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

FLORA OF NORTH AMERICA NEWS

Editorial Committee

The **Spring Editorial Committee** meeting was held at the University of California at Berkeley on June 5-6, 1994. The committee met in the newly renovated (and spectacular) Life Sciences Building, which will be the home for the University and Jepson herbaria, as well as all other systematic collections held by the university. The meeting followed a symposium on "The Future of California Floristics and Systematics: Research, Education, Conservation," sponsored by the Friends of the Jepson Herbarium, so editors had an opportunity to hear interesting talks on the future of California floristics and to meet a number of FNA authors and reviewers. We are grateful to Brent D. Mishler, director of the herbaria, Susan D'Alcamo, John Strother, and Alan Smith for their work on organizing our meeting.

The editorial committee discussed the ramifications of the decline by National Science Foundation to fund continuation of the project. This is the second year that funding has been declined. Both proposals, the one submitted in 1992 and the one submitted in 1993, were criticized on the basis of insufficient computerization. Some reviewers believe that all authors should submit their treatments in completely databased form, and that FNA should be actively carrying out sophisticated GIS-based analyses of the data. In order to determine the best course for the project to take, three groups will be established: a computer steering committee, made up of editorial committee members as well as taxonomists not on the committee; a technical team, whose members are computer specialists at Washington University Medical Library, Texas A&M University, and University of Texas; and an advisory board, that will include people very highly respected nationally in the computer field. The Computer Steering Committee will consider, as its first priority, what mechanisms are needed to keep the database up-to-date and to assure that new information and changes are properly reviewed and attributed.

In view of the lack of funding, several cost-cutting measures were accepted. The editorial committee will meet once a year, rather than twice; the annual meeting will be held at Missouri Botanical Garden. The 800 telephone number has been discontinued; we encourage people to communicate with the FNA organizational center office via e-mail on Internet. To the extent possible, the office will use e-mail for transmission of documents. The research associate position held by Denis Kearns, assisting Rich Spellenberg with Fabaceae treatments, has not been renewed. All efforts will be made to find funding from other sources so that the remaining staff can continue their employment at the organizational center. An excellent team has now been assembled, and several years have been invested in intense training. It would be extremely detrimental to have to disband the current staff and then try to start up a year later.

A conservation committee has been established to review all treatments for conservation status. The members of this committee are: Chris Topik (U. S. Forest Service), Peggy Olwell (U. S. Park Service), Ken Berg (Bureau of Land Management), John Fay (U. S. Fish and Wildlife Service), and Larry

Morse (The Nature Conservancy). A Canadian member is being invited to join.

Volume 3 is expected to be sent to Oxford University Press within the next two months, and the last families (albeit large families) are being sent out for review now. Editors for Volume 11 are ready to give full attention to the monocot manuscripts.

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, MO 63166, U.S.A.

Deborah Kama, FNA database manager, has been working with Lillian Hastie of Oxford University Press to produce the **CD-ROM version of Flora of North America**. The CD-ROM will contain all information found in the books, including maps and illustrations. In addition, reference files such as bibliography and author abbreviations will be included.

Most exciting is the promise of full database-search capability! OUP would like to have the CD-ROM prototype completed in October with public release scheduled for late this winter. Currently, OUP envisions a "subscription" service whereby a subscriber returns his or her CD for update as additional FNA information becomes available.

Kama has also been working with FNA Editorial Committee member **Leila Shultz and Doug Ramsey of the College of Natural Resources at Utah State University** to test the use of FNA volume 2 maps with the more precise localities recorded for the **Atlas of Plants of Utah** and the GIS files and programs held by CNR.

Much of the editorial committee meeting was devoted to a workshop on the use of commercial **spreadsheet** programs, in conjunction with commercial **word-processing programs** (e.g. Microsoft's Excel and Word), **to prepare and edit treatments**, already in use in the Organizational Center. Such programs now allow one to move information between spreadsheet and text files, seamlessly; sophisticated macrobuilders allow spreadsheet text to be read directly into a publication-ready form. The spreadsheet enables rapid editing when checking for terminology, parallel descriptions, and agreement with keys. The talk to be given by Alan Whittemore at AIBS will describe this in some detail. In the future, authors will be sent explicit instructions on how to use this approach.

Decisions that have implications for preparation of treatments:

1) To clarify the intent of distribution maps versus the state and province lists, a statement "**State/province distributions are found in the text; mapped distributions may appear more generalized,**" will appear in the introduction to each volume. Authors, in general, have understood quite well that the maps represent cumulative generalizations of where the taxa are known to occur. The statement is meant to clarify misunderstandings that some readers have had.

2) It was agreed to add a symbol (to be determined) at the beginning of the text distribution statement to indicate that a taxon occurs naturally *only* in the flora area. Authors may use the word "endemic" at the beginning of the state and province list to indicate this; on manuscripts in hand, a taxon will be assumed to be native only to the flora area if no extraterritorial distribution is given. Authors may wish to double-check whether they have given extraterritorial distribution when appropriate.

3) In the acknowledgment section of each volume, herbaria that have loaned specimens or hosted researchers for FNA treatments will be thanked for their help. Volume 3 authors who have not yet sent in their checklist or who neglected to include the list of herbaria, or who wish to add herbaria to that list, are urged to do so immediately.

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Manuscripts Received 1 January through 30 June 1994

Volume 3

Bob Kiger - *Chelidonium, Glaucium, Macleaya, Platystemon, Sanguinaria, Stylophorum*

Volume 11

Robert Haynes - Juncaginaceae

Scott Zona - Arecaceae

Sue Thompson - Araceae

Ken Robertson - Haemodoraceae

Peggy Fiedler - *Calochortus*

Peter Goldblatt - *Alophia, Belamcanda, Calydorea,*

Chasmanthe, Crocosmia, Freesia, Herbertia,

Nemastylis, Romulea, Watsonia

Norlan Henderson - *Iris*

James Reveal - *Agave*

David Bogler - *Dasyllirion*

Bill Hess - *Cordylone, Dracaena, Nolina, Sansevieria, Yucca*

Susan Verhoek - *Furcraea, Manfreda*

Paul Catling - *Hexaletris*

Volume 4

Sergei Mosyakin - *Bassia, Corispermum, Cycloloma, Kochia, Salsola*

Garrett Crow - *Sagina*

Harold Hinds - *Polygonum*

Steven Clemants - *Befaria*

Volume 6

Pat Elvander - *Saxifraga*

Stan Welsh - *Hedysarum, Oxytropis*

A set of 35 slides of Volume 1 maps and graphics is available for purchase for \$50. Most of the slides use the same map of North America used in Volume 2, Pteridophytes and Gymnosperms, or are graphs and charts. Chapters 1 and 4 are best represented: 11 from Chapter 1 and 16 from Chapter 4. The remaining are 3 slides from Chapter 2, 2 slides from Chapter 3, and 1 each from Chapters 5, 6, and 10. Captions are included on the slides, although some very long legends are shortened. The textures used in the volume are redone in color for the slides. The slides are a great supplement to Volume 1, Introductory Chapters. They will be an excellent teaching tool for botany/ecology courses. Send orders to Judy Unger at the FNA Organizational Center at Missouri Botanical Garden (full address

given in lower right corner box of the first page of this newsletter). Payment is due in advance with checks made payable to the Missouri Botanical Garden. For further information call Judy at the FNA Organizational Center, 314/577-9515.

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FNA GOPHER AND WORLD WIDE WEB - Many useful Flora of North America files are now available on the Missouri Botanical Garden gopher. In addition to all taxonomic information from Volume 2, and several sample illustration images, chapters from Volume 1 have been put up and can be searched for words or word strings. All Volume 1 chapters will be available soon. Names to be accounted for are being put up family by family, with Volume 11 families going up first. Please "drop by" the Missouri Botanical Garden gopher frequently. New files are being added all the time. Right now, other files that may be of use to FNA Newsletter readers include the Index of Botanical Authors (which gives full names and correct abbreviations), the Index of Plant Chromosome Numbers, the Index Herbariorum files for U. S. institutions, and books received by the library in the past several years. Data files from TROPICOS are being added daily.

The gopher files are also now available via the World Wide Web (WWW) server maintained by the W. M. Keck Center for Genome Informatics, Institute of Biosciences and Technology, and Texas A&M University. Professor Leland Ellis, Director of the Center, and his staff have developed a WWW home page for the Missouri Botanical Garden and are experimenting with linking other existing URL's (Universal Record Locator) to FNA and Tropicos data. FNA plans to provide the HTML coded Volume 1 chapters along with distribution maps and scanned illustrations from Volume 2 to Professor Ellis for WWW presentation. The URL for the Missouri Botanical Garden WWW home page is:

<http://straylight.tamu.edu/MoBot/welcome.html> Try it!

FLORA OF NORTH AMERICA--A DIGITAL LIBRARY TESTBED

- Flora of North America is working with computer scientists at Washington University Medical Library's Advanced Technology Group and the Washington University Department of Computer Science, the Hypermedia Research Laboratory in the Department of Computer Science, the W. M. Keck Center for Genome Informatics in the Institute of Bioscience and Technology, and the Institute for Scientific Computation at Texas A&M, and the Department of Computer Sciences at University of Texas, to explore new technologies for organizing, sharing, and using information for botanical research. Because Flora of North America is a broadly collaborative, well-defined project with very specific needs, has a strict timetable, needs to use a wide range of materials (e.g., literature, images, databases), and often has need for participants who are widely separated geographically to consult and discuss materials, it seems like an ideal testbed for interactive and collaborative systems. Future issues of the FNA Newsletter will keep you informed of progress on this project.

WHAT TO LOOK FOR AT AIBS

The annual meeting of the **American Institute of Biological Sciences will be held 7-11 August 1994 in Knoxville, Tennessee.** The theme this year is "Science and Public Policy." For more information about the meeting or to register, contact the AIBS Annual Meeting, 730 11th Street N.W., Washington, DC 20001-4521; fax 202-628-1509; ph 800/992-2427.

FNA Table at AIBS - Flora of North America will have a table at the AIBS Annual Meeting. We will be with the professional societies and will have pamphlets from Oxford University Press with order forms for Volumes 1 and 2. Volume 2 Pine Cone T-shirts will also be available for purchase at \$10 in sizes L and XL in colors of blue, pink, melon, and gray. Volume 1 Asa Gray T-shirts in some sizes and colors will be available. Get your Volume 1 shirt now; no more will be ordered. FNA mugs will be sold, too. Ten sets of Volume 1 slides (see above) will also be available for purchase.

FNA Spreadsheet demo at AIBS - In order to streamline the process of editing and databasing the Flora, the FNA Organizational Center staff have been developing methods of computerizing treatments using standard software (chiefly word-processing and spreadsheet programs) for personal computers. A demonstration of this process of preparing morphological descriptions will be presented at the AIBS meetings in Knoxville, Tennessee, by Alan Whittmore, FNA botanist. His demonstration will include procedures for manipulating data in spreadsheets and merging them to form publication-quality prose descriptions, as well as a presentation of standard character list that will allow comparison of morphological data from different treatments. Authors who would like to learn how their manuscripts are being handled, and perhaps use some or all of these approaches themselves, are encouraged to attend this demonstration, in a regular ASPT paper session on Monday, 8 August, at 11:45 AM.

Symposium on "Relationships between plants of eastern North America and eastern Asia" at AIBS - This symposium is co-sponsored by the Systematics Section, Botanical Society of America, the American Society of Plant Taxonomists, and the Torrey Botanical Club, and co-organized by Flora of North America and Flora of China. It will be held Tuesday morning, August 9. Speakers and topics are: Lewis Anderson, "Relationships between bryophytes of eastern North America and eastern Asia"; David Boufford, "The Sino-Japanese floristic region; Its significance to North American plant geography"; Cathy Paris and Chris Hauffler, "Geographic isolation and allopathic speciation in ferns with a disjunct distribution in eastern Asia and eastern North America"; Qiuxin Wu and Gregory Muellen, "Biogeography of macrofungi: Relationships between eastern Asia and eastern North America"; Bob Thorne, "Eastern Asia as a living museum for primitive angiosperms and other vascular plants"; Peter White and Qian Hong, "Diversity patterns at the community level"; Qiu-yun Xiang, Doug Soltis, and Pam Soltis, "Phylogenetic relationships and genetic divergence of disjunct taxa from eastern Asia and North America inferred from molecular data: Examples from Cornaceae, Hydrangeaceae, and Saxifragaceae"; Jun Wen and Liz Zimmer, "Phylogenetic studies of *Panax* (Araliaceae), an eastern Asian and eastern North American disjunct genus"; and Steve Manchester, "Phytogeographic genera with paleobotanical records in the Tertiary of North America." Quite a line-up. Hope to see you there.

Curators' Meeting: Herbarium curators are invited to attend a meeting on August 10, 1994, at 2p at Bentley's in the Hilton. The topic of the meeting will be NBS issues.

REQUEST FOR INFORMATION

Dr. Sergei L. Mosyakin, based at the Ukraine's N. G. Kholodny Institute of Botany in the city of Kiev, was invited to spend last fall and winter (late October through mid-April) here at the Organizational Center preparing his *Flora of North America* Chenopodiaceae and Polygonaceae manuscripts. As reported in the last issue of the newsletter, Dr. Mosyakin participated in the North American Chenopodiaceae "working group" meeting convened at Harvard University by Chenopodiaceae taxon editor Dr. Leila Shultz in January of this year. Also, while on the East coast, he visited the herbaria of the New York Botanical Garden and Smithsonian.

Sergei's interest in the genus *Corispermum* was piqued while here at MO and he has asked that a **general request for North American specimens of *Corispermum*** be made of the community at-large. Sergei will happily provide determinations for specimens received, however returning specimens sent to him for identification would prove to be a great hardship on the available resources of the Institute, hence gifts rather than exchanges or identifications to be returned, would be best.

Send specimens to: Dr. Sergei L. Mosyakin, N. G. Kholodny Institute of Botany, Tereshchenkivska Str. 2, Kiev, Ukraine. You may want to contact him first via his Internet email address smos%botan.kiev.ua@monolit.kiev.ua .

Sergei wrote Chenopodiaceae genera *Bassia*, *Corispermum*, *Cycloloma*, *Kochia*, and *Salsola* and has agreed to write the treatment for the genus *Rumex* in the Polygonaceae.

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Information is requested from herbaria regarding the **palatability of preserved plant specimens to herbarium pests**. Any personal observations of families, genera, or species which are consistently avoided by pests, and those which are especially attractive to pests, would be greatly appreciated. Specifically, we are interested in the beetle *Lasioderma serricornis*; however, we welcome information relating to other species of beetles, moths, cockroaches, booklice, molds, or any other pests. When possible please state which plant parts are eaten or avoided. This information will be compiled for publication. Please direct correspondence to: Eliza Habegger, c/o Thomas Eisner, Mudd Hall, Cornell University, Ithaca, NY 14853. Telephone 607-225-4464, fax 607-225-6186.

BIOTIC SURVEYS AND INVENTORIES

The **National Science Foundation** has now released new **guidelines for its Biotic Surveys and Inventories program**, which is part of the Division of Environmental Biology in the Directorate for Biological Sciences. These guidelines (NSF 94-4) replace NSF 91-10. The Biotic Surveys and Inventories program, which in the past has been the program to which floristic and faunistic proposals (including *Flora of North America*) were to be directed, is explained as follows: "Proposals submitted to the Biotic Surveys and Inventories Program should involve collecting specimens of extant and extinct organisms as samples of taxa of geographic or oceanographic regions and/or geologic horizons; conducting inventories of existing collections; developing and disseminating electronic databases of the collected or inventoried specimens and taxa; and producing biotic treatments, authenticated species lists, catalogs, manuals, keys, expert identification systems, and/or other documents in electronic and printed form. . . .

The primary product of a biotic survey or inventory project is expected to be new collections and/or inventories of existing collections and taxa. These projects should result in the production of electronic and electronically accessible (e.g., linked via Gopher or World Wide Web on Internet to the scientific community), specimen-based databases--to permit more efficient maintenance, dissemination, and revision of the products of the research--and other electronic and printed products such as keys, expert identification systems, checklists, descriptions, and other databases and authority files to assist in identification of included taxa. . . ." Proposals must include detailed project management plans and a full description of database activities including information on hardware and software specifications, the data model, elements and structure of the database, networking protocols, means of electronic access to the data sets, and capabilities for expansion.

For new collections, investigators are strongly encouraged to make use of appropriate Global Positioning System technology to record locality data, when appropriate, and to link the biodiversity databases to a Geographic Information System. General inquiries or questions about the guidelines should be directed to the Biotic Surveys and Inventories program, 703/306-1483; internet: jmoorefi@nsf.gov or jestes@nsf.gov.

REMEMBRANCE OF JOHN THOMAS HOWELL - John Thomas Howell (1903--1994), Curator Emeritus of Botany at the California Academy of Sciences, died at his home in Marin County, California on 7 May 1994. Tom was born in Merced, California and by the time he entered high school there, he had become particularly interested in plants. He studied botany under W. L. Jepson at the University of California at Berkeley and received his M.A. in 1927. From 1927-1929, Tom was the first resident botanist at the Rancho Santa Ana Botanic Garden when it was still located on Susanna Bixby Bryant's ranch in Santa Ana Canyon. There, he founded the herbarium of the Rancho Santa Ana Botanical Garden (RSA). In 1929, Alice Eastwood offered Tom a position in the herbarium at the California Academy of Sciences where he spent the next 65 years in botanical exploration, research, and public education.

Although Tom collected nearly 55,000 plants, mostly from throughout California and the western United States, tropical botanists recognize his enormous contributions to the study of the Galapagos Islands flora. From March to September of 1932, Tom was a botanist on the Templeton Crocker Expedition to the Galapagos where he collected 1,627 plants on 14 of the islands. These collections formed the basis for some of the first serious revisionary studies of plant groups with significant radiation in the Galapagos Islands. Tom's publications on the Galapagos flora dealt with such groups as *Mollugo*, Cactaceae, Amaranthaceae, *Tiquilia*, *Scalesia*, and *Polygala*.

In California, Tom collected plants in the Sierra Nevada for some 25 years with the prospect of writing a flora of that mountain range. The 20 herbarium cases housing specimens generated by those efforts are now being incorporated into the Academy's herbarium. Because they were largely unmounted, Howell's Sierran plants were not readily accessible for use by authors of the recent *Jepson Manual*. Botanically, Tom was a generalist with a particular interest in regional floras. Plants named for Tom include an alga, a fungus, a lichen, a liverwort, a moss, monocots, and dicots. His "specialities" included the Asteraceae, Cyperaceae, Hydrophyllaceae, Poaceae, Polygonaceae, Rhamnaceae, and Rubiaceae. His bibliography includes more than 500 entries, most of which deal with

California plants. He considered his editing and publication of the private journal *Leaflets of Western Botany* (10 volumes and index, 1932--1968) to be his most important contribution to California botany. Another of Tom's best known and most popular publications is *Marin Flora, Manual of the Flowering Plants and Ferns of Marin County, California*.

Although Tom did not teach in a university classroom setting, he probably taught botany to nearly as many people as most college professors. His "students" included Junior Academy schoolchildren, Sierra Club chapters, the California Native Plant Society, and California Botanical Club. Tom served as leader of this latter organization (which was founded in 1891 by Katherine Brandegee) from 1950 to 1970. Over the years he was a mentor to a loyal following of amateur and professional botanists. Tom's influence extended beyond informal botanical instruction and encouragement. In many cases he nurtured dedication among his followers that led to important collaborative publications such as *A Flora of San Francisco* (1958), *A Flora of Lassen Volcanic National Park, California* (1961), *The Vascular Plants of Monterey County, California* (1964), and *A Catalogue of Vascular Plants on Peavine Mountain* (1992).

In the years preceding his death Tom was actively involved in a collaborative study of the flora of Sonoma County. Tom was especially proud of having received the Willdenow Medal from the Berlin Botanical Garden and Museum (1979) and the Fellows Medal of the California Academy of Sciences (1986). Following his retirement, the John Thomas Howell Curatorial Chair of Western American Botany was established at the Academy. The endowment for this chair continues to grow and it will be activated when sufficient funds become available. His many friends and colleagues will miss Tom's thoughtful counsel, ever present humor, and zest for the flora of his native state. A biographical sketch of Tom Howell's eventful and productive life appeared in *Fremontia* 17:11-19. 1989. A memorial service for Tom was held at the Academy on 8 July 1994. -- Thomas F. Daniel, Frank Almeda, and Dennis E. Breedlove, Department of Botany, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, USA.

RECENT PUBLICATIONS

Intermountain Flora Volume Five: Asterales, by A. Cronquist. 1994. ISBN 0-89327-375-9; hardcover, 509 pp., 193 plates; \$75. This volume reflects Arthur Cronquist's long-time interest in the Asterales and completes the work on the Asteridae begun in Volume Four. Volume Six, *The Monocotyledons*, which has been out of print for many years, is available again. ISBN 0-89327-386-4; hardcover, 584 pp., 302 plates, \$40. 1977, reprinted 1994. Order from Intermountain Flora, Scientific Publications Department, The New York Botanical Garden, Bronx, New York 10458-5126; ph 718/817-8721; fax 718/817-8842.

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Systematic Botany Monographs 43: Revision of the Mexican Species of *Cyperus* (Cyperaceae), by Gordon C. Tucker, ca. 212 pp., August 1994. ISBN 0-912861-43-6. U.S. orders: \$28.00; non-U.S. orders: \$29.00. Payment in U.S. currency must precede shipment. Price is postpaid. Make checks payable to the *American Society of Plant Taxonomists* and send with order to: Systematic Botany Monographs, University of Michigan Herbarium, North University Building, Ann Arbor, Michigan 48109-1057. For non-US orders only, Visa and Mastercard are accepted; include

account number and expiration date. Fax 313-763-0369; e-mail
usergf24@um.cc.umich.edu.

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A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland, second edition, by John T. Kartesz. 1994. ISBN 0-88192-204-8. Two volumes, not sold separately. Volume I, Checklist, 688 pp., Volume II, Thesaurus, 816 pp. \$149.95. Order from Timber Press, The Haseltine Building, 133 S.W. Second Avenue, Suite 450, Portland, Oregon 97204-3527. Ph. 503/227-2878; fax 503/227-3070.

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The Families of Flowering Plants, by Les Watson and Mike Dallwitz, 1994. ISBN 0 643 05507 X. This is an interactive program on CD-ROM with a color-illustrated manual. It applies the interactive identification and information retrieval program INTKEY to 563 world-level, DELTA descriptions of the families of Angiosperms. The CD-ROM carries MS-DOS files containing the program and data, along with 680 high quality line drawings from three classic early works. Also included are references and a complete set of conventional descriptions, which may be displayed on screen or printed in typeset form. \$180. Order from CSIRO Information Services, P. O. Box 89 (314 Albert Street), East Melbourne, Victoria 3002. Tel (03) 418-7217 (int. 613/418-72170; fax (03) 419-0459 (int. 613/419-0459). Credit cards accepted.

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Inventory of Rare and Endangered Vascular Plants of California, published by the California Native Plant Society, Special Publication No. 1, fifth edition. 1994. ISBN 0-943460-18-2. MS-Dos diskettes and manual also available: ISBN 0-943460-19-0. The fifth edition has been entirely revised and updated. The descriptions now include plant life form and blooming period, complete cross-referencing to *The Jepson Manual*, topographic quad data for more than 1200 plants, county data for all 1742 plants, and new appendices of quads and plants new to this edition. The discussions include very useful notes on endangerment and on taxonomic problems. The book, softcover, is 336 pp, and sells for \$22.95; the electronic version is \$145. Order from the California Native Plant Society, 1722 J Street, Suite 17, Sacramento, CA 95814. ph 916/447-2677; fax 916/447-2727.

AWARDS

Call for Applications for the 1994 DELZIE DEMAREE TRAVEL AWARD - Graduate students in plant systematics are eligible to apply for the Delzie Demaree Travel Award, a \$250 stipend to help defray expenses related to attendance at the MBG Systematics Symposium. The application should include a letter from the applicant telling how symposium attendance would benefit his/her graduate work and a letter of recommendation sent by the applicant's major professor. Please mail letters of application by August 15th to: Donna M.E. Ware, Herbarium, Biology Dept., College of William and Mary, Williamsburg, VA 23187.

The 1993 Recipient of the DELZIE DEMARREE TRAVEL AWARD

is **Tim McDowell**, a graduate student of Donald E. Stone at Duke University. Mr. McDowell's dissertation research is a monographic and evolutionary study of the woody neotropical genus Exostema (Rubiaceae). One goal of this study is to help resolve the tribal placement of this genus. In addition, Exostema has several species with antimalarial properties, and by improving the understanding of the taxonomy and evolution in the genus, Tim McDowell's research may promote development of new treatments for malaria.

POSITIONS AVAILABLE

Philadelphia: The Academy of Natural Sciences of Philadelphia is currently seeking an Assistant Curator of Botany to start January 1995. The Academy has strong collections in all areas of botany and strong programs in systematics in all areas of botany and strong programs in general aquatic ecology. Applicants with expertise in cryptogamic botany (particularly freshwater phycology, mycology, and biology) and aquatic vascular plant systematics are especially encouraged to apply, although all areas of systematic botany will be considered. Requirements: (1) Ph.D. in botany or related discipline; (2) demonstrated research skills in systematics or evolutionary biology of plants; (3) ability to establish, maintain, and obtain grant funding for an independent research program; (4) experience and interest in curation of botanical collections; and (5) willingness to participate in the institution's public programs. Opportunities exist for adjunct appointments at area universities. Send curriculum vitae, statement of research and curatorial interests and goals, and the names, addresses, and telephone numbers of three references to: Botany Search Committee, The Academy of Natural Sciences of Philadelphia, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103-1195. Applications should be received by 15 July 1994.*

Fort Collins: The Department of Biology, Colorado State University, Fort Collins, Colorado is seeking an Assistant professor in systematics of higher plants. This tenure-track position involves approximately 50% teaching, 40% research, and 20% service, including herbarium curation. The successful candidate will be expected to develop an independent, externally funded research program in contemporary plant systematics using molecular-genetic techniques to study phylogenetic relationships. The candidate will also oversee curation of the Colorado State University herbarium (CS). Abundant opportunities exist for collaboration with biologists within the department as well as in other departments and colleges at the University and with the Colorado Natural Heritage Program. Teaching responsibilities include a course in modern plant systematics and participation in the botany/biology undergraduate and graduate curriculum. Qualifications: A Ph.D. in botany or a related area is required. Curatorial and postdoctoral experience are strongly favored. Candidates should exhibit potential for independent and innovative research and teaching, and a willingness to cooperate with a broad spectrum of biologists on campus. Salary is commensurate with education and experience. The position is available immediately. To apply, send a letter of application with a statement of your teaching and research interests, a curriculum vitae, university transcripts, names and addresses of five persons who will serve as references, and no more than three publications to: Dr. F.B. Reeves, Plant Systematic Search Committee, Department of Biology, Colorado State University, Fort Collins, CO 80523, telephone (303) 491-7013, fax (303)491-0649, e-mail breeves@lamar.colostate.edu. All materials are due by 15 September 1994. The search may be extended if suitable candidates are not found.*

San Francisco: The California Academy of Sciences invites applications for an Assistant Curator of Botany. Applications are solicited from individuals with primary interest in and commitment to active, collection-oriented research in higher plant systematics and the curation, operation, and development of a major herbarium. Candidates must have a Ph.D., an active research program with demonstrated interest and competence in a particular group of vascular plants, and be prepared to participate in a variety of curatorial, administrative, and public educational activities at the Academy. Applicants should forward a curriculum vitae, description of research goals, and the names, addresses, and telephone numbers of three references to: Human Resources, No. ACB, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118-4599. Deadline for applications is 15 October 1994.*

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