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Nancy R. Morin and Judith M. Unger, co-editors

## FLORA OF NORTH AMERICA NEWS

The **Guide for Contributors** has been revised and mailed to all FNA participants who have work still to do (Volume 1 and 2 authors are off the hook!). It gives an updated description of the organizational structure of the project, and gives new instructions for providing information on specimen vouchers for distribution statements, more explicit instructions for maps and illustrations, and an expanded discussion of conservation status and weeds. The sequence of information in treatments, and the categories of information requested, have not changed. If you have questions or would like to receive a copy, please email the FNA Managing Editor, Jim Zarucchi, at ME@fna.org or call him at 314/577-5162.

**Things to look forward to:** Oxford University Press tells us that we will receive the first half of page proofs of Volume 3 by 18 September and the second half by 30 September.

**More things to look forward to** Regional and taxonomic reviewers can expect to begin receiving Volume 11 treatments for review soon.

**FNA at Annual Meeting of AIBS:** The Flora of North America project was well represented at the 47<sup>th</sup> Annual Meeting of the American Institute of Biological Sciences (AIBS), 4—8 August 1996, in Seattle, Washington. During the meetings FNA convened two gatherings: one for regional reviewers to discuss various aspects of the FNA review process for manuscripts, maps, and illustrations, and a reception and demonstration of the new FNA Web site (see special article, below).

Eleven members of the FNA editorial committee, eight FNA staff, and three CBI (Center for Botanical Informatics) staff were present to take part in the sessions and to answer questions. The editorial committee members included Nancy Morin, Convening Editor, Missouri Botanical Garden; Ted Barkley, Kansas State University; David Boufford, Harvard University; Ron Hartman, University of Wyoming; John McNeill, Royal Ontario Museum; John Schnase, Missouri Botanical Garden; Alan Smith, University of California, Berkeley; Ray Stotler, Southern Illinois University; Barbara Thiers, The New York Botanical Garden; Rahmona Thompson, East Central University, Oklahoma; and Jim Zarucchi, Missouri Botanical Garden. In addition, FNA and CBI staff included Helen Jeude, Deb Kama, John Myers, Gina Otterson, Keats Smith, Kay Tomlinson, Judy Unger, Alan Whittemore, and Yevonn Wilson-Ramsey.

Several Flora of North America participants received awards during the annual Botanical Society of America banquet. **Hugh Iltis** (Capparidaceae, *Zea*, and *Tripsacum* author for FNA) of the University of Wisconsin, and **Robert Thorne** (Volume 1 author and author of Bataceae) were each honored with a Botanical Society of America Merit Award, for outstanding contributions to botanical science. **Richard Whitkus** (an FNA *Carex*

author), University of California, Riverside; Hanh Doan, University of New Mexico; and **Timothy Lowrey** (an FNA Asteraceae author), University of New Mexico, received the Margaret Menzel award, given by the Genetics Section of the Botanical Society of America for the best genetics paper at AIBS, for their paper titled "Genetic control of female sterility in Hawaiian *Tetramolopium* (Asteraceae)." D. Warren Hauk, Clifford R. Parks, University of North Carolina, Chapel Hill and **Mark W. Chase** (an FNA Orchidaceae author), Royal Botanic Gardens, Kew, received the Edgar T. Wherry Award of the Pteridological Section of the Botanical Society of America, for their paper titled "A comparison between trnL-F intergenic spacer and rbcL DNA sequence data: an example from Ophioglossaceae." At the annual banquet of the American Society of Plant Taxonomists, **Peter H. Raven** was honored with the Asa Gray award, the highest given by the society.

**FNA Editor Edits:** **Michael Moore**, University of Georgia, Flora of North America regional coordinator for the Southeast and taxon editor for several families, has agreed to be the Managing Editor for Systematic Botany, the journal of the American Society of Plant Taxonomists.

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The Flora of North America (FNA) project is a cooperative program to produce a Flora of the plants of North America north of Mexico. The FNA Newsletter is published quarterly by the Flora of North America Association to communicate news about the FNA project and other topics of interest to North American floristic researchers. Readers are invited to send appropriate news items to: FNA Newsletter, P. O. Box 299, St. Louis, Missouri 63166, U.S.A.

**Good News for Bryology:** The National Science Foundation recently established the PEET program, Partnership for Enhancing Expertise in Taxonomy, in order to train new systematists in a wide array of taxonomic techniques for taxonomic groups for which there have traditionally been few specialists or for which there are few remaining specialists. Five-year grants were awarded by the National Science Foundation to Raymond E. Stotler (an FNA editor) and Barbara J. Crandall-Stotler, Southern Illinois University at Carbondale (SIUC), and to the bryology group (which includes FNA editor Marshall Crosby and FNA staff member Alan Whittemore) at Missouri Botanical Garden. These were two of six grants that received full priority funding from this NSF's program.

**Convening Editor takes on New Job:** Nancy Morin, convening editor of the Flora of North America project, has accepted the position of Executive Director of the American Association of Botanical Gardens and Arboreta (AABGA), effective 1 November 1996. Nancy has worked for Missouri Botanical Garden since 1981, first as Administrative Curator of the Herbarium and editor of the *Annals of the Missouri Botanical Garden*, then as head of the Botanical Information Management department, and finally as Assistant Director. AABGA was founded in 1940. Today it serves 410 institutions and some 2,000 individual members. Its mission is to support North American botanical gardens and arboreta by promoting the value of botanical gardens; helping set professional standards; facilitating exchange of information; advocating the collective interests of its members; and providing membership services. Nancy says she was attracted to this position in part because of the opportunities it offered to combine the goals of

Flora of North America with the interests of botanical gardens. Many Flora of North America participants are associated with botanical gardens, and public gardens are an important avenue for disseminating FNA information and are themselves an important audience for FNA. The AABGA offices are currently located in Chanticleer, a botanic garden in Wayne, Pennsylvania near Philadelphia; in late 1997 the offices will move to Longwood Gardens, near Kennett Square, Pennsylvania.

## CBI UNVEILS FNA WEB SITE

The Center for Botanical Informatics (CBI), a division of the Missouri Botanical Garden, showcased the beta version of the FNA Web site [<http://www.fna.org>] at a reception held Monday, 5 August, during the annual AIBS meeting in Seattle. The Web site is part of the FNA Internet Information Service, designed and under development by CBI staff: John Schnase, Director; Debbie Kama and Kay Tomlinson, and guest expert Alfredo Sánchez.

The compelling force behind the FNA Internet Information Service is the desire and determination "to create a full-featured, online information resource to support the research activities of the FNA project and facilitate the use of FNA's valuable information by other client communities." In collaboration with FNA editors and staff, CBI staff identified the most important functional requirements for the service and determined the best methodology to develop its design and implementation.

According to CBI, the service should be:

- content-rich, providing access to all information relating to the FNA project
- "linkage-rich," providing convenient access to related information
- set the standard for excellence in online biological information services
- have a simple, straightforward, uniform, and effective user interface
- have a high quality "look and feel" and strong conceptual integrity
- provide abundant and useful online help
- allow for as much user participation and feedback as possible
- be a dynamic and evolving service
- be tailored for use by many client communities
- provide a means for surveying and learning about our users
- be an easy, fun, informative place...the obvious "first stop" for botanists with a question

To this end, CBI staff describe the FNA Internet Information Service as consisting of (1) libraries of static information elements, e.g., electronic manuscripts, maps, newsletters, and database records, (2) a collection of dynamic support routines that implement various services, e.g., user account management, the delivery of documents, images and other static elements, and discussion group management, and (3) an integrative component that pulls together static and dynamic elements to produce higher-order abstractions, e.g., "electronic

treatments," "bryophyte working group," or "virtual FNA volumes."

**Libraries:** Active Contents Library, which contains all material relating to the active edit and review processes, including all manuscripts, maps, and illustrations; Project Background Library, containing background information on the FNA project, e.g., description of project, participants, contributors, timelines, and products; Final Products Library, containing the final information products of FNA, e.g., online versions of printed volumes, name index, author index, bibliography, and FNA's newsletters; and Research Resources Library, with material to support the research activities of the project, e.g., guide for contributors, address files, discussion groups for management and editorial committees, access to online library catalogs, and related Web sites.

**Services:** Access Services supports access control, account management, personalized views, etc.; Conversation Services---group discussions, bulletin boards, listservs, etc.; Delivery Services---delivery and viewing of library components; Integration Services---client-side integration of related information by providing tools for metadata descriptor development and dynamic pointer bank construction; Navigation Services---query-, index-, and navigation-based movement through FNA information space; Survey Services---user profiling, site usage monitoring, etc.; Update services---support mechanism that will provide the most up-to-date information available on the FNA project, e.g., messages-of-the-day, live video, and dynamic progress reports.

**Integration:** Virtual Treatments---self-assembling, electronic treatments; Virtual Working Groups---self-assembling, electronic working groups; and Virtual Volumes---dynamically constructed FNA volumes.

**Back-End:** FNA Object Store---persistent storage of unstructured FNA information objects; FNA Relational Store---persistent storage of structured FNA information objects.

**Front-End:** FNA Home Page---the "event horizon" for the FNA information space; FNA Alive!---the "living view" on the FNA project; FNA Intranet Portal---the "gateway to the city"---where everyone's welcome; and FNA Digital Library---the *first* "electronic flora" for North America north of Mexico.

## A SIMPLE METHOD FOR COMPUTERIZING TAXONOMIC TREATMENTS

Flora of North America has been experimenting with simple methods of using computer-assisted methods to facilitate the editorial process. Because FNA has so many participants, with diverse technological capabilities, we considered it important to focus on a process that would be adaptable to all commonly used systems and that would allow easy transfer of data.

Commercial spreadsheet programs currently on the market can be used both to enter and display descriptions in columns and to convert the descriptions into standard English language. Alan Whittemore has just published a paper in *Taxon* (August, 1996, Volume 45:503-511) describing this technique. The editor of *Taxon* has agreed to allow Flora of North America to make this available on the FNA Web Site at <http://www.fna.org>; copies may also be obtained from the Flora of North America office, Missouri Botanical Garden, P. O. Box 299, St. Louis, Missouri 63166.

## INFORMATION RESOURCES ON THE WEB

### **Index Nominum Genericorum (ING) Available On-Line:**

The Botany Department of the Smithsonian Institution and the International Association for Plant Taxonomy are pleased to announce that the Index Nominum Genericorum (ING) can now be searched on the National Museum of Natural History's Web site at <http://www.nmnh.si.edu/ing/>. The ING database covers validly published generic names of plants (including fungi). The original intent of the index was to bring generic names in all plant groups together in a single list to reveal cases of homonymy. In addition, ING includes bibliographic citations and information about the typification and nomenclatural status of generic names.

Over 100 botanists have collaborated on the ING project over its 42-year history and we feel that the Web offers an ideal way to give those needing information about generic names of plants access to the current version of the database and a convenient way to send additions and corrections to the editors.

Please read the home page and help files where the format of the records and the limitations on coverage are discussed before searching the database.

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**New York Botanical Garden Web Site:** The New York Botanical Garden announces the establishment of its new World Wide Web site at <http://www.nybg.org>. A wide variety of information from the Botanical Science Division is presented, including:

- Information on current research programs and staff
- Searchable specimen catalogs of selected families of vascular plant types and North American bryophytes. Selected families of basidiomycetes will be added very soon.
- Information for visitors to the Herbarium (Accommodations, How to get to the New York Botanical Garden) and for use of the collections (guidelines for borrowing specimens for morphological and molecular study).
- Research results, including a "Key to the Native and Naturalized Genera of the Ingeae in the New World" by J.W. Grimes and R. Barneby.
- Information on specimen data management procedures employed at NYBG (soon to be available).
- Information on public programs and living collections are also available at this site.

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### **On-line Access to W<sup>3</sup>TROPICOS - Missouri Botanical Garden:**

The Missouri Botanical Garden announces World Wide Web on-line access to the nomenclatural portion of its TROPICOS database system. Go to <http://www.mobot.org/mobot/research/> and follow the link to "w<sup>3</sup>TROPICOS". This new access vehicle provides real-time queries of the data collected by staff, students, and collaborators over the last 15 years. When a user request is submitted, information about the taxon is collated and displayed directly from the database.

Information is available for over 750,000 scientific plant names. Each record often has links to other associated names, synonymy, bibliographic references, and types.

The information presented was collected for a wide variety of projects, curatorial tasks, and collaborative endeavors; consequently some individual records may not be complete or totally accurate. The most comprehensive information in the database is for taxa covered by floristic or taxonomic projects underway at the Missouri Botanical Garden. We encourage your use of the data and would appreciate feed-back on how you are using the information comments on its usefulness, and suggestions for improving the presentation.

Comments and suggestions may be sent to Alan Tucker, Missouri Botanical Garden, e-mail: [tucker@cissus.mobot.org](mailto:tucker@cissus.mobot.org).

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**Canadian biodiversity: A guide to botanical specialists and literature/Biodiversité canadienne: Répertoire des botanistes actuels et de leurs publications** by Ernest Small, Jacques Cayouette, S. Brenda Brooks, and Walter A. Wojtas, January, 1996, 1124 pp., ISBN 0-662-24020-0, is an electronic publication available at Environment Canada World Wide Web site [<http://www.cciw.ca/eman-temp/scientists/botanists/intro.html>] and on diskettes **within Canada** from Agriculture and Agri-Food Canada, Research Branch, Central Experimental Farm, Ottawa, Ontario, Canada. This work was commissioned by the Canadian Botanical Association and lists more than 300 living Canadian botanists, with addresses, fax, and email information, and citations of over 15,000 publications and reports on vascular plants and bryophytes.

**University Of Regina Herbarium Home Page:** The G.F. Ledingham Herbarium (USAS) at the University of Regina announces its new Web home page at <http://herb.biol.uregina.ca/herb/>. Dr. G.F. Ledingham established the herbarium in 1945. Since then he has devoted a good portion of his lifetime in expanding the collections of the herbarium, both while he was a full-time faculty member and during his nearly twenty years of retirement. The Herbarium has over 50,000 vascular plant specimens, 10,000 bryophyte specimens, and 10,000 specimens of lichens.

Information currently available from the Herbarium page includes: 1) an Introduction to the G.F. Ledingham Herbarium; 2) G.F. Ledingham Herbarium Specimen Database; and, 3) Saskatchewan native plant images.

Comments and suggestions are welcome and may be sent to Shunguo Liu, Biology Department, University of Regina, Regina, Saskatchewan, Canada, e-mail: [liushus@leroy.cc.uregina.ca](mailto:liushus@leroy.cc.uregina.ca).

## **DELZIE DEMAREE TRAVEL AWARD**

**Cynthia Caplan**, a graduate student at Texas Tech University, was the winner of the 1995 Delzie Demaree Travel Award for attendance at the Systematics Symposium. She is working

under Dr. Charlie Werth (FNA pteridophyte author), and her thesis topic is a re-evaluation of the taxonomy of the allopolyploid *Isoetes riparia* complex of eastern North America. She is using allozymes to help resolve taxonomic uncertainties of his group.

Graduate students in plant systematics are eligible to apply for the Delzie Demaree Travel Award, a \$250.00 stipend to defray expenses related to attendance at the Annual Systematics Symposium. The application should include a letter from the applicant telling how symposium attendance will benefit his/her graduate work and a letter of recommendation sent by the major professor. Please mail letters of application to: Dr. Donna M. E. Ware, Herbarium, Biology Dept., The College of William and Mary, Williamsburg, Virginia 23185.

## NEWS AND NOTES

The **Canadian Museum of Nature** is building a new facility to house the collections and consolidate most activities in one location. Staff and collections are scheduled to begin moving in late summer and will continue throughout the fall of 1996. The Vascular Plant Collection will be closed from 1 September 1996 to 1 February 1997. The staff in the Collections Division will be working hard over the coming months preparing the millions of specimens and other objects in the collection for a safe move to the new building. Once moved, staff will be fully engaged in unpacking the collections. Staff will try to continue serving the users of the collection, if possible, but large parts will be relatively inaccessible for several months.

The **University of South Florida Herbarium** will close for the entire 1996 summer due to construction. Access to plant specimens will not be possible during this time. To determine availability of collections, contact Shawn Landry, email: landry@chuma.cas.usf.edu.

## UPCOMING MEETING

**Federal and international scientific permits: a workshop for natural history museums and collectors** will be held at The San Diego Natural History Museum 29-31 January 1997, co-sponsored by the Association of Systematics Collections. For more information or to register write Permits Workshop Registration, Director, Collections Care and Conservation, San Diego Natural History Museum, P. O. Box 1390, San Diego, California 92112; phone 619/232-3821 ext. 226; fax 619/232-0248; email libsdnhm@class.org.

## PUBLICATIONS

**“The history of the exploration of the vascular flora of Canada, Saint-Pierre et Miquelon, and Greenland**, by James S. Pringle, appeared in the third issue of Volume 109 of *The Canadian Naturalist*, and is available as a special issue that includes an index to personal names, from W. J. Cody, Box 35,069, Westgate P.O., Ottawa K1Z 1A2, Canada. Can.\$12.50 postpaid.

**Flora of Missouri** by Julian Steyermark: this classic work, first published in 1963, has just been reprinted (for the seventh time) by the Iowa State University Press, after being unavailable for many years. For amateur and professional botanists alike, this book has been the inspirational bible of the plants of Missouri. It contains keys, illustrations, distribution maps, and discussions of the 2438 species and additional 913 subspecies, varieties, and forms that Steyermark recognized. Reprinted 1996. Hardcover. ISBN 0-8138-0655-0. Lxxxiii + 1728 pp. Illustrated. \$90.00 U.S., \$92.50 non-U.S., postpaid. To order, send check or money order, in U.S. funds payable through a U.S. bank, to Department 11, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A., phone: 314/577-9534., fax: 314/577-9594, e-mail: dept11@mobot.org. Orders must be prepaid. Mastercard and VISA orders are accepted. Also available as a supplement is the Catalogue of the Flora of Missouri (1990) Presented in checklist format, it is intended to serve as an update of the state's flora.

**Storage of Natural History Collections: A Preventive Conservation Approach, Volume 1**, by C. L. Rose, C. A. Hawks and H. H. Genoways, editors: Contributions from more than 30 authors who are experts in museum design and collections conservation present a holistic approach to the storage of natural history materials. Chapters and technical appendices address: architectural concerns; facilities management; risk assessment; design of macro and micro-environments; HVC systems; fire detection and suppression; security systems; emergency preparedness; health and safety issues; environmental monitoring; pest monitoring and control; specification and testing of storage equipment and other storage materials; design of low oxygen and low temperature storage areas; environments and fluid-preserved collections; and the design of storage environments for collections documents such as books and papers, photographs, negatives, video images, and CD-ROMs.

Send orders to SPNHC Treasurer, 121 Trowbridge Hall, University of Iowa, Iowa City, Iowa 52242-1379 USA. Make checks payable to the Society of the Preservation of Natural History Collections. Cost is \$36.00 plus \$10 shipping and handling per book for non-US Air Mail. ISBN: 09635476-1-5.

**Storage of Natural History collections: Ideas and Practical Solutions, Volume 2**, by C.L. Rose and A.R. de Torres, editors 1992, 1995 reprint: This volume includes 113 articles on practical storage ideas for everything from vertebrate teeth to ethnic costumes to large fossils. All articles were written and reviewed by professionals in the fields of conservation and collections management. Each article details step-by-step instructions for the construction of support and storage systems for various types of museum collections. The articles are grouped into subsections such as supports, containers, shelving and organizational systems. The book also includes a glossary of terms, lists of materials, and names and addresses of manufacturers and suppliers.

Send orders to SPNHC Treasurer, 121 Trowbridge Hall, University of Iowa, Iowa City, Iowa 52242-1379 USA. Make checks payable to the Society of the Preservation of Natural

History Collections. Cost is \$36.00 plus \$10 shipping and handling per book for non-US Air Mail. ISBN: 09635476-0-7.

**Catkin-Bearing Plants of British Columbia** by T. Christopher Brayshaw: Catkin-bearing trees and shrubs are found almost everywhere in B.C. They are alders, birches, oaks, poplars, willows and more – 67 species in all. Since the first edition of this work was published in 1976, much research has been conducted on the identity, taxonomy and distribution of these plants, especially for the willows. This revised edition is the most comprehensive and current work on catkin-bearing plants. The author describes all 67 species – and many subspecies and varieties. Each description is accompanied by a detailed line drawing, making identification easy, and a distribution map. Diagnostic keys to the families, genera and species are also included. To order write: Royal Botanical Museum Gift Shop, 675 Belleville Street, Victoria, British Columbia, V8V 1X4; telephone number: 604/356-0505; fax number: 604/ 356-8197. \$24.95. Paperback, 212 pages. Illustrated. Revised Edition. ISBN 0-7718-9458-9.

**Plant Collecting for the Amateur** by T. Christopher Brayshaw: First published in 1973, this is a useful guide to collecting, drying and storing plant specimens for study. Intended for naturalists and amateur botanists who do not have access to herbarium equipment, *Plant Collecting* makes use of common household items to dry, press and store plants. Revised text and smaller format make this edition easy to use in the field or at home. Order from: Royal Botanical Museum Gift Shop, 675 Belleville Street, Victoria, British Columbia, V8V 1X4; telephone number: 604/356-0505; fax number: 604/ 356-8197. \$8.95. Paperback. 48 pages. Illustrated. Revised - new format. ISBN 0-7718-9439-2.

**Juncaceae, Flora Neotropica Volume 68**, by Henrik Balslev: This taxonomic monograph includes history, taxonomic keys and descriptions, morphology and anatomy, karyology, palynology, and chemotaxonomy of this family. Balslev treats 55 species within six genera: *Juncus*, *Luzula*, *Oxychloe*, *Distichia*, *Patosia*, and *Rostkovia*. Also included are distribution, floral biology, and indices of vernacular and scientific names. This book can be purchased from: The New York Botanical Garden, Scientific Publications Department, Bronx, New York 10458-5126 USA; telephone number: 718/817-8721; fax number: 718/817-8843. Order No. FLN 68. \$29.50 plus \$3.50 shipping for U.S. orders or \$4.50 for non-U.S. orders. Hardcover. 163 pages, 69 illustrations. May 1996. ISBN 0-89327-403-8.

The **CITES Orchid Checklist** was mentioned in the Jan-Feb-Mar 1996 issue of the FNA Newsletter wherein Royal Botanic Gardens, Kew is listed as the source. This can also be ordered through: Bookshop, American Orchid Society, 6000 South Olive Avenue, West Palm Beach, Florida, 33405-4199; telephone number: 561/585-8666; fax number: 561/585-0654; e-mail address: 71726-1741@compuserve.com. \$18.

## RECENT DEATHS

**Douglass Henderson**, Director of the Herbarium at the University of Idaho, died in July, 1996. He was born in 1938. Doug was one of the charter members of the Flora of North America Editorial Committee, and continued as an author and regional reviewer after he resigned as an FNA editor. He was an authority on the flora of western North America, particularly the west slope of the Cascades, and on *Sisyrichium* (Iridaceae). He initiated and developed the plant systematics program at University of Idaho. His interest in the flora of east central Idaho was sparked by a field trip in 1969 that he took with C. Leo Hitchcock. Hitchcock mentioned to Doug that he and Clarence Muhlick had been able to collect in only a few places there. When Doug arrived at University of Idaho in 1972 he began a concentrated field effort in that area and rapidly increased the size of the herbarium, tripling the number of specimens in the collection.

**Rimo Charles Bacigalupi** passed away 23 August 1996. Born 24 March 1901 in San Francisco, California, he received his A.B. from Stanford in 1923, and an A.M. in 1924. He was a teaching fellow at Mills College in 1925 and at University of California, Berkeley in 1926. His Ph.D. thesis, at Harvard University under the direction of B. L. Robinson, was a monograph of *Perezia* section *Acourtia*, published in 1931. He worked for the California Forest Range and Experiment Station for some years collecting seeds throughout California for experimental plantings; he also taught off and on at U.C. Berkeley and at Mills College. In 1950 he became the first Curator of the Jepson Herbarium, and he retired in 1968. During his years at the Jepson Herbarium he helped many graduate students, and he was known by all as an expert in Scrophulariaceae, as a gourmet, and as an aficionado of opera.

**Warren U. Brigham** died on 7 August 1996 of a heart attack. He was born 27 February 1942. Warren was a specialist in the taxonomy of aquatic Coleoptera but he is best known in our circles for having shared his expertise in the use of Geographic Information Systems with Flora of North America and many other similar efforts. He introduced us to the power of combining information on physical characteristics, distribution, and associated biogeographical parameters of taxonomic groups to achieve greater understanding of their relationships and ecology. He also showed how this core taxonomic information could be used in practical applications from siting factories to planning nature preserves. Warren joined the staff of the Illinois Natural History Survey in 1961 as a Technical Assistant. He was promoted through the system, and became Professional Scientist in 1982. He served as Principal Investigator on numerous federal and state grants and contracts. From 1989 to 1992, he served as Director of the Center for Biogeographic Information, and subsequently he served in the Office of the Chief. He was a key participant in the "Floristics for the 21st Century" workshop in 1988 and was a tremendous help to Flora of North America throughout the intervening years. Two weeks before his death, Warren and his staff generously spent a day and a half with Flora of North America staff to brainstorm on how FNA could begin using GIS technology for creation and analysis of distribution maps. We will all miss him.

**Walter Appleby** passed away 13 August 1995, at the age of 46, following a year long battle with cancer. Walter worked in the

Rancho Santa Ana Botanic Garden and University of California, Berkeley herbaria before he became Botany Collections Manager at the Bishop Museum in October, 1993. He was active in local and national organizations advancing the use of collections data in understanding and managing biodiversity.

**Mollie Beattie, director of the U.S. Fish and Wildlife Service**, who for the past three years defended the Endangered Species Act, died of brain cancer at the age of 49 in Townshend, Vermont. Mrs. Beattie was the first woman to head the federal agency, which oversees wildlife refuges and endangered species. She fought to expand the federal refuge system at a time of budget cuts. Mrs. Beattie held a Master's degree in forestry from the University of Vermont. She served as deputy secretary for Vermont's Agency of Natural Resources from 1989 to 1990 and was Vermont commissioner of forests, parks, and recreation from 1985-1989. [from Associated Press]

## POSITIONS AVAILABLE

The **National Arboretum** has initiated a search for an outstanding, innovative Ph.D. level plant taxonomist to conduct research on cultivated woody plants and their wild relatives. The successful candidate would be expected to conduct both traditional and laboratory oriented, molecular and biosystematic studies. In addition, he or she will be expected to conduct periodic field work, often in other countries, and supervise a 600,000 specimen herbarium. This is a regular appointment in the USDA's Agricultural Research Services Floral and Nursery Plants Research Unit at the United States National Arboretum. The taxonomist will be located at the main campus in Washington D.C. This will be an important appointment because the Arboretum is seeking to build a strong, broad-based program in the systematics of ornamental plants.

The National Arboretum is the only federally funded arboretum in the U.S. and is chartered by Congress as a research and educational institution. It is part of the Agricultural Research Service of the Department of Agriculture. There are four sites. The main campus is a beautiful 444-acre site in northeast Washington, D.C. The majority of the research personnel are located in new horticultural research facilities at the Beltsville Agricultural Research Center in Maryland, approximately 12 miles from the Washington D.C. campus. A 120-acre research site in Glendale, Maryland serves as test plots for some of the tree and shrub breeding experiments and for much of the germplasm collections of the Arboretum. In August of this year, an ornamental tree and shrub research laboratory based at an agricultural research station in McMinnville, Tennessee was administratively transferred to the Arboretum.

Fifteen Ph.D. level research scientists along with their support staff comprise the research unit at the National Arboretum. These scientists conduct broad-based programs contributing to basic and developmental interdisciplinary research of trees, shrubs, and floral plants. Research programs include acquisition and testing of germplasm, genetic improvement by integrating conventional and biotechnological approaches, taxonomic studies, and new and novel methods of disease detection and disease control.

Candidates may contact Dr. Thomas Elias, Director, telephone 202/245-4539; fax 202/245-4574; or e-mail telias@ars.grin.gov.

### **The Missouri Botanical Garden is accepting applications for three informatics positions:**

**A Bioinformatics Coordinator for the Flora of North America Project.** This position will be under the general direction of the Manager, Center for Botanical Informatics, and will provide computing and network support consistent with strategic direction of FNA information management plan.

Principal duties and responsibilities are: ensure proper installation of equipment and configuration of networks and operating systems relative to FNA; maintain systems and monitor performance; plan and execute hardware and software changes and upgrades; respond to FNA user needs; assist in the design, implementation, and integration of new software tools; research and recommend process improvements in FNA work practices; design, implement, and deploy World Wide Web information and tools for the FNA project; coordinate the licensing, installation, and operation of information resources used by the FNA project, including CDROM-based systems and various project databases; provide user training.

Candidates should have: bachelor's degree or equivalent in biology or related discipline; or Bachelor's degree or equivalent in computer science or related discipline; or appropriate combination of education and experience; additional coursework or experience in converse discipline; excellent programming skills and applicable experience with Windows 95, Novell, Access, Java/JavaScript, HTML, SGML, and Web site maintenance required; relevant experience with Unix administration desired; general experience deploying and maintaining computing workstations, networks, peripherals, and commercial software; general experience with large-scale information systems, library systems, geographic information systems, user interface design, collaborative computing, and user training useful.

**A Programmer/Analyst for the Flora of North America Project.** This position will be under the general direction of the Manager, Center for Botanical Informatics, and will provide database support consistent with strategic direction of FNA information management plan.

Principal duties and responsibilities are: ensure proper installation of database management systems relative to FNA; oversee the design, implementation, and integration of new databases; Maintain database systems and monitor performance; plan and execute database-related hardware and software changes and upgrades; design, implement, and deploy database support tools and user interfaces for the FNA project; provide user training.

Candidates should have: Bachelor's degree or equivalent in biology or related discipline; or Bachelor's degree or equivalent in computer science or related discipline; or appropriate combination of education and experience; additional coursework or experience in converse discipline; excellent programming skills and applicable experience with Windows95,

Access, PowerBuilder, Sybase, and relational database technologies required; relevant experience with Unix desired; general experience deploying and maintaining computing workstations, networks, peripherals, and commercial software; general experience with large-scale information systems, library systems, geographic information systems, user interface design, collaborative computing, and user training useful.

**A Bioinformatics Intern for the Center for Botanical Informatics (CBI).** Under the general direction of the Director, Center for Botanical Informatics, provide computer science and bioinformatics research support consistent with strategic direction of CBI.

Principal duties and responsibilities are: assist in the design, implementation, and integration of new software tools for CBI research projects; perform research on and recommend process improvements for CBI research projects; integrate and test new information system prototypes; ensure proper installation of equipment and configuration of networks and operating systems relative to Internship research activities; coordinate the licensing, installation, and operation of information resources

used by Internship projects; write and publish about research activities.

Candidates should have: Ph.D. degree or equivalent in computer science or related discipline; or Ph.D. degree or equivalent in biology or related discipline; or appropriate combination of education and experience; additional coursework or experience in converse discipline; excellent computer technical and programming skills; relevant research experience; general experience deploying and maintaining computing workstations, networks, peripherals, and commercial software; general experience with large-scale information systems, library systems, user interface design, collaborative computing, and bioinformatics research useful.

To apply for any of these, please submit curriculum vitae, along with names, addresses, and phone number of three references. Send information to: Missouri Botanical Garden, Human Resource Management, P.O. Box 399, St. Louis, Missouri 63166-0299. Email: rland@admin.mobot.org; fax 314/577-9597.