

BULLETIN

FALL 2004

VOLUME 50

NUMBER 3

PLANT SCIENCE

The Botanical Society of America: The Society for ALL Plant Biologists

Botany at Miami University.....	70
News from the Society	
Botany 2004	
Eugenie Scott, Forum Keynote Address.....	74
Rita R. Colwell, Plenary Address.....	74
Allison Snow, President-Elect's Address.....	75
BSA 2004 Merit Awards.....	77
BSA 2004 Graduate Student Awards.....	77
BSA 2004 Young Botanist Awards.....	78
New BSA Corresponding Member, Professor Hugh Dickinson.....	78
<i>in Memorium</i> , Alicia Lourteig, 1913-2003.....	78
Announcements	
Harvard University, Bullard Fellowship.....	79
Botany References Available.....	80
International Society of Environmental Botany.....	80
Brooklyn Botanic Garden Launches Premier Issue of <i>Urban Habitats</i>	
Electronic Journal.....	80
Brooklyn Botanic Garden Florilegium Society: Portraits of a Garden.....	82
Symposia, Conferences, Meetings	
XVII International Botanical Congress.....	83
Second Global Summit on Medicinal and Aromatic Plants.....	86
Third International Conference on Plants and Environmental Pollution.....	86
Books Reviewed.....	85
Books Received.....	98
BSA Contact Information.....	99
BSA Logo Items.....	100

Editor: Marshall D. Sundberg
Department of Biological Sciences
Emporia State University
1200 Commercial Street, Emporia, KS 66801-5707
Telephone: 620-341-5605 Fax: 620-341-5607
Email: sundberm@emporia.edu



ISSN 0032-0919

Botany at Miami University

A “take-home message” from Dr. Rita Colwell’s Plenary Address at this year’s annual meeting (see summary on p74 of this issue) is that it is important for the public to understand the significance of botany and that the major burden for this public education falls on most of us – botanists in academe. The following article features another one of our successful departments where botany has a long and distinguished history and where it continues to thrive and attract undergraduate and graduate students to the study of plant science.

One of the themes emerging from this series of articles is that successful departments have the backing and support of their administrators - - but that support is earned by departments through credit hours generated and numbers of majors. We must become proactive in promoting our courses and curricula to gain the support we need from administration. Hopefully you’ve been finding ideas in the articles of this series that you can adapt to your home institution. The critical step, however, is to commit the time and effort necessary to implement these ideas. Being good, or even great, as botanists is no longer a guarantee that a botany program will survive. Just look at the number of formerly outstanding botany departments that no longer exist. We cannot afford only to concentrate on our own research and teaching. Somewhere in our busy schedules we must make the time to self-promote and reach out to the public to enhance botanical literacy and indirectly recruit students.

President Snow addressed this need for self-promotion in her banquet address at the annual meeting. Specifically, she encouraged us to become more involved in promoting botany directly to the public through the news media. A summary of her talk, on p. 75 of this issue, addresses the issue and provides some helpful strategies. Let’s give it a try!
-editor

Miami University (Oxford, Ohio) is a liberal arts college with a capped enrollment of 16,000 undergraduate and approximately 4000 graduate students. It has three life science departments including Botany, Microbiology, and Zoology. The Botany Department has a long history and will celebrate its Centennial in 2006, despite declines in the number of botany departments nationwide. We are among the largest botany departments in the U.S in terms of faculty size, number of majors, and success of our graduates. The University and Department have been transformed over the past 20 or more years from an emphasis on teaching at the undergraduate level to a research university with graduate programs where excellent scholarship and teaching are expected. While our mission has shifted, our commitment to quality education and training has not wavered. And, while the breadth and focus of Plant Biology has changed significantly in the past 100 years, our departmental leadership has always strived to keep pace with emerging fields while staying grounded in core areas. The following is background information on the Department, and our curricula and programs highlighting things that we believe contribute to our vitality. However it is difficult to provide a recipe for success since there are historical factors as well as current practices that contribute to the total package. Nonetheless, perhaps our structure, approach, and philosophy may provide useful information to other Botany departments.

We have both undergraduate and graduate programs with 20 faculty members on 4 campuses with Oxford being the primary campus. We have three additional affiliate faculty whose home departments are in Zoology, Geography, and Chemistry. Six faculty members have additional administrative duties with reduced teaching loads and three are on regional campuses with reduced

PLANT SCIENCE BULLETIN

ISSN 0032-0919

Published quarterly by Botanical Society of America, Inc., 4475 Castleman Avenue, St. Louis, MO 63166-0299. The yearly subscription rate of \$15 is included in the membership dues of the Botanical Society of America, Inc. Periodical postage paid at Columbus, OH and additional mailing office.

POSTMASTER: Send address changes to:
Botanical Society of America
Business Office
P.O. Box 299
St. Louis, MO 63166-0299
email: bsa-manager@botany.org

Address Editorial Matters (only) to:
Marsh Sundberg, Editor
Dept. Biol. Sci., Emporia State Univ.
1200 Commercial St.
Emporia, KS 66801-5057
Phone 620-341-5605
email: sundberm@emporia.edu

research expectations. Regional campus faculty are full participants in the Department. They sponsor graduate students, maintain research programs, serve on departmental committees, attend faculty meetings, and are tenured by the Oxford Campus. Our faculty have primary expertise in one of three core areas, often with additional expertise in a second area: 1) Ecology, Taxonomy, & Systematics; 2) Cell Biology, Molecular Biology, Genetics, & Physiology; and 3) Anatomy, Morphology, & Development. We have been approved for two new tenure-track searches in 2004-05 in Plant Evolutionary Biology and Bioinformatics, and the administration has promised that we will be approved another search in the near future for one recent retirement. Thus it is reassuring that the administration appears to appreciate the quality of our department and continues to invest in it by authorizing new positions.

We currently have about 60 majors, which may fluctuate to 100 or more in any given year. Most of our majors come from Ohio and throughout the Midwest, particularly Indiana, Illinois, and Kentucky. Approximately 1/3 of our undergraduates declare Botany as their major when they apply to Miami as graduating seniors, which undoubtedly is a result of our profile as a Botany Department since we don't actively recruit in high schools. For 2004-05, 20 applicants to Miami declared Botany as their major, and I followed up with a personal letter and invitation to visit, and included additional information on the success and career paths of our graduates. And we have representatives and literature at all university-sponsored majors fairs and open houses for accepted students.

The remaining 2/3 of our undergraduates choose Botany as their major or co-major following their 1st or 2nd (sometimes 3rd) year at Miami, often after taking Introductory Biology (team-taught by the three life science departments) or General Botany. More

than 1200 students take Introductory Biology each semester, and we try to put our best Graduate Teaching Assistants into these laboratories since they are often very effective at recruiting. We actively attempt to capture the undeclared biological science students at the end of each term in Introductory Biology classes and many botany courses by providing forms to all students to direct them to a specific Botany advisor. We have just begun tracking the precise source of these majors, so we don't yet have definitive data on particularly enlightening courses or faculty, however, a large number come from the Middletown campus, historically and presently. We are also developing a series of informational brochures for University and College level academic advisors that channel undeclared students into Botany (such as genetics, biotechnology, environmental science) who may not otherwise be aware of it as a track. A few students transfer in from other universities, which also may be related to our high profile in Botany. We also host a variety of venues for interaction among faculty, graduate students, majors, and undecided/undeclared undergraduates, such as picnics, special seminars, and opportunities to meet in small groups with guests from industry and academia to discuss career choices over pizza. We allow for flexibility in course requirements since the majority of our majors make this decision in their 2nd or 3rd year and may not otherwise do so if they were to lose significant time toward their degree. At the freshman level we require either 1) two semesters of Introductory Biology, or 2) General Botany plus one semester of either Introductory Biology or Zoology. This allows for students to enter the program as a Botany major via two routes: 1) as an incoming freshman, or 2) as continuing or transfer students in their 2nd or 3rd year from different or undeclared majors, or if they choose Botany as a second (i.e., double) major. While transfer students don't lose time at the freshman level, it results in students having different backgrounds that are either

PLANT SCIENCE BULLETIN

Editorial Committee for Volume 49

James E. Mickle (2004)
Department of Botany
North Carolina State University
Raleigh, NC 27695-7612
james_mickle@ncsu.edu

Andrew W. Douglas (2005)
Department of Biology
University of Mississippi
University, MS 38677
adouglas@olemiss.edu

Douglas W. Darnowski (2006)
Department of Biology
Indiana University Southeast
New Albany, IN 47150
ddarnowski2@ius.edu

Andrea D. Wolfe (2007)
Department of EEOB
1735 Neil Ave., OSU
Columbus, OH 43210-1293
wolfe.205@osu.edu

Samuel Hammer (2008)
College of General Studies
Boston University
Boston, MA 02215
cladonia@bu.edu

strong in concepts with little botanical knowledge, or strong botanical backgrounds that are weaker in concepts. To ensure that they are prepared for upper level courses with minimal redundancy, we have two sophomore level courses that all majors are required to take to bridge the gap, which include Plant Evolution and Diversity (populations to ecosystems) and Plant Cell and Molecular Biology. Students can take a track that leads to one of four undergraduate degrees in Botany at Miami: 1) B.A. (a broad or liberal curriculum), 2) B.S. (emphasis on sciences), or 3-4) B.A. or B.S. with Environmental Science emphasis (strong in ecology). These various undergraduate degree programs allow additional flexibility in coursework preparation. We also have a cooperative program with the DUKE School of Forestry that results in a B.S. in Botany with an Environmental Emphasis from Miami and an M.A. or M.S. in Forestry or Environmental Management from DUKE. The University also offers a co-major in Environmental Science, with many students choosing Botany as their co-major. Double majors often co-major in Botany with Zoology, Geography, or Chemistry as second majors, but also sometimes in Business or Economics. We also offer minors in horticulture and molecular biology. A University-wide undergraduate requirement is a thematic sequence outside of the major that is comprised of 3-4 related courses, such as ecology or conservation. Sometimes students utilize a thematic sequence as a stepping stone to either a minor in Botany or to change majors or double major.

We offer a number of core courses at the undergraduate level including morphology, anatomy, taxonomy, ecology, physiology, plant and fungal diversity, genetics, and development, in addition to biotechnology, horticulture, viticulture, and economic botany, among others. Literally all of our courses have a laboratory component or a separate lab section that is required. Many courses are cross-listed with Zoology and/or Microbiology including genetics, cell biology, environmental science, conservation biology, environmental education, ecology; or with Geography including plant geography and vegetation of North America. Undergraduates in good standing can also petition to take graduate courses. Almost all of our students take at least one field course, often more. These are offered annually in the Bahamas and Kenya, and frequently in Nova Scotia, Belize, and Peru.

The majority of undergraduates conduct laboratory research with at least one faculty member, often working closely with a graduate student mentor. We typically mentor 50 undergraduate research projects per year. These students frequently make presentations at meetings, and are co-authors on

resulting publications. Miami has several mechanisms for summer research internships and scholarship programs that provide students with respectable summer stipends (\$2000-3000 for one 10 week period per summer), 11-12 credit hours, and a modest professional allowance (\$500-750) to the faculty mentor to be used at his or her discretion to support activities for their own research programs. The University also has grant and scholarship programs that allow students to receive funds for supplies and materials, as well as professional expense accounts for faculty who mentor students. Further, the Graduate School has programs to foster research interaction between undergraduate and graduate students that includes monetary incentives for the grad student mentor and a supply budget for the undergraduate. Thus there are many, many resources available for undergraduate research at the departmental, college, and university levels. Lastly, our faculty are expected to mentor undergraduate researchers, and most, if not all, find this to be one of their most rewarding duties.

We strongly believe that the combination of classroom, laboratory, field, and research experiences available to our students directly results in them having broad backgrounds that makes them highly marketable on the job market and to graduate or professional schools. We also believe that our flexible and multiple degree programs make our department attractive. Additionally, all of our faculty are committed to teaching at all levels with each core faculty member regularly teaching at the freshman level thus limiting temporary faculty in these courses. Further, we believe that a proactive approach to recruiting is essential to maintaining our number of majors.

Miami has ten Ph.D. programs, with five in the sciences. Botany has approximately 35 graduate students in residence, about half of which are master's (M.S., M.A.) and half are doctoral (Ph.D.) students. Botany graduate students may also opt to obtain an interdisciplinary graduate degree or certification in Ecology or Molecular Biology, respectively. The M.A. is the only non-thesis graduate degree that requires a full-time 4-6 months internship in the plant sciences at an appropriate agency with a final report submitted to the Botany Department. The M.S. and Ph.D. are research degrees. M.S. students are required to take at least one graduate course in two of three areas, while Ph.D. students are required to take at least one graduate course in all three areas. M.S. students are required to take at least three graduate courses at Miami, while Ph.D. students are required to take six. Both degrees require both written and oral examinations, and an oral defense of the thesis or

dissertation. A student may bypass the M.S. and pursue a Ph.D. directly if there is evidence of academic excellence based on coursework and/or comprehensive exams, research productivity including publication, and 30 graduate credit hours completed.

We generally have approximately 100 applicants each year to our graduate program and usually admit 5-12, depending on the number of open slots resulting as students graduate. Most are supported on Teaching Assistantships, however several are supported on either Research Assistantships or Fellowships. Virtually, all of our graduate students are supported by the University, and for a student to enter the program without support is strongly discouraged and only considered on a case-by-case basis. Graduate courses offered include Taxonomy, Systematics, Biotechnology, Morphology, Anatomy, Physiology, and Mycology. Courses cross-listed and team-taught with Zoology and Microbiology include Community and Population Ecology, Ecosystem Ecology, Molecular Biology, Cell Biology, Electron Microscopy, and Instrumentation. Students take a variety of laboratory and field-oriented field courses depending on their background and area of specialization. The Botany Department has a sizeable research grant program to which students may submit research proposals and receive funding after peer review. This results in our students being able to think very broadly and not be constrained to conduct research of their major professor's funded research.

The facilities at Miami University are extraordinary and include the Willard Herbarium of over 500,000 specimens; an Electron Microscope Facility with TEM, SEM, and Confocal Microscopy and Imaging; the Center for Bioinformatics and Functional Genomics which has equipment such as DNA sequencers, a microarray reader, and computer servers and clusters for bioinformatics; and Greenhouses and growth chambers for live plant research. Our philosophy is that students must be trained in these technologies and utilize the instrumentation themselves under initial supervision. Thus, facility staff are geared toward teaching and training of users, rather than preparing and running samples for researchers. This also means that each facility is able to keep user costs to a minimum.

Thus far, we have been lucky that no administrators have strongly advocated for a merger with Zoology and Microbiology to form a larger Biology Department or Division. We reinforce the idea that the distinction among the three Life Science departments is our identity, that Biology Departments are a dime a dozen while we remain a premier Botany

department. We cooperate with the other life science departments and associated museums to maintain a shared vision. We advocate the concept of quality over quantity to the administration with regards to the success of our graduates, with a nearly 100% job placement in the profession or acceptance into graduate or professional schools within 6 months of graduation. We also manage to carry our relative weight in comparison to the Zoology and Microbiology Departments with regards to research funding and publication rates, despite the fact that there are fewer sources of funding for plant biology in general especially in the absence of an agricultural unit on campus. In summary, we believe that we have an excellent Botany Department because we are able to maintain a respectable number of undergraduate majors through a variety of programs and opportunities available that results in highly marketable graduates, a highly competitive graduate program where students conduct and present research the world over, a committed and hard-working faculty who excel in teaching and research, and a supportive administration that recognizes the importance of quality over quantity. We realize we are more fortunate than many departments and that we cannot take credit for some circumstance and serendipity that may have contributed to our success and longevity. Nonetheless, we will continue to work proactively to maintain a strong department by providing diverse experiences for and many options to our students, proactively recruiting especially at the undergraduate level, and remaining productive in scholarship and effective in teaching.

—submitted by Linda E. Watson, Professor and Chair of Botany, Miami University



The dioecious Coyote Brush, *Baccharis pilularis* var. *consanguinea*, is a somewhat non-descript shrub most of the year, yet when in bloom can be quite interesting. Its pistillate flowers have fluffy white plumes when its fruits are mature, giving it a local nickname of "Mrs. Fuzzy-Wuzzy." The staminate flowers of "Mr. Fuzzy-Wuzzy" have prominent round, pollen-bearing anthers. Their gender can be easily determined in the Fall, as "Mrs. Fuzzy-Wuzzy" has powder-puffs, while "Mr. Fuzzy-Wuzzy" has little yellow balls.

Charles E. Blair

News from the Society



Eugenie Scott Keynote Address Educational Forum Botanical Society of America Snowbird, UT July 31, 2004

Eugenie Scott, Executive Director of the National Center for Science Education, presented the keynote address for the Educational Forum of the BSA, "*Just When You Thought It Was Safe To Teach Evolution...*"

Scott began by explaining that creationism continues to be a real problem in science education. Statewide threats to evolution education occurred last year in four states, and there were local threats in many more. The United States stands out among industrialized countries in this regard: acceptance of human evolution in the US is only half that in many European countries. Path analysis indicates that religious conservatism explains the majority of creationist beliefs. Political affiliation has almost no effect on acceptance vs. rejection of evolution, among Americans in general, although as one audience member noted, there can be local exceptions such as politicians in Oklahoma that split right down party lines on evolution education. Because school boards and other officials fear the furor of creationist citizens, evolution often gets left out of museums and curricula. Scott noted the irony that more evolution is taught in Catholic schools than in many public schools.

Scott outlined the history of creationist threats to evolution education in America. The first period was the attempt to ban evolution teaching, as epitomized in the Scopes trial. The second period was the post-Sputnik era when, in response to renewed evolution education in textbooks such as those from BSCS, creationists invented a secular version of creationism called creation-science. This approach was shown most famously to be religion in disguise by the Arkansas decision in 1982. This led to the

third period, neocreationism, with its current expression in Intelligent Design (ID). Many scientists, including some who are quite religious (see www.asa3.org and resources at www.ncseweb.org for examples), have objected to ID because it defines some phenomena as fundamentally impossible to explain by naturalistic means. She explained the flaws in many of the ID arguments.

Scott explained how we got to our current situation. First, America has no established religion, and is the world capital of little independent denominations. Second, we have had decentralized education (e.g. school boards) from the beginning. Third, 30-40% of science teachers in seven states agreed that creationism should have equal time, which goes along with the American concept of fairness. Although fairness is good in itself, scientific truth is not democratic; most scientists would prefer Lamarckism, which seems so much fairer than natural selection, but it just is not true.

Scott signed copies of her new book, *Evolution vs. Creationism: An Introduction* (Greenwood Press, 2004).

Summary by Stanley Rice, Southeastern Oklahoma State University (srice@sosu.edu).

Rita R. Colwell BSA Plenary Address Snowbird, UT August 1, 2004

Rita Colwell, who served as NSF Director from 1998-2004, presented the plenary address of the BSA meeting, "*Organismal Biology in Prime Time.*"

The main thrust of Colwell's presentation was that you cannot study large and important phenomena from just a single perspective. When we study disease, we quickly discover that epidemiology is actually ecology and evolution. Mosquitoes spread malaria, so the study of diseases requires an understanding of their ecology, and their evolution, as they spread and adapt to new photoperiods. We needed to understand the ecology of rodents, and how their populations respond to the El Niño Southern Oscillation, in order to understand hantavirus epidemiology. The ecological and evolutionary approach is the only one that will work in coming to grips with the chronic wasting disease now spreading among wild mammals in the American west.

Colwell used an example from her own work with cholera bacteria (*Vibrio cholerae*). Cholera is not merely an engineering problem of "How do we eradicate it?" We will never eradicate cholera, and

must undertake the more complex task of learning how to control it. In order to understand how it is spread, we first had to understand its ecology: its adaptation to adhere to copepods also allows it to adhere to human intestinal walls. We also had to understand sociology: the study of how people used water in India allowed the development of a simple cloth-straining system that removed cholera from the water used in homes. No single scientific approach can work for important questions. Neither can these questions be approached by nations working separately, or by public and private sectors working separately.

Dr. Colwell began and ended with a plea for all of us to continue pushing for investment in basic science, in science education, and in public outreach. If the professional societies remain silent, how is the general public to know the difference between fringe and mainstream science? As it is now, even scientists in different disciplines cannot understand one another; how can the public? Colwell particularly emphasized the important role botanists will, or at least should, play in the future, since plants keep the world alive. This means that we must be willing to participate in the “rough and tumble” of government and industry. In order to get people to understand why our research is important, she said, why not form a lobby? We need, she said, a single loud voice.

Summary by Stanley Rice, Southeastern Oklahoma State University (srice@sosu.edu).

Complete transcripts of Dr. Scott's and Dr. Colwell's addresses are posted on the BSA web page at www.botany.org

Allison A. Snow

Address of the President Elect Botanical Society of America Banquet

Botany in the news: how to communicate the fruits of our research.

Keeping botany in the news is an excellent way to promote the goals of the Botanical Society of America and biologists worldwide. Even more important, we need to encourage greater scientific literacy among voters, politicians, and other decision makers. One facet of this effort is explaining our individual

research findings to the tax-paying public. As the incoming president of BSA, I'd like to share a few of my thoughts and experiences in this arena.

1. Why communication is important

As botanists, we continually need to publicize our research accomplishments in order to “justify our existence” in the eyes of administrators, federal agencies, and society as a whole. Every year, competition for research funds and new positions seems to get stiffer and stiffer, while academic departments are hiring fewer organismal biologists, and fewer students are learning basic botany. One way to address these problems is to do exciting research and make it understandable to the public. Whether you work at a small college, a university, or a museum, you are undoubtedly engaged in endeavors that the public should know about. This can be accomplished at a local level, as well as at a truly global level, by making use of the internet and the services of professional science writers.



2. Types of science writers

Most universities have staff writers who publicize scientific findings of their faculty, graduate students, and undergraduates. This kind of publicity often leads to feature stories in local newspapers, and it is an excellent way to promote botany at a local level. If a public-relations writer thinks your work is intriguing and important, he/she may issue a university press release that is available to science writers worldwide. To reach a very large audience, you need to be recognized by science writers who work for agencies such as the Associated Press, Reuters, USA Today, the New York Times, Science News, Discover, Science, or Nature. When your work is featured in one of these high-profile outlets, it is likely to be picked up by other science writers and “recycled” repeatedly in many different venues.

Some science writers specialize in areas such as medical or environmental topics, while others cover a huge range of subjects, making it is impossible for them to gain a very deep understanding of botany. This is why it's important to explain the highlights of your work in accessible, non-technical language.

3. What high-profile science writers are seeking

Reporters need an event to justify writing about your research, such as a new publication or a talk at a national meeting. Obviously, papers that appear in *Science*, *Nature*, and the *Proceedings of the National Academy of Sciences* are inherently newsworthy, as long as science writers can figure out how to translate them into engaging news stories. These types of papers are highly original and they often address topics of fairly broad interest. However, many other journals publish equally interesting and important findings, but their news-stories-in-waiting often escape the notice of professional science writers. Once in long while, articles in journals like the *American Journal of Botany* are described in the news pages of *Science* or *Nature* - this could happen more often if authors would promote their research findings more actively.

For gaining recognition, the best situation is to be able to say that you have demonstrated "such-and-such" for the first time, so you can refer to it as a new discovery. It also helps if you happen to work with a system that has inherent public appeal, like plant sex, carnivorous plants, or topics that directly affect people (in my case, GMOs). Even if your findings do not have earthshaking implications for society, there may be angles that the public would appreciate knowing about. People are fascinated by exotic field sites, believe-it-or-not features of plants (biggest, oldest, smelliest, most endangered, etc.), and anything that is entertaining or dangerous. For example, BSA member Lena Struwe, at Rutgers University, received a lot of publicity for publishing a "Potter-esque" name for a new species of Ecuadorian gentian (see www.eurekalert.org/pub_releases/2003-06/rtsu-hpa062303.php).

4. How to help if you're contacted

Whatever you do, don't panic if a news reporter calls you up! Scientists have a natural aversion to oversimplifying complicated results for public consumption. We also worry about what our colleagues will think if reporters misquote us or use unflattering sound bites. My research on the ecological and evolutionary effects of transgenic crops is relevant to debates about genetic engineering, and I have had both positive and negative experiences when journalists report my

findings. Some of the lessons I've learned are: journalists like talking to friendly academics; most reporters are conscientious, curious, and fun to work with; simple explanations, humor, and metaphors make their job much easier; reporters often work on unbelievably tight deadlines; and, finally, news reports are ephemeral, and it's not worth agonizing over the inevitable inaccuracies that creep into the media. To make your findings more user-friendly, pretend that you are talking to a friend, a relative, or a group of wide-eyed undergraduates, even though you know full well that your words may be broadcast widely! Don't expect to be able to edit what a reporter has written. There usually isn't enough time for this, although sometimes you will be asked to fact-check a news story in advance.

One of my favorite sources of science news is the online publication of the American Association for the Advancement of Science (AAAS), which is available to subscribers at <http://sciencenow.sciencemag.org>. The science writers at AAAS are especially good at distilling the important elements of new publications into concise, accurate, and interesting single-page stories. Have a look at their website if you'd like to see how clever they are. In any case, it's a good idea to read science news on a regular basis to see how specialized, jargon-rich journal articles can be translated into everyday English. These stories are also great for teaching undergraduates about what botanists do.

In conclusion, we all know the many ways in which botanists constantly make important contributions to society and the welfare of the planet. Communicating these findings to the public is always worthwhile, and is easier and more satisfying than many people realize.

Acknowledgements- I thank the Aldo Leopold Leadership Program (<http://www.leopoldleadership.org/content/index.jsp>) for their crash-course in working with the media, and the many science writers who have contacted me over the past few years, including Holly Wagner at Ohio State University. I especially appreciate the advice I received from Virginia Gewin (*Nature*, PLoS, free-lancer), Carol Kaesuk Yoon (*NY Times*), Edie Lau (*Sacramento Bee*), Susan Milius (*Science News*), and Erik Stokstad (*Science*) while preparing this essay. Ohio State University has been very supportive of my public service and outreach activities. Finally, I thank the BSA membership for the opportunity to promote scientific literacy while serving as your president!

Department of Evolution, Ecology, and Organismal Biology,
Ohio State University, Columbus, OH 43210.
snow.1@osu.edu

The Botanical Society of America's 2004 MERIT AWARDS



James (Jim) Seago, SUNY Oswego

Harry (Jack) Horner, Iowa State University

note: For a complete listing of awards presented at the annual meeting, see the BSA web site: www.botany.org

BOTANICAL SOCIETY OF AMERICA'S 2004 GRADUATE STUDENT RESEARCH AWARDS.

The purpose of these awards are to support and promote graduate student research in the botanical sciences.

J. S. KARLING GRADUATE STUDENT RESEARCH AWARD

Krissa A. Skogen - "Understanding declines in *Desmodium cuspidatum* (Fabaceae)"

GRADUATE STUDENT RESEARCH AWARDS

Orlando Alvarez-Fuentes - "The Biogeography of *Thelypteris* Subgenus *Amauropelta*"

Monica Arakaki - "Systematics and population genetics of the genus *Haageocereus* Cactaceae"

Heather Driscoll - "Evolutionary origins and biogeographic relationships of Hawaiian *Polystichum*"

Cecile Gueidan - "Molecular phylogeny of the Verrucariales"

Christopher T. Martine - "The evolution and natural history of sexual systems in the endangered nightshades"

Abraham J. Miller-Rushing - "Is Thoreau's Data Still Hot?"

Darin S. Penneys - "Phlogeny and Character Evolution in the Neotropical, Epiphytic *Blakeeae*"

Joey Shaw - "Toward an Understanding of the North American Plums"

Juan Carlos Villarreal - "Contributions of the Resolution of the Phylogeny of Hornworts"

The Botanical Society of America's 2004 YOUNG BOTANIST AWARDS Recipients

A. Certificate of Special Achievement

Bone, Tiffany	Southern Illinois University, Carbondale
Brown, Matthew R.	California State University, Chico
Coleman, Christina	Auburn University
Cunningham, Jason	Eastern Illinois University
Guillot, Monica (Nickki)	Drake University
Hudson, Patrick	Truman State University
Kluger, Emily	Muhlenberg College
Lofflin, Diana	Willamette University
Miesner, Jolene M.	Truman State University
Moore, Abigail J.	University of Utah
Shepard, Anderson	Colorado College
Steiner, Claire	Miami University, Ohio
Valente, Matthew	Auburn University
Vary, Laura B.	Vassar College
Walsh, Karen C.	University of Wisconsin
Youngstrom, Sarah Elizabeth	University of Missouri-Columbia

also: 2003 Special Achievement Awardee omitted from last year's recognition.

Peters, Melinda D James Madison University

B. Certificate of Recognition

Alsop, Sarah	Southern Illinois University, Carbondale
Carter, Lee Ellen	Central High School, Macon GA
Gregorich, Michele M.	Chatham College
Hrenko, Rikki L.	Miami University, Ohio
Lees, Eric	Southern Illinois University, Carbondale

New BSA Corresponding Member.

Professor Hugh G. Dickinson - University of Oxford, Department of Plant Sciences, Oxford, United Kingdom

In the basic biology of sexual plant reproduction, few have made the contributions that Professor Hugh G. Dickinson has. Professor Dickinson's contributions have centered on the biology of pollen and its interaction with the gynoecium. His current position is Sherardian Professor of Botany, Keeper of the Botanic Garden, and Professorial Fellow of



Magdalen College at University of Oxford. He received his degrees from the University of Birmingham from baccalaureate to Ph.D. with Professor John Heslop-Harrison, a later D.Sc. and did postdoctoral work at University College, London and the University of Wisconsin with Professor Heslop-Harrison. From 1972 to 1991, he worked at University of Reading progressing through the ranks from Lecturer to Head. He moved to University of Oxford in 1991 to his current position, where he has maintained an active and well funded program.

Professor Dickinson's early work included some of the first ultrastructural investigations of pollen sporocyte meiosis, the early events of incompatibility, stigma types and competition strategies. He presented novel and creative ideas on cytoplasmic restructuring during meiosis, which are as dramatic as events in the nucleus. He pursued pioneering studies on self-incompatibility that revealed the sites of action, localization, biochemistry and control of molecules involved with sporophytic self-incompatibility, including some of the most elegant single pollen grain experiments done illustrating the speed and control of action of

self-incompatibility in the grasses. He has also examined the effect of parent-of-origin questions regarding the genetic construction of the endosperm using novel experimental methods, addressing the questions of epigenetic modification and paternal silencing. His current interests include male germline development and meiosis in *Arabidopsis thaliana* and parent-of-origin imprinting of endosperm genes in maize and *Arabidopsis*. According to ISI's Science Citation Index, his work has been cited over 3,800 times in the open literature, which is quite a remarkable achievement. He is currently one of the speakers at this year's plenary symposium, and I am hoping that he will participate with us at future meetings as a **corresponding member**.

In Memoriam:

Alicia Lourteig, 1913-2003

Professor Lourteig, corresponding member of the Botanical Society of America during the past two decades, passed away on 30 July, 2003. Born on December 17, 1913 in Buenos Aires, she received her bachelor's degree, diploma in pharmacy, and Doctorate in Biochemistry and Pharmacie from the Faculty of Medical Sciences of Buenos Aires. After 17 years at the Institute Miguel Lillo a Tucuman and the Institut Darwinion (both in Argentina) she was brought to the Museum National d'Histoire Naturelle, Paris, in 1955 to manage the New World collections where she spent the remainder of her prolific career. Among her many awards was the Millennium Award presented at the XVI International Botanical Congress. With more than 200 scientific publications, she specialized in the Ranunculaceae, Lythraceae, and Oxalidaceae.

An obituary may be found in *Adansonia* ser. 3. 2003. 25(2):149-150 also available on-line at: <http://www.mnhn.fr/publication/adanson/a03n2a0.pdf>



Letters

Dear Editor

I am writing in response to the letter from Bill Stern about spirit collections (in PSB Volume 50, no.2). I am the spirit collection manager at the Royal Botanic Gardens, Kew and would like to take this opportunity to give a clear account of the practices used here.

Plant material is fixed and stored in what we call 'Kew Mix'. This mixture contains 53% industrial methylated spirit (98/99% total alcohols), 37% water, 5% formaldehyde solution (38%w/w) and 5% glycerol.

The formaldehyde is a 'true' fixative, forming covalent bonds between the molecules composing the tissue (unlike alcohols, which simply disorder the protein and alter patterns of hydrogen bonding). The use of formaldehyde should preserve the tissue in the best way possible for many studies (including cytological ones). Glycerol is also an important addition as it helps to prevent the material from becoming brittle.

Our staff are experienced in the collection of spirit material, and have helped to build up a high quality collection of specimens, which is a valuable resource for the many scientists from around the world that use it. It was therefore surprising to hear that Bill Stern did not find our specimens were of value for his studies. Much of our material is collected in the field, where the ideal chemicals are not always readily available – and hence other spirit mixes may be used for the initial collection. This could explain why some of our material was not deemed appropriate for detailed tissue studies. It is certainly not a case of going for a 'cheaper' option.

The collection was set up in 1930, with the intention of aiding taxonomic studies. We welcome people to use the collection for any other types of studies and are pleased to receive any comments on how we can make the material of more value for them (as long as this is not to the detriment of taxonomic requirements).

It is also important to consider the toxicity of the materials involved, which might explain why some spirit collections prefer not to use formaldehyde/glacial acetic acid. Due to the toxicity of formaldehyde, we transfer specimens to another mix before they are removed for study ('Copenhagen Mix': 70% industrial methylated spirit, 28% water, 2% glycerol).

For further information about the Kew spirit collection, please contact spiritcollection@kew.org. Data for the 67,000+ specimens are held in the

Herbarium Catalogue database, which can be searched using ePIC at <http://www.kew.org/searchepic/searchpage.do>

Emma Tredwell
Spirit Collection Manager
Royal Botanic Gardens, Kew
<http://www.kew.org/collections/spiritcol.html>

Announcements

HARVARD UNIVERSITY

BULLARD FELLOWSHIPS IN FOREST RESEARCH

Each year Harvard University awards a limited number of Bullard Fellowships to individuals in biological, social, physical and political sciences to promote advanced study, research or integration of subjects pertaining to forested ecosystems. The fellowships, which include stipends up to \$40,000, are intended to provide individuals in mid-career with an opportunity to utilize the resources and to interact with personnel in any department within Harvard University in order to develop their own scientific and professional growth. In recent years Bullard Fellows have been associated with the Harvard Forest, Department of Organismic and Evolutionary Biology and the J. F. Kennedy School of Government and have worked in areas of ecology, forest management, policy and conservation. Fellowships are available for periods ranging from six months to one year and may begin any time after September 1st. Applications from international scientists, women and minorities are encouraged. Fellowships are not intended for graduate students or recent post-doctoral candidates. Information and application instructions are available on the Harvard Forest web site (<http://harvardforest.fas.harvard.edu>). For additional information contact: Committee on the Charles Bullard Fund for Forest Research, Harvard University, Harvard Forest, P. O. Box 68, Petersham, MA 01366 USA or email (hfapps@fas.harvard.edu). Annual deadline for applications is February 1st.

Botany References Available

The PA Dept. of Agriculture recently discarded several boxes of botany references dating from the late 19th and early 20th centuries. A friend of mine who works there rescued them to my care so that I could find them a new home. They comprise three series.

American Journal of Botany, 14 1/2 volumes, starting with Vol. 1 (1914): 1, 2, 4-12, 14, 15(1-3), 19, 20.

The North American Flora: 12 volumes.

Natuerliche Pflanzenfamilien: 20 volumes (part of the cover of the spine is worn off in a few of these; in general all of the above volumes are in good condition).

Of course I want no money for these volumes if they are donated to a university, research institute, or public library—except the cost of shipping. However, “my” university (Shippensburg) has shipped items like these for me in the past (e.g. recent sets of biology journals to Asia), so there would possibly be no cost.

My question to you is: would it be appropriate to “run this ad” in the Plant Science Bulletin? I would like to do so if possible.

An alternative would be for me to contact the used book dealers in Shippensburg. I would transfer the proceeds to the PA Wild Resource Conservation Fund.

Thank you for considering this matter.

Sincerely,
Larry Klotz, Ph.D. (member of BSA)
Dept. of Biology
Shippensburg University
1871 Old Main Drive
Shippensburg, PA 17257
tel. 717-477-1402

International Society of Environmental Botanists, NBRI Campus, Lucknow, INDIA

<isebnrilko@satyam.net.in>; <kjahmad@sanchamnet.in>

You are invited to visit the newly created website of International Society of Environmental Botanists, Lucknow, India at:

<http://www.geocities.com/isebindia/index.html>

Regards
K.J.AHMAD
Secretary, I.S.E.B

BROOKLYN BOTANIC GARDEN LAUNCHES PREMIER ISSUE OF *URBAN HABITATS* ELECTRONIC JOURNAL *Focus on current research on biology of urban areas* Peer-reviewed, fully indexed scientific journal welcomes submissions

Brooklyn, NY—May 20, 2004—Brooklyn Botanic Garden (BBG) announces the premier issue of *Urban Habitats*, a new electronic journal that focuses on current research on the biology of urban areas. Papers cover a range of related subject areas, including urban botany, conservation biology, wildlife and vegetation management in urban areas, urban ecology, restoration of urban habitats, landscape ecology and urban design, urban soils, bioplanning in metropolitan regions, and the natural history of cities around the world.

BBG has a long and distinguished history of publishing scientific works, including both the *American Journal of Botany* and *Ecology* for the first 20 years of publication. *Urban Habitats* is a peer-reviewed, fully indexed scientific journal, written and edited for a wide audience of researchers, restoration ecologists, park and preserve managers, government officials and naturalists.

Dr. Steven Clemants, vice president for Science, Brooklyn Botanic Garden, and codirector, Center for Urban Restoration Ecology, is co-editor. “Urban areas are often overlooked as important habitats for plants and wildlife. We feel there is a global need to increase awareness and interest in urban habitats. To make this knowledge available to science professionals, educators, policymakers, and the general public, we have taken advantage of our long experience in publishing and the incredible opportunities for dissemination globally via the Web to launch *Urban Habitats*,” he says. The journal is published by the Center for Urban Restoration Ecology, a collaboration between Rutgers University and Brooklyn Botanic Garden.

“We are particularly interested in featuring papers that take advantage of the unique possibilities of the e-journal format, such as color illustrations, animated models, video, sound, downloadable databases and interactive discussions,” Dr. Clemants explains. Articles are welcomed from scientists, scholars, and practitioners in urban

habitat restoration, conservation biology, urban botany, landscape architecture and design, and other fields concerning urban ecology.

Janet Marinelli, co-editor of *Urban Habitats* and director of Publishing, Brooklyn Botanic Garden, and Member of the Steering Committee, Center for Urban Restoration Ecology, says of the new publication, "We're publishing studies covering cities from Brooklyn to Beijing." Marinelli adds, "For the first time, more people live in cities than in rural areas worldwide, and urban areas are growing fast. Cities are the future of this planet. In *Urban Habitats*, we're exploring their evolution and ecological potential."

The premier issue of *Urban Habitats*, a peer-reviewed journal on the biology of urban areas, presents "Urban Floras," Volume 1, Number 1, December 2003. The e-journal is available free of charge at www.urbanhabitats.org.

Papers include the following topics:

Patterns of Species Diversity in Eight Northeastern United States Cities In this paper, the native and nonnative floras of Boston, New York, Philadelphia, Washington, D.C., Detroit, Chicago, Minneapolis, and St. Louis urban areas are compared and overall native diversity and nonnative diversity are correlated with a variety of factors. Highlights show a contrast with past research on native species demonstrating a strong correlation of native species richness with latitude and elevations, due to climatic differences present at different latitudes and elevations. **Authors:** Steven E. Clemants and Gerry Moore, Brooklyn Botanic Garden, Brooklyn, N.Y.

An Overview of the New York Metropolitan Flora Project This paper provides an overview of Brooklyn Botanic Garden's New York Metropolitan Flora Project. Previous efforts to document the flora of the New York metropolitan region are reviewed, including the contributions of many notable botanists, institutions, and groups. The paper highlights the two major trends that are found in the flora: the decline of native species and the spread of nonnative plants. **Authors:** Gerry Moore, Angela Steward, Steven E. Clemants, Steven Glenn, and Jinshuang Ma, Brooklyn Botanic Garden, Brooklyn, N.Y.

A Short Bibliography of Urban Floras A list of urban floras from around the world, in alphabetical order by city. **Author:** Steven E. Clemants, Brooklyn Botanic Garden, Brooklyn, N.Y.

Flora of Beijing: An Overview and Suggestions for Future Research The current *Flora of Beijing* is reviewed, especially from the perspective of the standards of modern urban floras in western countries. The geography, land-use and population patterns, and vegetation of Beijing are discussed, as well as the history of *Flora of Beijing*. **Authors:** Jinshuang Ma, Brooklyn Botanic Garden, Brooklyn, N.Y., and Quanru Liu, Beijing Normal University, Beijing, China.

The Nonnative Flora of the Kyiv (Kiev) Urban Area, Ukraine: A Checklist and Brief Analysis This paper presents an annotated checklist of nonnative flora of the city and suburbs of Kiev. **Authors:** Sergei L. Mosyakin and Oksana G. Yavorska, Kyiv (Kiev), Ukraine.

The Effects of Climate Change on the Vegetation of Central European Cities Since the 1850s, the effects of global warming have been anticipated by the rise of temperature in many big cities. In addition, vegetation changes in central European cities have been well documented. This paper begins by exploring the changing urban distribution of some ruderal herbaceous species, then discusses changes in distribution and physiological changes in tree and shrub species in response to this rise in temperature. **Authors:** Herbert Sukopp, Berlin, Germany, and Angelica Wurzel, Bonn, Germany.

Ruderalization in a Roman Park as a Result of Changing Management Rome has one of the best open-space systems in Europe, and the Parco Urbano del Pineto is among its crown jewels. The 250-hectare park is among the city's last extensive undeveloped areas and has one of the most diverse floras in Rome. The paper compares studies conducted over a ten-year period of the vegetation in one-hectare quadrates in the park. Both reforestation and ruderalization will likely lead to a loss of biodiversity in the years ahead as important habitats and species niches are lost. **Authors:** P.M. Bianco, G. Fanelli, P. Tescarollo, and S. Pignatti, Rome.

A Reconstruction of the Flora and Vegetation in the Central Area of Early Medieval Kyiv, Ukraine, Based on the Results of Palynological Investigations This paper provides a partial reconstruction of the main features of the flora and vegetation of the central area of the city of Kiev, Ukraine, in early medieval times. The reconstruction is based on fossil spore and pollen samples. Highlights include new details and paleobotanical information on the anthropic factors influencing the formation of the urban flora and vegetation of ancient Kiev. **Authors:** Lyudmila G. Bezusko, Timur V. Bezusko, and Sergei L. Mosyakin, Ukraine.

Submissions to **Urban Habitats** should be e-mailed to the journal in the form of a cover letter that includes separate attachments for the article text, tables, charts, illustrations, photographs, and other material. *The article submitted must not be under consideration for publication elsewhere.* Upon acceptance by the journal, the author will receive a production schedule detailing edit, peer-review, rewrite, and final-approval deadlines. Prepublication of abstracts with authors' biographies will appear online approximately three months before the issue's electronic publication. For more details, log on to www.urbanhabitats.org.

Founded in 1910, Brooklyn Botanic Garden (BBG) is an independent nonprofit institution committed to education, research, and the display of horticulture. BBG serves communities in New York City and internationally through its world-class gardens, extensive research collections, publications, and numerous educational and community programs. Situated on 52 acres in the heart of the Brooklyn, the Garden is home to over 10,000 types of plants and hosts more than 750,000 visitors annually. For more information, call 718-623-7200.

**Brooklyn Botanic Garden
Florilegium Society:
Portraits of a Garden
At the Steinhardt Conservatory
Gallery
September 18–November 14**

Brooklyn, NY—June 3, 2004—Brooklyn Botanic Garden (BBG) unveils *Brooklyn Botanic Garden Florilegium Society: Portraits of a Garden*. The second annual exhibition of new drawings and paintings of plants based on the dazzling horticultural displays at the Garden, recognized as one of the world's leading urban botanic gardens, are on view Saturday, September 18 to Sunday, November 14 in the Steinhardt Conservatory Gallery.

Brooklyn Botanic Garden Florilegium Society, the first florilegium society in North America, held its debut exhibition a year ago. Modeled on the first florilegia published in Europe 400-hundred years ago to record the great gardens of Europe, this contemporary florilegium celebrates the glories of plants growing at Brooklyn Botanic Garden. The Florilegium Society's new exhibit, *Portraits of a Garden* features fifty original paintings and drawings in watercolor, gouache, acrylic, ink, and graphite pencil.

The botanical artists of the Society, who are among this country's most talented, are given strict parameters: they must draw from live plants represented in BBG's living collections. The specimens are selected by a team of collectors and Garden curators who choose plants that align with the artists' tastes and talents. Two chosen BBG specimens are cut—one for the BBG Herbarium and one for the artist. The plants from the collections are then carefully wrapped to preserve the plant and are shipped via overnight delivery to the artists who are located throughout the country. No backyard garden, florist or even other botanical garden plants are acceptable. The artists are responsible for producing work of complete botanical accuracy that characterizes traditional botanical art. Every illustration submission is accompanied by an artist's statement describing the flora and the background story on the art.

Brooklyn Botanic Garden Florilegium Society was founded in 2000 by Francesca Anderson, Gina Ingoglia, and Elizabeth Scholtz, Director Emeritus, Brooklyn Botanic Garden. The art is part of the permanent collection of the Library and is housed in the Rare Book Room. The curator is Patricia Jonas, Director of Library Services. The Society is dedicated to creating a unique document of Brooklyn Botanic Garden's living collections. With almost 100 works contributed to date, Florilegium Society members from near and far have made an impressive start on representing the more than 10,000 kinds of plants growing at Brooklyn Botanic Garden.

According to Jonas, "Each illustration is a revelation of how the creative spirit transforms and enlivens scientific observation—the quality that has made botanical art, antique and contemporary, in such demand today. There is a unique characteristic that personifies every botanical illustration that makes this genre such an enduring and seductive display of art," she added.

Founded in 1910, Brooklyn Botanic Garden (BBG) is an independent nonprofit institution committed to education, research, and the display of horticulture. BBG serves communities in New York City and internationally through its world-class gardens, extensive research collections, and numerous educational and community programs. Situated on 52 acres in the heart of Brooklyn, the Garden is home to over 10,000 types of plants and hosts more than 750,000 visitors annually.

Symposia, Conferences, Meetings



XVII INTERNATIONAL BOTANICAL CONGRESS

**Vienna, Austria, Europe
17-23 July, 2005**

**Nomenclature Section
12-16 July, 2005**

Dear Colleagues,

On behalf of the Organizing Committees we would like to extend a warm "Welcome to Vienna." You are cordially invited to participate in the XVII International Botanical Congress (Scientific sessions and Nomenclatural Section) during 12-23 July, 2005 in Vienna, Austria. As with previous International Botanical Congresses, this conference will emphasize the newest developments throughout the botanical sciences world-wide. There will also be an historical flavour to IBC Vienna 2005, as the second International Botanical Congress was held in Vienna in 1905, exactly 100 years ago.

The program of XVII IBC 2005 includes all aspects of basic and applied botanical research. Progress in the different sub-disciplines will be illustrated through plenary talks, general lectures, symposia, and poster sessions. Ample meeting space will be provided for specialized workshops, small group meetings, and ad-hoc discussions. There will also be a large exhibitor area including booksellers, publishers, laboratory equipment manufacturers, societies, etc., designed to demonstrate the newest products and applications in the botanical sciences.

The international character of IBC Vienna 2005 will help to broaden our scientific horizons and facilitate and strengthen personal contacts with colleagues throughout the world. Vienna is an international city and has long been a gateway between western and



eastern European countries. We especially encourage young scientists to participate, and toward this end, the registration fee for students has been kept as low as possible.

The scientific contents and significance of IBC Vienna 2005 are determined by contributions from the participants. These will result in a broad and remarkable diversity of specialized symposia, plus general lectures summarizing current and newly developing botanical frontiers. Opportunities also exist for visiting the many university facilities, libraries, and rich botanical collections throughout the city, as well as for participating in numerous field excursions in fascinating European destinations. We cordially invite you, therefore, to present your newest research results at this international forum and to interact with colleagues during discussions and coffee breaks. We also remind you to enjoy the wonderful city and surroundings of Vienna – the former capital of the large and elegant Habsburg monarchy, which was a major influence in Europe for more than 600 years. Now, after the fall of the Iron Curtain and the most recent accession of several countries to the European Union, Vienna continues to play an important role in Central European culture and politics.

Please visit our homepage <http://www.ibc2005.ac.at/> for detailed information and registration.

Above all, we wish you a stimulating, productive, and successful conference as well as a pleasant stay.

Sincerely yours
Marianne Popp
Michael Hesse
Johann Jurenitsch
Tod Stuessy



SECOND GLOBAL SUMMIT ON MEDICINAL AND AROMATIC PLANTS, October 25 – 29, 2004: NEW DELHI

Theme: "Prospects and Constraints in Cultivation, Production and Marketing of Medicinal Plants".

The Century Foundation, India had organized the First Global Summit on Medicinal Plants in Mauritius Island during September 2003 in order to attract medicinal plant experts to discuss the recent trends in the field of medicinal plants and importance of herbal medicine in the new millennium. The Summit was attended by participants from more than 20 countries and more than 100 research papers were presented during the event. At the concluding ceremony of the summit, it was decided to organize the Second Global Summit on Medicinal and Aromatic plants in New Delhi, India during 2004.

Plants have been a major source of medicine for human kind. As per the available information a total of at least 35000 plant species are widely used for medicinal purposes. The demand for traditional herbal medicine is increasing very rapidly mainly because of harmful effects of synthetic chemical drugs. The World Health Organization (WHO) estimated that 80% of the population of developing countries depend on traditional system of medicine, mostly plant based products for their primary health care. The global clamor for more herbal ingredients creates possibilities for the local cultivation of medicinal and aromatic crops as well as for the regulated and sustainable harvest of wild plants. Such endeavours could help raise more rural employment in the developing countries, boost commerce around the world and perhaps contribute to the health of millions.

The scheduled summit will be a forum where academicians, researchers, producers and personnel from industry share ideas, information and experiences, and as well as initiate collaborations and cooperation in the development of the world herbal industry. The event will explore the world's hopes and concerns for the potential of plant-based medicines and other alternative therapies.

We, on behalf of the Organizing Committee, take this opportunity to extend a warm invitation to you to attend this eventful Global summit in New Delhi, India from 25-29

October, 2004. However this is without any financial commitment on the part of the organizers.

Looking Forward to Meeting You All With warm Regards

Dr. V. Sivaram - President
Dr. Anita M - Organizing Secretary
C/o Century Foundation
35, 3rd Cross Road, Vignannagar,
Malleshpalya, Bangalore – 560075, INDIA
E.mail: confound@sparri.com
Telefax +91-(080)- 23219295, 25244592

Announcing Third International Conference on Plants & Environmental Pollution (ICPEP-3)

**Lucknow, India
November 2005**

(Exact date and schedule will be announced soon)

**Organized by
International Society of Environmental Botanists
(ISEB) & National Botanical Research Institute
(NBRI)**

To find more details about the Society, its activities and the proposed ICPEP-3 please visit official web site of ISEB.

<http://www.geocities.com/isebindia/index.html>

Contact:

**Dr. R.D. Tripathi & Dr. Kamla Kulshreshtha
(Organizing Secretaries ICPEP-3)**

National Botanical Research Institute
Rana Pratap Marg
Lucknow-226001, India.

E-mail : isebnbrilko@satyam.net.in

Phone : +91-522-2205831 to 35

Fax : +91-522-2205836 / 2205839

**We request your participation in the Conference
& solicit your help in giving wide publicity to this
event.**

Dr. K. J. Ahmad Secretary, ISEB

Dr. P. Pushpangadan President, ISEB & Director,
NBRI

Books Reviewed In this issue:

DEVELOPMENTAL AND STRUCTURAL

- Architectures de Plantes**, Halle, Francis - David W. Lee.....85
Keywords and Concepts in Evolutionary Developmental Biology. Hall, Brian K. and
 Wendy M. Olson (eds) - Marshall D. Sundberg.....86

ECOLOGICAL

- Invasive Plant Species of the World: A Reference Guide to Environmental Weeds**. Weber, E.
 -Scott Ruhren.....87

ECONOMIC BOTANY

- Flora: A Gardener's Encyclopedia**. Hogan, Sean. - Michael A. Vincent.....88
Folklore and Symbolism of Flowers, Plants and Trees. Lehner, Ernst and Johanna.
 -Douglas Darnowski.....90
The Interactive Manual and Photo-Library of Woody Landscape Plants. Dirr, Michael A.
 -Douglas Darnowski.....90

GENETICS

- Review of Transposable Elements: A Guide to the Perplexed and the Novice**. Galun, Esra.
 -Robynn K. Shannon.....91

PTERIDOLOGICAL

- Ferns for American Gardens**. Mickel, John T. - Kerry D. Heafner.....93

SYSTEMATICS

- Columbines: Aquilegia, Paraquilegia, and Semiaquilegia**. Nold, Robert. - Riser, James P. II.....94
Identification of Tropical Woody Plants in the Absence of Flowers: A Field Guide (2nd Ed.)
 Keller, Roland. - Fabian A. Michelangeli.....94
Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Gleason, Henry A.
 and Arthur Cronquist. - Tyler Smith.....96
Shrubs and Vines of New Jersey and the Mid-Atlantic States. Martine, C.T. and R.A. Figley.
 -Terry O'Brien.....97

Architectures de Plantes, Francis Hallé. 2004. Published by the author, available from Francis Hallé, 109 Avenue de Lodève, 34070 Montpellier, France, email: francishalle@wanadoo.fr. (ISBN 2-95213119-0-2, paperbound, \$70.00, shipping included). Francis Hallé is an eminent French botanist, recently retired from the University of Montpellier. He is known for his research and writing on plant architecture, that of tropical trees in particular. He has also initiated pioneering research on tropical rainforest canopies through the use of the canopy raft. Hallé was elected as a corresponding member of the Botanical Society of America for his accomplishments. The concept of tree architecture, of genetically programmed patterns of development consistently observed in individual species, was formalized by Hallé in the 1960's, based on previous research and his own extensive field observations, particularly in the tropics. The concept of reiteration, the repetition of the model inherent in each species due to environmentally-induced damage, was added by his associate Roelof Oldeman. Hallé's first monograph on tree architecture was published in French in 1970. Because of the greater variety of

architectural types in the tropics, tree architecture was of particular interest to specialists working there, and the book was translated into English by Benjamin Stone of the University of Malaya in 1975. The publication of the much more comprehensive book "Tropical Trees and Forests: an Architectural Analysis", by Hallé, Oldeman and Barry Tomlinson in 1978, spread the concepts of tree architecture and reiteration to a much wider audience. This book still is heavily cited by tropical specialists, but has been out of print for many years. Tree architecture continues to be a valuable concept, to inspire innovative research, but we no longer have easy access to the ideas of the original author. I personally use these concepts at all levels of teaching, from non-majors to graduate students. I have students read the article in *American Scientist* (1982) by Tomlinson which also discusses the elegant quantitative tree models published by Fisher and Honda, influenced by Hallé's writing. Adrian Bell's handsome book "Plant Form", published in 1991, also has a good introduction to tree architecture.

Hallé wrote the book under review with a different aim than the earlier ones, and its content and

organization reflect this approach. The earlier books provided the theoretical basis for the concept of models with full reference to the classical literature. They describe 21 discrete models of tree architecture, based on axis type and extension. These books are organized by the various models, with extensive descriptions of the species in different families that are examples of the models. The present book succinctly defines the concept of architecture and describes different architectural models. It more extensively documents a new model, of rhizomatous perennial plants, based on the work of his friend and colleague Adrian Bell. The book also reviews the research that has been published since the appearance of the 1978 book 26 years ago. The body of the book is a detailed description of the architectural models in a few selected families, and the organization is entirely systematic. Hallé's intent is to show the utility of architectural models in phylogenetic systematics. The book includes a total of 316 figures, all elegant drawings by Hallé that capture the growth forms of individual plants, for a total of 731 species of angiosperms and gymnosperms, comprising 36 families. Thirteen families are gymnosperms: two cycads, two in the Gnetophyta, Ginkgophyta, and 9 conifer families. Twenty three families are angiosperms, particularly among more primitive families. These include the basal angiosperm families Amborellaceae, Chloranthaceae and Illiciaceae, and 14 families in four orders of the Magnoliid complex. The description concludes with some key families in the Asterid Clade, particularly in the Ericales (Ericaceae, Lecythidaceae and Myrsinaceae), an extensive description of the Rubiaceae, and two monocot families, the Arecaceae and Pandanaceae. It is quite easy to compare the architectural patterns from these drawings, particularly with the straightforward symbolism and the use of red to denote the positions of reproductive structures. Thus, knowledge of French is not critical in identifying and comparing the architectural patterns within and among these families.

Hallé wrote and published this book at the beginning of still another revolution in plant systematics: the fusion of development, genetics and systematics, or "evo-devo". In almost all cases, architectural models within species are fixed, and presumably under genetic control. Ultimately, the aim of evo-devo is to reconcile the development of organs and form in plants with evolutionary systematics. A part of this research program will be to understand the evolution of architectural models from the standpoint of their genetic control, and it is important to appreciate the variation in plant architecture among key families of plants as a prelude to doing this research.

Thus, "Architecture de Plantes" is *not* a textbook about plant architecture. If it were (and if it were written in English) I would recommend it to all botanists. It is a monograph, primarily based on the personal field observations of the author, on the distribution of architectural models in a select and very interesting sample of families of seed plants. Those interested in the systematics and evolution of angiosperms, particularly in the integration of the evolution, development and systematics should purchase this book, and it should be in the libraries of universities with research programs in botany and allied plant sciences. Although not case-bound, the book is sturdily bound with a heavy paper cover, attractively printed on heavy coated stock, and is reasonably priced in comparison to other specialized books in the field. Architecture de Plantes is clearly not for everyone, but should be in your college or university library.

David W. Lee, Florida International University

LITERATURE CITED

- Bell, A.D. 1991. Plant form: an illustrated guide to flowering plant morphology. Oxford University Press, London.
- Hallé, F. and R.A.A. Oldeman. 1970. Essai sur l'architecture et la dynamique de croissance des arbres tropicaux. Masson, Paris.
- Hallé, F. and R.A.A. Oldeman. 1970. An essay on the architecture and dynamics of growth of tropical trees. Penerbit University Malaya, Kuala Lumpur (translated by B.C. Stone).
- Hallé, F., R.A.A. Oldeman and P.B. Tomlinson. 1978. Tropical trees and forests: an architectural analysis. Springer-Verlag, Heidelberg.
- Tomlinson, P.B. 1983. Tree architecture. *American Scientist* 71:141-149

Keywords and Concepts in Evolutionary Developmental Biology, Hall, Brian K. and Wendy M. Olson (eds). 2003. ISBN 0-674-00904-5 (Cloth, US\$59.95) 476pp. Harvard University Press, 79 Garden Street, Cambridge, MA, 02138. *Evolutionary Developmental Biology, Evo-Devo*, is an exciting recent trend in evolutionary thinking that combines tenants of the population genetics-based New Synthesis of the past half century with more recent concepts of cellular/molecular-based developmental biology. The editors have identified 50 keywords and concepts and invited experts in the field to contribute chapter essays to explain and illustrate the concepts. The chapters are arranged alphabetically from "Animal Phyla" through "Variation."

Not surprisingly, the focus of most chapters is on animal systems and only three chapters focus specifically on plants. In "Developmental Processes that Generate Plant Form, Tsvi Sachs provides a brief overview of plant development concentrating on meristems, indeterminate growth, and the totipotency of meristematic cells. He emphasizes that epigenetic forces are important in plant development and that "An essential characteristic of development that is self-correcting rather than programmed is that it is robust, and not readily perturbed ...". The chapter on "Evolution of Plant Body Plans and Allometry" by Karl Niklas reinforces the ecological advantages of phenotypic plasticity. After briefly describing the "type concept" of body plans, originally proposed for animals, he introduces phenotypic plasticity in plants and variations on the three basic plant body plans - - unicellular, colonial and multicellular. Niklas argues that because each of these plans follow the same allometric scaling rules over ten or more orders of magnitude, biophysical constraints must have a profound influence on evolution. Hong Ma, in his chapter "Homeotic Genes in Flowering Plants" summarizes our understanding of the interplay of floral meristem and organ identity genes.

Plant examples are at least mentioned in five additional chapters, usually because of their phenotypic plasticity under different environmental conditions, both external and internal. As many as 16 additional chapters will be of interest to botanists because of the universality of the topics covered. These include essays on "Constraint," "Growth," "Hierarchy," "Homology and Homoplasy," "Phenotype and Genotype," "Phylogeny," "Speciation," and "Variation."

As might be expected in a book with more than 60 contributors, there is some unevenness between chapters, particularly in the depth of coverage, but overall the editors did a good job of putting together a consistently readable informative collection. While the emphasis was on presenting our current level of understanding, I particularly appreciated the historical background many of the authors provided for their essay. I found myself making a list of books and articles to add to my list of things to be read! Researchers will find the book to be a useful review of research in related fields peripheral to their own work. For anyone teaching evolution, especially those who were trained in the "New Synthesis," this book is "must reading" in order to gain some insight into a new and vigorously growing subdiscipline of evolutionary thought. – Marshall D. Sundberg, Emporia State University

Invasive Plant Species of the World: A Reference Guide to Environmental Weeds. Weber, E. 2003. ISBN 0-85199-695-7 (cloth US\$) 548 pp. CABI Publishing, 44 Brattle Street, 4th Floor, Cambridge, MA 02138, USA. – The literature on invasive species continues to grow and shows no sign of stopping. There is valid concern for the dilemma posed by invasive plants. After habitat destruction, introduced species have had the second most negative influence on threatened and endangered species. I chose to review *Invasive Plant Species of the World: A Reference Guide to Environmental Weeds* because of the subject; Weber's book stands out because of its scope.

This is an encyclopedia of worldwide invasive plant species. After a brief yet informative introduction, the "450 major invasive plant species" are covered one species per page with the same format per page. Many publications dealing with biotic invasions prioritize the organisms with the greatest impact (e.g., Stein and Flack 1996). Instead, the species in *Invasive Plant Species of the World* are listed alphabetically by genus. The complete technical name with authorities and family comprise the title of each listing. This is followed by three categories identified with abbreviations: LF (life form), SN (synonyms) and CU (commercial use). Of course SN and CU may be blank for some species. Next, each plant is described in a table "Geographic Distribution" which in addition to six continents broken into regions also includes *Atlantic Islands*, *Indian Ocean Islands* and *Pacific Islands*. One complaint is the ambiguous symbols (a combination of letters and symbols actually) used in the distribution tables. Unless used frequently, I found myself referring back to the key at the beginning of the book to decipher what I was reading. The rest of the species-by-species treatments are written, concise summaries with logical headings. "Invaded Habitats" is a short phrase describing just that. The "Description" is technical without being too dense; a basic botanical dictionary could help occasionally. (Weber's Glossary is adequate but short, only 4 pages long.) "Ecology and Control" highlights significant features that help the plant succeed and may be important for land managers. Here features such as life history, dispersal peculiarities, dormancy and control strategies, to name a few, are highlighted. Finally, each species has numbered references that link to an impressive "References" section of 1462 citations.

This is an encyclopedia of worldwide invasive plant species. Therefore do not expect showy pictures or even maps. However readers seeking illustrations need only to turn the plethora of illustrated floras and even some with an invasive focus (e.g., Randall & Marinelli 1996). However, Randall & Marinelli's

(1996) book does not have the scope of Weber's encyclopedia. Investigators needing an illustration of a plant will need to consult their favorite guide. The sobering (subliminal?) message of Weber's volume is the extent of the invasive plant crisis. After reviewing the concise "Geographic Distribution" tables for each species, I was humbled by how many species are invasive and regions invaded. Provincial thinking should be cast aside as many "native" are invasive elsewhere. The movement of species goes in many directions. For example, *Acer negundo* an American native tree is invasive in central France, Eastern Europe and Australia. *Baccharis halimifolia*, another American native, has invaded coastal southern Europe and Australia. The rogues' gallery of *Invasive Plant Species of the World: A Reference Guide to Environmental Weeds* is populated by the familiar and the obscure, today's least-wanted species and tomorrow's dilemmas.

A very useful feature of this encyclopedia is the "List of synonyms" which should help users wade through the confusion of taxonomy. This feature at the end of the book is in addition to the category SN under each species heading. One example: *Polygonum cuspidatum*, Japanese knotweed, an increasing member of the flora of the United States is now listed as *Fallopia japonica*.

Do not expect a flashy retelling of the plant invasion story nor expect a user's guide to weed eradication and control. Instead Weber has compiled a thorough though admittedly somewhat arbitrary listing of invasive plant species of global concern. No matter your setting or habitat you are most likely to find some plants growing outside your door described in this book. Later editions of Weber's encyclopedia will unfortunately be longer. The lists will grow. Still, the breadth of species covered in this book should inspire and warn a new generation of land managers, gardeners and researchers. - Scott Ruhren, Department of Biological Sciences, Ranger Hall, University of Rhode Island, Kingston, RI 02881. (ruhren@etal.uri.edu)

Literature Cited

Stein, B.A. and S.R. Flack, eds. 1996. *America's Least Wanted: Alien Species Invasions of U.S. Ecosystems*. The Nature Conservancy, Arlington, Virginia.

Randall, J.M. & J. Marinelli, eds. 1996. *Invasive Plants: Weeds of the Global Garden*. Brooklyn Botanic Garden, Inc.

Flora: A Gardener's Encyclopedia. Hogan, Sean (chief consultant). 2003. ISBN: 0-88192-538-1. (Hardcover, 31 cm, 2 volumes with slipcase, CD-ROM included with first edition; US\$99.95). 1584 pp. Timber Press, 133 SW Second Avenue, Suite 450, Portland, OR 97204; <http://www.timberpress.com/>. CD version: Multimedia CD, Macintosh and PC Compatible. ISBN: 0-88192-624-8. (US\$39.95). - From the moment I received this magnificent publication I was enthralled! The detail, the beauty, the accessibility of information... This is a massive tome, with descriptions of over 20,000 plants, over 12,000 color photos, 101 color illustrations, and 14 maps. My mind boggles at the amount of time and effort that must have gone into the preparation of this encyclopedia. Hogan and other contributors are to be congratulated. As a general reference on cultivated plants, these volumes stand on a plain of their own. It is a feast for the eyes.

The encyclopedia begins with 60+ pages of introductory material. First are two pages about how the volumes work. For each genus, there is a description and brief discussion of cultivation techniques, followed by species descriptions giving the Latin names, synonyms, common names, descriptions, cultivars, and hardiness zones. Color photographs illustrate many species and cultivars. Next follow short essays with information on gardening as a tradition, gardening in the USA, origins of the native North American flora, and hardiness zones. Each of the 12 USDA hardiness zones is given a 2-page treatment describing the climate, temperature extremes, and flora, and is mapped and artistically illustrated. A four-page discussion of plant nomenclature and the naming of hybrids and cultivars precedes an essay on plant geography, discovery and classification. The final discussion is of horticultural plant groups, and fills 12 pages. Each of these essays is succinct and well written, presenting in a non-technical yet detailed manner the subject at hand. The bulk of the two volumes is taken up by the descriptions of the genera, species, and cultivars covered, and illustrations of many of these. I will discuss this treatment in more detail below. At the end of the second volume is a brief (5 page) illustration of morphological features, including leaf structures and terminology, flower and inflorescence structure, and fruit types, followed by a 13 page glossary, and a very thorough index of Latin and common names, cultivar names, and illustrations.

The bulk of the nearly 1600 pages of these two volumes is occupied by the generic treatments. All genera are listed alphabetically, and within each genus is a list of species and cultivars, with photographs of many. Within each generic

description is mention of the family in which it is placed, though there is no list of families and the genera contained therein. Coverage of taxa is generally quite good. In each genus, at least the more commonly cultivated species/cultivars are described, and often some lesser-known species are also described. As an example, the genus *Abelia* (Caprifoliaceae), the first alphabetically in the text, is represented by 8 species, hybrids, or cultivars; comparing this to the generic treatment in Rehder's *Manual* (Rehder 1940), the *Flora* treatment compares well, giving descriptions of all but one species listed by Rehder, and containing one species not mentioned by Rehder. Looking at treatments of genera close to my heart, *Flora* describes only one species of *Cladrastis* (Fabaceae), while our recent monograph describes six species (Duley & Vincent 2003). The genus *Trifolium* (clovers, Fabaceae) is represented by only four species, out of some 250 species in this large genus, while some of the more commonly cultivated (agronomical) species, such as *T. pratense*, *T. incarnatum*, and *T. campestre*, are not mentioned. On the other end of the spectrum, some taxa are covered in extreme detail, such as the genus *Rosa* (Rosaceae), the treatment of which encompasses 69 pages, describes 65 species, and illustrates about 1080 species and cultivars! The treatment of *Rhododendron* (Ericaceae) covers 58 pages, and that of *Camellia* (Theaceae) covers 25 pages.

This encyclopedia would be extremely useful for gardeners and horticulturalists who wish to see illustrations of species or cultivars described in books or gardening magazines. It would also be very useful for those connoisseurs and collectors looking for new ideas for their gardens, and knowledgeable horticulturalists wanting to identify plants when they know the genus to which it belongs. This is not, however, a publication that could be used by the novice to make an identification; the books contain no keys to any of the plants described in its pages. I have had fun using *Flora* in conjunction with identification manuals, such as Rehder (1940), Bailey (1938), and the *European Garden Flora* (Walters & Cullen 1989-2000), to make identifications of cultivated plants.

I must make mention of the CD version of the publication (which comes with the printed version, or can be purchased separately). Most of the information contained in the printed volumes is also to be found in the CD version. In addition, there are ways to get at the information on the CD that are not present in the printed volume, such as the ability to search by categories such as 15 different plant groups. There is a "plant chooser" feature that allows the user to enter data, such as plant groups,

uses, hardiness zones, height, position in the garden, color, and so on, to get lists of plants that might be appropriate for a particular need. A feature called "Plants through the Seasons" shows the appearance of a limited list of mostly woody plant species over the course of a year. Another nice feature on the CD is a "Garden Journal" that allows the user to record information on plants in his or her own garden. There are also useful sources features, such as web links to gardening sites, a spell-checker, screensavers, a search menu, and the ability to print information, which are not available from the printed version. For those interested in a cheaper and more interactive product, the CD version may be the way to go.

There is also available a small (376 pp) paperback volume entitled *Flora: Plant Names* (ISBN: 0-88192-605-1; US\$14.95) that is essentially a dictionary of about 20,000 Latin names and their common name equivalents. While I have not yet seen this volume, it sounds extremely useful and has gotten good reviews.

I do not have many negative comments about these publications. A few of the photos are of such a scale that they provide little information. On the CD, some of the photos appear to be of lower resolution, and did not show up well on my computer screen, though most were of adequate quality. One particular interest of mine is invasive plants, especially plants escaping from cultivation, and I found the discussion of invasiveness and cautions about this problem to be overly brief (only one paragraph). This is an ecological consideration about which gardeners and horticulturalists need to become more aware.

In summary, I consider this encyclopedia a must-buy for any serious gardener, professional horticulturalist, and any taxonomist who in any way deals with cultivated plants. - - Michael A. Vincent, W.S. Turrell Herbarium (MU), Department of Botany, Miami University, Oxford, OH 45056

Literature Cited

- Bailey, L.H. 1938. *Manual of Cultivated Plants*. Macmillan, New York, NY.
- Duley, M.L. and M.A. Vincent. 2003. A synopsis of the genus *Cladrastis* (Leguminosae). *Rhodora* 105: 205-239.
- Rehder, A. 1940. *Manual of Cultivated Trees and Shrubs*. Macmillan, New York, NY.
- Walters, S. M. and Cullen, J. (eds.). 1989-2000. **The European Garden Flora**. Cambridge University Press, Cambridge, England. 6 volumes.

Folklore, and Symbiosis of Flowers, Plants and Trees. Lehner, Ernst and Johanna. 2003. ISBN 0-486-42978-4 (Paper, US\$11.95) 128 pp. Dover Publications, 31 East 2nd Street, Mineola, New York 11501. Dover Press reissues many older books, including a number on botany, in inexpensive editions. One of these most recently produced is *Folklore and Symbolism of Flowers, Plants and Trees* by Ernst and Johanna Lehner. The prices of these books is often low, in part because they are reissued works with no color illustrations and/or photographs, as is the case in this work. The present volume was originally issued in 1960.

The authors present many plants which might be placed under the general heading of “interesting and important plants,” the sort which can be used in any introductory course to grab the students’ attention. The various short entries, most running a half page and each accompanied by a black and white illustration, are grouped under several headings: “Sacred Plants,” “Flower Lore and Legend,” “Strange and Wondrous Plants,” “The Flower Calendar,” and “The Language of Flowers.” Within these sections the articles are arranged alphabetically, with the first two categories covering many economically important plants. The third category details a number of legendary plants, such as the Barnacle Tree which was supposed to produce barnacle geese as fruits which dropped from the tree and became free-living geese. The last two categories then cover various plants and flowers associated with different times of the year in different parts of the world, as well as the Victorian language of flowers by which messages could be sent using a selection of different flowers.

While the articles are generally short, this book presents a significant opportunity to raise excitement about botany in minds both young and old. There are many works which explore these topics more fully—for example, more information on the barnacle goose is found in Wily Ley’s *Exotic Zoology*. It also would be very useful for answering those odd questions a botanist always receives when friends and acquaintances find out that you are a botanist, questions about an odd plant remembered from a television show or a book read long ago.

The illustrations used are drawn from various works from the fifteenth century through the very early twentieth century. A few works from outside Europe and the United States are included, such as a copy of a Mayan illustration of a waterlily and an Indian image including the Sacred Lotus, but most pictures are drawn from Western books. In this they provide a reasonable survey of Western botanical art during that period, though the finest botanical artists such as Ehret and the Bauers, are not included. The

reviewer supposes that this is at least in part due to the effort to control production costs. Nevertheless, this book could be used with introductory level students to introduce an area in which science and the humanities interface.

For whom would this book be useful? Certainly it could be used in introductory botany and horticulture, either to be read by the students or simply as a source of interesting information for the instructor. Libraries would do well to have a copy, and many interested amateur botanists and gardeners would find it informative and enjoyable. Douglas Darnowski, Indiana University Southeast, New Albany, IN 47159.

Q. Why did the baseball fan study vegetative reproduction?

A. Because he wanted to see some stolon bases!

Don Les



Q. Why do grasses smell worse than sedges?

A. Because their leaves are 2-rank

Don Les

The Interactive Manual and Photo-Library of Woody Landscape Plants. Dirr, Michael A. 2004. ISBN 0-942375-03-3 (DVD) US\$99.95) 7600 color photos, 1100 line drawings. Timber Press, Inc., 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-3527. This resource arrives as another volume by this well-known author in the area of the horticulture of woody plants. The reviewer examined a DVD copy useable with Windows 98 or later. While the hard copy versions of Dirr’s books, including the *Manual of Woody Landscape Plants*, come from either Stipes Press or Timber Press, this digital version has been issued by Varsity Press.

Michael Dirr's name stirs thoughts of gorgeous leaves and flowers hanging from stately limbs in the minds of those who have read his various books. In particular, his works are known for encyclopedic coverage of woody plants for horticulture and for very high quality photography. While this reviewer has previously criticised in these pages at least one of those books for the quality of the photographs as they were reproduced by the publisher, the images in *The Interactive Manual and Photo-Library of Woody Landscape Plants* are outstanding, very well illustrating the plants included—over 1500 species and nearly 8000 cultivars. Most of the images are color photographs (>7500) while some are line drawings (>1000). As usual, Dirr has indeed produced an encyclopedic work.

This DVD actually includes two different programs—one an interactive manual and another a photo atlas. Together they illustrate a very wide range of useful species for the landscape. Many species and cultivars have large habit photographs as well as detail images to enhance identification and selection. Many different parameters can be used for searching the species listed, for example hardiness or water requirements, so that optimal plants can be used in the landscape in a given place.

Other useful features include a quiz mode and random automated viewing of samples from the photo library in the Photo Atlas program which could be used by students learning to identify plants on sight. Dirr also has sections to explain nomenclature and a map of hardiness zones. All of the images can be directly printed, with or without textual information.

Dirr's style is clear and informative, and there are fewer of the annoying and subjective comments found in some of his other works. Many users, especially those at shared facilities like libraries, might find a CD version easier to use than the DVD version reviewed here simply due to CD drives being more commonly available than DVD drives, especially in shared facilities. As long as a user's computer had an appropriate drive enabling the disc to be read, the digital version of this work will be preferable for many over the hardcopy version.

Who would benefit from a copy of *The Interactive Manual and Photo-Library of Woody Landscape Plants*? It would be of great value or introductory and advanced horticulture, and possibly also botany, courses, especially those requiring students to learn to identify landscape plants by sight. Also, anyone seeking to print labels for plants, such as nursery owners, would find this work very helpful, and all college and university libraries should have a copy in their references sections. Many amateur botanists and gardeners would gain greatly with a

copy in their personal libraries, and anyone seeking to design a landscape might find this work useful. —Douglas Darnowski, Indiana University Southeast, New Albany, IN 47159.

Q. Why did the botanist cut down stands of wild rice (*Zizania*), reed (*Phragmites*), and reed canary grass (*Phalaris*)?



A. He was a 'cereal' killer!

Don Les

Transposable Elements: A Guide to the Perplexed and the Novice. Galun, Esra. 2003. ISBN 1-4020-1458-9 (Coth US\$132.00) 335 pp. Kluwer Academic Publishers B.V. P.O. Box 989, 3300, ZA Dordrecht, The Netherlands. It was the subtitle that caught my attention: *A Guide to the Perplexed and the Novice* (though "for" might be a more appropriate preposition). While transposable elements are probably not perplexed, they are certainly perplexing, and have been from the beginning. After all, most of Barbara McClintock's colleague's neither understood nor believed her revolutionary discoveries and her resulting conclusions. Once I began turning pages, the discovery of a shared experience between the author and myself drew me in: "one tends to become enchanted by the intricate systems of nature" (p. 26).

But beyond the enchantment of intricate systems of nature, why should we (botanists) care about transposable elements (T.E.), especially those of us who neither are molecular biologists nor suffer from Eppendorf envy? First, because plants and plant biologists have been major players in the transposable elements story, from the beginning to the present. The one person most associated with transposable elements research is the late plant biologist Barbara McClintock, maize geneticist

and eventual Nobel laureate. And long before McClintock began “looking around” inside maize cells (Keller, 1983), Charles Darwin was aware of the effects of transposable elements in snapdragon. Furthermore, both retrotransposons and Class II T.E. are abundant in plant genomes, some ubiquitously so. In fact, Galun claims, “It is a fair guess that either or both Ty1/copia- and Ty3/gypsy-type elements exist in every angiosperm species. They probably also exist in many or even all lower plant species” (p. 113). There is evidence that some of the T.E. found in plants have contributed to genome rearrangements and reproductive isolation over evolutionary time.

Is there a need for a book like this? There have been several other reviews of transposable elements, and these are drawn upon and cited in the present volume. Yet because our understanding of these particular bits of DNA continues to change, this updated review is both timely and useful, not only to help those of us outside the field to catch up on knowledge to date, but also to serve as the basis for future reviews certain to come. One of the concluding statements of the book (p. 260), “...we still surely do not possess a full understanding of T.E.,” is surely an understatement.

The bulk of the information in this book is contained in the three lengthiest chapters, each of which deals with one of the three major types of transposable elements: bacterial insertion sequences (technically Class II transposable elements, but considered separately from eukaryotic Class II elements), Class I transposable elements (also known as “retrotransposons” because of their requirement of an RNA intermediate for transposition), and Class II transposable elements (sometimes termed simply “transposons”). Within these three chapters are found details of the discovery, categories, sub-categories, families, structure, transposition mechanisms, effects of transposition, and distribution among organisms of each category of T.E. Examples of unusual or particularly interesting cases, as well as evolutionary significance (regarding both past and future evolution) of different types of T.E., are also explored in these three main chapters. There is much, much information here. Anyone trying to read through the book with little prior knowledge of T.E. is likely to get bogged down. Still, even the general reader will find much that is interesting and useful, as the following examples are intended to illustrate: Of the two categories of bacterial insertion sequences, the simpler ones were discovered in the *gal* and *lac* operons of *E. coli*, and many of the more complex ones (Tn transposons) encode antibiotic-degrading enzymes. Retroviruses may be derived from retrotransposons. Although the term “transposable

element” might encourage an assumption of the contrary, transposition is actually a relatively rare phenomenon. Some transposable elements do not actually transpose at all, though they may have done so at some point in their evolutionary history (Galun terms these “fossils”).

These three chapters, filling all but 50 of the 282 pages of text, are supplemented by a very brief chapter on telomeres and appendices on the more peripheral topics of RNA silencing, chromatin remodeling, and gene tagging. The book opens with a concise but surprisingly encompassing historical background chapter, which begins with very early (pre-Mendelian) knowledge of inheritance and hybridization.

This is a thorough review, impressively so, considering fewer than 300 pages of text, with extensive coverage of the three main types of T.E. and their distribution among living organisms, as well as the (much briefer) treatments of peripheral topics and the setting of historical context. The text is generously supplemented with figures, all but one drawn from cited references. Regarding thoroughness, perhaps most impressive to this perplexed and novice reader are the seemingly exhaustive references: nearly 800, from both historical/classical and current literature, from Emerson's early 20th century work on maize to publications from 2002. More than 25% of the references are from 2000 or later, which will be particularly valuable for readers new to the field.

My criticisms of *Transposable Elements* are mostly minor, and are not for the most part regarding matters of substance but rather on distracting features of the book. The tone of the book is overly didactic. The author clearly has interest in and extensive knowledge of history, geography, philosophy, classical mythology, the Torah, and the Talmud, giving him ample material from which to draw the many quips, anecdotal asides, and historical interest points sprinkled throughout the text. Perhaps some readers will consider asides on Attila, Nietzsche, Coleridge, Plato, Sherlock Holmes, Zarathustra, and Gordian knots to be bonuses. Likewise the instructive remarks on collaborations between researchers, and on pairing observation of natural phenomena with analysis of the mind.

The excessive use of quotation marks for words used figuratively (even when such usage is very common) rather than literally is distracting. There are surprising numbers of typographical, spelling, grammatical, syntactical, and technical errors for a book of this price by a reputable academic publisher. More serious are the few inconsistencies in content,

such as whether or not HeT-A and TART are retrotransposons (pgs. 161-162) and the occurrence of Class II T.E. in vertebrates (pgs. 163, 240-246, 280). Finally, there is disappointingly little critique of the literature; for the most part, relevant references are summarized with little or no critical analysis.

Galun's *Transposable Elements* is sure to take a prominent place in the T.E. literature, and I would recommend it to anyone with even a remote interest or curiosity in this subject. I think it would be an excellent textbook for a graduate seminar on T.E. It could even serve as a useful reference book for those with no particular interest in T.E. but who teach undergraduate general biology or genetics courses. - Robynn K. Shannon, Department of Ecology & Evolutionary Biology, University of Connecticut, July 2004

Literature Cited:

Keller, E. F. 1983. *A Feeling for the Organism: The Life and Work of Barbara McClintock*. W. H. Freeman and Company, New York.

Ferns for American Gardens, John T. Mickel. 2003. ISBN 0-88192-598-5. (paper, \$24.95). Timber Press, Portland and Cambridge. 370 pp. As an avid viewer of Saturday and Sunday gardening shows on PBS, I never cease to be amazed at how seldom pteridophytes are recommended as additions to home gardens. And, a walk through a local garden or home center leaves one with the impression that the only hardy ferns available are Boston fern (*Nephrolepis* sp.) and *Dryopteris erythrosora*. Indeed, this is hardly the case as John Mickel's book is a welcome remedy and reminds the gardener that there are plants other than angiosperms that make wonderful additions to the landscape. **Ferns for American Gardens** is a complete reference regarding all things pteridological, including tracing the history of fern gardening to the mid 1800s, a section on nomenclature including a brief section on hybrid names, and a brief history of pteridology in North America outlining how the American Fern Society came into being.

The first three chapters cover topics such as fern structure with color photographs to complement black and white illustrations, directions on soil preparation, light and moisture requirements, and provide a table with information on what flowering plants complement different species of fern in the garden (if you must!). Chapter three covers the

propagation ferns both vegetatively and from spores. The real meat of this book, however, is Chapter 4: diversity. Familiar genera such as *Asplenium*, *Dryopteris*, and *Polystichum* are covered on a species-by-species basis with information on the various cultivated varieties of each species, rhizome habit, availability in the marketplace, USDA hardiness zones, and relative ease of cultivation. Color plates make identification easier for the novice. Also included are smaller, more unfamiliar genera, or genera that one would not normally think of cultivating, such as *Azolla* and *Bommeria*.

Fern allies (*Equisetum* sp., the lycopodiums, and *Selaginella* sp.) are also included. However, I have to disagree that quillworts (*Isoetes* sp.) should be omitted because of their inconspicuousness. If the author includes pillwort (*Pilularia americana* and *P. globulifera*), then quillworts have to be included too. Certain species of quillworts make wonderful additions to water gardens as they require little work (they can be submerged in pots) and grow like gang-busters! I once transplanted *Isoetes engelmannii* from a cold impoundment in southeastern Tennessee to an artificial pond in Oxford, Ohio. The cluster of microphylls more than doubled in diameter after only a year and provided green quills that perfectly complemented flat floating aquatics like *Nymphaea* and *Pistia*. Other species well-suited for water gardens are *I. echinospora*, *I. lacustris*, and *I. valida*.

If the information is available, a broadening of the sections on *Botrychium* and *Ophioglossum* by providing more specific information on the mycorrhizal fungi these genera require would make them more amenable as choices for the garden. Otherwise, I agree with the author that they may prove too tedious for the garden, especially for amateurs. The taxonomy of this work is accurate, so amateurs as well as professional pteridologists get correct Latin names. Although, other works may likely include *Camptosorus* (and possibly *Phyllitis*) under *Asplenium*. Some color photographs of gametophytes with different morphologies would be useful in helping amateurs learn to recognize prothalli in nature and in realizing that not all of them look like "little green hearts" as many general botany texts would have us believe.

In general, there seems to be little difference between this work and another of the same title and author published by MacMillan Publishing Company. Either volume is a welcome addition to a paucity of information on the horticultural aspects of ferns. Kerry D. Heafner, Botany Division, Museum of Natural History, The University of Louisiana, Monroe.

Columbines: *Aquilegia*, *Paraquilegia*, and *Semiaquilegia*. Nold, Robert. 2003. ISBN 0-88192-588-8 (Hardcover \$24.95) 158 pages. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, Oregon 97204. *Columbines: Aquilegia, Paraquilegia*, and *Semiaquilegia* follows up Robert Nold's award-winning book *Penstemons*. Readers who enjoyed his first book (and sense of humor!) will surly find this new one entertaining and useful. Packed with useful information, it is the only current reference of its type for the genus. While presenting keys to species and discussion of the tangled taxonomy of the genus, *Columbines* focus remains horticultural.

The first three chapters (Cultivation, Pests and Diseases, and Propagation) will be of most interest to gardeners and horticulturalists. Nold's revelation that many columbine species are easy to grow will thrill gardeners. He shares what he has learned about cultivating and propagating columbines and points out some of the more challenging species for ambitious gardeners.

Botanists will most appreciate chapters 4, 5, and 6 describing the morphology, distribution, and taxonomy of the genus. Chapter 5 is an interesting discussion of the etymology of the generic name *Aquilegia*. The similarity of old German and English names and the Latin *aquila* (eagle) have led many to believe that this is the meaning of the generic name. Nold presents a strong case for the name instead being derived from the Latin word for water-finder, referring to the copious nectar in the spurs.

The chapter Some Columbine Cousins introduces the allied genera *Semiaquilegia*, *Paraquilegia* and *Isopyrum*. The taxonomy of these segregate genera is obviously confusing, and Nold does an admirable job of paring it down and presenting it in a concise manner. However, by the end of the chapter I was still uncertain about the status of these genera (are they best treated as synonyms of *Aquilegia*?) and left wondering why they are not treated in the following chapter's species descriptions.

The bulk of the book comprises descriptions of sixty-five species of *Aquilegia*. Nold provides three keys to *Aquilegia* of the world based on the geographic distribution of the genus: Asia, Europe, and North America. He points out some shortcomings with the keys, namely that not all species are included owing to a lack of complete descriptions. These species accounts present varying amounts of information on the taxonomy, history, distribution, and cultivation status of each species. Many species have quite detailed entries, while some have only a few sentences, reflecting our knowledge or lack thereof.

Also in this chapter, Nold voices his displeasure at U.S. plant importation policies that restrict the importing of columbine seeds from Europe and Asia. This is a seemingly naïve stance that many botanists will (and should) take offense at. Invasive exotic species are one of the most serious threats to native species and ecosystems; importation laws are designed to prevent further invasions. The desires of a few horticultural collectors should not outweigh attempts to protect native species from the potential negative impacts of unforeseen invasive species.

The final chapter discusses hybridization in *Aquilegia*, a common occurrence in nature and an important source of variation for the commercial columbine trade. Many, if not most, of our favorite cultivated columbines are of hybrid origin.

Several useful sections round out this book. There is a short list of sources for columbine seeds, a glossary of technical terms used in the text, a bibliography (especially welcome for those seeking more technical information), and an index. *Columbines* is well illustrated with numerous photographic plates of many of the species and cultivars. Eight superb watercolor plates by the author's wife, Cindy Nelson-Nold, and several fine black and white line drawings by Carolyn Crawford are also included.

Overall, *Columbines* is an engaging book treating a popular genus of plants, accessible to laypeople as well as being informative to botanists. Columbines are showy, appealing flowers that many people are familiar with and Nold's latest book provides an easy-to-read and entertaining entrance to the cultivation and botany of the genus.
- James P. Riser II, USDA Forest Service, RMRS Fire Sciences Laboratory, Missoula, MT.

Identification of Tropical Woody Plants in the Absence of Flowers: A Field Guide (2nd ed). Keller, Roland. 2003. ISBN 3-7643-6453-X (Paper EUR58.00, \$79.95) 340 pp (including 30 color plates). Birkhauser Verlag, Viaduktstrasse 42, CH-4051, Basel, Switzerland. I know I am not alone with a feeling of hopelessness when at the foot of a 100 foot tall tree in a tropical forest all I have to identify it is a sad looking sterile branch in my hand. So, when I saw Keller's book "**Identification of tropical woody plants in the absence of flowers,**" I quickly decide

to see if the book was the answer to my problems. This second edition is very similar to the first one in that a series of keys employing only vegetative characters are used to identify families of tropical woody plants. There are in addition four new sub-keys that can be used to identify groups within Malvaceae sensu lato, groups of genera within the complicated Euphorbiaceae, families of Sapindales, and tribes within the Fabaceae. The keys are followed with an illustrated glossary of the characters employed in the key, and descriptions of families (or groups of families) based on the same characters used in the key. Lastly, this new edition has 30 color plates at the end of the book depicting several tropical plant families.

As stated by the author, the keys in this book rely heavily on characters rarely used in traditional keys (although vegetative characters seem to be more and more common in field guides), or more importantly, in formal descriptions of the families. As can be expected, several families key out in multiple parts of the key. The keys rely heavily on architectural models, which can be very difficult to visualize, even for trained botanists. However, these architectural models are always used in conjunction with other characters, and once mastered they are highly useful in identifying tropical trees. The added keys for Malvales, Sapindales, Euphorbiaceae and Fabaceae are very valuable given the size of these groups in the tropics, and extremely easy to use. It would be great if keys for other large groups such as Rubiaceae or the former "Flacourtiaceae" could be added in future editions. The book is intended to be used worldwide, which can be both a course and a blessing: only one book is needed regardless of where we are, but this also makes some keys inefficient in the sense that taxa that will hardly ever be found in the same geographical area key out very closely in the book. That said, this very feature allowed me to key out an introduced Moringaceae (endemic to the old world) during a recent trip to Costa Rica!

Purists might not like the fact that in the key couplets are often not entirely parallel, and that in several sections the key is not strictly dichotomous but it includes triplets. However, this does save time, space, and effort specially when trying to key out such a large number of families, many of them highly variable. Using the keys in the field I did find some problems, not in content but in organization, which made using the key cumbersome and inefficient. For example, for a given couplet the section of the key that contains the largest amount of taxa precedes that one with the fewer entries, often making it difficult to find the complementary entry for that couplet. It would also be very useful if the different keys had a running header that would

identify the main characters off the subset of taxa being treated (i.e. trees with opposite simple leaves...trees with alternate leaves and exudates...Sapindales and so on), and if there where clear references in the key as to where in the glossary are the different characters explained or depicted.

It was very interesting to see that family groupings in the third section of the book have been considerable reorganized from the first edition, this time taking into account the most up to date phylogenetic information. However, this is not necessarily the more practical approach when trying to find the page of family descriptions while constantly referring to the index, where a simple alphabetical order would be much better for a field guide (this is not a book about systematics!). The line drawings that accompany the family descriptions are of high quality and for the most part represent diagnostic characters used in the key or family descriptions. However, they are difficult to use because they are only labeled with a plate number and the reader has to continually flip pages to find the appropriate legends.

I was truly disappointed by the color plates added at the end of the book. Most of the pictures show reproductive structures and not the vegetative characters employed in the key, and in most cases do not show characteristic features of the families that would help to identify them in the field. There are as well several minor problems of misspellings of generic names, and some rather unfortunate misidentifications (e.g. the plant labeled *Maieta guianensis* is actually *Tococa guianensis*, and one labeled as *Miconia* sp. is the common *Clidemia hirta*, a species well known as a weed from the Pacific islands). Additionally, the printing of the color photographs is not of the highest quality. All of this is more aggravating giving the high price of the book, which also makes it out of reach for most of the biologist living in the tropics, which could potentially be the primary users of this key.

In spite of its shortcomings, I will continue to carry the book into field, and will add it to my already heavy travel bag in hopes of identifying the majority of trees that I encounter. I sincerely hope to see a third edition of the book in which most of the editorial problems outlined here are corrected. The keys themselves and the family descriptions can indeed very useful and the intellectual effort invested in them is considerable, and it would be a pity to see them remain in this format which is not conducive for the efficient use of the book as a field guide.

- Fabian A. Michelangeli. Institute of Systematic Botany. The New York Botanical Garden. Bronx NY 10458.

Manual of Vascular Plants of Northeastern United States and Adjacent Canada. Gleason, Henry A. and Arthur Cronquist. 1991 (Seventh corrected printing 2004). New York Botanical Garden Press, Bronx, NY. 993 p. Price: US\$69.00 As an undergraduate student I enrolled in plant taxonomy as an elective 13 years ago. Little did I know how lucky I was to have begun my career as a botanist just as the second edition of "Gleason and Cronquist", our assigned textbook, was rolling off the presses. In the years that followed this book has been my constant companion, my guide to the botanical world, and also my introduction to two of its greatest students. With the arrival of the seventh, corrected printing in 2004 I find myself in the challenging position of reviewing this great work.

For those of you who are unfamiliar with this book, it is a comprehensive treatment of the vascular flora of the northeastern states and the southern portion of eastern Canada – covering Minnesota to Nova Scotia, south to Virginia and Kentucky. Artificial keys are provided to allow the user to identify any unknown plant first to family, then genus, and finally species and any subspecies or varieties. A concise description of each species follows the keys, allowing the user to readily verify their determination. The book is arranged phylogenetically, following Cronquist's system. There are no illustrations, but these are available in the excellent "Illustrated companion to Gleason and Cronquist's manual" (Holmgren et al., 1998).

Overall the keys are excellent. For the most part they can be applied in the field with the aid of a hand-lens, although when using the sectional keys I often have to guess as to placement type when away from a microscope. While I often refer to more specialized volumes for grasses, asters, and other tricky groups, if I take a single book with me into the field this is it. Combined with the "Illustrated Companion" (which is definitely not intended for field use!) there is simply no better tool for learning our flora.

Very little has been changed in this latest printing. Brief biographical sketches of the authors now appear before the text proper. It is interesting to note that the neutral theory of ecology that is now gathering so much attention is really just a mathematical extension of Gleason's own individualistic concept of plant association, which he published in 1919. Also noteworthy is the fact that Gleason completed his doctorate in a single year, and without the help of molecular markers! Other changes include an expanded index, which treats common and scientific names separately. This format always leads to my looking up the scientific name first in the common name list, then in the correct location, but editors

seem to like it. The glossary has been moved from the front to the back.

Other changes are limited to correcting errors from previous printings, adding some synonyms, and changing a few names to comply with recent treatments in the Flora of North America series. All such alterations are kept to an absolute minimum, as the editors refused to change the pagination from previous editions. This is important, as the "Illustrated Companion" is cross-referenced to the page numbers in the "Manual". To accommodate this requirement the size of the book is slightly larger. This makes it more unwieldy for fieldwork, but the value of maintaining the cross-referencing between the two volumes makes this a worthwhile sacrifice.

A lovely engraving of *Liriodendron tulipifera* has been added to the front cover. The cover itself is heavy cloth. My 1991 edition is bound in leather, and has withstood the indignities of fieldwork admirably. I hope this new edition will prove as robust!

It may be worth making a few comments on the phylogenetic arrangement of the text, in light of recent discussions on this topic in this bulletin. Having invested many years studying this book, I am most familiar working in herbaria, and with other manuals, that follow this arrangement. That said, most herbaria don't follow this system, nor do most other manuals. I have had opportunity to use the "Guide to the vascular plants of the Blue Ridge" (Wofford, 1989) in the field the past two seasons, and after getting over my initial shock ("that's not how Gleason and Cronquist did things!") I found the alphabetical arrangement of families to be a pleasure to work with. My conclusion is that the best system is the one you learned first. Since we come from such varied backgrounds the alphabetical system seems a reasonable compromise. At least until the phylogeneticists can provide us with an undisputed arrangement to follow, a development that is no doubt imminent.

My congratulations to the publishers for continuing to make this excellent reference available to botanists, and at a reasonable price considering its immense value. It will have a place within arm's reach of my desk – I'm afraid I couldn't think of replacing my uncorrected edition when it's time to hit the field! - Tyler Smith, PhD Candidate, Plant Systematics and Evolution, Plant Science, McGill University, Raymond Building, 21,111, Lakeshore Road, Ste. Anne de Bellevue, Quebec H9X 3V9, tsmith20@po-box.mcgill.ca

References

Holmgren, N. H., P. K. Holmgren, H. A. Gleason, and A.

Cronquist. 1998. Illustrated companion to Gleason and Cronquist's manual : illustrations of the vascular plants of northeastern United States and adjacent Canada. New York Botanical Garden, Bronx, N.Y.

Wofford, B. E. 1989. Guide to the vascular plants of the Blue Ridge. University of Georgia Press, Athens, Georgia.



Shrubs and Vines of New Jersey and the Mid-Atlantic States.

Martine, C. T., and R. A. Figley. 2002. (Paper with spiral binding and laminated cover, \$10, 114 pp.) New Jersey Forest Service Forest Education Center, 370 East Veterans Highway, Jackson, NJ 08527 (njfsfrec@bellatlantic.net). — Creating a field guide that satisfies students and both amateur and professional botanists is a challenging endeavor. A successful guide should reach a balance between simplifying concepts that are unfamiliar to nonprofessionals, remaining technically accurate, and (arguably) entertainment. Altogether, *Shrubs and Vines of New Jersey* is successful in each of these ideals, and is well worth its modest price.

The format of this field guide generally follows the previously published companion guide *Trees of New Jersey and the Mid-Atlantic States* (authored by C. T. Martine, R. A. Figley and A. Hansens). The book is a convenient size (25.5 cm x 11.5 cm) for fieldwork, permitting one to easily carry it along in a back pants pocket or collecting bag. Of approximately 200 species discussed in the book, 85 of the relatively common species are featured and illustrated by black-and-white line drawings. The species descriptions include nomenclature, habitat and range, morphological features, and as needed an explanation of the differences from similar species. The featured species are accompanied by a narrative including details such as their about their utility, origin or identification. Several keys are in the book, though there is no comprehensive key. A "Locator

Key" guides the reader to a set of pages in which a species might appear, and supplementary keys are provided for groups containing multiple species. The species descriptions are supported by a glossary and illustrations of selected morphological features. Lists of shrubs and vines typically found in each of 17 different communities in northern and southern New Jersey are provided, as well as lists of invasive and rare species.

The principal strengths of *Shrubs and Vines of New Jersey* include the technical accuracy of the descriptions and illustrations, the informative narratives that accompany many of the species, and the cost. Given these, the authors are also successful in their purpose "to familiarize the reader with the most common shrubs and vines" of the region. The scope and content of the book are versatile enough to appeal to both professional and nonprofessional botanists, and it is clear to me that its purchase should be a priority for any student of the flora of the Mid-Atlantic Region.

This book could be improved, despite its merits. The target audience is not directly stated in the introduction, though the nature of the publisher suggests that it is meant for a general audience as well as professionals with a local interest in these plants. I found only one reference to the target audience in the book, in the order form for the book included in the last few pages.

Assuming that the target audience includes beginners, the glossary could be improved. I found it puzzling that some terms are not in the glossary despite being used in the text or keys, such as pollen, prostrate, ovule and ovary. Definitions for some terms could be improved, such as drupe, defined as "a fleshy indehiscent fruit usually with one stony-coated seed". Why not include mention of a pit, a widely understood concept, in the definition? I also wonder what criteria were used to determine whether a plant is a shrub as opposed to a large herbaceous plant. The author includes plants that are considered subshrubs by some botanists (for example, *Chimaphila maculata*, *Epigaea repens* and *Gaultheria procumbens*). A reader might suppose that a woody, perennial stem in part defines a shrub, however the fuzzy boundary between shrubs and large herbaceous plants is not addressed in the introduction, nor does the term shrub (or vine) appear in the glossary. Finally, the smallest quibble I have is that several pages in my copy bear toner streaks, although they amount nothing more than aesthetic imperfections.

- Terry O'Brien, Department of Biological Sciences, Rowan University, obrien@rowan.edu

Books Received

If you would like to review a book or books for PSB, contact the Editor, stating the book of interest and the date by which it would be reviewed (1 February, 1 May, 1 August or 1 November). Send E-mail to sundberm@emporia.edu, call or write as soon as you notice the book of interest in this list because they go quickly! Editor

Alien Species and Evolution: The Evolutionary Ecology of Exotic Plants, Animals, Microbes, and Interacting Native Species. Cox, George W. 2004. ISBN 1-55963-009-4. (Paper, US\$40.00) 379 pp. Island Press, 1718 Connecticut Ave., NW, Suite 300, Washington, DC 20009.

American Azaleas. Towe, L Clarence. 2004. ISBN 0-88192-645-0. (Cloth, US\$ 29.95) 146 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Annual Review of Plant Biology, Volume 55. Delmer, Deborah P. and Sabeeha Merchant (eds). 2004. ISBN 0-8243-0655-4 (Cloth) 681pp. Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, CA 94303-0139.

California Desert Flowers: An Introduction to Families, Genera, and Species. Morhardt, Sia and Emil Morhardt. 2004. ISBN 0-520-24003-0 (paper US\$29.95) 284 pp. The University of California Press, 2120 Berkeley Way, Berkeley, CA 94704.

The Cattleyas and Their Relatives: The Debatable Epidendrums. Withner, Carl L. and Patricia A. Harding. 2004. ISBN 0-88192-621-3 (Cloth US\$44.95) 300 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Choix des Plus Belles Fleurs Redouté, Pierre-Joseph. (originally published 1827-33) 2004. ISBN 1-59110-053-4 (CD-ROM US\$35.00) Octavo, 134 Linden Street, Oakland, California 94607-2538.

Cycad Classification: Concepts and Recommendations. Walters, T. and R. Osborne. 2004. ISBN 0-85199-741-4 (Cloth US\$100.00) 267 pp. CABI International/Oxford University Press. 198 Madison Ave, New York, NY 10016.

Evolutionary Theory: Mathematical and Conceptual Foundations. Rice, Sean H. 2004. ISBN 0-87893-702-1 (Paper US\$49.95) 354 pp. Sinauer Associates, Inc. P.O. Box 407, Sunderland, MA 01375-0407.

The Genus *Lavendula*. Upton, Tim and Susyn Andrews. 2004. ISBN 0-88192-642-6 (Cloth, US\$49.95). 442 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Hollows, Peepers & Highlanders: An Appalachian Mountain Ecology, 2nd ed. Constanz, George. 2004. ISBN 0-937058-86-6 (Paper US\$18.50) 359 pp. West Virginia University Press, 44 Stansbury Hall, P.O. Box 6295, Morgantown, WV, 26506-6295.

Los Géneros de Leguminosas del Norte de México. Estrada, A. Eduardo y Alfonso Martínez M. 2004. ISBN 1-889878-13-8 (Paper US\$25.00) 134 pp. Botanical Research Institute of Texas, 500 Pecan Street, Fort Worth, Texas 76102-4060.

Medicinal Plants in Folk Tradition: An Ethnobotany of Britain & Ireland. Allen, David E. and Gabrielle Hatfield. 2004. ISBN 0-88192-638-8 (Cloth US\$29.95) 431 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Multimedia Toolkit for Educators in the Plant Sciences, Volume I. Basic Biological Principles and Plant Structures. Clayton, Michael. 2003. CD. University of Wisconsin Board of Regents, Department of Botany, University of Wisconsin, Madison, WI .

Multimedia Toolkit for Educators in the Plant Sciences, Volume II. Botanical Diversity. Clayton, Michael. 2003. CD. University of Wisconsin Board of Regents, Department of Botany, University of Wisconsin, Madison, WI .

Natural Enemies: An Introduction to Biological Control. Hajek, Ann. 2004. ISBN 0-521-65385-1 (Paper US\$50.00). 378 pp. Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211.

Primer of Ecological Statistics. Gotelli, Nicholas J. and Aaron M. Ellison. 2004 ISBN 0-87893-269-0 (Paper US\$34.95) 510 pp Sinauer Associates, Inc. P.O. Box 407, Sunderland, MA 01375-0407.

The Sacred Tree in Religion and Myth. Philpot, Mrs. J.H. 2004. ISBN 0-486-43612-8 (Paper, US\$11.95) . 178 pp. Dover Publications, 31 East 2nd Street, Mineola, NY 11501.

Seed Conservation: Turning Science into Practice. Smith, Roger D. John B. Dickie, Simon H. Linington, Jugh W. Pritchard, and Robin J. Probert. (eds) 2003. ISBN 1-84246-052-8. (Paper £59.95) 1037 pp.

Royal Botanic Gardens, Kew, Richmond, Surrey
TW9 3AB, United Kingdom.

Speciation. Coyne, Jerry A. and H. Allen Orr. 2004. ISBN 0-87893-089-2. (Paper US\$54.95) 545pp. Sinauer Associates, Inc. P.O. Box 407, Sunderland, MA 01375-0407.

Timber Press Pocket Guide to Ornamental Grasses. Darke, Rick. 2004. ISBN 0-88192-653-1 (Flexibind US\$19.95) 224 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Tree Ferns. Large, Mark F. and John E. Braggins. 2004. ISBN 0-88192-630-2 (Cloth US\$39.95) 360 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-9743.

Wild Lilies, Irises, and Grasses: Gardening with California Monocots Harlow, Nora and Kristin Jakob (eds). 2004. ISBN 0-520-23849-4 (Paper US\$24.95) 287 pp. University of California Press, 2120 Berkeley Way, Berkeley, CA 94720.



About Lichens

The mutualistic symbiotic relationship in lichens can be described in the story of Freddie and Alice. Freddie Fungus was a fun guy. Alice Algae was allgal. They took a lichen to each other. Of course Alice's mother thoroughly disproved of this relationship as they were living in **syn**biosis. Freddie built the house and did the shopping, while Alice stayed home and did the cooking. When they first got together, they went out on a limb. But rumor has it that their relationship is going on the rocks

Charles E. Blair

Editor's note:

Charles is a retired MD, life-long amateur naturalist, and active member of the California Native Plant Society. He is "currently pursuing botany seriously at Cal Poly in San Luis with Dr. David Keil."

Charles challenges the readership to add additional "chapters" to this "story!"

"The Amateur Botanist's Lament"

Academic botanists' prescriptions

Cause Amateur botanists conniptions.

For with Compositae's loss

and Cruciferae's toss,

Went some perfectly accurate descriptions.

Charles E. Blair



BSA Contact Information

All inquiries for the BSA Business Office should be directed to:

Executive Director: William Dahl and / or
Administrative Coordinator: Wanda Lovan

BSA Business Office
Botanical Society of America, Inc.
4474 Castleman Avenue
P.O. Box 299
St. Louis, MO 63166-0299

Voice: 314-577-9566

FAX: 314-577-9515

E-mail: bsa-manager@botany.org

Office hours are 7:30 am to 4:30 pm Central Time
<http://www.botany.org/>

President: Allison Snow
<snow.1@osu.edu>

All inquiries about the Botany 2004 meeting (and any other future meeting) should be directed to:

Mrs. Johanne Stogran, Meetings Manager.

Email: johanne@botany.org or
meetings@botany.org

Voice: 614-292-3519 Fax: 614-247-6444

<http://www.botanyconference.org/>



BOTANICAL SOCIETY OF AMERICA LOGO ITEMS

always available to contributors to the
BSA Endowment Fund

Short sleeved T-shirts (100% cotton) Grey with small green logo on front, large purple and green logo on back.

Adult sizes S, M, L, XL, XXL — \$14

Child sizes XS, S, M, L — \$12

Long sleeved T-shirts

Adult sizes S, M, L, XL — \$16

Totebags

Cotton canvas — \$12

Cricket Hats

Sizes S, M, L, XL — \$25

Cloisonné pin

White with kelly green logo and gold border — \$6

***Botany for the Next Millennium* Posters**

Full-color, 16"x 20" beauty — \$5

(please include \$3 for shipping posters)

All prices (except poster) include \$2.00 for postage and handling.

Specify item(s), style(s) and size(s).

Make checks payable to **BSA Endowment Fund**. Mail to:

Business Office
Botanical Society of America
P.O. Box 299
St. Louis, MO 63166-0299