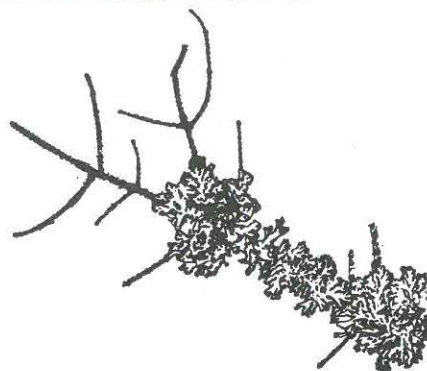


THE PLANT PRESS

FIELD BOTANISTS
OF ONTARIO NEWSLETTER

Vol. 1 No. 4

DECEMBER 1983



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NEWSLETTER NEWS

As the last issue of Volume 1 goes to the printers, we are pleased to report that the number of subscribers has increased to 276. When our ideas to publish a quarterly newsletter came together at the end of March 1983, we really had little knowledge of the costs involved or demand for the newsletter. In order that the standards of THE PLANT PRESS be maintained it is necessary that we raise the price of subscription slightly, so that the costs of producing the newsletter are met by subscription fees. The 1984 rates appear on the back cover of this issue.

Included with this issue are copies of a biographical questionnaire/1984 subscription form. Due to the nature of printing costs, the more subscribers there are, the more we can offer you. Please send the enclosed additional forms to those whom you think might be interested in subscribing. We shall be pleased to send notification to those to whom you would like to send subscriptions as seasonal gifts. It would be a tremendous help to us if you submitted cheques for 1984 subscriptions as soon as possible so that we can get some idea of our scale of operation for 1984. We hope that you decide to subscribe in 1984!

We have all enjoyed this first year of "communication between field botanists". We hope that our readers are looking up others whose addresses are included in the 'News of Botanists' section and responding to notices in the 'Information and Requests' section. Although we would like to hear from all of those who have not yet submitted letters, notes or articles, some contributors have become familiar names on the pages of THE PLANT PRESS. We are especially grateful to these individuals who have made such an effort; your contributions determine the tone and quality of this newsletter, thank you.

Many of our correspondents have expressed interest in having some kind of gathering. We are pleased to announce that there will be a general meeting of subscribers in June 1984. At this time the formation of the "Field Botanists of Ontario" will be discussed. More information about this organization and the first meeting will appear in the March 1984 issue.

CORRESPONDENCE

VERIFICATION OF PLANT RECORDS REPORTED IN THE PLANT PRESS

[We are attempting to publish material which is factually accurate as far as is known. Where voucher specimens, or photographs leaving no doubt as to a plant's identity, have been deposited in herbaria, various experts can consult one another and determine the identity of a particular specimen. Although we request that this procedure be carried out for notes and articles on taxonomically difficult plants, we have different feelings about material submitted for the 'Correspondence' section. An excerpt from a recent letter sums up our present position and we welcome your comment.]

"I feel that we should not insist on having voucher specimens for all notes in THE PLANT PRESS. The purpose of the newsletter is to encourage communication and to report on significant botanical information quickly, especially if such reports are necessary in the light of environmental hearings. If such notes on significant plant records appear in THE PLANT PRESS without verification of a voucher specimen, they will have gone through the review process and, thus, are plausible to those acting for the Editorial Committee (at least). The qualifier that no specimen exists would accompany any such notes."

Dan Brunton, Ottawa

SHUMARD OAK (*Quercus shumardii*): A REPORT FROM THE NIAGARA PENINSULA

"Since the early 1960's I have been intrigued by oaks and have undertaken many expeditions in the United States and southern Ontario in search of new *Quercus* species and their seed. The first time I found Shumard Oak was in the early 1960's in Pennsylvania. Here I found a very large (100' tall, 4½' DBH) tree which impressed me with its size and the fact that it looked like *Q. rubra* (bark, fruit and branching) to which were attached enlarged *Q. coccinea* leaves. The second time I knew I'd found Shumard oak was in 1981 in south-east Virginia where I collected seed. The third experience was the spring of 1983 when Al Butwick gave me a 2 year old seedling from

the first tree found in Essex County by Gerry Waldron. Al had shown me a few leaves and acorns in November 1981, but I was not convinced. However, this Essex County report intrigued me, because I had long speculated that *Q. ellipsoidalis*, *Q. imbricaria* and, perhaps, *Q. shumardii* should be searched for in Essex County, along with a host of other plants! To that end I scoured Pelee Island and the perimeter of Essex County in the first half of the 1970's.

"On 2 October 1983 Peter Thoem and I drove to Zuks Zone, a woodlot in Niagara-on-the-Lake for an annual pawpaw gathering ritual which I have performed for the last quarter century. This woodlot, on lacustrine sediments (former bed of Lake Iroquois) is extremely rich and varied. In my opinion, it deserves protection at the national level. The terrain is poorly-drained, with many pools in winter and spring. The canopy is very mixed, including all of the species mentioned in Gerry Waldron's account of *Q. shumardii* (THE PLANT PRESS 1(3):54).

"You can appreciate my elation when upon entering this woodlot, tipped off by Waldron's article, I found it to be full of *Q. shumardii*! One specimen had a DBH of over 1 m. For years I had called them *Q. palustris* X *rubra*... Adjacent to the west is another woodlot of approximately 100 acres which I had never explored before. We found this to be a shell-bark hickory - Shumard oak forest. I collected specimens from 7 individuals..."

George Meyers, Grimsby

[George Meyers phoned Gerry Waldron (who is working on *Q. shumardii* for the National Museum's rare plant atlas project) immediately and sent specimens to John Ambrose of the University of Guelph Arboretum. At the request of the newsletter Editor, John Ambrose sent some duplicate specimens to Peter Ball (who's doing the rest of *Quercus* for the National Museum's atlas project). After examining the specimens and visiting the site, we received the following note from Dr. Ball:]

"I have now visited the locality [mid-November] and *Quercus shumardii* is probably there. Some of the oaks which are difficult to identify are probably hybrids involving *Q. palustris*, *Q. rubra* and *Q. shumardii*."

P. W. Ball, Mississauga

MORE ON PHOTOGRAPHY VS. COLLECTING

"I agree with Harry Williams that herbarium specimens are needed for the mosses [THE PLANT PRESS 1(2):24-25] as they can be moistened for further reference or microscope work, but I agree with Paul Catling [THE PLANT PRESS 1(2):23] that we could do with a lot less collecting and pressing of higher forms of plants. Photography makes this unnecessary. When *Listera ovata* [photographed on the Bruce by Vince Elliott in 1970; included in Luer's book "The Native Orchids of the United States and Canada excluding Florida" (1975) without photo credit as Plate 20:6, 7 and 8] was positively identified by Garay of Harvard, it was from a lot of good close-up photographs. No pressed specimen was sent. I think this is a real break-through for the conservationists."

Vincent Elliott, Stokes Bay

"Paul Catling suggests (THE PLANT PRESS 1(2):23) that photography should replace plant collecting. Looking at my family photographs, the black-and-white and sepia photographs of my parents and grandparents are in excellent condition; while the colour photographs of my children have already faded, in some cases almost beyond recognition. Is this an augury for anyone hoping to set up a permanent photographic collection?"

Monica Ladell, Mississauga

"The issue on whether or not to collect voucher specimens demands further dialogue. Senseless over-collecting of provincially rare plants, such as Hart's-tongue fern (*Phyllitis scolopendrium*) from a single locality was cited by Wm. J. Cody (THE PLANT PRESS 1(2):27) as an obvious waste of time and effort (and a rare plant!).

"However, it is not always possible, even for an expert, to identify some taxonomically difficult plants from photographs. Although such photographs may vary in quality, many of our provincially rare species (some grasses and sedges for example) differ in distinctive characters which are visible only by means of a microscope. Sometimes diagnostic charact-

ers are present on parts of the plant which are obscured from view when alive - the perigynia of certain sedges, for example.

"Rare plants are often associated with rare habitats and rare plant communities. Surely it is the habitat as well as the inhabitants which we would like to protect! Good photographs should be enough evidence to support records of showy plants like orchids. When hearsay reports of rare plants are used as evidence to protect natural areas, especially when such reports prove to be erroneous, I feel that this discredits the whole conservation effort.

"I think that it is irresponsible, to say the least, to extirpate rare plants from localities where they are known to occur. I would welcome any legal protection for our rare flora. I look forward to hearing other opinions on collecting rare plants!"

Jocelyn Webber (Editor)

"For 25 years I have been collecting plants (mostly woody) which I consider rare or endangered. I have collected living plants rather than specimens, as I want to preserve genetic material - not document it! Pawpaw (*Asimina triloba*) and green dragon (*Arisaema dracontium*) are becoming pests at my place. I dare say that most North Americans have not even seen them (and probably don't care!)."

George Meyers, Grimsby

GOLDENRODS AND HAYFEVER

"Bill Cattley's comments on goldenrod not causing hayfever (THE PLANT PRESS 1(2):23) prompt us to enclose a page from an Agriculture Canada publication [Basset et al. 1976. Canadian Havens from Hayfever. Canada Department of Agriculture. p. 7]. Goldenrod can indeed cause allergic reactions, but the pollen is so sticky that it doesn't get blown far enough to do much harm. Perhaps a person might show a response in a specific test even though the pollen is not generally available to be inhaled."

Joyce and Allan Reddoch, Ottawa

NOTES AND ARTICLES

Solidago caesia X *S. canadensis* (COMPOSITAE), A HYBRID GOLDENROD NEW TO CANADA

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

In their recent study of Ontario goldenrods, Semple and Ringius (1983) listed six *Solidago* hybrids known to occur in this province, but none involving *S. caesia* L. (blue-stemmed goldenrod). The present paper fulfils their prediction that the list of hybrids would "undoubtedly grow with time".

This report is of *S. caesia* X *S. canadensis* L. (*S. canadensis* = Canada goldenrod), a hybrid which, although previously said to occur by Fernald (1950), does not seem to have been described, nor have specimens or localities been cited to my knowledge. My attention was called to this hybrid by Ms. Heather McBrien, then of Queen's University, who discovered this anomalous goldenrod during the course of research (with Dr. Adele Crowder) on the effects of beetle predation on goldenrod growth and reproduction.

This hybrid was found in an old-field successional habitat, in which *S. canadensis* was abundant. *Solidago caesia* was also present, especially along the edge of a nearby deciduous woods. The stems of the hybrid were relatively slender, like those of *S. caesia*, but were more upright, like those of *S. canadensis*. Distally, the main stem divided into several ascending branches. Stems of *S. caesia* are frequently branched when that species grows in sunny habitats, but the branches of the hybrid were more numerous, more closely spaced, and more strongly ascending than those characteristic of *S. caesia*. (The significance of the branching pattern is difficult to assess, however, because insect and other damage to terminal growing points is common in the *S. canadensis* complex, and may have affected the branching of the hybrid.) The stems bore numerous dark green, spreading leaves, those near the middle of the stem being mostly 6 - 9 cm long and 10 - 15 mm wide, those of the branches mostly 4 - 6 mm long and 6 - 9 mm wide. The leaf margins were sparingly and rather shallowly toothed. The leaf venation was distinctly intermediate

between that of *S. caesia* and that of *S. canadensis*, in that in the larger leaves there was a tendency for lateral veins to develop more or less parallel to the midrib, but these veins were much fainter and sooner obscured in anastomoses than those of *S. canadensis*. Leaf pubescence was also intermediate; the leaves of the hybrid were scabrous-ciliate along the margins like those of both parental species, pubescent along the midrib on the lower surface, and very sparsely pubescent along the secondary veins on both surfaces. The leaves of *S. caesia* are glabrous except along the margins, and those of *S. canadensis*, as represented where the hybrid was found, are densely pubescent below along the major veins and moderately pubescent over both surfaces. The vegetative similarity of the hybrid to *S. caesia* was enhanced after collecting, when the leaves were slightly wilted; in the field, the hybrid more strongly resembled *S. canadensis*.

The inflorescence of the hybrid was largely discontinuous, like that of *S. caesia*, although becoming essentially continuous toward the apex. As in *S. caesia*, well-developed, wide-spreading leaves 2.5 - 4 cm long extended nearly to the apex of the inflorescence. However, the axillary groups of flower-heads, rather than being rounded tufts with virtually no central axis, were actually short, arching branches mostly 1 - 2 cm long, on which the flower-heads, rather than being rounded tufts with virtually no central axis, were actually short, arching branches mostly 1 - 2 cm long, on which the flower-heads were borne secondly, like abbreviated versions of the second inflorescence branches of *S. canadensis*.

The *S. canadensis* parent of the hybrid was doubtless that species in the strict sense. *Solidago altissima* L. (tall goldenrod), which is sometimes included in *S. canadensis*, is uncommon in the area and was not present in the old-field where the hybrid was found, whereas *S. canadensis* s. str. was abundant (represented by Pringle 2535, HAM). The ploidy level of the hybrid was not determined. About half of the pollen appeared normal when stained with aniline blue-lacto-phenol.

Documentation: Ontario: Frontenac County: Queen's University succession plots across Lake Opinicon Road from schoolhouse, former community of Lake Opinicon, 30 August 1981, Pringle 2534, HAM.

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Semple, J.C. and G.S. Ringius. 1983. The Goldenrods of Ontario: *Solidago* L. and *Euthamia* Nutt. Univ. Waterloo Biol. Ser. No. 26. 84 pp.

AN ECOLOGIST'S PERSPECTIVE ON TRANSPLANTING RARE PLANTS

by Paul A. Keddy, Department of Biology,
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(abridged by the author from The Canadian Botanical Association Bulletin 16:13-15 (1983) and reproduced here with permission of the Bulletin's Editor, Sylvia Taylor)

Where rare plants and/or ecosystems are threatened by development, transplanting has been suggested as a solution. This suggestion is complex because it raises questions and arguments ranging from purely ethical to purely scientific. To enable the Canadian Botanical Association (CBA) to have a policy on transplanting, the CBA Conservation Committee asked several individuals to prepare statements. Those wishing to see my complete line of argument can refer to the CBA Bulletin (Keddy 1983).

Two objectives of conservation are to preserve and protect representative vegetation and representative ecosystems. Transplanting a few species might maintain the flora (i.e. the list of plants in an area), but not the vegetation, which is dependent on the distributions and abundances of its component plants. Transplanting a few components of a particular ecosystem will not necessarily result in a "natural" ecological community. Rather than deal with the complex problems of transplanting a community, I chose to ask a much simpler question: Is it technically feasible to predict whether we can use transplantation to successfully establish a species in an adjacent area of similar habitat? If we cannot predict success for a single species, the question of transplanting a community can be set aside. Transplanting to botanical gardens or to entirely different habitats, does not, in my opinion, deserve serious consideration and will not be considered further.

At the beginning of my argument, I introduced the terms "successful transplanting" and "similar habitat". A transplant is a success only if all of the following steps occur: (1) initial survival (that is, adjusting to transplant shock); (2) persistence; (3) flowering; (4) seed set; (5) seed dispersal; (6) germination; (7) establishment of seedlings; and (8) growth of seedlings to new adults. With species in which asexual reproduction is predominant, it must be established that this is active in the same proportion to seed production as would be the case in comparable natural situations. Similar habitat is assumed to be at least the same physiographic site class in the same site region (Hills 1961). Following these definitions, I rephrased my question above as follows: Can we predict that steps 1 to 8 would occur in any adjacent and similar physiographic site class?

In order to answer this question, we must know why a particular species is absent from the proposed transplant site. Absence of a species from a particular ecosystem may be because (1) the specialized habitat requirements are not found in the ecosystem ("specialization hypothesis") or (2) specialized habitat requirements are met, but by chance, no propagules of the species have arrived ("dispersal hypothesis"). Clearly, transplanting will likely work in case (2), but fail in case (1). The problem then, is another statement of a fundamental ecological question: How important is habitat specialization, and how important is dispersal, in explaining the present distribution of a species?

Neither detailed measurements nor careful experimentation are likely to enable us to answer this apparently simple question in the near future. Even if the transplant site appears identical with the current habitat of the plant, there are always new environmental factors which could be measured and might discriminate between the areas. Similarly, failure to detect differences in the environment one year does not mean that critical differences will not be found the next. For example, effects of drought on a site might only have an impact every 10 years. I explore these ideas further in the CBA Bulletin, but conclude that it is extremely difficult to distinguish between the "specialization" and "dispersal" hypotheses. I know of no examples

in the scientific literature where this has been successfully accomplished. Certainly given the time scale of environmental hearings, such studies would seem to be out the question. Moreover, the problem is compounded with rare species, which are exactly the species of interest. With rare species, there are few individuals for obtaining autecological measurements, and relatively few seeds produced for measuring dispersal! Without such studies, it cannot be scientifically argued that any particular transplant programme is justifiable.

Proponents of transplanting may feel that it is "unrealistic" to set up such stringent criteria, but to do anything less would be to deny the very real problems which scientists in plant ecology must face. Those without scientific training in ecology always appear to under-estimate the complexity of the problems involved. Will any canopy species provide necessary shade? Are there mycorrhizae and mutualistic associations with vascular plants? Is an insect pollinator required? Does the pollinator require other herbaceous species to complete its life cycle? Is there a specialized requirement for seed dispersal? The list goes on!

It is all too easy to be swayed by facile arguments, such as a species surviving in a backyard wildflower garden. I have transplanted common woodland plants from woodlots being bulldozed. They survived. But, as noted above, a viable population must meet further conditions. It must pass through stages 1 to 8. Species such as *Sanguinaria canadensis* (bloodroot) and *Caulophyllum thalictroides* (blue cohosh) have done so; others have not. The species must persist as long as other natural populations. As criteria 1 to 8 may each have increasingly specialized requirements, this re-emphasizes that temporary persistence, or even vegetative propagation, does not demonstrate that successful transplanting is possible.

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Keddy, P.A. 1983. Transplanting rare plants to protect them: a plant ecologist's perspective. The Canadian Botanical Association Bulletin 16:13-15.

WINTER TWIGS

by Elliott G. Heslop, 1312 South Aldo Dr., Mississauga, Ontario L5H 3E6

In winter most leaves and flowers are not available for study, but this does not mean that the field botanist has to give up his hobby for the season. By using the right methods, the deciduous trees and shrubs can be identified in winter almost as easily as in summer.

The first thing to do is to get used to observing whether the branchlets, twigs and buds are opposite or alternate. If the arrangement is opposite, the chances are good that the specimen is maple, ash, dogwood, viburnum or honeysuckle. If the arrangement is alternate, it is likely to be one of the rest of the species found in our area.

The next thing to look for are leaf scars, formed when the leaves fall from the twigs. In the leaf scars are dots - one, three, five or more - called bundle scars. A 6X or 10X magnifying glass may be needed to see these. Immediately above the leaf scar, or surrounded by the leaf scar, is a bud which next spring will grow into a new side twig, perhaps with a flower, or just a flower or leaf. These buds are usually covered with scales which vary in number, arrangement and colour according to the family or species.

At the end of the twig there is an end bud which usually grows into a continuation of the twig. Scars are left on the branchlets where end buds have been. These end bud scars show how much the branch has grown each year. Some trees and shrubs do not form a true end bud. Instead, the side bud at the end of the twig serves as an end bud. Such an end bud is called a false end bud (Figure 1).

Other characters to observe are bark, form and colour of pith of the branchlets and twigs, smell of broken twigs, or even the taste of a twig. A chewed twig of yellow birch tastes of wintergreen. Look for thorns; perhaps it is a hawthorn. If there are rudimentary thorns, it may be Canada or American plum, pear or European buckthorn. Spur branches are another character to look for. These are very short branches (2-3 mm long) with the leaf scars so crowded together that the usual alternate arrangement may look opposite. Spur branches occur on birch, apple and larch.

Having observed all these characters, identification can be made by using a key to winter twigs of trees and shrubs. I use the key in Petrides (1972). Hosie (1979) is excellent, but unfortunately does not include the shrubs. The photographs of twigs in Hosie (1968) are useful, and others swear by the keys in Harlow (1959) and Muenscher (1950).

Once you get used to winter identification of trees and shrubs, it is amazing what you find. I once found two small sycamores in winter in a place I had often visited in summer, but had missed them. In the winter their distinctive, mottled bark was much easier to see than in the summer. So dress warmly, take your magnifying glass and penknife, and go out and botanize in the winter!

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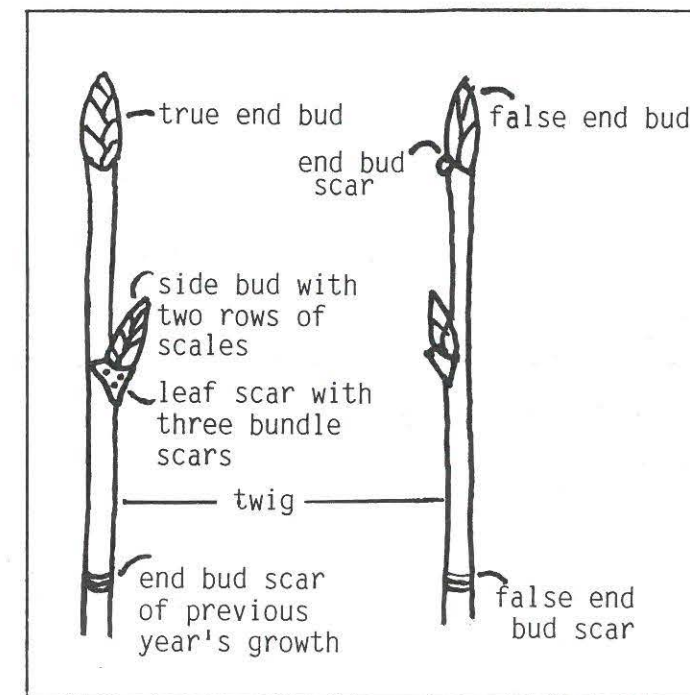


Figure 1. Basic twig morphology showing features useful for identification.

by Kathleen Pryer and
Cathy Keddy, Botany Division, National
Museum of Natural Sciences, Ottawa,
Ontario K1A 0M8

The Atlas of the Rare Vascular Plants of Ontario (Part 3) should be available for distribution by early spring 1984. The following families are currently under study for Part 4. Those species considered as rare within these families are listed in Argus & White 1977 (The Rare Vascular Plants of Ontario. Syllogeus 14). Additional taxa to those on the 1977 list that are being considered are noted in brackets. If anyone has recent information on any of these species or families, we would be pleased to hear from you.

ADOXACEAE

AMARYLLIDACEAE

APIACEAE (= UMBELLIFERAE)

BORAGINACEAE [+ *Cynoglossum virginianum* L.]

CACTACEAE (contact Brian Klinkenberg, 79-135
Andover Dr., London, Ontario N6J 4C2)

CAMPANULACEAE

CARYOPHYLLACEAE

- [+ *Minuartia groenlandica* (Retz.) Ostenf.
= *Arenaria groenlandica* (Retz.) Spreng.]
- [+ *Minuartia stricta* (Sw.) Hiern
= *Arenaria uliginosa* (Murr.) Schlecht.]
- [+ *Silene involucrata* (Cham. & Schlecht.)
Bocquet s.l.
= *Melandrium affine* (Fries) J. Vahl]
- [+ *Silene uralensis* (Rupr.) Bocquet
ssp. *uralensis*
= *Melandrium apetalum* (L.) Fenzl
ssp. *arcticum* (Fries) Hultén]
- [+ *Spergularia canadensis* (Pers.) G. Don]
- [+ *Spergularia marina* (L.) Griseb.]

COMMELINACEAE

CONVOLVULACEAE

FAGACEAE (*Quercus shumardii* - contact: Gerry
Waldron, R.R. #1, Amherstburg, Ontario
N9V 2Y7)
(remainder of *Quercus* - contact: Dr. P.W.
Ball, Dept. of Botany, Erindale College,
University of Toronto, Mississauga,
Ontario L5L 1C6)
(*Castanea* - contact: Dr. J.D. Ambrose,
University of Guelph Arboretum, Guelph,
Ontario N1G 2W1)

FUMARIACEAE

HALORAGIDACEAE [+ *Myriophyllum pinnatum* (Walt.)
BSP] (contact: Dr. S. Aiken, Biosystem-
atics Research Institute, Wm. Saunders
Bldg., Central Experimental Farm, Ottawa,
Ontario K1A 0C6]

JUGLANDACEAE

JUNCACEAE (contact: Dr. P.M. Catling, Bio-
systematics Research Institute, Wm. Saund-
ers Bldg., Central Experimental Farm,
Ottawa, Ontario K1A 0C6]

LIMNANTHACEAE

LOBELIACEAE

LYTHRACEAE

MAGNOLIACEAE

MALVACEAE [+ *Hibiscus laevis* All.
= *H. militaris* Cav.]

MORACEAE (contact: Dr. J.D. Ambrose,
University of Guelph Arboretum, Guelph,
Ontario N1G 2W1]

ONAGRACEAE [+ *Ludwigia alternifolia* L.]

PAPAVERACEAE

PINACEAE

PLANTAGINACEAE

POLYGONACEAE [+ *Polygonum arifolium* L.]
[+ *Polygonum caurianum* Robinson]
[+ *Polygonum erectum* L.]
[+ *Polygonum prolificum* (Small) Robinson
= *P. ramosissimum* Michx. var. *prolificum*
Small]
[+ *Polygonum exsertum* Small
= *P. ramosissimum* Michx. var. *ramosissimum*]

POLEMONIACEAE

PORTULACACEAE

PRIMULACEAE

RUBIACEAE [+ *Galium concinnum* Torr. & Gray]
[+ *Galium latifolium* Michx.]

SAXIFRAGACEAE

UMBELLIFERAE (see APIACEAE)

VERBENACEAE

VIOLACEAE (contact: Harvey E. Ballard, Jr.,
570-A Kellogg, Gerard Townhouses, Ann
Arbor, Michigan, U.S.A. 48105)

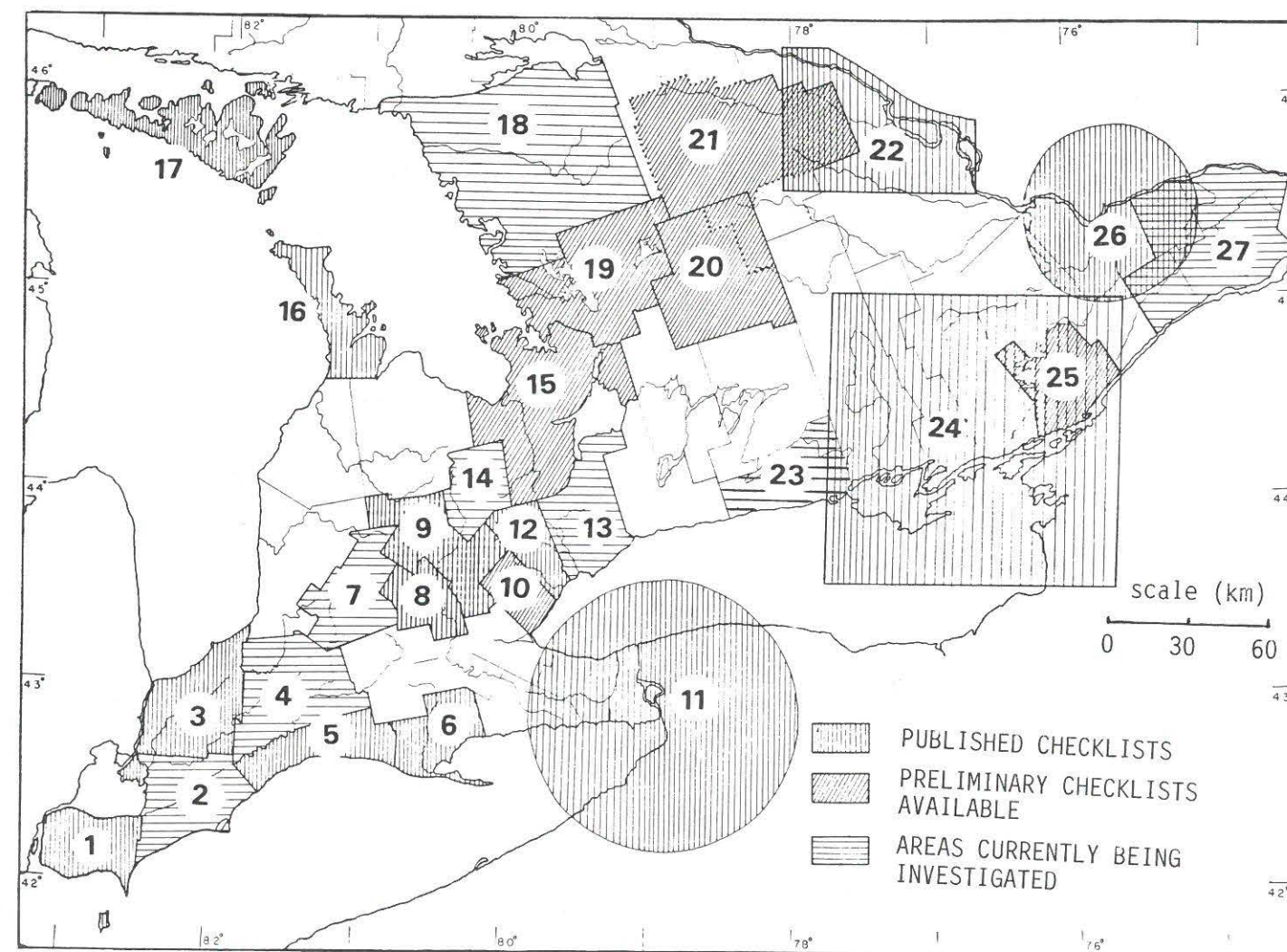
VITACEAE [+ *Parthenocissus quinquefolia* (L.)
Planch.]

COUNTY/REGIONAL VASCULAR PLANT
CHECKLISTS FOR SOUTHERN ONTARIO:
AN UPDATE

by Steve Varga, 5900 Yonge St., #618,
Willowdale, Ontario M2M 3T8

During the past 15 years southern Ontario has experienced a surge of renewed interest in county/regional vascular plant floras. A growing number of published checklists of the floras of certain geographic areas (mainly counties and regional municipalities) have been made available or will be made available soon (Figure 1). At present the floras of 27 counties/regions are being investigated by at least 50 field botanists. This work has enhanced our knowledge of plant distributions, resulted in additions to the vascular plant flora of Ontario and drawn attention to some of the most significant botanical sites in the province.

Figure 1. Progress in documentation of county/regional vascular plant checklists to date. (Numbers correspond with text.)



The floras of many counties/regions in southern Ontario remain in need of botanical investigation. So far as is known, no one is compiling checklists of the floras of lower Bruce County and Huron County. Within the Carolinian Zone (Deciduous Forest Region) there are some surprising gaps: Haldimand, Brant, Oxford and Hamilton-Wentworth. In eastern parts of the province, work is needed in Victoria, Peterborough, Hastings, Lennox & Addington, Lanark and Grenville. Hopefully these gaps will soon be filled.

Although compiling checklists for these relatively large areas demands considerable effort and dedication, the rewards are great. By attempting to produce comprehensive checklists, field botanists hone their skills in search of species which "should be found in the area". Familiarity with the flora of a specific area enables many field botanists to become experts in identifying plants "of their area" both in the field and in the herbarium.

An attempt has been made to contact those known to be working on county/regional checklists in southern Ontario. An update on their progress is listed below with information on checklists already completed. All of those contacted would be interested to hear from other field botanists familiar with their respective areas; some would appreciate assistance in these projects. Due to limited space, we have omitted reference to many of the vascular plant checklists of comparatively small areas, such as parks and nature reserves. These will be the subject of a future article!

Please let us know of any omissions, corrections or changes so that this information may be included in future updates.

1. Essex County

"Plants of Essex County, a preliminary list" by Wilfred Botham (R.R. 1, Cottam, Ontario NOR 1B0) was published in 1981 (see THE PLANT PRESS 1(1):4-5). Wilfred is still actively looking for additions with Mike Oldham (Essex Region Conservation Authority, 360 Fairview Ave. W., Essex, Ontario N8M 1Y6) and others. Mike is preparing a list of additions to the checklist for publication.

2. Kent County

Rose and Brian Klinkenberg (135 Andover, Unit 79, London, Ontario N6J 4C2) began looking at the plants of Kent County in 1976. In 1982 they decided to produce a checklist for this county and have been working towards this goal since then. Voucher specimens are currently being stored in their private herbarium. These collections will be eventually deposited in the Erindale College herbarium (TRTE), as their collections of previous years were deposited here.

3. Lambton County

"A Survey of the vascular plants of Lambton County, Ontario" was published by the Plant Research Institute (now the Biosystematics Research Institute, Agriculture Canada) in 1966. This list, compiled by Raymond J. Moore, was based on collections of the late

Lulu O. Gaiser's survey of the county in 1957-64. This publication includes a comparison of Gaiser's findings with the reports of the Michigan botanist C.K. Dodge, whose reports are not necessarily substantiated by specimens (Dodge, C.K. 1914. The flowering plants, ferns and fern allies growing without cultivation in Lambton County, Ontario. 16th Ann. Report, Mich. Acad. Sci. pp. 132-200).

More investigation on the flora of Lambton County needs to be done. During the past 6 years, Alf Rider (R.R. #2, Forest, Ontario NON 1J0) has been compiling records based mainly on photographic evidence.

4. Middlesex County

Frank Cook (1 Lakrspar Cres., London, Ontario N6H 3R1) and Dave McLeod (75 High Street, #644, London, Ontario N6C 4J8) have been working on the flora of this County. Vouchers are housed mainly at UWO and The Upper Thames River Conservation Authority. Duplicates have been sent to DAO (grasses) and TRTE (sedges).

The checklist of the flora of Middlesex County is being published in installments in "The Cardinal" (quarterly newsletter of the McIlwraith Field Naturalists, London). Vascular cryptogams, gymnosperms and monocots have been published in five sections since 1981 (The Cardinal, Nos. 104, 105, 107 and supplements to Nos. 109 and 111). Some back issues are available from the Editor, Dr. Frank Cook (address above) without charge.

The Cardinal is in libraries of the following institutions: the Universities of Western Ontario, Toronto and Saskatchewan; Royal Ontario Museum; London Public Library; National Museums of Canada; National Audubon Society, New York City; Canadian Nature Federation, Ottawa; and the FON Conservation Centre, Toronto.

5. Elgin County

"A guide to the flora of Elgin County, Ontario" by William G. Stewart (6 Yarwood St., St. Thomas, Ontario N5P 2Y3) and the late Lorne E. James, was published in 1969 and is still available from the Kettle Creek Conservation Authority, R.R. 8, St. Thomas, Ontario N5P 3T8

(copies \$ 2.50 plus 75¢ postage). This annotated checklist includes 956 taxa of vascular plants, 107 mosses and 21 hepatics.

Since 1969 Bill Stewart has continued field work and has kept track of the Elgin County collections of other field botanists doing environmental surveys in specific areas. The number of vascular plant taxa known from Elgin County now stands at 1242. Bill has published updates of additions to the flora in the following numbers of The Cardinal (for where to find these, see Middlesex County, above): 70:26-27 (1971); 73:20-23 (1972); 77:15-16 (1973); 79:16-17 (1974); 83:20-22 (1975); 85:9-10 (1976); 88:13-14 (1977); 91:12-15 (1978); 95:10 (1979); 98:19-21 (1980); 102:18-19 (1981); 106:8-9 (1982); 110:20-21 (1983).

In addition to his work on the vascular plant flora, Bill has recently published a revised and expanded list of 190 mosses, 41 hepatics and 75 lichens (Stewart, Wm. G. 1976. A cryptogamic flora of Elgin County, Ontario. Part 1. Ont. Field Biol. 30(2):17-41). A list of 69 taxa of Polyporaceae of Elgin County, mostly those found on wood, has also been published (Stewart, Wm. G. 1978. A cryptogamic flora of Elgin County, Ontario. Part 2. Ont. Field Biol. 32(2):18-23).

6. Norfolk County (now part of the Regional Municipality of Haldimand-Norfolk)

The first checklist of the flora of Norfolk County, "Vascular Plants of Norfolk County, Ontario" by Monroe Landon, was published by the Big Creek Region Conservation Authority in 1960. Later, James E. Cruise (Director, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6) published a revised and annotated version (Cruise, J.E. 1969. A floristic study of Norfolk County, Ontario. Trans. Roy. Can. Inst. 35:3-116), which includes 1029 species and 111 varieties of vascular plants. Copies of this publication are available from TRT (new address is noted in the 'Information and Requests' section). Dr. Cruise's specimens are housed at TRT; duplicates are at other major herbaria.

7. Perth County

Arnold A. Wellwood, recently retired from Wilfred Laurier University, began working on the flora of this county in 1971. To date 1025 species have been reported; vouchers are housed at Wilfred Laurier University (WLU).

8. Waterloo County (R.M. of Waterloo).

Craig Campbell (294 Albert St., Waterloo, Ontario N2L 3T8) and Larry Lamb (Department of Environmental Studies, University of Waterloo, Waterloo, Ontario N2L 3G1) began this project in 1970. To date they have records of about 1400 taxa; vouchers are housed at WAT, WLU, CAN, TRTE and OAC (Pteridophytes). Craig and Larry are about half-way through completing an annotated checklist and an introduction outlining historical collecting in the County by such notable botanists as Goldie and Herriott. They hope that this will be completed in time for the 50th anniversary of the Kitchener-Waterloo Field Naturalists in the spring of 1984.

9. Wellington County

John Stroud compiled a list of plants of this County in 1941 (Stroud, J.J. 1941. A study of the flora of Wellington County, Ontario. Can. Field-Nat. 55:56-62, 73-76, 85-88, and 104-107). Most of Stroud's collecting was done in the southern part of the County.

Allan Anderson (Department of Botany and Genetics, University of Guelph, Guelph, Ontario N1G 2W1) began compiling records of the flora of this County in 1975. Including some discoveries by Don Britton and the Guelph Field Naturalists, in addition to Allan's work, about 150 new species and hybrids have been added to Stroud's list. Data is now recorded on file cards and specimens are deposited in OAC.

10. Halton County (R.M. of Halton)

Bill Crins (Biology Department, Erindale College, Mississauga, Ontario L5L 1C6) began working on the flora of Halton County in 1974. Since 1978, extensive field work by Bill, and by Halton Region Conservation Author-

Authority, has contributed to the species total of 1150. Voucher specimens are housed at TRTE. Bill has produced a preliminary checklist and he would be pleased to send this to those who are interested.

11. Niagara Frontier (part of R.M. of Niagara)

The flora of this area has been studied by botanists from both sides of the Canada - U.S. border. In 1934 C.A. Zenkert's "The flora of the Niagara Frontier Region" (an 80 km radius around Buffalo, New York) was published in the Bulletin of the Buffalo Society of Natural Sciences. This flora was updated in the following articles: Zenkert, C.A. and R.A. Zander. 1975. Flora of the Niagara Frontier Region, Supplement. Bull. Buffalo Soc. Nat. Sci. 16 (supplement 1) and Zander, R.A. and G.J. Pierce. 1979. Flora of the Niagara Frontier Region, second supplement and checklist. Buffalo Soc. Nat. Sci. 16 (supplement 2).

On the Canadian side of the border, Gustave Yaki culminated his efforts with an annotated checklist of 1368 species (Yaki, G.J. 1970. Plants of the Niagara Peninsula. Niagara Falls Nature Club. Special Publication No. 2. 42 pp.). Not all of these records are substantiated by specimens. New records of 33 vascular plants from the Niagara Peninsula were published recently (McIntosh, K.L. and P.M. Catling. 1979. Notes on the flora of the Canadian portion of the Niagara Frontier. Ont. Field Biol. 33(1):1-11).

12. Peel County (R.M. of Peel)

Jocelyn Webber (3120 Kirwin Ave., #408, Mississauga, Ontario L5A 3R2) began collecting vascular plants in Peel County in 1973. By 1977 efforts to produce a checklist were well-underway. Voucher specimens are mainly at TRTE; some duplicates are in CAN and DAO.

An annotated checklist of the 1335 vascular plant taxa known from the Region has been prepared. Geograpnic distribution by township and abundance codes for these plants are included. An introduction discusses the vegetation and the history of plant collecting in Peel. This manuscript is being published by the Planning Department, City of Mississauga.

13. York County (R.M. of York and Metropolitan Toronto)

In 1974 a herbarium search of TRT by Paul Catling, Tony Reznicek, Sheila McKay-Kuja and Karen McIntosh resulted in a preliminary list of herbarium specimens from York County. Steve Varga (5200 Yonge St., #618, Willowdale, Ontario M2M 3T8) began investigating the flora of York in 1978. By searching for uncommon plant communities, many additions to the flora and new stations for rare plants were found. At present, Steve estimates that about 1300 plant taxa are known from York County. Voucher specimens are housed mainly in TRT; some duplicates are in other major herbaria.

The authors above hope to have a partially annotated, preliminary checklist available by mid-1984.

14. Dufferin County

Kathy Lindsay (101 Glen Manor Dr., #20, Toronto, Ontario M4E 3V3) began investigating the flora of Dufferin County in 1973. To date most of her work has been focused on interesting natural areas in two of Dufferin's five townships - Mono and Mulmer Townships. Voucher specimens are housed partly at TRT and CAN and partly in Kathy's private herbarium. This is a long-term project which Kathy will work on as time permits.

15. Simcoe County (R.M. of Simcoe)

Tony Reznicek (Associate Curator of Vascular Plants, University of Michigan Herbarium, North University Building, Ann Arbor, Michigan 48109) and Rick Bobbette (148 Kempenfeldt Dr., Barrie, Ontario L4M 1C2) began working on the flora of Simcoe in 1966. More than 1400 vascular plant taxa are now known from Simcoe. The main series of more than 6,000 voucher specimens is at MICH. Duplicates are at TRT, DAO, CAN and, to a lesser extent, TRTE. Rick's personal herbarium, which contains a second duplicate series, including the main collections from the Minesing Swamp, is now permanently housed at the Wye Marsh Wildlife Centre at Midland.

A preliminary checklist, which has been revised from time to time, is available. This list is on word processor discs at O.M.N.R., Huronia District Office and the Wye Marsh Wildlife Centre.

Rick has produced draft distribution maps of all Simcoe County species. He is currently undertaking a plant atlas project of Huronia and Muskoka which will cover Simcoe, Dufferin and Muskoka, but will not be a true flora. The atlas will be published in 5 booklets using a detachable 3-ring binder format to allow for additions and updates. The booklets will be of the following groups: 1. ferns, orchids, lilies, etc.; 2. trees, shrubs and woody vines; 3. Dicot flowers - herbs and weeds; 4. aquatic plants; and 5. grasses, sedges and rushes, etc. The atlas will include sight and specimen record coded maps. The plant distributions will be related to a variety of environmental factors.

16. Bruce Peninsula

A number of checklists of plants have been prepared for this part of Ontario. The first was restricted to the peninsula north of Wiarton and Sauble Beach (Krotkov, P.V. 1940. Botanical Explorations in the Bruce Peninsula, Ontario. Trans. Roy. Can. Inst. 23(1):3-65).

A second checklist by Peter Peach was published by the Federation of Ontario Naturalists in 1969 (now out of print). Addenda were published in 1970 and 1971. These F.O.N. lists were largely based on sight records. In 1978 Joe Johnson (P.O. Box 556, Wiarton, Ontario N0H 2T0) contributed to the 1978 F.O.N. addendum; these records are based largely on specimen evidence and include the Bruce Peninsula north of Owen Sound/Singhampton.

Joe Johnson began investigating the flora in 1973. He estimates that the total flora is at least 1250 species. Vouchers have been deposited in various herbaria (CAN, WAT, UWO and DAO, most are in TRT and HAM).

17. Manitoulin Island

John K. Morton and Joan M. Venn have been busy preparing a second edition of a flora of Manitoulin Island and the adjacent islands of Lake Huron, Georgian Bay and the North Channel. A few copies of the first edition (Morton, J.K. 1978. The Flora of Manitoulin Island. Special Publication No. 15. Department of Biology, University of Waterloo) are still available for \$ 4.50 plus postage. The second edition is now in its final stages and publication is planned

for 1984. The flora consists of 1146 species, an increase of 240 over the first edition, and results from a more intensive search of this botanically interesting area. Computer drawn distribution maps are to be included, using a data base of some 60,000 herbarium specimens and sight records. A 5 km grid square system has been used for recording and mapping. The authors would like to hear from any readers who think they might have interesting records from Manitoulin, as there is still time for last minute additions!

Besides observations on abundance, distribution and habitat, the new edition will include notes to facilitate identification of difficult groups and, in some cases, keys will be provided. The extensive bibliography of taxonomic and nomenclatural references pertaining to the Manitoulin flora should enable users to locate additional information.

18. District of Parry Sound

Don Britton (Department of Botany and Genetics, University of Guelph, Guelph, Ontario N1G 2W1), Craig Campbell (294 Albert St., Waterloo, Ontario N2L 3T8), Steve Gray (35 Gutzman Rd., Petawawa, Ontario K8H 3G6) and Barry Warner [address unknown] have been collecting plants here for some years as part of a long-term project. Craig would like other botanists to join in on this project. Large areas of Parry Sound District are poorly-known floristically.

19. District Municipality of Muskoka

Emerson Whiting (74 Dennison Rd., Weston, Ontario M9N 1C2) has been systematically working on a checklist of the flora of Muskoka since 1966. To date about 1150 species have been recorded. In recent years Jim Goltz has been working with Em (THE PLANT PRESS 1(1): 7-8). Vouchers are presently housed in Em Whiting's private herbarium; some duplicates are at CAN, DAO, OAC, TRT and TRTE).

A preliminary checklist (1980) for Muskoka is available at TRT. While not ready to provide an updated list, Em welcomes enquiries and information about the status of particular species in Muskoka.

20. Haliburton County

Eleanor and Emerson Skelton (35 St. Cuthbert's Rd., Toronto, Ontario M4G 1V2) began working on this flora in 1977 in cooperation with Dale Hoy, who produced a preliminary checklist of their combined collections from 1975-78. This list, and supplementary lists for 1979, '80, '81 and '82 by the Skeltons, are on file at TRT, as are all of the voucher specimens.

At present the Skeltons are working on an updated, annotated checklist for Haliburton and just over 900 vascular plant taxa have been recorded to date.

21. Algonquin Park

Daniel Brunton (2704 Marie St., Ottawa, Ontario K2B 7E4) began preparing an annotated checklist of the flora in 1975. Collections of Algonquin Park plants are housed in the Algonquin Park Museum herbarium (APM), which is primarily comprised of the collections of various O.M.N.R. and university researchers (dating from the 1940's) and the vouchers collected during O.M.N.R. inventory work in the 1970's. Many duplicates are at DAO.

A first draft of the checklist of the flora (1977) is housed in the Museum library. The preliminary list of 1978 includes 950 species. Dan states that over 1,000 vascular plants have been recorded from the Park.

22. Upper Ottawa Valley

Mary Moore (P.O. Box 159, Deep River, Ontario K0J 1P0) published a checklist for this area of the province (Moore, M.I. 1969. Vascular plants of the middle Ottawa Valley and north-eastern Algonquin Park. Information Report PS-X-34. Canadian Forestry Service, Chalk River, Ontario). This is now out of print, but Mary has revised copies available for \$4.95 plus postage (64¢).

23. Northumberland County

John Riley (Ontario Geological Survey, 77 Grenville St., 7th floor, Toronto, Ontario M5S 1B3) gathered a considerable data base on the flora of Northumberland County, including a card file of collection labels based on field

work in the mid-1970's and a file of botanical literature pertaining to this county. John's specimens are in TRT. Nothing much has happened in the past few years, and John would be happy to have someone else carry on with this project.

24. Kingston Region

A list of 1632 species, 103 infraspecific taxa and 19 hybrids was published for this region (Beschel, R.E., A.E. Garwood, R. Hainault, I.D. Macdonald, S.P. Vander Kloet and G.H. Zavitz. 1970. A list of the vascular plants of the Kingston Region. Fowler Herbarium, Queen's University, Kingston, Ontario. The present curator of the Fowler Herbarium, Adèle Crowder, is continually updating this list. Specimens are housed in the Fowler Herbarium (QK). A card file for the original list and all additions is available here.

25. Leeds County (western half of the R.M. of Leeds-Grenville)

Don Sutherland (350 Inglewood Dr., Toronto Ontario M4T 1J6) began this project in 1978. He made a preliminary checklist in 1981, but states that this list is quite out-of-date. At present about 1200 plant species are recorded. Vouchers have been deposited in TRTE; some early collections are in WAT. Duplicates have been deposited in WAT, OAC, CAN, DAO and QK.

26. Ottawa District

This area encompasses lands within 50 km radius of the Parliament Buildings in Ottawa. In 1959 a checklist was drawn up for the field trip of the International Botanical Congress by John M. Gillett (Botany Division, National Museum of Natural Sciences, Ottawa, Ontario K1A 0M8). Subsequently, John M. Gillett and David J. White (R.R. 3, Lanark, Ontario K0G 1K0) produced a checklist containing 1420 species (Gillett, J.M. and D.J. White. 1978. Checklist of vascular plants of the Ottawa/Hull Region, Canada. National Museums of Canada. Ottawa \$ 4.50, available only through your bookstore). Additions to the list were published by Stephen Darbyshire (Trail & Landscape 16:214-220) in 1982.

27. R.M.'s of Prescott-Russell and Stormont-Dundas-Glengarry

The floras of parts of these Regions were the subject of two surveys (Dore, Wm. G. and J.M. Gillett. 1955. Botanical survey of the St. Lawrence Seaway area in Ontario. Canada Department of Agriculture, Ottawa; and Dore, Wm. G. 1961. A centennial floristic census of Prescott, Ontario. Trans. Roy. Can. Inst. 33(2):49-115).

Paul Catling (Biosystematics Research Institute, Wm. Saunders Bldg., Central Experimental Farm, Ottawa, Ontario K1A 0C6) and Vivian Brownell (8 Scrivens Dr., R.R. #3, Metcalfe, Ontario K0A 2P0) began collecting plants in this area in 1982. Paul and Vivian believe that this is a "hot spot" for additions to the flora of Ontario, and they are eager for other field botanists to join in on this project.

BOTANIZING IN NORTHERN ONTARIO

by John Riley, Ontario Geological Survey, 77 Grenville St., 7th floor, Toronto, Ontario M5S 1B3)

I was pleased to read Mike Shchepanek's note (THE PLANT PRESS 1(2):26-27) referring to some of the "collection vacuums" in my favourite floristic part of the province, northern Ontario. Over the past few years I have been preparing a catalogue of the flora of Ontario north of the French and Mattawa Rivers. On the basis of this study, I would like to comment on the state of our knowledge of the flora of northern Ontario.

At the beginning of my study, I divided northern Ontario into 23 watershed/geological zones as shown in Figure 1. Maps for all plant taxa known from northern Ontario are being prepared based on my examination of herbarium collections from each zone.

To date I have checked the following herbaria for their Hudson Bay Lowlands collections: TRT, TRTE, the personal herbarium of P.F. Maycock (in part), QFA (including RIM), CAN, DAO and SSMF. Other herbaria have been examined for particular specimens referred to in literature reports (Riley 1980). Herbarium material at

Helsinki has also been included. For the remainder of northern Ontario I have recorded data from TRT (the northern Ontario flora is particularly well-represented by collections in this herbarium), LKHD (in part), SSMF and the Quetico Park herbarium. In the future, the herbaria in Ottawa (CAN and DAO) and Ann Arbor, Michigan (MICH) will, I am sure, yield additional records to those already recorded in the catalogue to date.

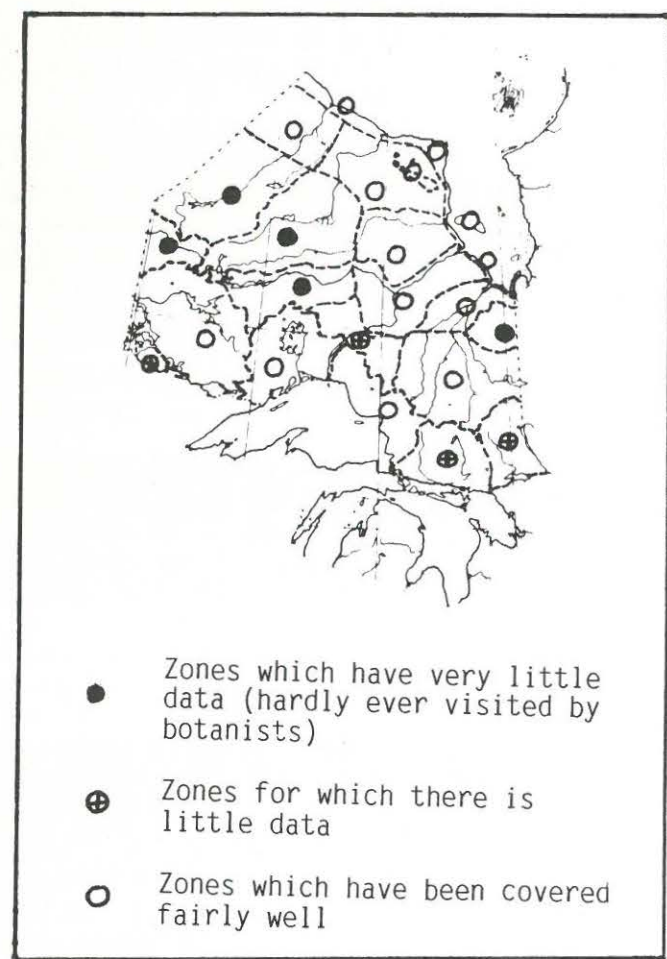
While my mapping procedure does not directly analyze collecting intensity, the maps produced to date show which species have been collected from which zones. These maps are very useful in directing my own collecting efforts towards species and zones which are under-represented in herbaria. It is clear to me that perception of collecting intensity across northern Ontario depends very much on the herbaria with which one is familiar, and that direction for future collectors should be given only after studying the holdings of several herbaria. Collections are expensive to obtain and maintain, and it is unrealistic for any single herbarium to expect to have its own synoptic collection for an area the size of northern Ontario.

On the basis of information compiled in the catalogue to date, I would say that the Hudson Bay Lowland flora is now probably as well-collected as any other region of northern Ontario, with two exceptions being the Lake Superior shoreline zone (and Thunder Bay area) and the northern Clay Belt (for which Baldwin's 1958 flora is becoming out of date based on current collection records). I think that all herbaria are extremely weak on collections from the following areas: (1) the Albany, Severn and Winisk River basins north of the English River/Lake Nipigon systems and south of the Hudson Bay Lowland (i.e. the north-western part of the Precambrian Shield, 52°N to 55°N, 86°W to the Manitoba border); (2) the Lake Kesagami plateau; and (3) the Temagami/Sudbury/Gogama/Elliott Lake/Chapleau area. Any collections from these 3 areas would be valuable additions to any herbarium.

Collectors intrested in adding new species to the documented flora of northern Ontario should focus their efforts on the following areas: North Channel, Sault Ste. Marie, Mattawa River and Rainy River. These areas are the most promising for new plant records. They are also generally poorly represented by collections in herbaria.

While I am not currently spending enough time on the catalogue or on processing my own northern Ontario collections (about 25% of my own 10,000 northern Ontario numbers are not yet in herbaria), I am still very interested in corresponding with anyone with notes or lists of collections from all parts of northern Ontario. I would especially like to hear about collections from the 3 poorly-known areas listed above.

Figure 1. Collection zones in northern Ontario.



References

Baldwin, W.K.W. 1958. Plants of the Clay Belt of northern Ontario and Quebec. National Museum of Canada. Bulletin No. 156. 324 pp.
Riley, J.L. 1980. The flora and phytogeography of the Hudson Bay Lowland. M.Sc. thesis, University of Toronto.

SOUTHERN ONTARIO FENS

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

Fens are fascinating, floristically rich and fragile wetlands. They have remained misunderstood and overlooked in southern Ontario despite the fact that Ontario has had an excellent wetland classification scheme for almost a decade (Jeglum et al. 1974). This scheme has been applied in simplified form to the Great Lakes Region (Pringle 1980).

In order for southern Ontario fens to be protected, they must first be identified and studied. We do not even know how many fens have been lost to filling, draining and conversion to market gardens; the Holland Marsh is one example of what was once likely a great fen. My reason for writing this article is to bring to your attention some of the better examples of our fens, together with references describing them. I hope that you will feel free to point out omissions and errors so that an updated and expanded article can be printed in a future issue of THE PLANT PRESS.

Most fens have developed in areas of calcareous bedrock; the limestone plains of the southern Ontario lowlands and the marble of the Canadian Shield. Like bogs and some swamps, fens are peatlands; fens may evolve into bogs with continued accumulation of peat. Fens are often only one of several components of wetland complexes; the other components may be bogs and/or swamps and/or marshes.

Fens have developed where there is continuous contact with ground water - on pond and lake edges, in narrow arms of lakes, on river flood plains and at river mouths, in depressions in till moraines and on saddle points between watersheds. Because of the contact with calcareous ground water, fens are enriched by the substrate's calcium and magnesium carbonates and have pH's usually in the range of 5.5 to 7.5. Fens may be floating sedge mats, or they may have entirely filled in the depressions in which they were first formed. In the latter situation, the sedge peat below the fen floor may be a half metre to at least two metres deep, sometimes interbedded with marl (for example Brownell 1981a), and may have taken several thousand years to build up. The water level of infilled fens may be at the surface or above in spring, fall and winter, and at the surface or even well below in the summer.

The fen flora consists of 50 to 70 species of vascular plants, the exact composition in each fen reflecting to some extent its geographic location. Woolly sedge (*Carex lasiocarpa*), Hudsonian club-rush (*Scirpus hudsonianus*) and other narrow-leaved sedges are the usual graminoid dominants, accompanied by Canada bluejoint (*Calamagrostis canadensis*) and several other grasses in south central and southwestern Ontario. Where sedges and other grass-like plants (of the families Cyperaceae, Graminae and Juncaceae) dominate, the fens are called "graminoid fens" (Jeglum et al. 1974); they may look like open, grassy meadows. In "low shrub fens", dominance is shared with shrubby cinquefoil (*Potentilla fruticosa*), sweet gale (*Myrica gale*), dwarf birch (*Betula pumila* var. *glandulifera*) and some members of the Heath Family.

Other vascular plants commonly part of the fen flora are twig-rush (*Cladium mariscoides*), buckbean (*Menyanthes trifoliata*), Kalm's lobelia (*Lobelia kalmii*), bog bedstraw (*Galium labradoricum*), bog goldenrod (*Solidago uliginosa*) and rush aster (*Aster borealis*). The rare orchids, small white lady's-slipper (*Cypripedium candidum*) (Brownell 1981a) and prairie white fringed orchid (*Platanthera leucophaea*) (Reddoch 1977) are examples of notable plants occasionally encountered. About two-thirds of the fen species have boreal-subalpine distributions, while the other third are more southern and eastern in occurrence.

Tamarack (*Larix laricina*), eastern white cedar (*Thuja occidentalis*) and black spruce (*Picea mariana*) are the dominant trees in fens, occurring in scattered clumps in graminoid and low shrub fens, or forming denser stands ("treed fens").

The moss flora is particularly diagnostic. Instead of the continuous *Sphagnum* carpet of bogs, there is an entirely different group of mosses in fens. Among the most commonly encountered species are *Campylium stellatum*, *Drepanocladus vernicosus*, *Scorpidium scorpioides*, *Tomenthypnum nitens* and *Calliergon cuspidata*. When sphagna do occur, they are calciphilic species such as *Sphagnum warnstorffii*, *S. squarrosum* and *S. teres*. If sphagna begin to take over in a fen, the pH is lowered and the fen may be transformed into a bog.

The following list was prepared after discussions with Rick Bobbette, Vivian Brownell, Don Cuddy, Rose Klinkenberg, Kathy Lindsay, Jim Pringle, Tony Reznicek and Jocelyn Webber. Kathy and Don chose the most significant Bruce

Peninsula fens from among the many fen habitats, small and large, recorded there (Cuddy et al. 1976). The fens were selected on the basis of a combination of several criteria (as much as were known): large size, lack of disturbance, occurrence of provincially and regionally rare flora and fauna, diversity of vegetation and historical significance. White Lake Fen (Reddoch 1984) is the only fen on the list which occurs on the Canadian Shield (Figure 1). Manion Corners Long Swamp Fen (Reddoch 1978 and 1979) is the only fen listed which exhibits the patterning of strings and flarks characteristic of some northern fens.

COUNTY/REGIONAL MUNICIPALITY	LOCALITY/NAME OF FEN
Bruce	Dorcas Bay Fen
	Sucker Creek Fen
	Howdenvale Bay/Petrel Point/Red Bay Fen
	Teeswater Fen/Greenock Swamp
Grey	Harrison Lake/Anderson Lake Fen
	Beaverdale/Markdale Fen
	Wye Marsh
	Minesing Swamp
Simcoe/York	Matchedash Bay Wetlands
	Carthew Bay Fen
	Keswick Marsh
	Holland Landing Fen
Wellington	Crieff Bog
Hastings	Stoco Fen
Renfrew	White Lake Fen
Leeds	Brockville Long Swamp Fen
Ottawa-Carleton	Manion Corners Long Swamp Fen
	Richmond Fens (two fens)
	Mud Pond Fen

Although one of the objectives of this article is to encourage field botanists to explore southern Ontario fens, it must be emphasized that many of these fens are on private property and the rights of the landowners must be respected.

If you know of a fen or reference which should be included in these lists, please

send details to the author; for instance, do Rathkoptt Fen in Frontenac Park and Murray Marsh/Percy Reach in Northumberland County qualify for inclusion?

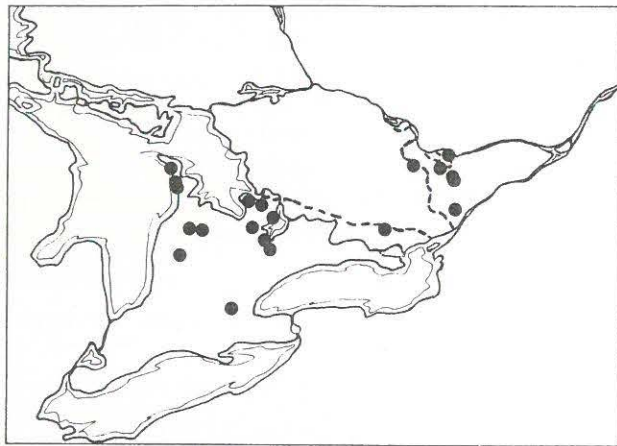


Figure 1. Map of southern Ontario showing the Canadian Shield and locations of fens listed in this article.

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HALBERD-LEAVED ROSE MALLOW (*Hibiscus laevis* All.: MALVACEAE): AN OVERLOOKED ELEMENT OF THE CANADIAN FLORA

by Michael J. Oldham, Essex Region Conservation Authority, 360 Fairview Ave. W., Essex, Ontario N8M 1Y6

On 27 August 1904, H.H. York collected a specimen of halberd-leaved rose mallow (*Hibiscus laevis* All. = *H. militaris* Cav.) on Pelee Island, Essex County, Ontario. This was the first and only collection of this species from Canada. York's unfiled and unmounted specimen lay for many years in The Ohio State University Herbarium at Columbus until discovered by R.L. Stuckey. Dodge (1914) and Core (1948) overlooked the specimen in compiling their floras, which included Pelee Island.

The first published mention of *Hibiscus laevis* in Canada was made by R.L. Stuckey (1968). However, Stuckey merely mentioned York's collection, without indicating that the species was unreported from Ontario and Canada. Neither Boivin (1967) nor Scoggan (1978) included *H. laevis* in their respective floras of Canada.

Hibiscus laevis is similar to Canada's other native rose mallow, the swamp rose mallow (*H. palustris* L.). Both are wetland species growing to two metres in height, with large, showy pink flowers. The leaves of *H. palustris* are densely pubescent beneath, while those of *H. laevis* are essentially glabrous below. In addition, the leaves of *H. laevis* are often strongly lobed or hastiform at the base, contrasting with those of *H. palustris*, which are typically unlobed or sometimes with a weak pair of lobes near the middle. The two species of rose mallow grow at the edges of marshes, on muddy shores, and on islands in rivers and streams; they occasionally grow together.

It appears that halberd-leaved rose mallow is expanding its range northward. Early botanists in the Sandusky region of Ohio (Moseley 1899) and on the Erie Islands in western Lake Erie (Pieters 1901) did not encounter the species. More recently, however, it has been found on several of the U.S. Erie Islands and along the southern shore of Lake Erie by Stuckey (1968) who stated that this "doubtlessly represents a recent northeastward migration and establishment". Deam (1940) pointed out that, in Indiana, *H. laevis* was "rapidly migrating" along the shores of the Wabash River, probably owing to changes in the riverbottom habitats. In the Chicago region, Swink and Wilhelm (1979) note that the species seems to be increasing, adapting freely to the greater deposition of mud on the streambanks which results from increased runoff and erosion.

The Pelee Island collection made by York may represent a sample from a short-lived colony, since the species has not been found again on the island, or it may be very scarce and have been overlooked by later investigators. *Hibiscus laevis* was not listed in Argus and White (1977), but is being considered for the atlas project (Pryer and Keddy 1983). This species should also be added to the flora of Canada. Field botanists should be alerted to the potential presence of this attractive plant in southwestern Ontario wetlands.

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NEWS OF BOTANISTS

The enclosed questionnaire will provide readily accessible biographical information on subscribers. One of the objectives of THE PLANT PRESS is to publish the name, address and interests of subscribers to facilitate communication within the group. This is the information we would

like to include in THE PLANT PRESS unless requested not to do so. The remaining questions are more personal, but we will be pleased to receive this information for future use where it will be useful for citations, obituaries, etc. Thank you for your co-operation.

WALTER HARTLEY 1910 - 1983

It is with regret that we note belatedly the sudden passing of Walter Hartley of South Gillies, Ontario, this past spring. He researched, wrote and personally financed the publication "Plants of the South West part of Thunder Bay District." Initially published in 1968, it was the first, and until recently, the only list of the vascular plant flora for the Thunder Bay area.

Born in Liverpool, England, Walter moved with his family to the Ottawa area in 1914. He spent much time as a youth alone in the woods nearby. Walter moved to Thunder Bay to take a millwright's course, but poor health (a result of his Korean War Service) prevented him from taking employment. His introduction to the study of botany came when he audited a course in botany which his wife, Margaret, was taking as part of her teacher's certificate upgrading. The following term was spent in the herbarium while Margaret continued her course work.

The combination of his association with the local naturalist group (in particular Dr. A.E. Allin) and the move to the country south of Thunder Bay in 1960 motivated him to begin a systematic study of the plants that occurred in the area. This resulted in production of the list of the vascular plant flora southwest of the city. With a grade 10 education, Walter attended Lakehead University and obtained his B.Sc. while in his 50's. In recent years his projects have included the restoration of an original settler's log home built in 1914 (which became the Hartley's home) and the building of nesting boxes which have helped Bluebirds become re-established as nesting species in the area of their farm.

Walter Hartley's dedication to conservation underlaid all of his activities. His embodiment of the enthusiastic but serious amateur is attested to by those projects he left behind. However, his main contribution has been that of a warm human being.

JOHN M. GILLETT RETIRES

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

On 25 November 1983, John M. Gillett officially retired from the position of Curator of Vascular Plants at the National Herbarium (CAN). Dr. Gillett received an honours B.A. (major in botany, minor in chemistry) in 1949. In 1952 he completed a Ph.D. based on a revision of the North American species of *Gentianella* at Washington University (affiliated with the Missouri Botanical Garden) in St. Louis, Missouri. Dr. Gillett was also employed by the Plant Research Institute (now the Biosystematics Research Institute of Agriculture Canada) from 1949-1972.

At this institute, he began taxonomic research on the family Leguminosae with particular interest in the genus *Trifolium* (The True Clovers, of which there are about 250 species). Taxonomic problems in this genus from all over the world are of interest to him, although he specializes in North American taxa. As a sideline to this research, Dr. Gillett was involved in a number of botanical surveys of areas in Ontario which were poorly-known floristically - Marmora, in Hastings County and, with Dr. Wm.G. Dore, the St. Lawrence Seaway.

Since moving to the National Herbarium in 1972, Dr. Gillett has continued taxonomic research on legumes and on arctic botany. Field botanists less familiar with taxonomic research have associated the name John M. Gillett with "The Flora of the Ottawa District". Despite his continuing interest in checklists and Ontario's flora, he intends to complete a treatment of the Legumes of Canada and to continue his interest in clovers. We wish him well with this new phase of his research career!

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Range: Mainly the local flora

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Range: Bruce County

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Range: Claybelt/Algoma

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Range: Peterborough area

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Range: Muskoka

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Range: Ontario

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Range: Toronto and southern Ontario

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Range: Eastern Ontario

INFORMATION AND REQUESTS

GREAT LAKES WETLAND ECOLOGISTS NETWORK

by Tom Whillans, Great Lakes Wetland Ecologists Network, Institute for Environmental Studies, University of Toronto, Toronto, Ontario M5S 1A4

Marshes and contiguous wetlands in the Great Lakes represent a special class of the world's wetlands. They differ from those in smaller inland lakes and ponds because of their intimate dependence upon and adaptations to substantial water level fluctuations - daily seiches, long-term hydrologic cycles and irregular storms. Many are influenced by the riparian factors which characterize the ecology of riverine marshes; most are not dominated by them. Unlike marine estuarine wetlands, the Great Lakes marshes are not differentiated along saline gradients. They probably, however, share distinctive characteristics with wetlands in other great lakes of the world, including those bordering the Precambrian Shield in north-central Canada and those in the African rift valley system.

Although the wetlands in the Great Lakes represent a unique class of wetland, the class is not homogeneous. Different types of natural wetland exist. Many have been subjected to a variety of cultural stresses (dredging, nutrient input, dyking, etc.) such that a taxonomy of wetland conditions in the Great Lakes would be complex.

The overall degradation of wetland quality by the range of cultural stresses is not well-documented. Enough inventories of current wetland distribution and historic loss of wetlands have been completed to suggest the magnitude of the resource and its vulnerability. A strong case has yet to be made and supported concerning the importance of wetlands to the integrity of Great Lakes ecosystems.

Portions of the set of natural and stressed wetlands in the Great Lakes have been subjected to scientific investigation or experimental management. Recent comparative study has produced general models of wetland dynamics. Most research on Great Lakes wetlands has, however, focused on one or a few marshes. It has tended to be pragmatic, often in the form of experimental management, and reported in-house. Management activities are not fully

documented. The ecological research which has been published can be categorized rather neatly as having focused on botany, wildlife and botany, or fish and botany. Cross-references among the three categories of study have been minimal.

Only a few sociologic and economic studies of wetland values have been reported for the Great Lakes. These have focused on conventional values.

It appears that a network of wetland ecologists for the Great Lakes could fulfill useful functions. It could:

- (a) serve to identify persons doing research, experimental (unconventional) management and related projects;
- (b) facilitate exchange of in-house, unpublished information between ecologists and highlight useful publications, both new and in preparation;
- (c) provide a forum in which comparative research could be scoped, organized and evaluated; and,
- (d) encourage and perhaps convene synthesis exercises.

This network is to be composed of both United States and Canadian wetland ecologists. Those interested in the network should contact Gary McCullough, John Riley and Tom Whillans at the address above.

FUTURE ARTICLE ON "WHO'S WORKING ON WHICH DISTRICT/REGIONAL FLORAS" IN NORTHERN ONTARIO"

The following information is requested: Area under investigation; names and addresses of compilers; where voucher specimens are located; estimates of the numbers of plant taxa; whether preliminary checklists are available; how long such work has been in progress. Please send this information to Dr. Keith Winterhalder, Biology Department, Laurentian University, Sudbury, Ontario P3E 2C6.

NEW ADDRESS AND PHONE NUMBER FOR THE UNIVERSITY OF TORONTO HERBARIUM (TRT)

The herbarium was moved to the Canadiana Bldg.

of the Royal Ontario Museum, Toronto, Ontario M5S 2C6. The new telephone number is (416) 978-6271.

ONTARIO ECOLOGY AND ETHOLOGY COLLOQUIUM

The annual Ontario Ecology and Ethology Colloquium will be held at the University of Waterloo, Waterloo, Ontario on April 24th-26th 1984. Enquiries should be addressed to: OEEC, c/o Department of Biology, University of Waterloo, Waterloo, Ontario N2L 3G1.

RECORDS OF PRAIRIE BUTTERCUP (*Ranunculus rhomboideus*)

information requested by Harry Williams, Millbrook, Ontario L0A 1G0 (705-932-2672)

Records of present or past occurrence of this species from anywhere in Ontario, especially Lambton, Norfolk and Simcoe Counties, are requested. This information will be incorporated in an article about this buttercup for a future issue of THE PLANT PRESS.

IDEAS FOR EMPLOYMENT OF FIELD BOTANISTS IN 1984

contact your local politicians, manpower, government agencies, etc.!

Now's the time to think of a project which would utilize your skills as a field botanist. Ideas: inventories of agricultural weeds of agricultural lands of specific parts of Ontario; floristic/ecological investigation of natural regeneration of conifer plantations; studies of the best means to eradicate alien weeds of natural areas such as wild garlic (*Alliaria petiolata* = *A. officinalis*) and celandine (*Chelidonium majus*). Please let us know of other ideas which can be shared with our readers!

ORCHID BOOK FOR SALE

contact Mrs. G. Beauchamp Boucher, 269 Edinburgh Street, Peterborough, Ontario K9H 3E5

A copy of "Our Wild Orchids" by Morris & Eames (1929) is available for the best or "going" price.

NOMENCLATURE

NOTES ON THE ITALICIZATION AND SPELLING OF BOTANICAL NAMES: A GUIDE FOR NATURALISTS AND HORTICULTURISTS

by James S. Pringle, Taxonomist, Royal Botanical Gardens, P.O. Box 399, Hamilton, Ontario L8N 3H8 (reprinted from The Gardens' Bulletin 31(3): 13-14 (1977) with permission of the author and A. Paterson, Director of the Royal Botanical Gardens)

This [article] deals with three topics in plant nomenclature about which questions are frequently asked: italicization, endings of genitives and capitalization.

The International Code of Botanical Nomenclature and the International Code of Nomenclature of Cultivated Plants do not include rules for italicization. Accepted practices among plant scientists are, however, well illustrated by examples in both cases.

By way of review, it may be noted that the scientific name of a species consists of two words, called, respectively, the generic and specific epithets. The first can stand alone, as the name of a genus. The second, being an adjective or serving as one, should not be separated from that of the genus (or its abbreviation). The scientific name of a genus is italicized, e.g. *Syringa* or *Quercus*. Likewise, the two words that constitute the name of a species are both italicized, e.g. *Syringa vulgaris* or *Quercus alba*. When the use of italics is not feasible, as in most typewriting, underlining is used instead. When typewritten manuscripts are submitted for printing, underlining is recognized as an indication that italic type is desired.

Sometimes a plant may be identified only to genus, or one may refer collectively to several species or cultivars by the generic name only. In these cases, such words as "species," "hybrid," or "cultivar," usually abbreviated, respectively, to "sp." (singular), "spp." (plural), "hyb.," and "cv.," may follow the generic name. Only the generic name itself is italicized, as in *Syringa* sp.; *Carex* spp.; *Quercus* hyb.; *Rosa* cv.

Several ranks of subdivisions of species may be recognized under the provisions of the International Code of Botanical Nomenclature. Three, those of subspecies, variety (varietas, botanical variety) and form (forma) are commonly encountered. The abbreviation indicating the rank of such an infraspecific taxon should always be inserted after the name of the species. This abbreviation is not italicized. Examples: *Syringa reticulata* var. *mandschurica*; *Sanguinaria canadensis* f. *multiplex*.

Practice has been less consistent in the italicization of names of intercalary taxa, between genus and species, that do not form part of the name of a species. In recent years, however, these names have generally been italicized. Names of taxa above the rank of genus are not italicized. Examples: *Syringa* subgenus *Ligustrina*; *Gentiana* sect. *Chondrophyllae*; *Oleaceae*; *Compositae* tribe *Heliantheae*.

Names of cultivars are enclosed in single quotation marks, or preceded by the word "cultivar" or its abbreviation, or both. The initial letter of all words in a cultivar name are capitalized, except for conjunctions, prepositions and articles not usually capitalized in proper names and titles. Cultivar names, even those in Latin form, are not italicized. Examples: *Syringa vulgaris* 'Saint Joan'; *S. vulgaris* 'City of Kelso'; *S. vulgaris* 'Gloire de Lorraine'; *S. vulgaris* 'Macrostachya'; *S. reticulata* var. *reticulata* 'Ivory Silk'.

Another recurrent nomenclatural problem is that of forming genitives (possessives) where a specific epithet or name of a taxon below the rank of species commemorates a person. The rules in this situation are explicit, and take precedence over the spelling in the original publication. If the name (surname or given name) ends in a vowel other than -a, or in -er, one adds one i to form the genitive; if it ends in a consonant but not in -er, one adds ii; if it ends in -a, one adds e. Examples: *Syringa fauriei* (for Abbe Urbain Faurie); *S. meyeri* (for Frank N. Meyer); *Magnolia sharpii* (for Aaron J. Sharp); *Gentiana mirandae* (for Faustino Miranda G.).

If the name of a woman ends in -a, one adds e to form the genitive; if it ends in any other vowel, or in -er, one adds ae; if it

ends in a consonant, one adds *iae*. Examples: *Syringa julianae* (for Juliana Schneider); *Sinclairia broomeae* (even though originally published *broomei* - for C. Rose Broome); *Erigeron pulchellus* var. *brauniae* (for E. Lucy Braun).

The name of a genus is always written with an initial capital letter. It is always correct not to capitalize a specific epithet. There are, however, some situations in which one has the option of capitalizing a specific epithet. Those that may be capitalized are those commemorating persons and generic or vernacular names (nouns) used as specific epithets. Geographic adjectives are not capitalized. For example, one may write either *Syringa wolfii* or *S. Wolfii* (for Egbert Wolf); *Gentiana saponaria* or *G. Saponaria* (the generic name of bouncing-bet used as a specific epithet for a gentian); but only *Rhododendron canadense* or *Syringa villosa*. Capitalization of specific epithets is, however, becoming less common, and it is not recommended by the International Code of Botanical Nomenclature.

ONTARIO PLANTS IN PRINT

UPDATE ON SUBMISSION OF REFERENCES

by Michael J. Oldham, Essex Region Conservation Authority, 360 Fairview Ave. W., Essex, Ontario N8M 1Y6

The response to 'Ontario Plants in Print' has been very good, many subscribers saying that they enjoy this section. However, the submission of references has quickly tailed off. Many important botanical journals have yet to be searched for literature pertinent to Ontario field botany. Such journals and newsletters include: American Fern Journal, American Journal of Botany, Blue Bill, Brittonia, Bulletin of the Torrey Botanical Club, Canadian Botanical Association Bulletin, Canadian Journal of Botany, Canadian Journal of Plant Science, Canadian Journal of Weed Science, The Cardinal, Castanea, Le Naturaliste Canadien, Ontario Field Biologist, Rhodora, Seasons and Systematic Botany. To date no titles have been received from any of the above periodicals. If you receive or regularly see any of these publications (or any of the others

listed in THE PLANT PRESS, Vol. 1 No. 1) why not volunteer an hour or two of your time to search them for titles? If you are interested in searching any of these periodicals from 1980 onward, please contact me at the address above. Without submissions from the readership, we will not be able to continue 'Ontario Plants in Print'.

TAXON (1980 - 1981)

compiled by Stephen Darbyshire, Biosystematics Research Institute, Wm. Saunders Bldg., Central Experimental Farm, Ottawa, Ontario K1A 0C6

- Isely, D. and R. Polhill. 1980. Leguminosae subfamily Papilionidae. *Taxon* 29(1):105-119. (conservation of the names Papilionaceae and Papilionideae)
- Silva, P.C. 1980. Remarks on algal nomenclature VI. *Taxon* 29(1):121-145. (39 generic names proposed for conservation and 2 new combinations)
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- Jacobsen, T.D. 1980. The neotypification of *Allium cernuum* Roth (Liliaceae). *Taxon* 29:150-151.
- Jensen, R.J. 1980. Lectotypification of *Quercus ellipsoidalis* E.J. Hill. *Taxon* 29:154-155.
- Tucker, A.O., R.M. Harley and D.E. Fairbrothers. 1980. The Linnean types of *Mentha* (Lamiaceae). *Taxon* 29(2/3):233-255.
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- Beckmann, R.L. Jr. 1980. Typification of the Linnean species of *Hydrophyllum* L. (Hydrophyllaceae). *Taxon* 29(2/3):257-265.
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- Austin, D.F. 1980. Additional comments on infrageneric taxa in *Ipomoea* (Convolvulaceae). *Taxon* 29:501-502.
- Tryon, R. and A. Tryon. 1980. ICBN proposal 532. Proposal to conserve the name *Dennstaedtia* T. Moore... *Taxon* 29:512-513. (*Dennstaedtia* vs. *Sitobolium*)
- Fraser-Jenkins, C.R. 1980. Nomenclatural notes on *Dryopteris*:4. *Taxon* 29(5/6):607-612. (*D. austriaca*)

- Macfarlane, T.D. and L. Watson. 1980. The circumscription of Poaceae subfamily POOIDEAE with notes on some controversial genera. *Taxon* 29(5/6):645-666. (descriptions of subfamily and certain genera including *Milium*, *Brachyelytrum*, *Molinia*)
- Werner, K. 1980. Zur typisierung von *Carex rosea* Schkuhr ex Willd. *Taxon* 29:685-687. (claims type of *C. rosea* is in Schkuhr herbarium (HAL))
- Brenan, J.P.M. and C.C. Townsend. 1980. ICBN proposal 540. Proposal to reject *Amaranthus blitum*. *Taxon* 29:695-696. (a long-standing source of confusion)
- Schilling, E.E. and C.B. Heiser. 1981. Infrageneric classification of *Helianthus* (Compositae). *Taxon* 30(2):393-403. (A biosystematic study of the North American genus. A key to infrageneric taxa given. A number of taxonomic innovations and several new infrageneric taxa described. Species treatment follows Heiser, C.B. et al. 1969. The North American Sunflowers (*Helianthus*) Mem. Torrey Bot. Club 22(3):1-218.)
- Jensen, U. and C. Buttner. 1981. The distribution of storage proteins in Magnoliophytina (Angiosperms) and their serological similarities. *Taxon* 30(2):404-419. (The serological reactivity for 2 storage proteins, Aquilegillin and Tubiflorin, are investigated in 20 families. Indicates relationships at the familial level to be only slightly different from the Cronquist-Takhtajan concept.)
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- McNeill, J. 1981. Nomenclatural problems in *Polygonum*. *Taxon* 30(3):630-641. (Typification of the genus; rejection of the name *P. aviculare* with nomenclatural implications)
- Vander Kloet, S.P. 1981. On the lectotypification of *Vaccinium*. *Taxon* 30(3):646-648. (*V. uliginosum* proposed as lectotype for *Vaccinium* since it is more like generic description than *V. myrtillus*)
- Crowe, D.R. and W.H. Parker. 1981. Hybridization and agamospermy of *Bidens* in north-western Ontario. *Taxon* 3(4):749-760. (Agamic complex of *B. connata* is investigated around Thunder Bay. Study shows probable hybrid origin)

THE GENUS *Atriplex* (Chenopodiaceae) IN CANADA. By I.J. Bassett, C.W. Crompton, J. McNeill and P.M. Taschereau. 1983. Agric. Can. Monograph No. 31, 72 pp. Soft cover. Available free of charge from Communications Branch, Agriculture Canada, Ottawa, Ontario K1A 0C7

reviewed by Stephen Darbyshire, Biosystematics Research Institute, Wm. Saunders Bldg., Central Experimental Farm, Ottawa, Ontario K1A 0C6

The genus *Atriplex* (the common name is also *atriplex*), as with many other groups of anemophilous plants, has proved resistant to interpretation by taxonomists until subjected to extensive experimentation and modern techniques. Morphological variation is rampant and, to the field botanist, complicated by the apparently distinct differences between genetically disjunct populations which are within themselves relatively morphologically homogeneous. The difficulties experienced by various botanists can be appreciated by comparing the treatments of *Atriplex* in several of the popular floras. In the systematic treatment of this recent monograph, the authors have been able to provide a synthesis of many years of combined experience in biosystematics of the genus *Atriplex*. In this publication the authors have brought a thoroughness to a floristic treatment that, although strived for, is rarely accomplished by the non-specialist.

Twenty-two species are considered to occur in Canada. Only 6 species are listed as occurring in Ontario, with the main centres of distribution being in dry western prairies, and coastal areas of the maritime provinces. Although there is a small number of species in Ontario, at least 5 or 6 species are introductions from saline habitats to the east or west, or as anthropophilic weeds.

Given that many alien halophyte species have been detected recently in Ontario, invading areas of salt build up (Catling, P.M. and S.M. McKay. 1980. Halophytic plants in southern Ontario. *Can. Field-Nat.* 94(3):248-258; and others) it would seem likely that other species of *Atriplex* may invade or be successfully introduced from the west (cf. *Carex praegracilis*, *Poa arida*).

After a brief introduction is a similarly brief statement implicating *Atriplex* as a causal agent of hay fever. Diagnostic characters of the genus are discussed in a section covering morphology of the genus. This section serves the reader well in that it defines some of the more important morphological terms. It is supplemented by a glossary which consists mostly of adjectives used for morphological characters. Although the section on cytology is quite short, it is well referenced. The section following discusses hybrids in the genus. It points out that although hybrids are commonly detected in some areas, in Canada the great morphological diversity has led many people to erroneous conclusions about hybrid origin. The extent of the authors' survey is easy to visualize by glancing at the extensive list of Canadian, U.S. and European herbaria (pages 13-14) from which material was examined.

The systematic treatment begins with a treatment of the infra-generic taxa. The authors recognize seven sections in Canada for which they give full author citation, synonymy, descriptions of significant morphological features and a list of Canadian species. Following the treatment of sections is a key to the species of *Atriplex* in Canada. The completely dichotomous key appears to be well constructed with an attempt to use more than one morphological and/or ecological character. Characters used in the key require that fruiting specimens be obtained.

Species accounts give full author citations and type localities as well as several common names, a full morphological description, chromosome counts and a section on distribution. The latter section not only considers world-wide and Canadian distributions, but also includes notes on status, ecology and habitat and development and economic importance. With each species account is a plate with a small, but readable, dot distribution map, and line drawings of a whole plant, bracteoles and seeds. A few of the drawings of the bracteoles and seeds have not printed very well, but this does not detract substantially from their usefulness. The book concludes with references and an index to Latin names in the text.

This book is undoubtedly the best buy of Canadian botanical literature (32¢ postage), and I am convinced it will prove to be well worth the taxpayer's money invested in its production.

MOSS FLORA OF THE MARITIME PROVINCES.
By Robert R. Ireland. 1982. National Museum of Natural Sciences, Publications in Botany No. 13. 738 pp. (cost - \$ 25.00)

reviewed by Michael J. Oldham, Essex Region Conservation Authority, 360 Fairview Ave. W., Essex, Ontario N8M 1Y6

Although this excellent flora deals with the Maritime Provinces, persons interested in Ontario bryophytes will find it extremely interesting and useful. Many of Ontario's mosses occur in the Maritimes also. Ireland and the three illustrators (Anne Hanes, Linda Ley and Gilda Bellolio-Trucco) have done an outstanding job with this book, which should become a classic in the years to come. Fully illustrated, with excellent line drawings of nearly every species, this volume is a must for all serious professional and amateur bryologists.

The book begins with an introductory section covering moss structure and life cycle, collecting and herbarium techniques, collectors of Maritime mosses, identification and methods of study, reference books, nomenclature and classification, and use of keys. A key to the genera of Maritime mosses and keys to all species are included. Each species is described, usually illustrated, with headings covering synonymy, habitat, Maritime distribution, range, chromosome number and remarks. A listing of excluded taxa, fully illustrated glossary, literature cited, and taxonomic index follow the main text. This is a sturdily bound hardcover volume, with easy-to-read print. Available from the National Museum of Natural Sciences, Ottawa K1A 0M8 and well-worth the \$ 25.00 cost.

NORTH AMERICAN TERRESTRIAL ORCHIDS.
Proceedings from Symposium II and Lectures.
Edited by Elmer H. Plaxton. 1983. Michigan Orchid Society 143 pp. (cost - \$ 17.95 U.S.)

reviewed by Michael J. Oldham, Essex Region Conservation Authority, 360 Fairview Ave. W., Essex, Ontario N8M 1Y6

This volume is the proceedings of a symposium on North American Terrestrial Orchids which occurred in October 1981 at the Mid-America Orchid Congress hosted by the Michigan Orchid

Society in Southfield Michigan. The ten papers which make up the proceedings are: "Hardy Orchids - Horticultural Seed Germination and "Commercial Potential" (C.T. Riley), "Early growth in North American Terrestrial Seedlings" (W.P. Stoutamire), "Cypripedium Culture" (C.E. Whitlow), "Studies on the Fragrances of North American Terrestrial Orchids" (R.T. Holman), "United States Terrestrial Orchids - Patterns and Problems" (C.J. Sheviak), "Preservation of Natural Areas in Michigan" (P.W. Thompson), "Orchids of the Boundary Waters Canoe Area of Northern Minnesota" (R.J. Griesbach and J.H. Asher, Jr.), "Mexican Terrestrial Orchids" (E.W. Greenwood), "Terrestrial Orchids in Canada" (P.M. Catling) and "Notes Concerning Changes in Great Lakes Orchid Populations since 1964" (F.W. Case, Jr.).

Ontario native orchid enthusiasts will find the paper by Paul Catling of most interest. Paul discusses the phytogeographic regions of Canada and their orchid floras, recent taxonomic work and some taxonomic problems, range extensions, breeding systems and regional studies. A comprehensive list of references, range maps of selected taxa, black and white photographs of a number of orchids and their habitats, an appendix giving corrections to reported distributions, and an appendix listing all the orchid taxa of Canada and which vegetation zones and provinces and territories they occur in, are included in his paper.

Other interesting papers are Case's update of his book "Orchids of the Western Great Lakes Region". Here Case discusses additions to the orchid flora of the Western Great Lakes since 1964 (an amazing 12 species). He also discusses significant range extensions, terrestrial longevity, ideal orchid habitat, observations and speculation on some selected orchid population problems, and native orchid conservation. Sheviak's paper presents some interesting ideas on native orchid distribution and ecology, as well as discussing some taxonomic problems. Griesbach and Asher's paper on orchids of northern Minnesota is quite relevant to northwestern Ontario, since the Boundary Waters Canoe Area abuts on Quetico Park and other parts of this region. Several excellently reproduced colour plates are included in the proceedings.

Although the price of \$ 17.95 U.S. seems a little high for a 143 page, soft-cover publication, the serious native orchid enthusiast will want a copy for his bookshelf. Order

from the Michigan Orchid Society, c/o Raymond McCullough, 14800 Harrison, Livonia, Michigan 48154.

HOT OFF THE PRESS

"The Rare Vascular Plants of Quebec" and "The Rare Vascular Plants of New Brunswick", edited by G.W. Argus and D.J. White for the Syllogeus series of the National Museums of Canada, are now available. Copies may be obtained free-of-charge from the Botany Division, National Museum of Natural Sciences, Ottawa, Ontario K1A 0M8

"Aquatic Vascular Plants of New England: Part 6. Trapaceae, Haloragaceae, Hippuridaceae" by G.E. Crow and C.B. Hellquist. 1983. New Hampshire Agricultural Experiment Station Bulletin 524, University of New Hampshire, Durham. 26 pp.

Sixth in the series, which was reviewed in THE PLANT PRESS 1(3):59, this publication includes *Myriophyllum*, *Proserpinaca* and *Hippurus*. It is available free-of-charge from the New Hampshire Agricultural Experiment Station, University of New Hampshire, Durham, New Hampshire 03824.

CANADIAN BOTANICAL ASSOCIATION MEMBERSHIP DRIVE

The Canadian Botanical Association, the national association of about 400 botanists involved in research, is currently conducting a membership drive. Former members who have let their membership lapse and potential new members are asked to support botany in Canada by joining and participating in CBA.

The annual membership fees are \$ 27.00 for regular members or \$ 10.00 for student (signature of sponsor required) and retired members. There are many benefits of joining this association and all who are interested should contact Dr. D. Davidson, Department of Botany, McMaster University, Hamilton, Ontario L8S 4K1.

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OBJECTIVES OF THE NEWSLETTER

1. Provide a medium for communication among Ontario field botanists;
2. Distribute information on Ontario botanists and their activities;
3. Report on projects and research in progress;
4. Distribute current botanical information on subjects such as species distributions, identification keys, field equipment and methods;
5. Monitor Ontario plants in print and provide reviews where appropriate;
6. Encourage publication by field botanists, especially amateurs, both in THE PLANT PRESS and more formal publications such as the Ontario Field Biologist.

OPINIONS EXPRESSED IN THIS NEWSLETTER ARE NOT NECESSARILY
THOSE OF THE EDITORIAL COMMITTEE

SUBMISSION OF NOTES AND ARTICLES

We are pleased to receive notes and articles about plants in Ontario. These articles should contain original information (i.e. your own observations and experiences) and/or should clarify some confusing aspect. All contributions are informally reviewed by the Editorial Committee. Contributions with content beyond our expertise may be sent to North American specialists. Although our system is not so rigorous as that of scientific journals, we request that articles be well-written and in the style of this newsletter. We are particularly pleased to receive 3 copies of typed, double-spaced manuscripts whenever possible.

DEADLINES FOR SUBMISSION OF MATERIAL

We need a minimum of 3 months to review submissions for the 'Notes and Articles' section and 6 weeks to decide on other submissions. These deadlines will be determined from the first day of the month of publication.

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