THE CANADIAN BOTANICAL ASSOCIATION

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ASSOC. EDITOR: JEAN M. GERRATH

BULLETIN

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PATRON
His Excellency the Right Honourable Ramon John Hnatyshyn P.C., C.C., C.M.M., C.D., Q.C.
Governor General of Canada

IN THIS ISSUE

FUTURE MEETINGS:

1991-Edmonton (June 23-27)

1992-Truro, N.S. (July 5-9)

1993-Ames, Iowa, with AIBS (Aug.23-Sept.3)

1994-Calgary, Alberta

EDITORS' FORUM:

The upcoming joint meeting of CBA/ABC with CSPP/SCPV in Edmonton will be the first time that we've met since both organizations joined CFBS. It should be interesting to compare how the two botanical groups have adjusted to this major reorganization. I'm happy to report that so far CBA/ABC seems to have weathered the storm. Membership renewals, although slightly down from last year, have remained steady and the numbers continue to grow as new members are joining and old members are remembering to send in their renewal. By-the-way, please make sure that new graduate students or senior undergraduates are encourage to join. Cost of membership for students has been kept as low as possible and the advantages of being a member are numerous; including access to information on jobs, fellowships and awards. It's vital to the survival of our organization that we have a steady inflow of new young members.

We always look forward to our meetings with CSPP/SCPC. This year's meeting in Edmonton looks particularly exciting. The organization, to date, has been superb and the excellent program sent out in the last mailing promises a cornucopia of great symposia, field trips and social events. Congratulations to the organizing committee for their excellent work. Hope to see you all in Edmonton, June 23-27.

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ITEMS IN THE NEWS:

Youth Employment in Environmental Work

It may be worthwhile to capitalize on government youth employment schemes to involve young people in conservation work. In each province, interested individuals or organizations should contact appropriate ministries to determine possibilities. By mid- to late winter such programs have probably been established; in Ontario, for example, information can be obtained from the provincial ministries of either Natural Resources or Environment and in this case the program is called, "Environmental Youth Core". Students in the past have been sponsored by various ministries and placed in both government and non-government organizations concerned with conservation and resource protection.

CBA Endorsement of Conservation-based Research

In late November the Conservation Committee of CBA as well as many other organizations, received invitations to submit research proposals to the Ontario Natural Heritage Foundation. We had previously received one grant which was used to generate a ranking of savannah sites for the Carolinian Canada program. Within the few days which were available before the deadline in December 1990, two proposals were rapidly generated by telephone consultation with a number of members: one to study new prairie sites and the other to continue the inventory of ecologically significant sites that the committee advocated a number of years ago.

The problem is that little time was available and the proposals were slapped together very quickly. The committee suggests that in order to produce better proposals, individual members in Ontario who have ideas of conservation-oriented projects should submit them to the committee at the annual meeting or sometime over the summer. (Forms will be provided upon request.) These should be properly documented and on hand to be considered by the committee as candidates for CBA submission when we are surprised by deadlines for the subsequent granting period.

If you know of similar competitions in provinces other than Ontario, please advise the committee as we have no knowledge of these. In the past the CBA Treasurer deposited the grant and also handled disbursements. Such possibilities to extend conservation work should be explored in each of our regions.

Missouri Botanical Garden Library Receives $80,000 Grant

The National Historical Publications and Records Commission (NHPRC), with the approval of the Missouri Historical Records Advisory Board, has awarded the Missouri botanical Garden Library an $80,096 grant. The grant funds will be used to develop an archives program and set up a records management system.

The archives component of the project includes appraisal and preparation of permanently valuable records for transfer to the archives, arrangement and description of records; placement of records descriptions into an automated database, and publication of a guide to the archives collection. All aspects of the Garden are reflected in the archives, which include publications, records, blueprints, photographs, and personal papers.

The Garden also has a large number of current and non-current records in offices and storage areas. A small proportion are permanently valuable and will eventually become part of the archives. The records management component of the grant project will establish schedules for the eventual transfer or destruction of records now in offices. After being surveyed, those records determined to be of permanent value will be scheduled for transfer to archives while documents found to have no permanent value will be scheduled for destruction. Records scheduling will be applied to present and future records in order to release prime office space and equipment for current records.

This project will be carried out by Martha Riley, Suellyn Lathrop, and Mary Stiffler, January 1, 1991 to December 31, 1992.

Research Internships in the Life Sciences

The Institute of Life Sciences at the Hebrew University of Jerusalem, through the Rothberg School for Overseas Students, offers visiting research opportunities for English speaking students in a number of areas, including Botany. This is a one year program open to graduate students. For further information, contact:

Graduate Programs
Office of Academic Affairs
Hebrew University
11 East 69th Street
New York, N. Y. 10021 (212) 472-2288

"Taxon" Back Issues -- Special Sale:

New members of IAPT joining in 1991will benefit by a substantial discount on back volumes of Taxon. For a limited period of time, until the end of 1991, the International Association for Plant Taxonomy is offering new members the opportunity to acquire any or all issues of volumes 28-39, except vol. 30(1) and vol. 33(3), at a special rate of $5 US per issue, or $20 US per yearly volume, which includes 4 issues and an annual index. The prices include surface postage and handling. Orders, together with an informal membership application, should be sent **no later than 30 November 1991** to the IAPT Secretariat, Botanischer Garten und Botanisches Museum Berlin-Dahlem, Königin-Luise-Str. 6-8, W1000 Berlin 33, Germany. Please add a bank cheque in US dollars, payable to IAPT, to cover both your order and the 1991 membership fee ($40 US for individuals, $120 US for institutions, including subscription to "Taxon" volume 40, 1991).

Porsild Award Contributions:

A number of botanists, including the Director the Canadian Museum of Nature, have contributed to the Porsild Award. Have you? Please send your contribution soon and help promote student excellence in systematics and phytogeography.

- Erich Haber

News of Members:

Taylor A. Steeves of the University of Saskatchewan was the recipient of the University's Master Teacher Award. This is a highly prestigious award that is presented annually to a faculty member who is an outstanding teacher and a scholar, and has contributed significantly to the pedagogical life of the University. The award was presented to Taylor at the Fall 1990 Convocation.

David D. Cass of the University of Alberta won the A. C. Rutherford Teaching Award. He was one of four recipients of this award, which is given mainly for excellence in teaching. The presentation was made in June 1990.

NEW TECHNIQUES:
An Inexpensive Mapping System for PC's

At the botany division of the Canadian Museum of Nature we have set up a relatively inexpensive mapping system for specimen records that runs on a personal computer and uses dBASE III data files. The mapping system is a mini GIS (Geographic Information System). It consists of two parts: a mouse-operated menu-driven data management system ("inFOcus", by Earth & Ocean Research Ltd., Nova Scotia), which is based on a very fast relational database manager called FoxPro, and a mapping programme ("QUIKMap", by Environmental Sciences Ltd., Sidney, B.C.) that comes with a map of North America at a scale of 1:4 million with political boundaries and several layers of coastlines, rivers and lakes.

By adding fields for coordinates (latitude and longitude or UTM) to your existing dBASE files you can plot specimen records on screen and output to dot matrix, laser printers or plotters. The mapping programme allows you to zoom in, pan across the map, determine distances between points, areas and perimeters of polygons, add polylines and store map "windows" taken from the North America base map. Records can be added and edited interactively on screen. You can draw polygons on the map and fill in with a choice of 34 hatch patterns and 16 colours. Line thickness and colour can be changed and the package comes with a symbol file of 91 icons as well as a symbol editor that enables you to create your own symbols. Files that delimit NTS map sheets can be created automatically and displayed as map windows for displaying locality symbols. The map of North America can be displayed in a fast display blueprint mode (x-y coordinates) or as six true projections including Lambert and Transverse Mercator. DXF files from CAD programms can be exchanged with high-end GIS systems. The mapping system also supports several types of digitizing tablets. No additional dBASE manager is required to create data files, and the system reads all dBASE III compatible files that you might already have available.

The whole database management and mapping system is available through Earth & Oceans Ltd., 22 Waddell Ave., Dartmouth, Nova Scotia B3B 1K3 for about $1300. The Mapping portion can also be purchased separately and a map of the whole world is available as an option. A bilingual version of inFOcus is presently under development. The system operates on any IBM AT-compatible PC under DOS 3.3 and will run on an XT class machine, if necessary, but regenerating maps on screen is very slow. A realistic minimum would be a 286 AT, preferably with a

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co-processor and a VGA graphics monitor. A hard drive is also required with about 10 meg free disk space for the basic system including map and tutorial files provided with the system. For publishable hard copy output, a laser printer is preferable. Presently, we run the system on a 386-20 MHZ PC without a co-processor. This works very nicely but we plan to add a co-processor. Until we get a designated laser printer for the system, we are printing maps on a dot matrix printer in high resolution mode. We can also save map files in Hewlett Packard Graphics Language format that can be imported into Wordperfect 5.1 and printed on our divisional laser printer.

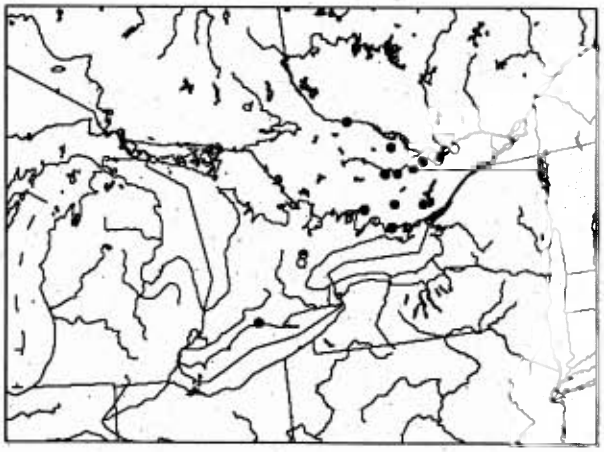
The mapping system is being used in conjunction with a rare plants database being compiled for records of about 400 plant species that are candidates for report preparation or have official conservation status from the Committee on the Status of Endangered Wildlife in Canada. The system will be used to generate distribution maps for status report authors, update locality information including threats at sites of species in jeopardy and will allow for the mapping of species by their conservation status and for overlaying of records to show areas of concentration of rare taxa.

Museum botanists will also be using the system for the production of distribution maps for publication and as a general research tool for visualizing the spatial distribution of morphological variants. Research databases in dBASE format can be set up for specimen records with their localities georeferenced and data fields included for characters to be measured and/or tabulated. Measurements could be analyzed by a statistics programme to determine the presence of any significant discontinuities, and the distributional pattern of the records delimited by these discontinuities can be visualized on a map. Mapping of morphological characteristics such as shape of organs, type of indumentum or colour, recorded in logical or character fields, can also be mapped to determine their potential use as indicators of taxonomic differentiation. By using the add polyline feature of the system, or a separate digitizing tablet, the user can create and overlay other mapfiles such as regional soil maps, bedrock geology or forest regions for analysis of species distributions.

It is our intent also to use the museum's biodiversity database for mapping of specimen records. This April, the museum's biodiversity database will be transferred to and be up-and-running on the new centralized VAX computers using rewritten specimen data management software. This will enable us to tap into and map the substantial numbers of existing records, especially the numerous entries of rare plants of Ontario. Areas of concentration of the highest priority species could be plotted using the national ranking system for rare plants as developed by Argus and Pryer in their recent museum publication Rare Vascular Plants in Canada: Our Natural Heritage or using the Nature Conservancy's provincial ranks. By using the National Conservation Area Database of the Department of the Environment, we would also be able to search for occurrences of rare species in and around parks, conservation areas and nature reserves across Canada once our rare plant database is more complete.

This affordable mini GIS system could also be used as a means of networking and displaying information among individuals and agencies involved with rare plant documentation and conservation, by ecologists recording species composition at study sites, and by palynologists to plot sites at which certain species occurred at specified percentages by sample age. Because of the colourful on-screen appearance of maps and symbols, excellent presentation graphics can be produced for seminars by photographing the screen images with colour slide film. As you can see, with a data management and mapping system available on your desktop, not only is traditional mapping of species distributions made easier, but any georeferenced data can be graphically displayed.

Erich Haber, Botany Division
Canadian Museum of Nature



Laser printed sample map extracted from North America base map

BOOK REVIEWS:

Competition, P.A. Keddy, Chapman and Hall, London and New York. 1989. 202 pp. paperback and hardcover.

For many decades now, plant and animal biologists have marvelled at the enormous complexity of natural communities. They have also been convinced for some time that competitive interactions within and among taxa play a fundamental role in regulating community processes such as succession and evolution. Their interest in understanding the "principles" or "laws" that govern competitive interactions has been sufficiently acute, that there has been a steady growth in the number of books that carry very general titles, but that really offer personal perspectives on particular research topics. Two series in particular that have produced volumes of this type are the Monographs in Population Biology (Princeton), and Population and Community Series (Chapman and Hall) to which Dr. Keddy's book is the most recent addition. No one who reads any of these texts should expect an exhaustive or generalized account of topics included in the titles, and to Dr. Keddy's credit, one of the first things that a reader is told, is that the purpose of the text is to provide an overview of existing knowledge on competition. Given that this is made absolutely clear in the text (although not in the title), it is somewhat surprising to read the numerous unflattering reviews of this volume in several respected journals including the most recent one by Newman (1990, and see Keddy 1991 for rebuttal).

The book itself starts in a very elegant way by defining the relevant terms and concepts that would be needed by any reader. Chapters 2 and 3 then continue this line of thought by showing some of the outcomes of competitive interactions in real and hypothetical universes. Chapter 4 is really out of place because its technical and philosophical content is more aligned to chapters 7 and 8 that deal with the relationship between "world view" and "competition". Chapters 5 and 6 demonstrate by using a very small but clear array of examples, that progress in our understanding of competition will not be made by repeating more of the same experiments.

Anyone who reads the entire text with an open mind, will recognize the essential truth of the arguments being made by Dr. Keddy. They will also recognize the temerity of writing these ideas down in black and white (for example Table 1.5 that displays an example of asymmetric competition). The point that seems to be getting lost, is that many of these ideas have not been presented in such a highly focused fashion before. Certainly not as related to "Competition". Both students and research workers need to have their biases confronted periodically by irreverent volumes such as this, and I highly recommend that it be purchased, read, and re-read.

In closing I am reminded of the iconoclastic and stimulating paper written by Drury and Nisbet (1973) that I read in my first year of graduate work at McMaster. The most important part of the text was the last line of the acknowledgements:

"We thank also three anonymous reviewers whose comments made clear to us that the traditional view of succession is alive and well among our peers."

If Dr. Keddy's book is read and discussed by people sensitive to the need to break free from the technological, statistical and experimental dogma that is so commonly observed in the scientific literature today, then it will have made an important contribution to science.

References

Keddy, P.A. 1991. Forward towards the machine guns, labs! A reply to E.I. Newman. Bulletin of the British Ecological Society. 23:15-17.

Newman, E.I. 1990. J. Ecol. 78:548.

Drury, W.H. & Nisbet, I.C.T. 1973. Succession. The Journal of the Arnold Arboretum. 54:331-368.

Dr. D.W. Larson, Department of Botany, University of Guelph.

Patterns in Plant Development (2nd Edition) T.A. Steeves and Ian M. Sussex. Cambridge University Press, Cambridge, New York. 1989. 388 pp. paperback and hardcover.

One of the challenges in teaching a course in Plant Morphogenesis is to synthesize the primary literature into a coherent, meaningful package. This text has accomplished this and is an excellent background text for a one semester course. The authors have provided an historical perspective on the approaches to studying plant development, an important feature in this era of Molecular Biology. Some of the older experiments involving surgical manipulations of plant parts and treatments with unreasonably

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high levels of growth regulators could perhaps have been critiqued more rigorously. The inclusion of experimental work on lower vascular plants, gymnosperms and angiosperms is appropriate since many high school and university level Plant Biology courses are angiosperm-centred. The sections on morphogenesis of shoots, roots and leaves are comprehensive although I felt that the section on determinate meristems, other than reproductive meristems, and the section on root associations with microorganisms had a cursory treatment.

The authors could have integrated the information in Chapter 13 and the first part of Chapter 14 with earlier chapters. The discussion of secondary growth is thorough and combines the structure and function of the vascular cambium in an understandable way. I like the 'General Comment' section at the end of each chapter; it attempts to put into perspective the 'knowns' with large number of 'unknowns' in all areas of plant development.

If the book has one shortcoming it may be that not enough of the information on plant development being gained from Molecular Biology has been integrated with the information obtained from more classical approaches. On balance, however, this text is a very good introduction to Plant Development and I recommend that all senior undergraduate students and graduate students in Plant Biology read it.

Dr. R.L. Peterson, Department of Botany, University of Guelph

Haliburton Flora: an Annotated List of the Vascular Plants of the County of Haliburton, Ontario. Eleanor G. Skelton and Emerson W. Skelton 1991 Life Sciences, Royal Ontario Museum, Misc. Publications pps. 1-142 Price 12.95

This is a most attractive small paperback (15 cm x 22.5 cm), with a delightful habitat photograph of Nuphar in colour on the glossy cover. The cover is a very fitting memorial to the late Eleanor Skelton because of her special interest in aquatic plants. The book was a labour of love by two keen field botanists based on collections that started in 1976 and extended for eight years resulting in over 2100 specimens from the county. The final checklist has 899 species or 922 taxa. Since distribution is given by townships and there are 23 townships in Haliburton, one can realize that the task is formidable. The 2100 specimens had to be correctly identified, specimens collected by others had to be checked in herbaria (12 cited), and the list had to be molded into a modern day compendium using current nomenclature. If one had 900 species in each of 23 townships, this would require 20,700 records to validate such an hypothetical situation!

At first glance 899 species seems low for the 452,282 hectares of the county when one expects 1200-1400 in a southern Ontario county such as Wellington or Waterloo. It is perhaps more reasonable to compare the list with that for Algonquin Park (Brunton 1988) where 993 taxa are listed for 750,000 hectares - a considerably larger area.

The list is well set out. Good clear print was used on high quality paper so the Latin names and common names stand out clearly. There is distribution data by townships and information on habitat. The book has two indices - one index for common names and another for scientific names. There is also a short section for literature cited. My only preference in the list would be to "star" aliens or introduced species in front of the entry, rather than after the habitat was done with a (+).

This book will be a useful checklist for those with a basic knowledge of Ontario plants, and it will be a benchmark publication for anyone studying the plants of Haliburton. It does have some limitations. There are no aids for identification such as keys, drawings, pictures, descriptions, etc. In essence, it is a book to use as a reference, rather than to read (117 of the 142 pages are the checklist).

Most counties in Ontario have a botanical history. Quite often someone such as Macoun passed by. I was intrigued that Haliburton seems to have almost no history of botanical collections. We are told (p.20) that Wm. Scott collected in 1891 and H.H. Brown in the 1930's, but that is all. Also, field botanists like to speak of "hot spots" while conservationists stress areas of special botanical interest. There are no clues as to where these might be in Haliburton, although my guess would be in the limestone regions shown in Figure 3.

Dr. D.M. Britton, Dept. of Molecular Biology and Genetics, University of Guelph

New Books:

The New Royal Horticultural Society Dictionary of Gardening, publication date: Spring 1992.

This 4 volume, 3000 page work contains 4000 illustrations of plants and techniques, 50,000 plant descriptions including many cultivars, and many articles on gardening as well as biographies of notable contributors to the field. List Price: $US 795. ISBN 1-56159-001-0 Stockton Press, 15 E. 26 Street, New York, NY 10010/ Phone:(800) 221-2123. Prepayment before April 26, 1991 reduces the price by $US 100.

Symposia:

Third International Symposium on Air Pollutants and Plant Metabolism. June 13-16, 1992. Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.

The Symposium will consist of invited presentations on a broad array of topics ranging from an overview of current environmental issues such as carbon dioxide effects and global warming through specialized treatments of the molecular genetics of defense genes which respond to environmental pollutants. Attendance will limited to 250 conferees, with no concurrent sessions. A poster session will be held in conjunction with the presentations to which all participants are invited to contribute. For further information, contact:
Dr. Ruth Alscher at (703) 231-6761.

Position Open:

Postdoctoral position in the Department of Biological Sciences at the University of Windsor to study PLANT ECOLOGICAL TOXICOLOGY. The research will involve the uptake and distribution of organic contaminants in aquatic macrophytes and evolution of contaminant tolerance. Expertise in environmental toxicology and GC/MS methodology is essential; background in evolutionary genetics or plant ecology/physiology is desirable. Send curriculum vitae, summary of research interests and three letters of reference to:
Jon Lovett-Doust, Biological Sciences, University of Windsor, Ontario N9B 3P4 Canada.

In accordance with Canadian Immigration requirements, priority will be given to Canadian citizens and Canadian Landed Immigrants. The University of Windsor is commited to a policy of Employment equity; female candidates are especially encouraged to apply.

Announcement:

The Royal Botanic Gardens, Hamilton, Ont.

This year marks the 50th anniversary of the Royal Botanic Garden's commitment to public education and the development of beautiful gardens through research and conservation. Special events have been planned for the entire year and during the month of August celebrations will focus on a unique part of the Gardens, the Teaching Garden. The Teaching Garden offers courses, hands-on gardening and horticultural therapy for children, seniors, special needs groups and families.

On Saturday, August 24, 1991 the Teaching Garden will host an **Herb Faire.** First class workshops and demonstrations, tours of the herb garden, a cafe, and a pot pourri of musicians, jugglers and magicians have been arranged. The highlight of the day will be the outdoor market set among the weeping cherry trees. Public entrance to the Herb Faire is free.

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THE LAST WORD: (Jean M. Gerrath)
A reminder to all, that with convocation rapidly approaching we would like to get the names and thesis titles of graduands in Botany. Also, if you know of any positions or post-doctorals available, please send them to us as soon as possible. And, as always, we would like items of Botanical News. Please note the deadline for the July Bulletin which is listed below.

NOTE: The deadline for the July issue is June 30.

The Bulletin of the Canadian Botanical Association:
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