unsalvageable!"

Field botanists who carry out vascular plant inventories in Ontario generally take voucher specimens, especially where documenting rare species is concerned. However, those who study revegetation and/or propagation of native or naturalized plants should also deposit voucher specimens in herbaria, especially when results of such studies appear in reports or publications.

Jocelyn Webber, Mississauga

CHEE PLEASE

specimens requested by Susan Aiken, Botany Division, National Museums of Canada, Ottawa, Ontario K1A 0M8

Chee reed grass, or feathertop (*Calamagrostis epigejos* (L.) Roth.), is a European grass that has been introduced to Ontario in at least several places. Bill Dore has speculated that it has occasionally come in as a contaminant in seed mixtures from Europe, and if so, it may be more widespread than has been documented. Readers of *The Plant Press* are requested to be aware of this plant and to look for it when collecting.

Chee looks superficially like Canada blue joint (*Calamagrostis canadensis* (Michx.) Nutt.), but it often grows in drier sites than are usual for *C. canadensis*, and when seen late in the season, the inflorescences are suspiciously fuller, somewhat whiter, and fluffier. This may result from the character that allows this *Calamagrostis* to be distinguished from all the others that occur in Ontario, that is, the callus hairs, 4-8 mm long, are twice as long as the floret, and about as long as the glumes. In late season and during the winter, when the glumes are folded back, the callus hairs spread out and become the most conspicuous part of the spikelet.

Before 1967 Bill Dore had recorded the following 6 sites where the grass occurred in Ontario.

Hamilton-Wentworth: Flamboro Station, growing along the railroad tracks.

Elgin Co.: St. Thomas, 13th Concession of Yarmouth Township, about 4.5 miles (7.2 km) north of St. Thomas. In 1950 the stand extended approximately 10 yards, in 1964, approximately 50 yards. How many meters in 1986?

Sudbury District: Espanola, about 6 miles south of the town, beside Highway 68.

Sudbury District: Nairn Centre, about 35 miles (56 km) west of Sudbury and 8 miles (13 km) east of Espanola, in discrete, more or less circular clones, on the broadly graded sides of Highway 17. A sketch made by Bill Dore, 15 August 1964, is available on request to anyone prepared to investigate this site.

Cochrane District: New Liskeard, "Nine-mile Corner" on Highway 11, north of New Liskeard. Numerous clones occupied the highway shoulders over a stretch of about a quarter of a mile, 31 August 1965.

Cochrane District: South Porcupine, planted on tailings at the Preston East Dome Mine. On 1 September 1965 it covered 15 to 20 feet, was not particularly vigorous, but essentially the only vegetation that had colonized the "slime."

In 1962 Clarey Frankton discovered an approximately 10 m square area dominated by chee on National Capital Commission greenbelt land near Bells Corners, Nepean. This is the only site that I do not need collections from.

It would be most appreciated if anyone finding the grass anywhere else would prepare a herbarium specimen and send it to me. Bill Dore has given me an unpublished manuscript that he produced about 1968. It contains much interesting information, but in order to publish it in the late 1980's, it is necessary to know more about the status of chee in Ontario now. Help please! If anyone is prepared to visit sites and check records, I would be happy to send copies of the relevant section from Dore's manuscript and even small samples of a chee inflorescence.

MILESTONE AT THE NATIONAL HERBARIUM OF CANADA

Erich Haber, Botany Division, National Museum of Natural Sciences, Ottawa, Ontario K1A 0M8

This spring on April 16th, the staff and volunteers at the National Herbarium celebrated a milestone in the growth of the vascular plant herbarium (CAN), the accessioning of the 500,000th specimen. This figure is modest when compared to other major herbaria internationally. Nevertheless, it is considerably larger than most North American collections, and in Canada, is surpassed in size only by the herbarium at the Biosystematics Research Centre (DA) and the Herbarium Marie-Victorin at the Université de Montréal (MT). The Herbarium's greatest asset, however, is that it houses one of the world's best North American Arctic collections of vascular plants.

The sheet selected for the memorable occasion was *Astragalus alpinus*, one of several thousand specimens that have been donated to the

Herbarium by Dr. Sylvia Edlund of the Geological Survey of Canada as documentation of her botanical research in the Arctic since 1971. A plant from an Arctic collection was chosen as symbolic reaffirmation of the Museum's interest in the Arctic and its cooperation with other governmental departments in the study of Canada's flora. The cumulative total of all specimens in the four sections of the National Herbarium, as of April 1986, is 834,412, a figure that includes 502,747 vascular plants (CAN), 216,627 bryophytes (CANM), 92,804 lichens (CANL), and 22,234 algae (CANA).

RARE AND ENDANGERED PLANTS:
A CALIFORNIA CONFERENCE ON THEIR
CONSERVATION & MANAGEMENT
5 - 8 NOVEMBER 1986

The California Native Plant Society (CNPS), in conjunction with several government agencies, conservation groups, and private corporations, is sponsoring a conference on the conservation and management of rare and endangered plants. The conference will be held at the Capital Plaza Holiday Inn, 300J Street, Sacramento, California, U.S.A.

It is designed to be a forum for information exchange through concurrent sessions, poster session, and workshops. Proceedings will be published by CNPS. While there are many people and organizations in California involved in rare and endangered plant monitoring, mitigation, and law, a statewide conference has never been organized until now.

Papers describing research on rare and endangered plants are requested. Taxonomic studies are of interest, although emphasis will be placed on management-related topics including specialized field techniques, evaluating, monitoring, and mitigating adverse effects on rare and endangered plants. Experience from regions other than the western United States is encouraged.

Probably topics include:

- why preserve rare plants?
- rarity- a definable issue?
- modern causes of rarity
- documenting endangerment & extinction

- population dynamics of rare plants
- ecology of endemic plants
- exotic species displacing rare plants
- developing effective management plans for long term conservation
- the role of botanic gardens
- designing a preserve/reserve
- laws and their effectiveness
- inventory skills
- impact assessment
- mitigation
- restoration/revegetation
- monitoring
- propagation/cultivation
- success stories
- open forum discussions

Further information may be obtained from Jim Nelson, Conference Coordinator, California Native Plant Society, 909 12th Street, Suite 116, Sacramento, California 95814, U.S.A.

UPDATED CHECKLIST OF THE VASCULAR PLANTS OF HALTON REGION NOW AVAILABLE

In March 1986 Bill Crins produced an updated version of his plant list of the Regional Municipality of Halton (in what little "spare" time he has after his research program at the University of British Columbia!). This updated list has been put on the computer and includes symbols indicating plants occurring north or south of the Niagara Escarpment as well as an indication of status (rare, uncommon or common) in Halton.

This preliminary list is available for \$ 1.50 to cover the cost of paper and postage from Dr. W.J. Crins, Department of Botany, University of British Columbia, Vancouver, B.C. V6T 2B1. Anyone with information about the flora of Halton that is not reflected in this updated list (particularly records based on specimen or photographic evidence) is encouraged to contact the author so that the list can be updated.

BIOSYSTEMATICS RESEARCH CENTRE

Agriculture Canada's Biosystematics Research Centre (BRC) celebrated its 100th anniversary with a new name (most recently called the Biosystematics Research Institute) and a book about the history of BRC and the research scientists who have worked there. Systematics in Agriculture Canada at Ottawa 1886 - 1986 by W.J. Cody, D.B.O. Savile, and M.J. Sarazin (Historical Series No. 28) is available free from the Director, Biosystematics Research Centre, Research Branch, Agriculture Canada, Ottawa, Ontario K1A 0C6.

ORCHIDS OF ONTARIO RECENTLY PUBLISHED

Orchids of Ontario, a 169-page, illustrated guide by R.E. Whiting and P.M. Catling, was published at the end of July by The CanaColl Foundation in Ottawa. This much awaited book is well illustrated with black and white photographs, line drawings and distribution maps. The text is informative, concise, and up-to-date.

Orchids of Ontario is available from the Nature Canada Bookshop, 75 Albert St., Rm. B10, Ottawa, Ontario K1P 6G1. The cost is \$ 12.95 and members of the Canadian Nature Federation get a 10% discount.

ONTARIO BOTANIST WANTS FLORAS OF THE MIDDLE EAST

Allan Goddard recently returned from Saudi Arabia where he was working on a landscaping project. Although he is "getting back into North American botany again," he brought back a box of specimens which he would like to identify. Does anyone know where Allan can find a Flora of the Middle East or countries therein? If so, please write to Allan at P.O. Box 1723, Almonte, Ontario K0A 1A0.

PARTS OF SPRINGWATER FOREST TO BE LOGGED AGAIN

According to Tony Niederer in the St. Thomas Times-Journal (Wednesday, May 7, 1986 - page 6), Catfish Creek Conservation Authority plans to begin logging operations in the fall of 1986 in parts of Springwater Forest. Niederer reports that authority Manager Denis O'Grady says that the entire area of Springwater Forest will be looked at eventually and a little will be logged each year. The Ontario Ministry of Natural Resources, by "removing dead or mature trees...allows rejuvenation of the area." Niederer quotes Mr. O'Grady as saying "Mature trees use up a lot of light and moisture... By clearing them away, you allow seedlings to grow and mature."

Apparently, without logging the Catfish Creek Conservation Authority is losing money on lands for which it pays taxes. Anyone wishing to comment should write to Mr. O'Grady, Manager, Catfish Creek Conservation Authority, R.R. 5, Aylmer, Ontario N5H 2R4. Copies of your letters may be sent to other agencies concerned with this matter.

SLIDES OF CAROLINIAN SITES AND SPECIES WANTED BY THE ONTARIO MINISTRY OF NATURAL RESOURCES, SOUTHWESTERN REGION

The Ontario Ministry of Natural Resources, Southwestern Region, is attempting to increase public awareness of Carolinian Canada by compiling a slide collection of Carolinian sites and species. This collection will be used for presentations, displays, brochures and posters. An excellent choice of slides is needed and this agency is soliciting your best slides so they can be copied. Please label slides with your name and subject matter and send them to Mr. J.D. Barrow, Regional Parks and Recreational Areas Coordinator (Acting), Ontario Ministry of Natural Resources, Southwestern Region, P.O. Box 5463, London, Ontario N6A 4L6.

ONTARIO PLANTS IN PRINT

Anyone interested in writing book reviews or compiling lists of references should contact the associate editor of this column, Timothy Dickinson (address on back cover). At present, contributions for this column would be especially welcome!

CANADIAN JOURNAL OF BOTANY REFERENCES FROM 1980 - 1985

compiled by David G. Cunningham, 2-42 Leduc Drive, Rexdale, Ontario M9W 2A9

- Vander Kloet, S.P. 1980. The taxonomy of the highbush blueberry, *Vaccinium corymbosum*. 58:1187-1201. (497 highbush blueberry specimens were collected from 56 sites in eastern North America. Analysis suggests that the highbush group should be recognized as a single polymorphic species.)
- Phipps, J.B. & M. Muniyamma. 1980. A taxonomic revision of *Crataegus* (Rosaceae) in Ontario. 58:1621-1699. (There are 39 good species in 14 series in the province.)
- Carleton, T.J. & S.J. Taylor. 1983. The structure and composition of a wooded urban ravine system. 61:1392-1491. (Vegetation and soils of 50 wooded slopes in Scarborough, Ontario were studied; secondary succession was evident, but there was little or no evidence of self-regenerating climax woodland.)
- Catling, P.M. & J.R. Brown. 1983. Morphometrics and ecological isolation in sympatric *Spiranthes* (Orchidaceae) in southwestern Ontario. 61:2747-2759. (Evidence supports recognition of 3 species.)
- Crins, W.J. & P.W. Ball. 1983. The taxonomy of the *Carex pensylvanica* complex (Cyperaceae) in North America. 61:1692-1717. (Three of 4 members of this complex occur in Ontario; Morphological variation, cytological data and geographical evidence supports the proposed classification; a key and distribution maps are provided.)
- Hogg, E.H. & J.K. Morton. 1983. The effect of nesting gulls on the vegetation and soils of islands in the Great Lakes. 61:3240-3254. (Physical disturbance and deposition of guano was found to elevate soil nutrient levels, thereby favouring alien plants.)
- Kott, L. & D.M. Britton. 1983. Spore morphology and taxonomy of *Isoetes* in northeastern North America. 61:3140-3163. (Descriptions, ecological notes and distribution maps are provided for 3 species.)
- Mulligan, G.A. & D.B. Munro. 1983. The status of *Stachys palustris* (Labiatae) in North America. 61:679-682. (This complex consists of diploids, tetraploids, and hexaploids; characters used to distinguish these taxa are discussed and the distributions of each in Ontario are shown.)
- Parker, W.H., P. Knowles, F. Bennett, A. Gray, & T. Krickl. 1983. Habitat dependent morphological and chemical variation in *Picea mariana* from northwestern Ontario. 61:1573-1579. (Specimens from different habitats were examined to determine whether local site differences correspond with morphological or chemical differences; discrete ecotypes were not evident.)
- Reznicek, A.A. & P.F. Maycock. 1983. Composition of an isolated prairie in central Ontario. 61:3107-3116. (More than one third of the plants at this small prairie outlier at Degraess Point, Simcoe County, were considered characteristic of prairie communities.)
- Vander Kloet, S.P. 1983. The taxonomy of *Vaccinium* section *Cyanococcus*: a summation. 61:256-266. (The biogeography, biology, ecology, and evolution of the 5 species in this section are discussed; a key and distribution maps are provided.)
- Widrechner, M.P. 1983. Historical and phenological observations on the spread of *Chaenorrhinum minus* across North America. (The rapid spread of this introduced weed along railroads across North America is discussed; the Ontario distribution is shown.)
- Maycock, P.F. & M. Guzikowa. 1984. Flora and vegetation of an old field community at Erindale, southern Ontario. 62:2193-2207. (An old field in Peel Region was found to have 118 plant species; native and introduced species were present in equal numbers, however, in terms of percent cover, exotic plants exceeded indigenous species by at least 2:1.)
- Morton, G.H. 1984. A practical treatment of the *Solidago gigantea* complex. 62:1279-1282. (This complex has 3 different chromosome numbers; plants with different chromosome numbers can not be distinguished on the basis of morphological characters.)

- Muniyamma, M. & J.B. Phipps. 1984. Studies in *Crataegus*. XI. Further cytological evidence for the occurrence of apomixis in North American hawthorns. 62:2316-2324. (Agamospermy was found to be prevalent in 6 species of *Crataegus* in Ontario; this supports the conviction that apomixis in North American *Crataegus* is widespread.)
- Packer, J.G. & G.S. Ringius. 1984. The distribution and status of *Acorus* (Araceae) in Canada. 62:2248-2252. (The distributions of 2 species are shown for Ontario.)
- Webber, J.M. & P.W. Ball. 1984. The taxonomy of the *Carex rosea* group (section *Phaestoglochin*) in Canada. 62:2058-2073. (Nomenclature, morphological characters, chromosome numbers, and ecology are discussed for 3 species of the group in Ontario; a key and distribution maps are provided.)
- Keddy, P.A. 1985. Wave disturbance on lake-shores and the within lake distribution of Ontario's Atlantic coastal plain flora. 63:656-660. (Persistence of Atlantic coastal plain species in certain Georgian Bay lakes is credited to water level fluctuations.)
- Maun, M.A. 1985. Population biology of *Ammophila breviligulata* and *Calamovilfa longifolia* on Lake Huron sand dunes. I. Habitat, growth form reproduction and establishment. 63:113-124. (These grasses have different life strategies for survival on sand dunes; the former reproduces by clonal fragments, whereas the latter relies almost exclusively on seedling recruitment.)

RHODORA REFERENCES FROM 1983 - 1985

compiled by P.M. Eckel, Clinton Herbarium, Buffalo Museum of Science, Buffalo, New York 14211

- Mischler, B.D. & N.G. Miller. 1983. 85:421-432. (Ontario listed as northernmost extension of the range of *Fissidens obtusifolius*, *F. subbasilaris*, and *Thuidium pygmaeum*)
- Hellquist, C.B. 1984. Observations of *Potamogeton hillii* Morong in North America. 86:101-111. (Ontario literature citations given, 12 reports, 10 verifications, full specimen label information given; Manitoulin Island station is noted.)

- Wolf, S.J. & K.E. Denford. 1984. Taxonomy of *Arnica* (Compositae) subgenus *Austromontana*. 86:239-309. (Disjunct populations of *Arnica cordifolia*, essentially a western species, occur in Ontario and Michigan; specimen citation given for Sibley Provincial Park.)
- Sinnott, Q.P. 1985. A revision of *Ribes* L. subg. *grossularia* (Mill.) Pers. sect. *Grossularia* (Mill.) Nutt. (Grossulariaceae) in North America. 87:189-286. (Range maps of 9 delimited *Ribes* species are given for North America including the Ontario species: *R. cynosbati*, *R. hirtellum*, *R. oxyacanthoides* ssp. *oxyacanthoides*. The range and habitat preferences and plant associations in Ontario of *R. cynosbati* and *R. hirtellum* are given, large populations of the former are now rare. A detailed distribution map by county-level units of pre- and post- 1965 collections is provided for both species. Representative Ontario specimens are cited. Ontario specimens of *R. oxyacanthoides* ssp. *oxyacanthoides* are given, with ecological information, as is a less detailed distribution map.)
- Bayer, R.J. 1985. Investigations into the evolutionary history of the polyploid complexes in *Antennaria* (Asteraceae: Inuleae). II. The *A. parlinii* complex. 87:321-339. (Disjunct populations of *A. rosea* Greene on the "north shore of Lake Superior" are referred to as a Cordilleran species with eastern populations resulting from eastward migration during the last glaciation.)
- Semple, J.C. & J.G. Chmielewski. 1985. The cytogeography of *Aster pilosus* (Compositae: Astereae). II. Survey of the range, with notes on *A. depauperatus*, *A. parviceps* and *A. porterii*. 87:367-379. (Cytotype distributions in Ontario of *A. pilosus* var. *pilosus* (tetraploid and hexaploid populations) and var. *pringlei* (hexaploid), species allopatric except along the north shore of Lake Ontario, were among distributions studied. In Ontario the distributions of the cytotypes within var. *pilosus* are allopatric. A map of the cytogeography of *A. pilosus* is given showing Ontario stations. The allopatry of the tetraploid and hexaploid races of var. *pilosus* appears to be as pronounced along the entire southern portion of the range of hexaploids as in southern Ontario. The var. *demotus* is included within the var. *pringlei*, and its range is given.)
- Loconte, H. & W.H. Blackwell. 1985. Intra-generic taxonomy of *Caulophyllum* (Berberidaceae). 87:463-469. (Detailed distribution map of the sympatric species *C. thalictroides* and *C. giganteum* is given including Ontario stations.)

Les, D.H. & R.L. Stuckey. 1985. The introduction and spread of *Veronica beccabunga* (Scrophulariaceae) in eastern North America. 87:503-515. (The initial point of origin is suggested as the harbours of New York City from diaspores in discarded ship ballast, but possible multiple introductions are discussed. Westward and northward dispersal is indicated by subsequent collections. Specimen cited from Wentworth Co., Ontario.)

Semple, J.C. 1985. Chromosome number determinations in Fam. Compositae Tribe Astereae. 87:517-527. (Various *Aster* species and chromosome counts are given with specimen data of taxa from Ontario: *A. lanceolatus*, 2n=64; *A. aff. longifolius*, 2n=64; *A. macrophyllus*, 2n=72; *A. puniceus*, 2n=16.)

Wheeler, G.A. 1985. *Carex jamesii* in Minnesota with phytogeographical notes on the genus. 87:543-549. (Map of areas of floristic transition is given: intermingling of carices from four floristic provinces (grassland, prairie-forest, northern conifer and northern hardwoods), in a zone from southern Ontario to Minnesota and Wisconsin.)

[Ed. note: for *Rhodora* references from 1980 - 1983, see Plant Press 2(2):51-52.]

THE BRYOLOGIST REFERENCES FROM 1984 - 1985

compiled by P.M. Eckel, Clinton Herbarium,
Buffalo Museum of Science, Buffalo, New York
14211

Brodo, I.M. 1984. Lichenes Canadenses Exsiccati: Fascicle III. 87:97-111. (7 Ontario specimens listed: *Caloplaca ulmorum*, *Cetraria arenaria*, *Collema furfuraceum*, *Lecania cyrtellina*, *Lecanora impudens*, *Peltigera spuria*, *Phaeophyscia pusilloides*, all with complete citations and taxonomic discussion)

Bruce, H.A. 1984. Additional distributional records of mosses of Ontario. 87:158-159. (6 species and 2 varieties of taxa are recorded new to the Thunder Bay District, of which 4 are new to the province; *Dichelyma falcatum*, *Drepanocladus aduncus* var. *kneiffi*, *Leucodon brachypus* var. *andrewsianus*, *Molendoa sendtneriana*, *Philonotis capillaris*, *Pohlia filiformis*, *Orthotrichum alpestre* and *O. rupestre*, with complete citations.)

Vitt, D.H. & P. Lee. 1984. *Anomodon minor* (Musci: Leskeaceae) in North America. 87:338-339. (This species is typical of the eastern deciduous forest and reaches its northernmost range in southern Ontario, Manitoba, and Quebec. Dot map is provided showing the North American distribution of this taxon, including Ontario.)

Lewinsky, J. 1984. Range extensions of *Orthotrichum pallens* Brid. in North America. 87:361-362. (Two Ontario stations are indicated on a range map of the species.)

Nimis, P.L. 1985. Phytogeography and ecology of epiphytic lichens at the southern rim of the Clay Belt (N-Ontario, Canada). 88:315-324. (Species lists of lichens in 8 pH-determined community types are given from the Elk Lake area on the Montreal River, and compared with lichens from an ecologically similar area in the Carnic Alps, Italy showing similarity in species and morphology of dissimilar taxa. This data supports recognition of the great similarity between the macrolichen flora of Europe and of northern Ontario.)

[Ed. note: for The Bryologist references from 1980 - 1983, see Plant Press 2(3):84.]

Michigan Flora: A Guide to the Identification and Occurrence of the Native and Naturalized Seed-Plants of the State. Part II: Dicots (Saururaceae - Cornaceae) by Edward G. Voss. 1985. Cranbrook Institute of Science Bulletin 59 and University of Michigan Herbarium. xix + 724 pp. \$ 12.50 U.S. (cloth)

reviewed by James S. Pringle, Royal Botanical Gardens, P.O. Box 399, Hamilton, Ontario
L8N 3H8

When the Flora of Michigan project was announced in 1956, it was expected that it would be completed by 1961 (Taxon 6:156). Thirty years later, and about twelve years after the appearance of Part I, the second of the three parts has just been published. Much as I have looked forward to this flora, however, I can hardly begrudge Dr. Voss the time this project has taken, because the time is so clearly related to the quality of the product.

Dr. Voss is well aware that a worthwhile state flora cannot be compiled simply by visiting the state's major herbaria and recording the data on the labels. Much of his work has indeed been done in herbaria, but it has been in checking to his own satisfaction the identity of innumerable specimens and in searching for the documentation of questionable reports. Doubtless the greatest amount of his work on this flora has been in the field, exploring all parts of the state with a thoroughness rarely approached in such projects.

We in Ontario may not be directly concerned with the extent of Dr. Voss's field work in Michigan, but we do benefit directly from two other aspects of his dedication to a quality production. One is the workability of the keys. Preliminary versions have been tested in the field and classroom by students in many successive classes both at Ann Arbor, in the southern part of the state, and at the University of Michigan Biological Station, near the Straits of Mackinac. Except for a few species mostly confined to the easternmost part of Ontario, nearly all species native and naturalized in Ontario south of 47° are included in these keys. For years, the keys in Part I have, for example, been my choice for the Cyperaceae in the Great Lakes region, and Dr. J. Michael Bristow's for genera of aquatic plants at the Naturalists' Workshops at Lake Opinicon. These and other keys in Part I have been much appreciated by many Ontario botanists and naturalists, and the even longer-tested keys in Part II should be equally useful.

The other aspect of major importance to us in Ontario is that we now have, for the families Saururaceae through Cornaceae in the familiar Engler & Prantl sequence, a modern flora based on a thorough knowledge, review, and assessment of recent nomenclatural and taxonomic literature and upon consultation with many currently active specialists. The publication lag was obviously brief. Although Dr. Voss studied and cited numerous taxonomic papers, he did not accept uncritically every new taxonomic revision to come to his attention. Instead, each departure from previous treatments was considered on its own merits in the light of Dr. Voss's own extensive field experience, some revisions being followed, others not. Dr. Voss has characterized his procedure as having "tried to take as equal an approach as possible in defining taxa in all groups - impossible as such a task may be when the processes of evolution have not created equal taxa." (He has noted that his advisors often advocated more splitting in the groups of

their own specialization and more lumping in other groups!) Consequently, Dr. Voss cannot be categorized as either a splitter or a lumper; his is a middle-of-the-road flora in this respect. For example, *Nuphar advena* and *N. variegata* are accepted as species rather than as subspecies of *N. lutea*, and *Aronia*, *Sorbus*, and even *Malus* are separated from *Pyrus*; but *Quercus coccinea* and *Ranunculus hispidus* include, respectively, the plants that have been segregated as *Q. ellipsoidalis* and *R. septentrionalis* in most recent floras, and *Arenaria* is retained in the broad sense, encompassing *Minuartia* and *Moehringia*. Inevitably, there were some such decisions with which I should have differed, but for me and I believe most other Ontario taxonomists these should prove to be relatively few.

The treatments of *Rubus* and *Crataegus*, about which curiosity arises whenever a flora of any part of eastern North America is published, illustrate especially well the pragmatic, middle-of-the-road approach that characterizes the whole flora. Dr. Voss has eschewed the extremes of splitting and lumping found in some other floras, and has accepted a reasonably large but not unwieldy number of species in these genera, comparable to Phipps & Muniyamma's treatment of *Crataegus* in Ontario.

Another benefit of this up-to-date flora is its provision for the identification of recently naturalized species that are not mentioned in older manuals.

To a greater extent than Part I, Part II contains discussions of differing points of view and persistent taxonomic problems, helping one to decide for oneself among discrepant taxonomic treatments and suggesting areas for further research.

Although efficient in use of space, *Michigan Flora Part II* is an attractive book. There are nine pages of plates, with 51 aesthetically and technically excellent colour photographs representing most of the major and several of the smaller plant families in the Flora. Line drawings selected from many other publications illustrate at least one representative of most of the genera and additional species in some large genera of diverse habit.

Michigan Flora Part II is, in summary, an excellent work, which, along with Part I, will be virtually indispensable for any serious students of the flora of any part of the Great Lakes region.

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We are pleased to receive submissions about native or naturalized vascular plants, bryophytes, and lichens in Ontario. All submissions should include original information (i.e., your own observations or experiences). All submissions are informally reviewed by the Editorial Committee. Submissions with content beyond our expertise may be sent to North American specialists. Articles must be written in the style of this publication and authors are encouraged to ask qualified persons to appraise their work before it is submitted.

We request 3 copies of typed, double-spaced manuscripts whenever possible. These should be sent to the Editor's address (above).

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Base maps can be provided for articles for this publication. Black and white photographs are preferred, but figures can be made from colour slides. Those submitting more than one figure per article may be asked to pay for the cost of figure production.

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