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

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BOTANICAL SOCIETY OF AMERICA

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The E. A. McIlhenny Natural History Collection

Around the country there are botanical treasures, perhaps well known to locals, but unknown to most of us unless we happen to “discover” them on a trip or at a meeting. I discovered one of these treasures when I first moved to Louisiana State University and visited the Hill Memorial Library. The original campus library, Hill Memorial now houses the special collections and archives.

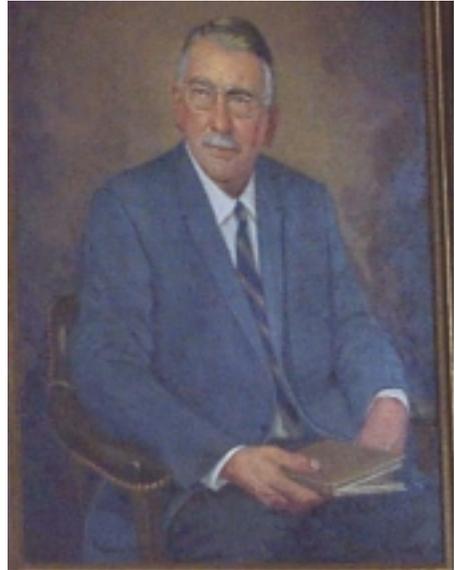
I knew this library was special when I first entered the north reading room on the second floor. Just inside the door was a large glass-covered book cabinet displaying the largest book I had ever seen – one of four volumes of the double-elephant folio edition of Audubon's *Birds of America*. One volume at a time was slid out of its shelf and moved to the display shelf on top. One page at a time was on daily exhibit, not to be seen again for more than a year. Unfortunately the volumes are no longer on public display, but they can be “called” for a visitor/researcher to examine.

Works on birds are just one of the foci of the special collections at Hill Memorial. Of more immediate interest are works on plants and exploration in the Mississippi Valley. The feature article in this issue highlights one of these treasures in the special collections at Louisiana State University - the E.A. McIlhenny Natural History Collection.

-editor



Naturalist and explorer Edward Avery McIlhenny (1872-1949) was a man of parts: after adventures in the Arctic in 1897, he returned home to semi-tropical Louisiana to run the family enterprise that made Tabasco sauce. He also ran a plant nursery on Avery Island (the family's “island” is a salt dome located in the south central Louisiana swamp lands) that specialized in bamboos and camellias. In 1945, he translated from the French and published *New Iconography of the Camellias*, which included the text of all twelve volumes of A. A. Verschaffelt's *Nouvelle Iconographie des Camellias* (1848-1860). He also authored *The Life History of an Alligator* and *Autobiography of an Egret*. An avid hunter, he spearheaded efforts to establish the Rockefeller Wildlife Refuge and Game Preserve, promoted bird banding programs, and established “Bird City,” a refuge on Avery Island that helped save the snowy



John S. McIlhenny

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egret from extinction.

He was also an enthusiastic and knowledgeable book collector, and on his death in 1949, bequeathed a substantial collection of superb illustrated works of natural history to his nephew John S. McIlhenny. Trained as a research chemist but freed by family fortunes to pursue his personal interests, John Stauffer McIlhenny continued to collect beautiful natural history books, particularly focusing on botany and ornithology. "Mr. Mac," as he was affectionately known around the library, donated this enhanced collection to the Louisiana State University Libraries in 1971 and continued to add to the collection until his death in 1997.

Comprising some 6,000 volumes, the McIlhenny Collection spans five centuries, ranging from the *Libri de re rustica*, published by Aldus Manutius in 1514, to the monumental *Banks' Florilegium*, published by Alecto, 1980-1988, in thirty-four volumes including 738 engravings of plants collected on Captain Cook's first voyage around the world in the H.M.S. *Endeavor*, 1768-1771.

Among the most outstanding holdings in the McIlhenny Collection is the unique "Native Flora of Louisiana" collection of more than 230 original watercolor drawings by renowned Australian botanical artist Margaret Stones. Stones (b. 1920) was principal illustrator for *Curtis's Botanical Magazine* from 1958 until her retirement in 1983. She has received the Royal Horticulture Society's Veitch Silver Memorial Medal and Gold Memorial Medal. In 1986, she was awarded an honorary doctorate of science from LSU.

The "Native Flora" collection began in 1976, when Louisiana State University commissioned the artist to create six watercolor drawings of native Louisiana plants, which were to be a lasting legacy of the University's bicentennial celebration. Response to the initial six watercolors was so enthusiastic that the project rapidly grew into a major commission



Malus angustifolia

garnering statewide support. LSU Professor of Botany Lowell Urbatsch was chosen to work with Stones on the selection of plants to be portrayed. Because Stones works only from living plant materials, she was to visit Louisiana many times during the next fifteen years, rendering its flora in exquisite detail, while enjoying the celebrated hospitality and cuisine of its people. The "Native Flora" collection, officially finished in 1991, has continued to grow through the generosity of the artist, who donates drawings each time she returns. *Flora of Louisiana*, a illustrated catalog of two hundred of the drawings, with text by Urbatsch, was

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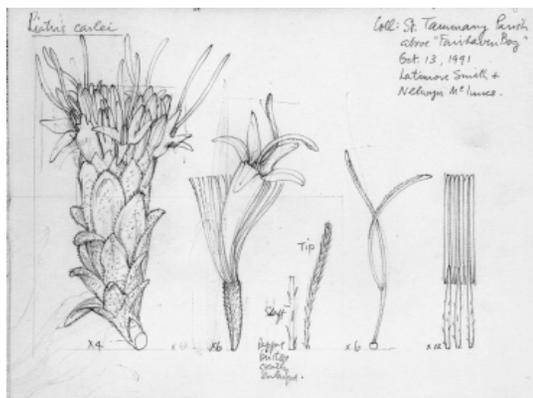
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published by the LSU Press in 1991; in addition, a set of four full-sized color prints is available from the LSU Libraries (Contact the author for details and an order form).

Selections from the “Native Flora of Louisiana” collection are often exhibited on the LSU campus and have been shown at the Smithsonian Institution, the Bodleian Library (Oxford, England), the Fitzwilliam Museum (Cambridge, England), and the Edinburgh Botanic Garden Gallery. In 1996, the National Gallery of Victoria, Melbourne, Australia, held a major retrospective of the artist’s work, which included twenty drawings borrowed from the Louisiana collection.



Stones’ Working Drafts

The curator of the McIlhenny Collection regularly shows parts of the “Native Flora” collection by appointment to visitors and classes. Perhaps the most frequent classes to visit are from the School of Landscape Architecture, whose students find the collection helpful when learning about native plants for use in landscaping. Aspiring botanical artists often visit to study Stones’s technique.

The McIlhenny Collection is administered as part of the LSU Libraries’ Special Collections division, housed in Hill Memorial Library on the LSU campus in Baton Rouge. Its holdings are listed in the Libraries’ online catalog (available via the Libraries’ homepage at <http://www.lib.lsu.edu/>). Researchers interested in botanical history may find other materials of interest in Special Collections, especially in the Louisiana and Lower Mississippi Valley Collections (LLMVC). LLMVC holds first editions of virtually all the reports of European explorers of the area. Extensive manuscript holdings in LLMVC that document the lives of

nineteenth-century Louisianians necessarily include many passing references to plants and gardening. Of particular interest are the papers of Brother Arsene Brouard, who taught at St. Paul’s College in Covington, Louisiana from 1919 to 1925, and collected hundreds of plants while there, including sixty he believed to be previously unrecorded in Louisiana (inventory available at <http://www.lib.lsu.edu/special/findaid/b3568.html>)

Although the “Native Flora” collection is shown only by appointment, no appointment is necessary to use most of the materials included in Special Collections. Researchers are welcome during regular library hours (9 to 5 Monday - Friday, 9 to 1, most Saturdays). No affiliation with LSU is required, but those wishing to use the collection must fill out a brief reader registration form and present a picture ID. More information about using Special Collections is available at <http://www.lib.lsu.edu/special/>.

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Nemastylis geminifolia

News from the Society

Annual Reports

Business Manager's Report

Financial

The Business Office (Huntington Bank) currently has \$12,284.27 in the checking account, \$77,968.63 in the American Century Money Market account and \$129,826.02 in the meetings account (Bank One).

For the fiscal year ending Sept. 30th, all areas were very close to budget. The decision was made to transfer only \$30,000 from members instead of the \$70,000 as budgeted, as there was not an immediate need for cash.

We are ahead of budget on receipts, under budget on Business Office expenses due to a shift in expenses on labor, over budget on labor for the Editorial Office due to the increase in signatures for the *Journal* and on track or slightly under budget for production.

Business office is now tracking expenses for the following accounts: Huntington for business office checking, Bank One for the meeting checking, American Century for money market and the OSU account. All (but OSU) are being tracked through QuickBooks.

Processed and tracked over \$775,000.00 in the Fiscal Year ending 9/30/2000.

Converted to electronic (spreadsheet) versions of our income ledgers for members and institutions.

Fully utilizing QuickBooks for payroll, taxes and reporting.

Members

Membership renewal forms for 2001 were mailed to 2522 members (2648 for 2000, 2812 for 1999) including Retired, Life and Corresponding members. Current membership paid for 2001 is 2396 (2479 from 2000, 2522 from 1999). Currently, we have 438 (480 from 2000, 582 from 1999) members who have not yet renewed for 2001 (42 less from 2000). The total number of new members added since the beginning of the fiscal year was 233 (230 in 2000-new F.Y., 317 in 1999, 354 in 1998 and 453 in 1997). Of those new members, 22 joined for 2000, 210 joined for 2001, 1 for 2002. We are still receiving renewals via mail and fax at a steady rate most forms printed from the web.

The fall mailing to members included the Minutes of the 2000 Business Meeting, letter from President Gensel, Call for Nominations for Officers (President-elect and Treasurer), Call for Papers and a notice from the Genetics section (for which they were billed). The mailing was folded in half and mailed in a 6x9 envelope which qualified for the best discount for mailing. The fall mailing was once again handled through a local mail house, CPMM. Domestic pieces were bulk mailed by CPMM and foreign were sent via airmail out of the business office.

Second notices were sent via email BCC from the business office to 521 members with an attached .pdf renewal form to members who listed an email. For those 49 members we had no email for, we generated and mailed a postcard. Plans are to send out this reminder in December of this year. Renewal forms in .pdf and .doc were also placed on the website.

The spring mailing to members included the letter from the President with the proposed model for membership dues, Call for Symposia, Call for Discussion Sessions, Call for Field Trips, Call for Nominations for Corresponding Members, Bylaws Ballot (Art. II, 1, i) and the ballot for President Elect and Treasurer.

Institutional Subscribers

The executive committee recommended the price of institutional subscriptions increase for 2002 by \$90 across the board for the print copy of the *AJB* and \$600 for adding the electronic version. Prices for 2002 for a printed volume of *AJB* are \$295 for domestic, \$305 Canada and Mexico, \$320 for other foreign.

Currently, there are 1790 institutional subscribers down 51 from 1841 of this time last year.

Publications

Cost of production for *AJB* V87, 2000 was \$101.27 per volume (V86 was \$80.64, V85 was \$80.21 and did not include the e-*AJB*). The cost per volume *includes* the labor and expenses of both the Business Office and Editorial Office, which is probably an unfair comparison since the business office had additional labor expenses due to the annual meeting. Total circulation for V87 (2000) of the *AJB* was 4155, 4313 in 1999, 4574 in 1998, 4648 in 1997, and 4622 in 1996). Regular institutional subscriptions were down by 61 and member subscriptions were down by 97.

JSTOR released the electronic version of all of the back issues of *AJB* from 1914-1994.

Available to institutions that subscribe.

Membership Tiers Committee Report

Since our contract for the print version of *AJB* expires at the end of this year, RFPs were mailed out to potential printers and bids were collected and distributed to the publications committee.

Excess inventory at Allen Press was purged and billing spread out throughout the year. Estimated cost for purging was \$9000. Storage costs will be greatly reduced.

Miscellaneous

Completed an operational audit in late November with our CPA Mary Dawson.

Mailed out new membership recruitment posters to campus representatives as identified by past Membership and Appraisal Committee chair, Leo Bruederle.

Completed mailing for the Endowment Fund in autumn for Jack Horner – to be repeated every other year.

Purchased a new computer in September.

Added a dedicated fax line, call waiting and voice mail.

The 2001 renewal notice had check boxes for hard copies of the Membership Directory and the Abstracts. To date, 833 individuals are requesting the Directory and 446 individuals are requesting the Abstracts.

Assisted with writing/rewriting job description and posting the new meetings manager position.

Converted our student position to a University Student position. Previously paid through the business office directly.

Worked with Dave Kramer, OSU printing facilities and McGraw-Hill on new posters.

Attended Access classes in order to convert our Foxpro programs and databases to Access.

Respectfully submitted, Kimberly E. Hiser,
Business Manager

The BSA Council established an ad hoc committee in August 2000, to investigate restructuring memberships in the BSA. In part, this investigation was triggered by a need to modernize the Society, to address ways of modernizing memberships and to compete more effectively with the newly renamed American Society of Plant Biologists (formerly ASPP).

This is the stated charge of the committee:

The Ad Hoc Committee on Membership Options/Tiered dues/Journal is charged to assess the impact of tiered membership options and increased electronic subscriptions of *AJB* on the financial standing and membership levels of the Society and to suggest strategies for implementation of same, if that is desirable, and/or of strategies designed to increase membership within a sound financial framework. The Committee is to report on its findings by the Spring 2001 Executive Committee meeting.

Present conditions:

1. Members of the Botanical Society of America receive subscriptions to the print copy of the *American Journal of Botany* as a privilege of membership. This policy reflects the commitment of the Society to provide publication of refereed research results and to disseminate these results to members through the *Journal*. Currently, members who opt not to receive their subscription copy of the *Journal* receive no adjustments to their membership rate. An online version of the *Journal* is available free of charge on the Internet.
2. The dues paid to the Society reimburse only a portion of the costs of subscriptions, ranging from ~90% for professional members (~85% for overseas professional members), to ~35% for students (~30% for overseas student members). Increases in the membership of the Society actually increase the financial burden to the Society. At present, the deficit between dues and costs of providing a hard copy journal is covered from monies received for institutional subscriptions and from the general fund of the Society.
3. For 2001, professional membership dues are \$85 and student membership dues are \$35. Family membership dues are \$5 more in each category. (Family memberships provide separate mailings of all membership materials and one joint copy of the *Journal* and *Plant Science Bulletin*.) Corporate and sustaining membership categories, at \$150 and \$250 each, respectively, have been underutilized.

4. Members not wanting to receive a print subscription to the Journal receive one despite our cost savings. Potential members have complained that the cost of BSA membership is too high and that a print copy of the American Journal of Botany is not a universally attractive addition to the membership package.

5. A significant number of botanists who pay for subscriptions personally are ineligible for institutional reimbursement for professional society memberships. On the other hand, many of these same institutions will reimburse employees for journal subscriptions.

6. Membership in BSA is required of only one author on co-authored manuscripts. Membership is required when the manuscript is submitted for review and also during the year of publication (except for Special Papers). Each member is entitled up to eight (8) free printed pages per volume. Each printed page over the eight free pages per author is assessed full page charges. Authors are asked to pay full publication costs if they have funds, although few authors do repay some of these costs. Authors may add up their total of free pages on co-authored papers.

7. Currently, the American Journal of Botany and Plant Science Bulletin are provided free-of-charge through the Internet. The licensing agreement for use of the American Journal of Botany Online are unrestricted for scholarly use, but restrict additional use in excess of this to be accompanied by a print subscription to the American Journal of Botany. Furthermore, no access charge may be levied by a third party for providing access to our "free" site.

Discussion:

Members are increasingly concerned about the high cost of memberships and have become more discriminating as to which memberships will be renewed and which will lapse. BSA has a remarkable ~95% renewal rate, but has not competed well in attracting new members. With the renaming of the American Society of Plant Physiologists (ASPP) to the American Society of Plant Biologists (ASPB), we have reasons to suspect that competition for new members will increase.

One of the goals of this committee is to propose a formula for membership dues and journal subscriptions that will allow production of the American Journal of Botany to become self-supporting. This is crucial if we are to maintain the financial health of the Journal and the Society. The cost of providing the Journal online plays a relatively small role in these discussions because these

costs are fixed and are relatively independent of the number of users. The online version provides close to the same utility of the print version for research usage and high quality reprints can be produced using current technology printers for study use.

Thus, one possibility is that basic membership dues provide access only to the on-line journal. Those wishing a print copy of the journal would receive it for an additional fee. Print subscriptions for students and emeritus members would continue to be subsidized but these members would have to bear a greater percentage of actual cost.

The Botanical Society of America is becoming increasingly involved in outreach educational activities. Consistent with the expansion of these outreach activities, it would be appropriate to offer preferential rates to K-12 teachers.

Recommendations:

Costs of supporting the Journal

1. Membership in the Society would not include a print copy of AJB, but would include the Plant Science Bulletin, meeting and membership announcements, and the online AJB.

2. Membership rates and print copy subscription fees would be set at a level or levels that fully cover the costs of producing and mailing the journal, as well as the administrative costs of running the Society. Student memberships with a print subscription should increase from the current 35% of the cost of providing a regular subscription to 67% of the actual cost.

3. To encourage an increase in the membership, free access to the American Journal of Botany Online should in the future be provided only to the BSA membership and institutional subscribers to the electronic version. Password controls should be erected at the HighWire Press web site with a tentative target date of late fall 2001, with sales of electronic access to institutional subscribers beginning in January 2002. Tables of contents, abstracts and search engines should continue to be available at no cost to users. To access the full content of the AJB—including PDF reprints and full text HTML—will require individual passwords or institutional membership.

4. Rates for institutional access to the American Journal of Botany Online will initially include a print copy of the Journal. Current models can predict changes in print subscriptions reasonably accurately. In the future online subscription may diverge from print subscriptions in the future.

5. The cost of institutional subscriptions to the electronic version of the Journal should reflect potential lost revenue from potential BSA members not joining the Society because they can access the Journal free through their institutional membership.

6. Late renewal of print subscriptions after January 10 requires that issues of the Journal be mailed from Allen Press' warehouse. Since there are warehouse access and storage charges, these requests involve special costs and inconvenience. Therefore, memberships and membership renewals entered *with print subscription* after January 10 will require a \$25 processing fee to cover the additional costs of shipping and handling. (Introduction of a late processing fee reiterates a recommendation from Mary Dawson's operational audit of BSA in December 2000.)

7. Members publishing in the Journal should continue to remain eligible for eight (8) free pages per year. However, each manuscript should be eligible for no more than twelve (12) free pages per paper, regardless of the number of co-author members. Invited special papers shall be granted fifteen (15) free pages.

8. No changes should be made in the status of life members and corresponding members at this time. These members should be asked very politely from time-to-time to let the business office know if they ever choose to waive the print copy. Outreach efforts to new member categories

9. A new category of memberships should be established for K-12 teachers. (This directly complements the efforts of the Education Committee to form a significant partnership with publishers. McGraw-Hill has discussed complementary memberships for K-12 teachers with David Kramer. The current plan could produce hundreds of new members of BSA, for which McGraw-Hill has offered us \$30 per member.)

10. A sophisticated package of sustaining and corporate membership benefits was developed by Wayne Elisens, Scott Russell and Kim Hiser. Attachment #1 provides the schedule of corporate benefits. The committee supports immediate implementation of this plan.

11. Electronic access to membership records, including personalized email reminders, should be implemented in 2001. Reminders should be issued periodically by e-mail from September through the first week of January urging prompt renewal to decrease costs to BSA and members. Expiration dates should also be available by email request from the website.

12. A secure server should be implemented to provide 24/7 access to credit card processed membership applications. This server would also provide sales of BSA memorabilia from the Business Office.

Proposed model for membership dues and subscriptions: This model is based on Year 2000 assumptions regarding membership numbers and Year 2001 increased costs.

Membership subscriptions

	Base	AJB	Total
<i>Student</i>			
w/o subscription	\$30.00	\$0.00	\$30.00
w/ subscription	\$30.00	\$35.00	\$65.00
<i>Professional</i>			
w/o subscription	\$45.00	\$0.00	\$45.00
w/ subscription	\$45.00	\$55.00	\$100.00
<i>Emeritus</i>			
w/o subscription	\$35.00	\$0.00	\$35.00
w/ subscription	\$35.00	\$35.00	\$70.00
<i>Teachers (K-12)</i>			
w/o subscription	\$30.00	\$0.00	\$30.00
w/ subscription	\$30.00	\$35.00	\$65.00

Institutional subscriptions

	Hardcopy	Electronic	Total
<i>Domestic subscribers</i>			
w/o electronic access	\$295.00	\$0.00	\$295.00
w/ electronic access	\$295.00	\$600.00	\$895.00
<i>Canada & Mexico subscriber</i>			
w/o electronic access	\$305.00	\$0.00	\$305.00
w/ electronic access	\$305.00	\$600.00	\$905.00
<i>Foreign subscribers</i>			
w/o electronic access	\$320.00	\$0.00	\$320.00
w/ electronic access	\$320.00	\$600.00	\$920.00

Life memberships and corresponding memberships are revenue neutral and will not be affected by this change.

Membership dues and subscription rates for 2002 need to be determined by vote at the BSA general business meeting (August 15, 2001).

Institutional subscriptions for 2002 need to be reviewed and approved by the EC at the Spring Business Meeting (February 23-25, 2001).

Instituting controlled access at the HWP site for 2002 requires at least six-month notification and payment of ~\$12,000 up-front for code generation. (Deadline: June 2001)

Bylaw change needed to institute K-12 teacher membership category to accompany Spring mailing.

Membership Tiers Committee:

Scott Russell, Chair; Kathleen Shea ; Edith Taylor ; Maxine Watson ; Ed Schneider, ex officio; Kim Hiser, ex officio

BSA CORPORATE SPONSORSHIP PACKAGE

Cost: \$300 annual fee (includes \$150 corporate membership)

Benefits:

1) 20% discount for ads in the hardcopy AJB
Hardcopy AJB Advertising Rates (all B&W unless indicated)

Sponsor outside back cover \$600, \$1000 color;
full page \$440; half-page \$220

Regular outside back cover \$750, \$1250 color;
full page \$550; half-page \$275

2) 20% discount for ad boxes in electronic AJB (vendor provides graphic)

Electronic AJB Introductory Advertising Rates

Sponsor \$80/3 months \$300/year

Regular \$100/3 months \$375/year

3) 20% discount for ads in the Final Program and for Tote-bag Insertions at the annual Botany conference.

Advertising and Insertion rates for Annual Botany conference

Sponsor \$250 full page ad; \$140 half page ad;
\$200 insertion fee

Regular \$300 full page ad; \$175 half page ad;
\$250 insertion fee

4) \$150 discount for exhibit booth at annual meeting

Basic exhibit booth rates

Sponsor \$800

Regular \$ 950

5) Posting on the 'Virtual Mall' on the BSA website for Corporate Sponsors. Links from AJB and BSA websites. (available only to corporate sponsors)

6) One-page vendor-provided insertion with the spring or fall mailing: \$300 / piece (8-1/2 x 11 inches) (available only to corporate sponsors)

7) Multiple, unlimited access to online BSA membership database (regular access allows only 20 retrievals). Mailing labels printed by BSA Business Office @ 20% discount.

Minimum value for sponsors who purchase one ad (AJB or meeting) and one booth at annual conference, savings = \$200 to \$300 + virtual mall posting + membership database

Inquiries should be directed to: Ms. Kimberly Hiser, Business Manager; Business Office; 1735 Neil Avenue, Columbus, Ohio 43210-1293

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Publications Committee

Two topics occupied the Publications Committee this year: (1) monitoring progress on the multi-year process of reducing the backlog of accepted ready-for-press manuscripts for the *AJB*, and (2) soliciting, screening and ranking bids for a new contract to print *The American Journal of Botany*.

1. Backlog Reduction

According to figures provided by *AJB* Editor-in-Chief, Karl J. Niklas, the backlog of accepted manuscripts waiting to be printed has been reduced by ~35% since the adoption of the larger issue-size. However, the number of new submissions has increased compared to the past two years. The net result is that unless more pages are published per volume, the Editorial Office will find it very difficult to reduce the backlog substantially and quickly.

Recommendation: To continue progress in reducing the backlog and to speed up the process, we recommend that the larger issues approved and funded in 2000 be continued through 2002 (Volume 89). Furthermore, we recommend that two additional signatures per issue (2 signatures/issue x 16 pages/signature x 12 issues/year) be funded for 2002 (Volume 89).

2. Printing Contract for *The American Journal of Botany*

A request for bids for the printing contract for *AJB* was sent out to five firms on May 1, 2001. The firms solicited were AGS [Advanced Graphics Systems], Allen Press, Cadmus, Hopkins Printing, IPC Communication Services, and Sheridan Press. Completed bid packages were received by June 1, 2001, and varied greatly in terms of completeness and elaborateness. Copies of the relevant portions of all bids were distributed to the Publications Committee for review and comment. The major

criteria for selecting a printer for *AJB* are quality, comprehensiveness, timeliness, reliability, and competitive pricing. As of August 2, 2001, the choice has been narrowed to two finalists, and a recommendation from the Publications Committee to the Executive Committee is expected within a week.

-Judy Jernstedt, *Chair, Publications Committee*

Merit Committee Report

Three letters of nomination were received. Two of these were supported by ancillary materials, but supporting materials for the third were not received prior to the BSA's reporting deadline. Thus, the nominator and committee agreed that letters and a CV supporting this third candidate will be forwarded to the 2002 Merit Award Chair for consideration next year.

The Committee recommended that Carol and Jerry Baskin be given the 2001 Merit Award for their extensive contributions to the field of seed ecology, including more than 300 publications and a well-received book. This result, together with a formal citation was provided to BSA Chair Pat Gensel on July 2, 2001.

- Linda E. Graham, *Chair, Merit Awards Committee*

Pelton Award Committee

The Conservation and Research Foundation reported that sufficient funds were not available in the Jeanette Siron Pelton Fund to make an award in 2001. Accordingly, we did not make a solicitation for nominees for this year's award and there will be no award. Although we have not yet received notification from the Conservation and Research Foundation for 2002, under typical conditions distributions are available in alternate years and we anticipate an award next year.

- Scott D. Russell, for Michael Christianson, Chair

Developmental and Structural Section

At our business meeting last year we elected Larry Hufford as Program Convenor and Darlene Southworth as Treasurer. Our sponsored symposium, "Open Space", was a lively success. This year there will be a number of discussion sessions on topics of general interest, embedded

throughout the general program. Our section listserv continues to be used as a message board, but there has been little interest shown to date in establishing a discussion group. We will be sponsoring two symposia at the Albuquerque meeting.

-Jean Gerrath, *Chair, Developmental and Structural Section*

Ecological Section

After sponsoring four symposia at IBC in 1999, the symposia sponsored no symposia at the meetings held in Portland, OR in 2000. We had hoped to sponsor two symposia at the 2001 annual meeting, one on conservation ecology and the other on plant developmental ecology and evolution. Unfortunately the conservation symposium had to be cancelled due to conflicts with other meetings, but we are looking forward to the symposium organized by Katherine Preston and Ted Wong on plant developmental ecology. A well-formulated symposium proposal has been submitted for the 2002 annual meeting by Jeff Karron. The topic of that symposium is *Mimulus* mating systems.

The award for best student paper at the 2000 meeting was won by Theodore Wong, Stanford University for a paper, coauthored with David Ackerly, entitled "How sensitive should plants be to cues? Theoretical studies of plastic reproduction schedules". We were pleased to see that the numbers of submissions to the competition are significantly higher this year. Thus, we are especially grateful to the panel of judges, and to Pam Diggle who agreed to Chair the selection committee.

For the first time, we made use of the newly formed sectional email list to obtain nominations for section officers. All of the candidates listed on the ballot were nominated in this way. And we thank each of the candidates for agreeing to run for section office. While it was tempting to hold the election via email, as well, we found enough errors in the email list to make a paper ballot seem more appropriate. Elizabeth Lacey will mail the ballot to section members around September 1, 2001,

The attrition of section membership continues, with current membership hovering around 425.

-Maxine Watson, Chair, Ecological Section

Economic Botany Section

1) At the Botany 2000, "New Frontiers in Botany" Meeting in Portland the Section hosted a Luncheon/Lecture on Tuesday, August 8. The luncheon speaker was Walter Lewis of Washington University and the Missouri Botanical Garden. Walter presented a paper titled " Pharmacology of Neotropical Plants: Research Among the Aguaruna Jivaro of Amazonian Peru".

2) Following the Luncheon/Lecture, Section President Felix Coe of Tennessee Technical University chaired the section meeting.

3) The Economic Botany Section will not be hosting a symposium at the Botany 2001, "Plants and People" Meeting in Albuquerque. We look forward to continuing to strengthen interest in the Section during the coming year and expect to support a full symposium and continue the Student Award program in 2002 in Madison.

4) The Section will host a Luncheon/Lecture at the Albuquerque meeting with the luncheon highlighted by a lecture by Gary Nabhan (Plenary Lecturer) titled, "Ethnobiological Education and Conservation Based in Indigenous Communities: Successes in the Sonoran Desert and Colorado Plateau".

5) Treasurer's Report: As of May 2001 the Economic Botany Section had \$248.71. All of the expenditures of the last fiscal year were related to travel support for the Luncheon/Lecture speaker (Walter Lewis) at the Portland meeting. Of this reported balance, expected expenditures for this year include: \$248.71 to be used for the luncheon to be held on Monday, August 13th between 11:30 and 1:00 pm.

-Daniel Harder, Secretary Treasurer, Economic Botany Section

Genetics Section Report

R. Joel Duff received the 2000 Margaret A. Menzel Memorial Award at the BSA banquet in Portland, OR for his paper entitled "The fate of conserved ribosomal DNA and protein coding gene clusters during the evolution of land plant mitochondrial genomes." The paper was co-authored by Mark Davis and Angela Boyle at the University of Akron.

Joel has the dubious honor of being the last recipient of a \$100.00 Menzel Award as the Section voted to

increase the award to \$200.00 beginning in 2001. In addition to this award, there will be a Genetics Section Poster Award of \$100.00 beginning in 2001. Both awards include a ticket to the BSA banquet.

The section also voted to create a Graduate Student Research Award of \$500.00. Thanks to Richard Whitkus and R. Joel Duff who composed this committee, read the proposals, and agreed on a recipient to be announced at the BSA banquet in Albuquerque.

Lastly, Randy Small has agreed to stand for election as Secretary/Treasurer. After the minor matter of a vote, he will be duly installed.

- Jeri W. Higginbotham, *Chairperson*, Genetics Section

Paleobotanical Section

The Paleobotanical Section currently has 347 members (260 regular members, 14 emeritus regular members, 53 affiliate members, 4 emeritus affiliate members, and 16 honorary members. Current officers are Kathleen Pigg, Chair; Steven Manchester, Secretary-Treasurer; Wilson Taylor, Editor, with new Chair and Secretary-Treasurer to be elected at the 2001 Business Meeting of the Paleobotanical Section.

The Section has an active program for Botany 2001, including 51 contributed papers and posters submitted by members of the Paleobotanical Section. A paleobotanical dinner and auction will be held Monday, August 13, 2000, at the New Mexico Museum of Natural History, for which 68 people have registered. Prior to the Paleobotanical Dinner, there will be a tour of the Paleontological Collections of NMNH at 4:00 pm, courtesy of Spencer Lucas. The annual business meeting of the section will be held August 14th at 8:30am. Two paleobotanically oriented field trips are scheduled in association with the Albuquerque conference: "Paleoecology of the K/T Boundary in the Raton Basin, New Mexico and Colorado," Saturday-Sunday, Aug. 11, 12, led by Gary Upchurch, and "Pennsylvanian floras of the Albuquerque area," Sunday, August 12, led by Sidney Ash and Gene Mapes.

The Bibliography of American Paleobotany for 2000, including the current section membership directory, has been published and is being distributed to all members and institutional subscribers. Others may purchase copies for \$18 each.

The Paleobotanical Section continues to receive donations in support of endowment funds, including

the Cookson, Becker, Cichan, and Remy funds. Each year, proceeds from the sale of buttons (this year: "dead plants tell no lies") go to the paleobotanical endowment.

The section web site, maintained by Charles Daghlian, may be accessed directly at <http://www.dartmouth.edu/~daghlian/paleo/>. In the past year, a PaleoNews page was added allowing members to submit news items directly. Recent entries to the PaleoNews page include images from the Oregon paleobotanical field trip associated with the Botany 2000 conference (linked from Aaron Liston's web site), as well as timely announcements and biographical sketches.

-Steven R. Manchester, *Secretary-Treasurer*
Paleobotanical Section

Phytochemical Section

The Phytochemical Section planned and obtained funding for the symposium "Why leaves turn red: The function of anthocyanins in vegetative organs." There will be 10 speakers. This was our only undertaking.

-James W. Wallace, Chairperson

Pteridological Section

At the Botany 2000 Meeting in Portland, Oregon, the Pteridological Section of BSA co-sponsored, along with the American Fern Society a symposium entitled, "Biology and conservation of the Ophioglossaceae: A tribute to Warren "Herb" Wagner. Fourteen papers were presented at the symposium. In addition, 18 contributed papers and 2 posters were presented.

The Edgar T. Wherry Award for best paper presented was given to Patricia Sanchez-Baracaldo, University of California, Berkeley, CA, for her paper entitled, "A recent radiation of neotropical fern genera in páramo ecosystems".

The Pteridological Section contributed \$400 to the publication of The Annual Review of Pteridological Research, Volume 13, 1999.

-Tom A. Ranker, *Secretary-Treasurer*, Pteridological Section

Systematics Section

The section sponsored (or co-sponsored with ASPT) two symposia at the Boany 2000 Meetings. "New frontiers in plant systematics - The next 50 years" (half-day), organized by Tod Stuessy (Institut für Botanik, Universität Wien) and Wayne Elisens (Department of Botany & Microbiology, University of Oklahoma) was supported for \$500 from BSA. "Historical biogeography of the Northern Hemisphere" (half-day), organized by Paul S. Manos (Department of Botany, Duke University) and Michael J. Donoghue (Harvard University Herbaria) was also supported for \$500.

The section will be sponsoring two symposia at Botany 2001. Supported are the half-day symposium entitled "Linnaean taxonomy a viable system for the new millennium?" (organized by Jerrold I. Davis, L.H. Bailey Hortorium and Department of Plant Biology, Cornell University), and the half-day symposium entitled "Biogeography and phylogeny of Caribbean plants" (organized by Timothy McDowell, Department of Biological Sciences, East Tennessee State University, and Peter W. Fritsch, Department of Botany, California Academy of Science).

During this past year, the section saw the resignation of Sterling Keeley from her office as Secretary of the Systematics Section. The office of Secretary remains vacant.

Over the next year we would like to establish a section email/listserv. This listserv will create a means for communication, provide for greater interaction among section members and hopefully help attract new members.

- J. Mark Porter *Chair, Systematics Section*

Tropical Biology Section

For the Albuquerque meeting, the Tropical Section received three paper abstracts and one poster abstract, and as last year, these were transferred to appropriate other sections. The Tropical Section is considering joining forces with the Ecology Section, which is about the same size as the Tropical Section, so that talk sessions will have enough presentations to take actually place.

In 2001 and 2002, the Section will be supporting Bruce Kirchoff's "Open discussion" initiative, and it has suggested a potential topic for the 2002 open discussion, namely "Models for collaborations between botanists inside and outside the tropics."

The discussion will be led off by John Kress, the former president of the Association for Tropical Biology, and a colleague from a developing country. Aspects to be discussed could include (1) how to find/recruit students and collaborators from tropical countries, (2) funding, (3) existing models for collaborations, and (4) tropical research stations looking for collaborators (institutional or single). The Sections is also hoping to co-sponsor a symposium proposed for the 2002 AIBS meetings on "Tropical intercontinental disjunctions: Gondwana break-up, immigration from the boreotropics, and transoceanic dispersal" (provided the BSA's council accepts the symposium proposal).

Last not least, the Section has up-dated its (slim) web presence on the BSA home page (thanks to Scott Russell).

-Susanne Renner, *Chair*, Tropical Biology Section

Midcontinent Section

For the past year the Midcontinent Section of BSA has been inactive. At the Botany 2001 meetings, opinions will be sought to ascertain whether there is any interest in having a regional meeting with presented papers, etc. during the 2001-2002 year. Emphasis of this meeting on participation and paper presentation by graduate students would add to the value of the meeting for providing another local presentation forum, establishing collaborations, and promoting awareness of botanical research activities in the midcontinent region. It will be necessary to determine if a meeting of this kind would be attended and how much participation there would be.

- Rob Wallace, *Chairperson*, Midcontinent Section

Northeastern Section

The annual Joint Field Meeting of the Northeastern Section of the Botanical Society of America, the Torrey Botanical Society, and the Philadelphia Botanical Club took place at Wesley College in Dover, Delaware, June 24-28. Dr. William Kroen (Biology Department, Wesley College) provided assistance as the local host.

William McAvoy (Delaware Natural Heritage Program) planned the itinerary for the three days of field trips. They included sites in

central Delaware (Killens Pond State Park, Cape Henlopen State Park, Blackbird State Forest) and eastern Maryland (Adkins Arboretum at Tuckahoe State Park, Big Marsh at Echo Outdoor School). The plant communities included examples of upland forest, swamp forest, shrub swamp, seasonal pond (Delmarva bay), fresh marsh, salt marsh, dune, and beach. William McAvoy led a field trip at one of the sites each day and provided the species lists and maps that were distributed to the participants. The other field trip leaders were Jack Holt and Janet Ebert (Botanical Consultants, Chadds Ford, PA), Keith Clancy (Delaware Native Plant Society), and Brent Steury (National Park Service, Washington, D.C.)

Evening lectures were given by William McAvoy and Keith Clancy, by Robert Naczi and Susan Yost (Claude E. Phillips Herbarium, Delaware State University), and by Victor Soukup (University of Cincinnati and Ohio Native Plant Society). In addition, Arthur Tucker (Delaware State University) hosted a tour of the new building for the Phillips Herbarium; and James McClements of Dover invited the participants to examine his cultivated collection of American and Eurasian forest perennial herbs. The field meeting was chaired jointly by Tim Draude and Larry Klotz. There were 65 participants, representing 11 northeastern states plus Florida, California, and the District of Columbia. Next year's meeting is provisionally scheduled for Ohio.

-Karl Anderson, *Treasurer*, Northeastern Section

Pacific Section

A Meeting and Light Breakfast of the Pacific Section members attending the Botany 2001 meeting in Albuquerque has been scheduled from 700 to 830AM on Wednesday August 15. The location is in Fiesta 1-2 of the Hyatt. Current and potential members of the Section who may be attending the meeting are being contacted by email to encourage their attendance and to participate in the meeting. I hope to engender further interest in developing the Section, its membership, and enhancing current activities, and perhaps solicit volunteers with creative ideas to advance the Section and the BSA.. It would be helpful for Council members to attend, if circumstances permit.

- Dieter Wilken, *Interim Chair*, Pacific Section

During 2000-2001 the Association for Systematic Collections was involved in several tasks. The major activity of the current year was the annual meeting of ASC held in Chicago, IL at the Field Museum and Sears Tower 8-9 June 2001. I was not able to attend the meeting, but the wrap-up of the meeting is detailed in the June 2001 ASC Newsletter (see also the ASC website at www.ascoll.org). Over 210 members and VIP guests attended, a record number. Speakers and presenters from nearly 65 museums and organizations participated in two days of panel meetings, breakout sessions, a poster presentation session, as well as live Web demonstrations. The second day of the meeting and the evening reception was held in the Plant Hall at the Field Museum. The keynote speaker was Dr. Jose Sarukhan from Mexico who spoke on "Museum Data: Fossilized or Living Information?" The new president of ASC is Dr. Meredith Lane from the Academy of Natural Sciences in Philadelphia. The 2002 meeting is planned for Washington, DC 6-8 June at the Smithsonian Institution.

The second item of importance in ASC this past year was the ratification by members for a new organizational name—Natural Science Collections Alliance or NSC Alliance. The name change will be introduced this summer with the completion of a new logo and letterhead. The newsletter will be redesigned and renamed and a new URL will be introduced. The reason for a name change was to make the organization and its aims more understandable to the lay public, policymakers, and other scientists.

Throughout the year ASC continued to distribute, in addition to the printed ASC Newsletter, an on-line bi-monthly newsletter of ASC activities, called Washington Initiative, which highlights of recent news about systematic collections, as well as actions in Congress affecting members. The electronic newsletter is available to ASC member institutions and societies, and can be sent to interested recipients on request.

The ASC board of directors has identified issues and seeks volunteers to serve on task forces and committees to address the topics of Education and Outreach, Government and Media, Informatics, and Accreditation of Collections.

Various requests for information received from ASC were forwarded to BSA Business Manager Kim Hiser.

-Laurence E. Skog, BSA Representative to Association for Systematic Collections

November 30, 2001 was the last day on the job for BSA Business Manager, Kimberly E. Hiser. After 9 years in the position, Kim is leaving to spend more time with her 3½ year-old daughter, Katie, and husband, David, and, eventually, to pursue other career interests.

Kim was hired in December, 1992, as the first full-time staff employee of the BSA. This new position of Business Manager was created when Prof. Bob Essman, BSA Manager of Publications, officially retired from the faculty of the Botany Department at Ohio State University and from his years of BSA service. Kim had done hourly work for the Manager of Publications, who also happened to be her father, starting in 1984. One of her first tasks when hired was to computerize the BSA mailing lists—back in the early days of personal computers! Kim left for a stint as a Research Assistant in the seed corn industry in 1987, but returned to the BSA Publications Office in 1990. Her intimate knowledge of the inner workings of the Publications Office made her an obvious candidate for the new position, and after a full search, screening of applicants, and interviews, Kim was hired. She has been with the BSA ever since.



Anyone who has ever had a problem with a missing issue of AJB, lost a dues notice, requested a section mailing list, or bought a t-shirt or mug at a meeting, knows Kim and her cheerful and helpful manner. In addition to assisting BSA members and officers, Kim was also responsible for paying the bills from our printer, Allen Press, filing quarterly taxes for Business Office and Editorial Office employees, dealing with subscription agencies for institutional subscriptions to AJB, and organizing the dreaded U.S. Postal Service biennial audit. She

also responded to miscellaneous botanical inquiries from the public, especially school children around the time of science fairs.

Kim is an avid backpacker and veteran Ski Patrol member. She and her family are looking forward to pursuing these interests further in her "retirement," and when Katie gets big enough to carry her own pack, as opposed to being carried herself, they intend to explore more of the back country and wilderness of the U.S.

The BSA is very grateful for the 9 years of devoted service Kim has provided as our Business Manager. We wish her well in the next phase of her life, and she will be sorely missed.

News from the Sections

The new officers for the Physiological section are:

Chair Denise Seliskar
Halophyte Biotechnology Center, College of Marine Studies, 700 Pilottown Rd, Lewes, DE 19958. 302-645-4366 seliskar@udel.edu

Program Henri Maurice
Biology Department, U of Southern Indiana, 8600 University Boulevard, Evansville, Indiana 47712-3596. 812-461-5231 hmaurice@usi.edu

Treasurer Peter Straub
Biology Program, Richard Stockton College of NJ, PO Box 195, Pomona, NJ 08240. 609-652-4556 pete.straub@stockton.edu

Announcements

Award Opportunities

2002 Lawrence Memorial Award

The Award Committee of the Lawrence Memorial Fund invites nominations for the 2002 Lawrence Memorial Award. Honoring the memory of Dr. George H. M. Lawrence, founding Director of the Hunt Institute for Botanical Documentation, the annual Award of \$2000 is given to support travel for doctoral dissertation research in systematic botany or horticulture, or the history of the plants sciences, including literature and exploration.

Major professors are urged to nominate outstanding doctoral students who have achieved official candidacy for their degrees and will be conducting

pertinent dissertation research that would benefit significantly from travel enabled by the Award. The Committee will not entertain direct applications. A student who wishes to be considered should arrange for nomination by his/her major professor; this may take the form of a letter which covers supporting materials prepared by the nominee.

Supporting materials should describe briefly but clearly the candidate's program of research and how it would be significantly enhanced by travel that the Award would support. Letters of nomination and supporting materials, including seconding letters, should be received by the Committee no later than 1 May, 2002 and should be directed to: Dr. R. W. Kiger, Hunt Institute, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213-3890 USA. Tele (1412) 268-2434.

Jeanette Siron Pelton Award

The Pelton Award Committee is actively seeking nominations for the 2002 Jeanette Siron Pelton Award in Plant Morphogenesis. This prestigious award includes a \$1,000 prize and certificate given in recognition of outstanding contributions in the study of plant morphogenesis. The method of research used to provide provide such contributions may include molecular biology, cell biology, and/or organismal biology. It is anticipated that the award winner will attend the Botany 2002 meeting at Madison, Wisconsin, and present a special address in the Developmental and Structural Section's program. Previous award winners are: R.H. Wetmore (1969), C.W. Wardlaw (1970), P.B. Green (1972), P.K. Hepler (1975), B.E.S. Gunning (1978), L.J. Feldman (1980), T.J. Cooke (1983), T. Sachs (1985), S.D. Russell (1988), E.M. Lord (1989), R.S. Poethig (1993), E.M. Meyerowitz (1994), S. Hake (1996), D. Kaplan (1998), and B. Scheres (2000). Special consideration in the past has been given to younger investigators (under 40 years of age) in consideration of the circumstances of the bequest, which may be waived in the case of particularly noteworthy candidates. The award is not restricted as to sex, nationality, or society affiliation of the recipient. A nominating letter should describe the nature of the nominee's contributions to the field of plant morphogenesis and include the full citations of key papers or books relevant to the nomination. Please send materials to Dr. Scott D. Russell, Chair, Pelton Award Committee, Department of Botany & Microbiology, University of Oklahoma, Norman OK 73019-0245 (e-mail: srussell@ou.edu, Fax 1-405-325-7619). Review of nominees will begin January 31, 2002.

2001-2002 Botanical Society of America YOUNG BOTANIST AWARDS

The Botanical Society of America requests nominations for the Young Botanist recognition Awards for 2001-2002. The purpose of these awards is to offer individual recognition to outstanding graduating seniors in the plant sciences and to encourage their participation in the Botanical Society of America. All nominees with strong records of achievement (at least a B average and other activities) will receive a Certificate of Recognition, and have their names published in the *Plant Science Bulletin*. The top 25 nominees, whose selection will be based primarily on the accomplishments described in recommendation letters, will receive a Certificate of Special Achievement from the Society. Nominations should document the student's qualifications for the award (academic performance, research projects, individual attributes) and be accompanied by two or more letters of recommendation from faculty who know the students well. The selections will be made by a committee chaired by the Past-President, Dr. Patricia Gensel. Nominations should be sent to: Dr. Patricia Gensel, Dept. of Biology, CB #3280, University of North Carolina, Chapel Hill, NC 27599-3280 no later than 15 February 2002.

Timothy C. Plowman Latin American Research Award

The Botany Department at The Field Museum invites applications for the year 2002 **Timothy C. Plowman Latin American Research Award**. The award of \$1,500.00 is designed to assist students and young professionals to visit the Field Museum and use our extensive economic botany and systematic collections. Individuals from Latin America and projects in the field of ethnobotany or systematics of economically important plant groups will be given priority consideration.

Applicants interested in the award should submit their curriculum vitae and a detailed letter describing the project for which the award is sought. The information should be forwarded to the Timothy C. Plowman Award Committee, Department of Botany, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496 USA and received no later than 30 November 2001. Announcement of the recipient will be made no later than 31 December 2001.

Anyone wishing to contribute to **The Timothy C. Plowman Latin American Research Fund**, which supports this award, may send their checks, payable to The Field Museum, c/o Department of Botany,

The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496 USA. Make certain to indicate the intended fund.

Premio de investigación Latinoamericano Timothy C. Plowman

El departamento de Botánica en "The Field Museum" invita aplicaciones para el **premio de investigación Latinoamericano Timothy C. Plowman 2002**. Este premio de \$1,500.00 fue diseñado para apoyar a estudiantes y profesionales jóvenes en visitas al museo de Field y utilizar sus extensas colecciones de botánica económica y sistemática. Se les dará consideración especial a individuos de Latinoamérica y a proyectos en los campos de etnobotánica ó sistemática de plantas económicamente importantes.

Las personas interesadas en aplicar a este premio deberán proveer su curriculum vitae y una carta detallando el proyecto para el cual el premio se utilizará. Esta información debe ser enviada al Timothy C. Plowman Award Committee, Department of Botany, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496 USA y ser recibida antes del 30 de Noviembre de 2001. El ganador del premio será anunciado antes del 31 de Diciembre de 2001.

Cualquier persona que desee contribuir al **Fondo de investigación latinoamericano Timothy C. Plowman**, el cual apoya este premio, puede enviar su cheque, pagadero a "The Field Museum, c/o Department of Botany, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496 USA". Asegúrese de indicar el fondo al cual se destina su contribución.

Call for Proposals: Karling Graduate Student Research Award

Purpose and Eligibility

The purpose of this award is to support and promote graduate student research in the botanical sciences. To be eligible, one must be a member of the Botanical Society of America (BSA), a registered full-time graduate student, have a faculty advisor who is also a member of the BSA, and not have won the award previously.

Proposal Guidelines

The proposal shall consist of 1) a title page (must include: title of proposal, name of student, student's institutional and departmental affiliation, year of student's study, and student's sectional affiliation within BSA); 2) an Abstract; 3) a Narrative (must include: a description of the research, including appropriate conceptual background, purpose or objective, brief outline of methodology, and potential contribution or significance to an area of the botanical sciences); 4) a Budget detailing how the funds will be used (the Abstract, Narrative, Budget and any tables or figures should not exceed five single-spaced pages); 5) a Bibliography (up to two pages); and 6) a Biographical Sketch (up to two pages). Proposals should include one inch margins all around and use a font size of not smaller than 12 point. In addition, proposals should be accompanied by a letter of support from the student's advisor.

Award Level and Announcement

Each award provides \$500. Award winners will be announced at the BSA Banquet held in Madison Wisconsin in August 2002. Funds for the awards come from interest on the Karling and the BSA Endowment Funds, and from the sale of BSA logo items. The award process can be quite competitive; the funding level for the 1998 competition was about 22 percent.

Submission

Proposals and supporting letters should be postmarked no later than March 15, 2002. Students should submit six (6) hardcopies of the complete proposal and arrange to have the letter of support sent to the Chair of the Karling Graduate Student Research Award Committee at the following address: Dr. Gene Mapes, Director, Environmental Studies, The Ridges, #133 TEB, Voinovich Center for Leadership and Public Affairs, Ohio University, Athens, OH 45701. email: mapesg@ohio.edu Phone: 740/593-9526 Fax: 740/593-0924.

Courses/Workshops

ANT COURSE 2002

Southwestern Research Station (SWRS), Portal, AZ August 6-16, 2002

Website: http://www.calacademy.org/research/entomology/Ant_Course/ant_course.html

COURSE OBJECTIVES.—ANT COURSE is designed for systematists, ecologists, behaviorists, conservation biologists, and other biologists whose research responsibilities require a greater understanding of ant taxonomy. It emphasizes the classification and identification of more than fifty ant genera of North America. Lectures will include background information on the ecology, life histories and evolution of ants. Field trips are structured to teach collecting and sampling techniques, and associated lab work provides instruction on specimen preparation, sorting and labeling. Information on equipment/supply vendors, literature, and people resources is also presented.

COURSE SIGNIFICANCE.— Ant Course is a unique opportunity to acquire training that is unavailable elsewhere. This course will provide students with 1) the confidence and skills to identify the major ant genera of North America; 2) an understanding of modern specimen processing and curation techniques; 3) an appreciation for the biological diversity of ants, and 4) experience keying to the species level.

SPONSORS.— The E.O. Wilson Foundation & The Schlinger Foundation.

BACKGROUND INFORMATION.—ANT COURSE will be taught from August 6 16, 2002 at the Southwestern Research Station in Portal Arizona. The Station is centered amid the richest ant fauna in North America. This will be an ongoing course, offered annually.

PARTICIPANT ACCEPTANCE CRITERIA.—ANT COURSE is open to all interested individuals. Priority will be given to those biologists for whom the course will have a significant impact on their research. An entomological background is not required. We aim to include students with a diverse interest in biology, including ant systematics, ecology, behavioral biology and conservation. The high instructor to student ratio will allow students to receive individual attention. ANT COURSE is presented in English and limited to 24 participants.

FELLOWSHIPS.— Four fellowships are available for 2002. Two fellowships cover tuition fees and two fellowships cover station fees.

INSTRUCTORS: 2002 Instructors to be announced Spring 2002

For application form and additional information contact:

ANT COURSE
Dept. of Entomology
California Academy of Sciences
Golden Gate Park
San Francisco, CA 94118-4599

You may also email the application to: bfisher@calacademy.org. Please put "Ant Course application" in the subject line of the email.

DEADLINE FOR APPLICATIONS: APRIL 1, 2002

Four fellowships are available for 2002. Two fellowships cover tuition fees and two fellowships cover station fees. If you wish to apply for a fellowship please have the person writing your letter of recommendation indicate why

you need to apply for the fellowship.

FEES.

Tuition for the 10-day COURSE is \$400 for current graduate students and \$600 for non-students to be paid by all participants on being informed of their acceptance. Tuition covers partial overhead costs of the workshop. In addition, Southwestern Research Station (SWRS) fees for this period, covering dormitory room and board, are \$378, payable to SWRS personnel on departure from the Station on Aug. 16. Transportation costs between home and Tucson (air) or SWRS (auto) are to be borne by all participants or their home institutions.

THE HIGHLANDS BIOLOGICAL STATION 2002 COURSE OFFERINGS

The Station offers several courses each summer at the advanced undergraduate-graduate level dealing with the special biological features of the Southern Appalachians and with areas of study that are appropriate for investigation at a mountain field station. Credit for all courses is available through either UNC-Chapel Hill or Western Carolina University.

Biology of Plethodontid Salamanders. May 20 - June 1
Three semester hours. Steven G. Tilley (Smith College)

The Southern Appalachians are renowned for the diversity of their salamander fauna. This course acquaints students with plethodontid salamanders and shows how studies of these animals have enhanced our understanding of a series of major evolutionary and ecological topics. Each topic will include lectures, field and laboratory exercises, and discussions of original research papers. Field trips to significant salamander locations highlight the course.

Prerequisites: general biology, ecology, or permission of instructor.

Biology of Birds. June 3-15 Three semester hours. Rob Bierregaard (UNC-Charlotte)

Bird diversity is remarkably high on the Highlands Plateau, which includes a wide range of plant community types over a nearly 4000-foot range in elevation. This basic course in ornithology covers morphology, systematics, ecology, and behavior of birds. Numerous field trips in the local area will acquaint students with the rich bird fauna of the region.

Prerequisites: general biology, ecology, or permission of instructor.

Biology of Freshwater Fishes. June 17-29 Three semester hours. Edward F. Menhinick (UNC-Charlotte)

The Highlands Plateau is the wettest place in eastern North America, with abundant clear-flowing mountain streams

and waterfalls that grade into slower-flowing bottomland rivers. Fish vary within these different habitats and within the different river drainages of the area. This course involves collection, identification, ecology, and fisheries biology of freshwater fishes. Resource management, conservation, and effects of pollution are also covered.

Prerequisites: general biology, ecology, or permission of instructor.

Behavioral Ecology of Social Insects. July 1-13 Three semester hours. James T. Costa (Western Carolina University)

The Southern Appalachians host an impressive cross-section of the social arthropod world, making the Highlands Plateau an ideal locale for a field-oriented exploration of the life history and behavioral ecology of arthropods from across the sociality spectrum. Field trips will be supplemented with lectures and readings. Topics for lecture and discussion will include social-evolutionary models, social insect nutritional ecology, defensive mechanisms, communication systems, phylogenetic studies of social evolution, and empirical techniques for studying social behavior.

Prerequisites: General biology, entomology (recommended), or permission of the instructor.

Fleshy Fungi of the Highlands Plateau. July 15-27 Three semester hours. Andrew S. Methven (Eastern Illinois University)

The Southern Appalachian Mountains are world-renowned for their incredibly rich diversity of fleshy fungi. This course introduces students to the fleshy ascomycetes and basidiomycetes that occur on the Highlands Plateau during peak mushroom season. Emphasis will be placed on the analysis of macro- and micromorphological features to aid in the identification of taxa. The daily routine will consist of a morning lecture on systematics, ecology, and phylogeny of fleshy fungi followed by a field trip until early or mid-afternoon. Collections will be examined and identified after returning from the field, providing an opportunity to assemble an impressive collection of fleshy fungi for classroom instruction or research.

Prerequisites: General biology, ecology, or permission of instructor.

List of tentative courses for summer 2003:

Mayflies, Stoneflies, and Caddisflies — John Morse (Clemson University)

Conservation Biology of Amphibians — Ray Semlitsch (University of Missouri)

Conservation Biology of Plants — Peter White (UNC-Chapel Hill)

Forest Ecosystems — Tom Wentworth (North Carolina State University)

Southern Appalachian Flora — Steve Broyles (SUNY - Cortland)

Bryophytes — Paul Davison (University of North Alabama)

Costs

Tuition: \$400 per two-week course, charged to all

students. Registration fees (applicable only to students who wish to register for credit): **either** UNC-Chapel Hill, \$80 registration fee; **or** Western Carolina University, \$35 application fee and \$54 registration fee. (These fees are subject to change on short notice.) Courses may be taken without credit. Housing: \$40/week.

The Highlands Biological Foundation, Inc., offers limited financial aid, typically a half-tuition scholarship available to no more than 1-2 qualified students per course. Further information on specific courses, financial aid, and application forms can be obtained by writing to Dr. Robert Wyatt, Executive Director, Highlands Biological Station, P.O. Box 580, Highlands, North Carolina 28741. Forms can also be downloaded from our website at www.wcu.edu/hibio.

FINANCIAL SUPPORT

Grants-in-Aid. A number of grants-in-aid are available to predoctoral graduate students and postdoctoral investigators for the support of research on the habitats and organisms of the Southern Appalachians. Grant recipients are expected to spend time in residence at HBS, as both they and other researchers and students benefit from such interaction. Support may be awarded for one to twelve weeks. Applications for grants are reviewed by the Board of Scientific Advisors in March of the year for which support is requested. Application forms can be obtained from the Station office or downloaded from our website. They must be returned before 1 March. Applicants will be notified in early April, following final approval by the Board of Directors.

Awards are based on the period of residence at HBS according to the following schedule: Predoctoral, \$250/week; Postdoctoral, \$400/week. Recipients of grants-in-aid are provided research space without charge.

Scholarships. A number of named scholarships have been endowed at the Station and are described below. These represent honors awarded to particularly meritorious projects. They do not provide monies in addition to the basic stipend, which is calculated simply on the basis of number of weeks in residence.

Thelma Howell Memorial Scholarship. Dr. Thelma Howell served with distinction as Executive Director of the Station from 1946 to 1972. Upon her death in 1979, the Highlands Biological Foundation, Inc., established a scholarship fund in her memory, to support investigators at HBS.

William Chambers Coker Fellowship in Botanical Research. Dr. W. C. Coker, Professor of Botany at the University of North Carolina, served as the second Director of the Highlands Biological Station from 1936 to 1944. His wife, Louise V. Coker, through a bequest of her will in 1983, established the William Chambers Coker Fellowship in Botanical Research to be awarded annually to an investigator studying plants or fungi.

Ralph M. Sargent Memorial Scholarship. Dr. Ralph Sargent, Professor of English at Haverford College, was a naturalist, botanist, and conservationist who had a long

association with the Station. Upon his death in 1985, a scholarship was established by Dr. Sargent's family and friends to support students conducting research at the Station.

Lindsay S. Olive Memorial Scholarship. Dr. Lindsay Olive of the University of North Carolina at Chapel Hill was a distinguished botanist and mycologist. A scholarship was established in his memory in 1993 by Ruth Gershon and Sanford Cohn of Atlanta and supported through generous gifts from Ms. Gershon, Mr. Cohn, and Anna Jean Olive. The scholarship is awarded annually to a student whose research reflects the interests of Dr. Olive.

Charles W. Ash Memorial Scholarship. Dr. Charles Ash was a statistician who had a strong interest in the natural world. Following his death in 1993, a scholarship was established in his memory through the efforts of his brother, Andrew Ash, other members of his family, and friends. The scholarship is awarded annually to a promising student whose research reflects Dr. Ash's interests in statistics and experimental design.

All applicants for grants-in-aid are eligible for the Coker, Howell, Sargent, Olive, and Ash awards, subject to any constraints described above. They will be awarded by the Highlands Biological Foundation, Inc., upon recommendation of the Board of Scientific Advisors and approval by the Board of Directors of the Station. Announcements of the awards are made in early spring of each year, concurrent with notifications of grants-in-aid.

Symposia, Conferences, Meetings

Gordon Conference

The Second Gordon Research Conference on Floral Scent: Biology, Chemistry and Evolution, will take place March 3-8, 2002, in Ventura, CA. All posters are welcome. To see the program, apply and register, see www.grc.org. To contact the organizing chair, Heidi Dobson: dobsonhe@whitman.edu.

XVIIth International Congress on Sexual Plant Reproduction

The XVIIth International Congress on Sexual Plant Reproduction will be held at Maria Curie-Skłodowska University at Lublin, Poland, from July 9-13, 2002. The theme of the congress is Sexual Plant Reproduction in Nature and Laboratory. The contact person is: Dr. Ewa Szczuka, Department of Plant Anatomy and Cytology, Maria Curie-Skłodowska University, Akademicka 19, 20-033 Lublin, Poland.

E-mail: plantrep@biotop.umcs.lublin.pl

American Institute of Biological Sciences 53rd Annual Meeting

“Evolution: Understanding Life on Earth”

22-24 March 2002, Key Bridge Marriott Hotel, 1401 Lee Highway, Arlington VA 22209

Researchers, Educators, and Students: The 2002 AIBS annual meeting, “Evolution: Understanding Life on Earth,” presents an excellent opportunity for biologists to share the latest developments in evolution research and education. Attendees will hear distinguished plenary speakers present synthesizing lectures from the forefront of their fields, then will join those speakers and other equally notable scholars in informal discussion groups. The rest of the meeting’s program includes a session on online resources for research and education; a session on the central role of organismal biology; contributed posters; a diversity scholars competition; and a presentation by Darwin scholar and stage performer Richard Milner of his popular musical, “Charles Darwin: Live and in Concert.”

Speakers and discussion leaders include: Francisco Ayala, Rodger Bybee, Joel Cracraft, Niles Eldredge, Douglas Futuyma, Peter and Rosemary Grant, Alison Jolly, John Jungck, Joe Levine, Paula Mabee, Kenneth Miller, Loren Rieseberg, Eugenie Scott. Topics include: evolutionary mechanisms and patterns, replication studies, genomics and development, conservation and population biology, formal education K-16, public education, anti-evolution, public policy and politics, and faith-based issues.

Register now at www.aibs.org, or call 703-790-1745; e-mail: admin@aibs.org.

Other News

FROM THE LABORATORY TO THE PARLOR: SCIENTIFIC INSTRUMENTS IN PHILADELPHIA, 1750 - 1875

Through MARCH 2003, American Philosophical Society - The First Public Display In Recently Renovated 212-Year-Old Philosophical Hall since 1811. At that time, from 1794-1811, Charles Willson Peale’s natural history museum was housed in the building. Now, the 212-year-old Philosophical Hall, adjacent to Independence Hall in Philadelphia, will once again become a

destination as the American Philosophical Society launches its first ongoing public exhibition initiative in almost two hundred years, and the first in its recently renovated building. This initiative also marks the establishment of a full-time curator for the Society’s fine arts and object collections.

FROM THE LABORATORY TO THE PARLOR: Scientific Instruments in Philadelphia, 1750-1875, explores the significance of scientific instruments in the development of the American colonies and the early republic, with a specific focus on Philadelphia.

Through the display of instruments - together with period books, catalogues, engravings, maps, portraits and even translations of American Indian languages- the exhibit illuminates the role that science played in the drive to create a European-style America, develop local and international commerce, and establish social as well as intellectual prestige for the New World devotees of what was then known as “natural philosophy.”

Comprised of ninety-nine artifacts, including forty-six instruments and rare objects, forty-five archival pieces including broadsides, letters, books and diaries, and eight fine arts pieces, (paintings, prints, one watercolor and one plaster bust), the exhibit includes fifteen loan items from such institutions as The Library Company of Philadelphia, The Rosenbach Museum & Library, the University of Pennsylvania, the Library and Mutter Museum of the College of Physicians of Philadelphia, and the Carnegie Institution of Washington. Several of the loan items will be replaced by substitutions from the same or other institutions during the run of the exhibit.

In the 18th century, scientific instruments were used as both tools and toys. In the laboratory they provided the means for measuring and mapping the North American continent, exploring astronomical phenomena such as the TRANSIT OF VENUS in 1769, and examining the newly-visible structures of flowers and fleas. Instruments enabled the development of commerce in the new society, providing the means to standardize weights and measures, and to assess taxes on such products as imports and alcohol. In the home, they provided status for the early amateurs of science - owning a globe, microscope or electrical machine not only linked one symbolically to the international community of natural philosophy but provided entertainment for guests in the form of amusing experiments or parlor games. For more information please call Sue Ann Prince at 215. 440. 3442.

Positions Available

THE NEW YORK BOTANICAL GARDEN

VICE PRESIDENT FOR BOTANICAL SCIENCE

The New York Botanical Garden is soliciting applications from outstanding candidates for the position of Vice President for Science. The appointee will hold an endowed chair (Pfizer Curator of Botany) at the full curatorial rank (equivalent to full professor) in the Garden's International Plant Science Center. In addition, the appointee will hold a tenured faculty position in the Department of Biology at New York University.

The successful candidate will possess a Ph.D. in Biology, and have an established research record in modern molecular and genomic approaches as applied to plant systematics and/or economic botany. An essential talent required will be the ability to creatively blend The New York Botanical Garden's unique biodiversity collections assets and deep expertise in plant and fungal diversity with the evolving molecular and genomics technologies. S/he will be a dynamic, collaboratively-minded individual with proven skills in interdisciplinary research team building. This is especially important as the Garden engages in a number of collaborative relationships with other organizations such as The Plant Genomics Consortium of The New York Botanical Garden with Cold Spring Harbor Laboratory and New York University and the joint molecular systematics research program with the American Museum of Natural History.

In addition, the Garden's Vice President for Science is one of the nation's highest profile spokespersons for the importance of basic research in the plant sciences, with an emphasis on the significance of plant biodiversity. The individual in this position will be responsible for representing NYBG and plant science in many venues, in government relations and to the private foundation community. In addition, the Vice President for Science must be a fluent and enthusiastic interpreter of plant science to a public audience.

The appointee must have managerial skills, as the Garden's Vice President for Science will oversee science programs, e.g., the Institutes of Systematic Botany and Economic Botany and The Lewis B. and Dorothy Cullman Program for Molecular Systematics Studies. This person is also a key member of the Garden's senior management team and must interact effectively within the broader organizational framework.

Applicants should send a curriculum vitae and statement of research interests, and the names and contact information for at least three references to Dr. Dennis Wm. Stevenson, Co-Chair, Vice President Search Committee, attn. Human Resources Department, The New York Botanical Garden, Bronx, NY 10458 USA. Position open until filled; review of applications to commence on January 1, 2002. The New York Botanical Garden is an affirmative action/equal opportunity employer.



RIDER UNIVERSITY—LAWRENCEVILLE, NJ

The Biology Department at Rider University invites applications to fill two tenure track positions in Plant Biology /Ecology and Marine/Organismal Biology. Successful applicants should have broad training in their respective fields. Candidates must have a Ph.D. and a strong record of research accomplishments, post-doctoral research training and demonstrated interest and ability to teach undergraduates. Teaching responsibilities include both nonmajor and major introductory level courses and upper level courses in the area of expertise. Faculty are expected to develop research programs that involve students. In addition, contributions may be made to Marine Science, Environmental Science, and Biochemistry programs, as well as teacher training initiatives. For more information visit our website: www.rider.edu.

Queries should be directed to Dr. James Riggs, Chair, at riggs@rider.edu.

Applications should include a curriculum vitae, detailed statements of teaching interests and research goals, and three letters of reference, sent to Ms. Rosemary Molloy, Manager of Employment - Human Resources, Rider University, 2083 Lawrenceville Road, Lawrenceville, NJ.

Review of applications will begin on December 20, 2001 and continue until positions are filled.

Black Hills State University

Assistant Professor - Plant Biology

Full-time, tenure-track position for a Ph. D. to teach general biology, plant biology and develop an upper level course in area of expertise. Background and research interests in organismal plant biology, and willingness to develop a research program with undergraduates is expected. Send curriculum vitae, a statement of teaching and research interests, copy of transcripts and three letters of reference by December 15, 2001

Apply To

Mail: Dr. Mark Gabel

Black Hills State University

1200 University Street Unit 9003

Spearfish, SD 57799-9003

Fax: (605) 642-6762

TDD: 1-800-877-1113

Web Site: <http://www.bhsu.edu>

Via Email: MarkGabel@bhsu.edu

Plant Molecular Genetics

The Department of Biological Sciences invites applications for a tenure-track Assistant Professorship in Plant Molecular Genetics to begin August 16, 2002. Desirable areas of specialization include development, cell biology, functional genomics and host-pathogen interactions. The successful applicant is expected to develop an extramurally-funded research program, contribute to training of B.S., M.S. and Ph.D. students, and participate in our M.S. Biotechnology Sequence. Postdoctoral experience required. Teaching responsibilities include an undergraduate genetics course for majors and a graduate course in plant molecular biology. To assure full consideration, please send CV, copies of 3-4 publications, 3 letters of recommendation and a brief statement of research and teaching goals by December 3, 2002 to: Dr. Alan Katz, Genetics Search Committee Chair, Department of Biological Sciences, Campus Box 4120, Illinois State University, Normal, IL 61790-4120.

Additional information at website www.bio.ilstu.edu. Illinois State University is an equal opportunity/affirmative action university encouraging diversity.

Department of Botany and Microbiology University of Oklahoma

Applications are invited for four tenure-track positions to begin in Summer 2002 at the **ASSISTANT PROFESSOR** level. The Department seeks outstanding individuals who will contribute to its research, teaching, and service missions, work collaboratively with faculty colleagues, and whose research focuses on: (**Search #1**) **Plant Development/Plant Genomics**, addressing fundamental aspects of plant development and/or the influence of environmental stress on plant development and growth using modern tools of molecular analysis; (**Search #2**) **Molecular Microbiology**, using state-of-the-art methodologies to study cellular events at the molecular level in microbial systems or model microorganisms; (**Search #3**) **Molecular Ecology**, using molecular approaches to understand the ecological principles that govern the structure and function of microbial systems, their relationships to hierarchical ecological levels, and/or the molecular basis of interactions with macrobiota; or (**Search #4**) **Geomicrobiology**, studying the role of microbes in geomicrobiological and biogeochemical processes related to global climate change, focusing on the microbial production and consumption of one or more important greenhouse gases.

Qualified candidates must possess a Ph.D., or equivalent degree, and relevant postdoctoral experience, and provide evidence of a strong ability to develop independent, extramurally funded research as well as a strong commitment to teaching at the graduate and undergraduate levels. Applicants should send a current c.v., representative reprints, statements of research plans, teaching interests and philosophy, and the search # to which the application pertains, and arrange to have three letters of reference sent to Dr. Gordon Uno, Chair, Department of Botany and Microbiology, 770 Van Vleet Oval, University of Oklahoma, Norman, OK 73019 (inquiries to guno@ou.edu). Review of applications begins November 15, 2001 and will continue until positions are filled.

Successful candidates have opportunities to collaborate with a dynamic faculty possessing strengths in functional genomics and proteomics, microbial physiology, microbial pathogenesis, ecology, global change, phytoremediation and bioremediation, plant structure, and systematics. Resources include an electron/confocal microscopy facility, a sequencing facility, a microarray facility, and a planned genomics research institute. More information about the faculty, department, and searches may be obtained at: <http://www.ou.edu/cas/botany-micro/>

All positions offer excellent benefits. Women and members of underrepresented groups are encouraged to apply. The University of Oklahoma is an Equal Opportunity Employer.



Postdoctoral Fellowship in Plant Molecular Systematics

Department of Plant Biology, Southern Illinois University, Carbondale, IL

A postdoctoral fellowship is available, beginning March 1, 2002 to participate in studies of the molecular evolution and systematic relationships of simple thalloid liverworts as part of an NSF funded PEET project. The goals of the project are to circumscribe the 17 genera of the suborders Pelliineae and Pallaviciniineae using a combination of morphological and molecular characters, to assess patterns of genetic variability in cosmopolitan taxa, and to resolve the phylogenetic relationships among the genera of simple thalloid hepatics and the other major groups of liverworts. Qualifications include a Ph.D. in plant biology, with a strong research background in molecular systematics and familiarity with DNA sequencing techniques. Duties of the position are to oversee the collection and analysis of molecular data, to assist in the training of students in molecular techniques and to work effectively as a member of a research team. As a member of this PEET team, the postdoc will be both a trainer and a trainee, who will gain valuable knowledge about the biology of one of the earliest groups of land plants. Additional information about the project and its research team can be found at <http://bryophytes.plant.siu.edu>.

Interested applicants should send a curriculum vitae, a brief statement of research background and the names of two references to Dr. Barbara Crandall-Stotler Department of Plant Biology, Mail Code 6509, Southern Illinois University, Carbondale, IL 62901-6509; e-mail: crandall@plant.siu.edu. The review of applications will begin December 1, 2001 and will continue until the position is filled.

GRADUATE ASSISTANTSHIPS IN BRYOLOGY

Department of Plant Biology
Southern Illinois University
Carbondale, IL 62901-6509

Graduate assistantships are available at Southern Illinois University-Carbondale for bright, motivated students interested in studying the biology and systematics of liverworts, as participants of an NSF-funded PEET (= Partnership for Enhancing Expertise in Taxonomy) project. Under the mentoring of Dr. Barbara Crandall-Stotler and Dr. Raymond Stotler, student theses and/or dissertations will focus on monographic and phylogenetic studies of the pivotal simple thalloid taxa of the Pallaviciniineae and Pelliineae. The project may provide opportunities for field work in North America, Latin America and New Zealand, as well as participation in national and international conferences and workshops. Degrees are offered through the Department of Plant Biology and typically require 2 years of study for an M.S. or 4 years for a Ph. D. The Department offers a selection of more than 40 graduate courses and has excellent laboratory facilities. A detailed description of the department may be found at http://www.science.siu.edu/plant_biology/index.html.

The project provides training in standard taxonomic methods, including nomenclature and herbarium curation, as well as extensive involvement in modern approaches of systematics, such as morphometric methods for analyzing variation patterns, tissue culture techniques, SEM and/or TEM, starch gel electrophoresis and DNA sequencing methods. The application of computer technology to data gathering and dissemination is also integral to student training. This includes, but is notn image-capturing systems, database development and various formats of electronic data analysis and presentation via the World Wide Web.

Each assistantship provides a monthly stipend and complete tuition for the duration of graduate study. To obtain further information regarding application procedures, please contact:

Dr. Barbara Crandall-Stotler
Department of Plant Biology, Mail Code 6509
Southern Illinois University, Carbondale, IL 62901
PH (618)-536-2331; FAX (618)-453-3441;
email: crandall@plant.siu.edu

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Integrative Plant Anatomy. Dickison, William C. 2000. ISBN0-12-215170-4 (Hardbound \$69.95) 533pp + xviii. Academic Press, 525 B Street, Suite 1900, San Diego, California 92101-4495. -From the poignant dedication at the beginning, "As I was writing the final chapter of this book, I realized that I was living the final chapter of my life" to the helpful glossary that concludes this modern treatment of plant anatomy, *Integrative Plant Anatomy* is a painstakingly researched, well-written contribution to plant science. It is also unique in combining traditional descriptive aspects, so essential to understanding plant biology and so undervalued in most undergraduate curricula, with applied plant anatomy. In this way, it bridges the gap between earlier, largely descriptive aspects, to satisfy the post-modernists' desire to see facts applied in the real world. Tragic that the author's death in 2000 preceded the appearance of the book although he was able to go over the proofs shortly before he died.

I want to emphasize the clarity of presentation found throughout Dickison's final work. Each chapter begins with a concise overview of the topic. Reading this prepares the reader for what follows. Examples are ample, not encyclopedic, and clearly discussed.

Initially, I was put off by the title because of the trend in textbooks and monographs to present scientific findings as "integrative." How wrong my perception was. This is a truly integrative approach. The scope of the book ranges from the foundation of plant anatomy, careful description, to strictly applied aspects—such as determining the kind of wood found in a Stradivarius violin. This is a massive undertaking which Dickison accomplished with skill and grace, covering a broad range of topics. (But why were parasitic plants and phytoliths omitted?)

The first half of *Integrative Plant Anatomy* deals with the organization of the plant body. This part of the book will be of particular value to those scientists who need to gain appreciation of plant structure but may not have the background. A vast corpus of basic research is distilled, terms are carefully defined, major concepts discussed— all well illustrated.

I only wish that the figures, at least in my copy, were as clear as the prose. They appear to have been digitally produced at low resolution. Despite this shortcoming, the figures are relevant and drawn from a wide range of sources using both light and electron micrographs. A few colored plates are included with little benefit to the book.

Evolutionary aspects of plant anatomy were one of the author's main interests for all of his research career. As a result, section II of the book dealing with evolutionary, physiological, and ecological plant anatomy is an important contribution. In the evolution and systematics chapter, Dickison provides a cogent, lucid review of

evolutionary plant anatomy. It is certainly one of the best chapters in an excellent book.

Section III, *Economic and Applied Plant Anatomy* is a helpful overview of the role that plant anatomy plays in genetics and plant breeding, plants' response to pathogens; economic uses of fibers for wood as well as forage and animal nutrition. These chapters are not only well crafted and drawn from classic and contemporary literature, they make for enjoyable reading and engaging examples for class use. The best known forensic use of wood anatomy involves the ladder used in the Lindbergh kidnaping and is rightfully included. Read the book to find how other, lesser known crimes, have been solved using a knowledge of plant cells and tissues!

Wood anatomy was one of Dickison's passions as is evident in this work. Knowledge of wood anatomy can help document ages or sources of materials used in ancient buildings, musical instruments, even pieces of art. I was surprised that information on phytoliths and their importance in archeobotany was not included.

Integrative Plant Anatomy is bound to join the ranks of such classics as Esau's *Plant Anatomy*. It should be in every library and will find utility as a text book. Anyone teaching general biology or botany will want it on their shelf. - Lytton John Musselman, Department of Biological Sciences, Old Dominion University, Norfolk, Virginia 23529-0266.



Shape and Structure, from Engineering to Nature. Bejan, Adrian. 2000. ISBN 0-521-79049-2 (Cloth US\$110.00) 0-521-79388-2 (Paper US\$39.95) 324pp Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211. This work is based on a fascinating attempt to link engineered systems with the natural (animate and inanimate) architectures that surround us. In this book Adrian Bejan focuses on the deterministic relationship between the improvement of performance and the generation of geometry in a bounded system. Three major tenets compose the foundation of this intellectual exercise. The author first starts from engineering principles to predict geometric forms found in nature. Second the author uses a naturally engineered system such as tree shaped flows to improve our ability to create artificial dendritic flows. The third component deals with the role of engineering in human society. Once a noble science, engineering has been taken for granted by permeating all aspects of our existence. The author strongly believes that engineers are destined to “play a role in the quest for rational basis - a principle - for the generation of geometric form in nature.”

The book is divided in 12 chapters, it contains a useful table listing exhaustively the mathematical, physical and engineering symbols used. Each chapter ends with a problem (solutions not provided) and reference sections.

The end of the book contains author and subject indices. This work is definitely addressed to a public with a solid base in mathematics and engineering.

The first three chapters address the theoretical understanding of what governs mechanical and thermal structures. The natural shapes we are taking for granted are not dead but in constant disequilibrium, from the tree network or rivers, the cross section of blood vessels to the “watermelon slice” (cross section) of rivers. The fundamental principle of this book is that the spatial and temporal structure exhibited by nature is “the result of a global process of optimization subject to global and local constraints”. It is introduced in this work as the constructal law.

Constructal theory is a mean to rationalize macroscopic features, objectives and behavior. Well known global constraints are the mass and volume of a system under study. Local constraints could be illustrated by the maximum allowable stress in a cantilever beam. The geometry of the system is the result of optimized global and local constraints. Shape and structure are the mechanisms for achieving the design objective. Chapters four-six and eight deal with dendritic forms from heat to fluid trees ending with an interesting study on rivers and ducts. The objective of the optimization process in river drainage basins is to “construct the path (or assembly of paths) that provides minimal resistance to flow or, in an isolated system, to maximize the rate of approach to internal (volumetric) equilibrium”. Although, if minimal global resistance is the keystone component then the finest details of the resulting flow path may vary according to

unknown incidental local factors labeled more simply chance. The flow of a river is fascinating. The river channel tends to acquire a sinusoidal shape with a wavelength proportional to the channel width. Actually, the width of the channel is proportional to the maximum depth. The river channel or delta has a dendritic organization based on the area-to-point flow access optimization. One of the major positions taken by the author is that natural patterns are not fractal. The real image is Euclidean. Chapter seven is an incursion on the complex topic of turbulent flow governed by two regimes where low and high resistance are intertwined. The tour de force made by the author is that turbulent flows are governed by constructal theory as well. Chapter nine and ten look at structure in power systems and time. Systems such as power generation and refrigeration are reviewed. Power plants are systems where “irreversibility is reduced and power production per unit fuel is maximized when the resistances encountered by these flows are reduced”. Example of structure in time is the rhythmic breathing and heart beating of all animals. The observed proportionality between beating frequency and animal body mass raised to the power of approximately -0.25 is derived theoretically. To predict the relation between breathing time and body size we need the following components:

1. Relationship between metabolic rate and body size
2. Relationship between the mass transfer contact area and body size.

Chapter eleven takes a look at transportation and economic structures. By minimizing cost in point-to-area or area-to-point transport the author is able to derive the growth of dendritic transportation routes. Furthermore, by maximizing revenue it is possible to anticipate the expanding dendrites of transport routes. Every detail of the geometric structure is deterministic. It is the result of invoking the principle of parsimony.

The last chapter summarizes the engineering principles illustrated in this book by looking at shapes with constant resistance. This work would gain by improving organization and illustrations. The vocabulary utilized is definitely not for the novice and mathematical terms, variables should be defined with more rigor. More care should be taken in labeling the axis of graphs as well as providing scale and units.

Demonstration of the mathematical theorems should be more explicit. Where are the solutions to the problems provided? The author could include at the end of each chapter a conclusion insert outlining the main mathematical findings supporting his conclusions. At times it is arduous to follow the author's objectives and leading conclusions. This is a complex book geared for an engineering audience. The book would gain popularity if the author drew more examples out of the biological and botanical sciences. Hence the multidisciplinary nature of this work could be improved. -- Laurent Maurice Meillier, Oakland, CA, USA.

The Monumental Impulse: Architecture's Biological Roots Hersey, George. 2001. ISBN: 0-262-58203-1 (pbk US\$ xx.xx) 244 pp. The MIT Press, Cambridge, MA.

– A basic premise espoused in this book is that humans have incorporated various construction features inherent in biological molecules, cells, plant and animal body parts, and animal domiciles in architecture. The author considers many animal artifacts as monuments, since they are often larger than and have utility beyond the life spans of the individual builders. Many analogies are suggested between the functions of biological and architectural structures - some of these were appealing, whereas others, particularly those that attempted to develop analogies between abstractions such as evolution, cladistics, and fractals seemed overly contrived. The author hesitantly suggests that there are homologous suites of “building genes” that are shared between various animals and humans that could explain the convergence of form and function in structures these organisms construct. An unexplained paradox inherent in this view, that there are very few mammals that build such monumental structures as do humans, insects, and birds, leaves the author, and the reader, to wonder whether the building instinct has a genetic or learned (environmental) basis. Animal and human architecture is further examined as extended phenotypes in which structures are considered to be enlargements of the builders’ bodies which serve more complex behavioral functions in social interactions.

The author endeavors to examine these thematic premises sequentially from a consideration of organic molecules, viruses, cells, plants, molluscs, insects, birds (with a nod toward “virtual?” dinosaurs), and mammals. The extended phenotype concept is examined in three chapters devoted to consideration of architectural constructs in terms of establishing territorial boundaries and representing giant male and female genitalia. Hindu readers might take offense at the authors comparison of their religious temples to giant penises. The “biology” of architectural reproduction is examined within a weak framework of Mendelian genetics and the fractal nature of DNA and buildings. An attempt at cladistic analysis of architectural evolution, while intriguing, lacks the rigor of well defined multiple character states associated with the taxa (buildings) under consideration. These latter ideas may ultimately result in more rigorous analytic treatments in the future.

The potential readership of this book should have a background in architecture, since the text is filled with architectural references and concepts that are primarily assumed to be familiar to the reader. The black and white illustrations used throughout the book are highly variable in quality. Many of them are reproduced at such small scale and resolution that their illustrative utility is diminished. I would be hesitant to recommend this book to the architectural readership because the biology/botany content is replete with errors. For example, nucleic acids are confused with proteins, latex is identified as a nonbiotic

molecule, viruses are said to have been visualized by Leeuwenhoek and that they use their tail fibers to walk.

The misrepresentations in the chapter entitled “Leaves and Flowers” are numerous: Spiral phyllotaxis is confused with whorled phyllotaxis, and a system of phyllotactic pattern designation is utilized throughout the discussion, which may be familiar to crystallographers, but certainly is not used by botanist. Fern croziers, tendrils, and shoots are obfuscated in reference to the same structural elements. Pinnately compound leaves are confused with “distychous” arrangement of parts. High order phyllotactic patterns in capitula are misinterpreted in terms of contact parastichies and the architectural examples have no relationship to actual or misinterpreted botanical examples. This chapter would have benefitted greatly from pre-publication critique by a botanical reviewer.

In summary, I find little content in this book to recommend its purchase by botanists or biologists. It may have some use to architects who are looking for formative ideas on new theoretical approaches toward understanding human constructions. – Roger D. Meicenheimer, Department of Botany, Miami University, Oxford, Ohio.



Ecology and Biogeography of *Pinus*. Richardson, David M. (ed.) ISBN 0-521-55176-5 (Cloth US\$160.00) ISBN 0-521-78910-9 (Paper US\$54.95) 527 pp. Cambridge University Press, Cambridge, UK. -- Trees of the genus *Pinus* form a very important group of plants to both humans and natural ecosystems, especially in the northern hemisphere, but increasingly in the southern hemisphere as well. Not since Mirov's seminal work, *The Genus Pinus* (1967), has anyone tackled a comprehensive overview of the biology of pines. Yet, since Mirov's contribution, many significant advances have been made in our understanding of pine ecology, genetics, taxonomy, and biogeography. *Ecology and Biogeography of Pinus* intends to present a current synthesis of this research. As pointed out in the preface, reviewing these two broad topics for a genus as much studied as *Pinus* is an ambitious task, but a modern review of the biology of *Pinus* has been long overdue.

Richardson has admirably compiled a vast array of research (he cites over 68,000 references regarding this relatively small genus of 111 species) contributed by many authors from several different fields into an incredibly informative and useful reference text. Generally speaking, there are some editorial mistakes, but on whole, Richardson has done an excellent job in editing this comprehensive overview of the state of knowledge on pines. I am sure that *Ecology and Biogeography of Pinus* will become the standard pine reference for years to come; it provides a much needed and long awaited updating of Mirov's classic text. I would recommend this book to anyone interested in conifers and pines in particular, forestry or even the ecology of one of the more dominant genera of plants in the northern hemisphere.

The book is divided into six sections. Richardson and Rundel's introduction clearly lays out the goals for the volume and provides a thorough overview of the following chapters, but does contain some small, but nonetheless distracting errors. The second section, Evolution, Phylogeny and Systematics, is a formidable topic due to a fragmentary fossil record and lack of species level phylogenetic reconstructions, but the authors do an admirable job tackling it. However, I found a few small nomenclatural problems with the final taxonomic conclusions in Price, Liston and Strauss' phylogeny and systematics chapter. As this is a book primarily on ecology and biogeography and due to the uncertain status of many pine taxa, it is understandable, although disappointing, that the authors chose not to undertake creating a key to the species of *Pinus*. Millar's overview of the early evolution of pines is particularly informative and condenses a widely distributed literature into a manageable review. The third section on historical biogeography is a Quaternary history of pines around the world derived mainly from pollen studies. Perry, Graham and Richardson present interesting speculations on the evolutionary history of Mexican and Central American pines. This is a useful review of the available fossil evidence and points out how little is known about

the evolution of this assemblage of incredibly diverse pines. The fourth section, Macroecology and Recent Biogeography, presents three interesting case studies and helps to bring the discussion up to the present. Lanner and Van Devender's recent history of pinyon pines in the arid southwestern USA summarizes the Holocene range fluctuations of several pine species as determined by packrat midden analyses. Stevens and Enquist's demonstration that pine distributions support Rapoport's Rule test an important macroecological hypothesis and was one of the more engaging chapters.

Ecological Themes, the fifth section, is the largest and most diverse group of chapters in the book. Owing partially to the breadth of topics covered, and to the continual evolution of hypotheses regarding those topics, unfortunately, I found it is also the most error-prone of the sections. Ecosystems that are driven by fire disturbances, as are most *Pinus*-dominated ecosystems, are of particular interest to researchers and there is a large literature on the fire ecology of pine forests. Chapter 11 reviews this literature and presents a general overview of pine/fire interactions. The discussion of the fire regimes of pines is too generalized at times (in both chapters 11 and 12), ignoring local and regional differences that exist in many of the wider ranging species. For example, other hypotheses exist for *P. ponderosa* population dynamics, i.e., that it is recruitment driven, not mortality driven as outlined by the authors. Additionally, most of our western forests (USA) have been dramatically altered by, in some areas, over 100 years of Euro-American resource use and management, making it difficult to ascertain the "natural" state and dynamics of pine ecosystems. In Chapter 16, Read presents a readily accessible synopsis of the fungal associates of pines and his coverage of mycorrhizal associations is illustrative of the advances that have been made in pine research. The following chapter further elaborated on pine/soil interactions but contained some errors; the most notable being the use of endomycorrhizal roots when the preceding chapter distinguished between endo- and ectomycorrhizal roots, the latter being the type of symbiosis found in pines.

The final section on pines and humans concerns the economic (and ecological) importance of *Pinus* to society. Pines have provided humans with natural resources for thousands of years, such as timber and fiber for paper, and researchers will find a concise overview of that utilization in Chapter 20. The following chapter on the incredible journey of *P. radiata* is a fascinating story that, as told, would have benefited from a reduction of forestry jargon which many ecologists and biologists will find difficult to read. While it may seem strange to ecologists from the northern hemisphere to think of pines as weeds, pines have become a serious ecological problem in many southern hemisphere countries and the last chapter by Richardson and Higgins on pines as weedy invaders rounds out the biogeographical component of this book and

complements the discussions of the ecology of natural populations presented earlier.

As with any book of this nature and scope (40 contributing authors!), there are bound to be some editorial errors. A few picture captions needed closer scrutiny and the taxonomy of the chapters was not always consistent with that proposed in Chapter 2. Although I would have liked to have seen a little more rigorous editing, none of these minor errors impact the usefulness or conceptual organization of this book. *Ecology and Biogeography of Pinus* is well illustrated throughout with numerous high-quality black and white photographs and figures.

In addition to a general subject index there is a separate "Index of biota and taxa." Non-Pinaceae taxa are further identified by family or other taxonomic designations (as in the case of invertebrates and vertebrates) making this index particularly useful. A glossary defines many of the technical terms used in the text, but unfortunately not all terms used in the text made it into the glossary. Finally, there is an interesting glossary of English common names for pines. For some of the pines from non-English speaking countries, these names seem contrived and not particularly useful.

As with so many scientific books these days, the price of the hardback unfortunately puts this book out of the reach of most students and probably many professionals. Fortunately, it has been released in a more affordable paperback edition – still not inexpensive, especially considering the less durable nature of paperbacks. In fact, I would have liked to have seen a more substantial binding in the hardback version also; libraries may find themselves rebinding this book relatively soon.

Ecology and Biogeography of Pinus represents a tremendous effort, not only on David Richardson's part, but also from the contributing authors. It has been over thirty years since anyone has attempted a synthesis of the biology of the genus *Pinus* and Richardson has competently tackled this long overdue task. *Ecology and Biogeography of Pinus* has more than met his goal of providing "an informative overview of the current understanding of the ecology and biogeography of the genus *Pinus*." *Ecology and Biogeography of Pinus* is a definitive single-volume modern resource that I strongly recommend to anyone working with, or interested in, pines and their biology. – James P. Riser II, Department of Biology, University of Colorado at Denver, Denver, CO.

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Invasive Plants of California's Wildlands. Bossard, C. C., J. M Randall, and M. C. Hoshovsky. 2000. ISBN0-520-22546-5 (cloth) ISBN0-520-22547-3 (paper) 359 pp. University of California Press, Berkeley, CA. – The spread of non-native plants throughout the world has hit nearly epidemic levels. Second only to habitat destruction, biological invasions are a leading cause of loss of biodiversity worldwide. Even relatively pristine parks, preserves, and wildlands are not immune to the threat of invasion.

California, in particular, with its "variable topography, geology, and climate", has become a host for 1,045 non-native plant species, many of which have rapidly spread throughout the state causing severe ecological and economic disaster. *Invasive Plants of California's Wildlands* provides species accounts for 78 non-native plants that are listed by the California Exotic Pest Plant Council (CalEPPC) as Invasive Plants of Greatest Ecological Concern as of 1996.

The book is organized into two sections. In the first section, the reader is provided with a current review of the impacts of non-native plants on wildlands. This review includes the following: (1) the impact of invasive plants on ecosystem processes, such as nutrient cycling, fire and hydrological cycles, and erosion, (2) the displacement of native species by invasive species, (3) the loss of native genotypes through hybridization between native and invasive plants, and (4) the facilitation of invasion of non-native animals by non-native plants. The authors continue with a discussion of the characters and traits of successful plant invaders and the types of habitats that are most invisible. The authors finish this section with a detailed account of management tools to control invasive plant species, including physical, biological, and chemical control. One strength of this work is the authors' promotion of integrative efforts that use multiple methods, combined with long-term monitoring, to control and eradicate non-native species from ecosystems.

The second portion of the text consists of species accounts for the 78 non-native plant species listed by CalEPPC. Each species account consists of a description of the focal plant, where to find it in California (both habitat type and region), where it originally spread from, what environmental and economic problems it causes in California, how it reproduces, and how to control it. The species accounts are clear, concise, and provide excellent references for the 78 most problematic non-native plants in California without superfluous technical jargon.

The 78 non-native plant species described represent approx. 26 plant families, include terrestrial and aquatic plants, and consist of trees, shrubs, grasses, and perennial and annual herbs. What struck me after reading the 78 species accounts was the enormous variety of economic and ecological problems these plants are associated with,

most notably, the displacement of native plants and animals and changes in ecosystem processes (i.e., fire regimes, hydrological cycles). In addition, there is striking variation in where the plants spread from (i.e., South America, Asia, Europe, Africa, Australia, New Zealand, and range expansion within California) and the means by which the plants traveled to California. Plants such as *Bromus tectorum* (cheatgrass) were accidentally introduced into California in contaminated grain seed, other species were intentionally introduced as ornamentals in gardens, such as *Delairea odorata* (cape ivy), or as ground cover to stabilize banks, such as *Carpobrotus edulis* (highway iceplant), others have escaped cultivation (i.e., *Digitalis purpurea* (foxglove)), while many aquatic plants were introduced for use in aquaria and water gardens and later escaped cultivation, such as *Myriophyllum aquaticum* (Brazilian water milfoil).



Although the work has many strengths, it also suffers from two major weaknesses. First, the authors failed to include a concluding chapter that summarizes and synthesizes the species accounts. After reading 78 species accounts, they kind of blend together. Do the species all share some common characters or reproductive strategies? Or do all of the species have distinct characters? Was there one common control method that worked for all species? The reader is left to make tables and tally up how many species reproduce vegetatively, how many species are toxic to cattle, etc. Second, the book does not have an index. Therefore, it is impossible to search the book based on keywords.

Despite these two minor weaknesses, the strength of the book clearly lies in the descriptions of the species and where they are found. These descriptions will help readers recognize invasive plants in their counties, towns, and even in their own back yards. And hopefully the detailed control methods listed for each invasive species will empower land owners and managers to take action against invasive plants. This book is meant for anyone – students, researchers, land managers, lay persons. In addition, many of the species listed, such as *Cirsium arvense* (Canada thistle) and *Euphorbia esula* (leafy spurge), are not only problems in California but are also problems in other US states and in other countries. Therefore, this book is meant for a broader readership than just Californians. As invasive plants continue to make a lasting impression on the California landscape, this text is a much-needed reference for anyone who enjoys the wildlands of California and North America, academic or otherwise. - Rebecca Irwin, Institute of Ecology, Ecology Building, University of Georgia, Athens, GA 30602

The Tropical Deciduous Forest of Alamos: Biodiversity of a Threatened Ecosystem in Mexico.

Robichaux, Robert H. and David A. Yetman. 2000. (Cloth US \$50.00) 260 pp. The University of Arizona Press, 355 Euclid Ave, Suite 103, Tucson, AZ 85719. - Readers of the recent update (or the original) of Howard Scott Gentry's *Rio Mayo Plants* and/or David Yetman's *Scattered Round Stones*, will find this book enthralling and indispensable. For such readers this book is a new box of bright tiles, which will enhance our colorful mosaic panorama of the ecology of Sonora. For those with no particular prior interest in Sonora this is currently the definitive English description of Mexico's Tropical Deciduous Forest (TDF).

This slender book contains an enormous amount of information about this little known ecosystem. This delineation of the TDF, its people and flora move south of Gentry's Rio Mayo almost to the border of Sinaloa. It contains excellent plant, amphibian, reptile, mammal and bird lists. The references at the ends of the chapters are a comprehensive list of the literature on Sonoran ecology and ethnology.

Chapter 1, Introduction and Prospect describes paradise. Then introduces a "simple case history" that leads the reader inexorably into the reasons why this unique ecosystem is being rapidly destroyed. The serpents in Alamos' Eden are narcotrafficantes and absentee cattle lords. The former bring the lawlessness associated with the trade. The cattle lords clear huge areas of forest and plant alien

buffelgrass (*Pennisetum ciliare*). Wherever this South African import is planted it destroys the native flora and makes restoration of the original flora almost impossible. Readers of David Yetman's other books on Sonora will add yet more torn pages to their memento mori of a world utterly passing away. Hope for this particular area lies in the fact that part of it is a Wildlife Refuge. (However the funding for such refuges is usually quite meager.)

Chapter 2, Structure and Functioning of Tropical Deciduous Forest in Western Mexico, is a concise and thorough introduction to this little known ecosystem. The Sonoran TDF is its most northern extension. The TDF of Chamela, Jalisco (about the same latitude as Mexico City) is pristine and well studied. Data from Chamela is used for this chapter and when data is available for Alamos it is compared with that from Chamela.

Chapter 3, Vegetation, Flora and the Seasons of the Río Cuchujaqui, describes a whole ecosystem in sixty pages. For botanists this is the heart of the book. Long winter evenings can be spent comparing the plant list of the Río Cuchujaqui at the end of the chapter with Gentry's Río Mayo plants. A bit more geological and edaphic information might have helped those who have not read "Río Mayo Plants." This is elegant descriptive prose.

Chapter 4, Monte Mohino, Mayo People and Trees in Southern Sonora, brings vividly to life the people and their relationship to their trees. There seem to be few trees for which they found no use. This interesting material is somewhat disorganized. The alternation in the text between Scientific and Common Names is confusing but each of the isolated common names can be found in the Index and reattached to the Scientific. The "Appendix of Ethnobotanically Useful Trees and Columnar Cacti of the Mayo Region" organizes the material under Scientific Names but Spanish names are not marked (S) while Mayo names are marked (M). If the Spanish name is the same as the Mayo name this is not noted, just omitted. There is another "Appendix of Trees of the Mayo Region by Scientific, Mayo and Spanish Names," so it is possible to ascertain from this list whether the Spanish and Mayo names are identical. Common names are important for those doing research in the area but the Scientific Names are more familiar to English speaking readers. Most of these Genera are familiar to those with knowledge of the more northern flora of Sonora.

Chapter 5, Crop Diversity Among Indigenous Farming Cultures in the TDF, records the careful selection over many years, of crops for particular areas. The "Conclusions" suggest that support and preservation of the lifestyles of traditional agriculturists is as compelling as the need for wilderness protection. But buffel grass continues to enshroud the land.

Chapter 6, Amphibians and Reptiles of the Sierra de Alamos with an appendix on Mammals. These lists

contain Scientific, English and Spanish Common Names. Collection of this information began in the 30's so this list should be almost definitive, though the authors consider it a work in progress.

Chapter 7, Birds of the Tropical Deciduous Forest of the Alamos, Sonora, Area. Sonora has a very rich avifauna and the TDF certainly contains a large number of birds. The breeding ranges in the Appendix 7.2 indicate that the area birds have both far north and far south ranges. Buffelgrass cannot be helpful to their survival.

For those who have no familiarity with Sonora's flora this is an excellent introduction. For those who have serious interests in the area it is an absolute necessity. - Sarah Delle Hultmark hultmark@btc-bci.com

Advances in Chickpea Science. Maiti, R. and P. Wesche-Ebeling, editors. 2001. ISBN 1-57808-156-4 (Hardbound \$92.00) 360+xx. Science Publishers, Inc., Post Office Box 699, Enfield, New Hampshire 03748.- Most Americans know chickpeas, *Cicer arietinum*, as the garbanzo beans from salad bars or from *houmos*, a popular dip made from chickpeas and sesame paste. But in the Middle East and India, chickpeas are more than an accompaniment to a meal, they are an important source of protein.

According to the editors, the book is to be "... a teaching guide as well as a tool to provide information and motivation to students and researchers." We are told that most of the scientific information and illustrations were obtained by the senior editor during a sabbatical stay at ICRISAT (The International Crops Research Institute for the Semi-Arid Tropics). There are ten contributors, nine are from Mexico, and one is from Australia.

The book covers most aspects of the crop's biology including seeds and germination; productivity; mineral nutrition and root biology; nitrogen fixation; climatic factors; food quality; diseases; breeding; and biotechnology. A vast amount of literature has been examined and results summarized.

Some of the pages (at least in my copy) are smudged; many of the figures are not clear. Most of the images were downloaded from the ICRISAT web site and are of unacceptable quality.

Advances in Chickpea Science will be of interest to agronomists and food scientists. The high price of the book will certainly limit its value in developing countries which are the biggest producers of the crop. - Lytton John Musselman, Department of Biological Sciences, Old Dominion University, Norfolk, Virginia 23529-0266.

African Traditional Medicine: A Dictionary of Plant Use and Applications. Neuwinger, H.D. 2000. ISBN 3-88763-086-6 (Cloth DM 198) 589pp. Medpharm GmbH Scientific Publishers, Birkenwaldstrasse 44, 70191 Stuttgart, Germany. - Indigenous and local peoples, especially in Africa, hold significant levels of knowledge about their lands and resources, little known to the rest of the world. African Traditional Medicine is a compendium that bears a comprehensive and magnificent witness to the perspectives of traditional people about healing practices with plants.

The author asserts, in the first sentence of his introduction, that this book is purely a reference book. Plants are arranged alphabetically by their scientific names. All the important medicinal plants and most of those of only local use or minor importance are included. However, information about active principles has been consistently omitted: that is not the purpose of this book.

This dictionary, the first of its kind, seems to be reasonably inclusive, as far as the number of species covered. The sources consulted to prepare this compilation are primarily scientific journal entries and monographs. The literature cited draws upon most of the standard reference works. Neuwinger points out that many of the written texts he cites exist in limited editions and are difficult to find outside Africa. He commended, particularly, the excellent research of Adjanooun, Aké Assi and their collaborators on indigenous plants in the French-speaking countries of West Africa. Published sources are supplemented occasionally, but not consistently, with information from herbarium labels.

Neuwinger conceived of this reference work mainly for scientists working the fields of phytochemistry and pharmaceutical chemistry, searching for medicinally active plants for further research. It will certainly be of interest to botanists, anthropologists and ethnobotanists.

Inevitably any work of this magnitude will have small flaws. Several citations within a botanical entry are missing from the list of references. It would be helpful to add volume and page numbers to each author's name in the body of the text, to assist the reader to retrieve the citation. As it stands now, the author's name alone is given, while the References sometimes cite multiple entries, and the user cannot distinguish the correct one without checking each record. This can be a serious problem especially in the event that a user wants to request a citation by interlibrary loan, if the sources are not available locally.

At current exchange rate of \$1=2.27 DM, the price of the book seems quite reasonable. It is well bound for long-term use, and has a comfortable size. Bound separately, there is a supplemental pamphlet called

African Traditional Medicine: Search System for Diseases, wherein one can search for disease conditions listed alphabetically, from abdominal pain and abortifacient, to yaws and yellow fever. - Dorothea Bedigian, Department of Biology, Washington University, St. Louis, MO.



The Illustrated Rhododendron. Halliday, Pat. 2001. ISBN 0-88192-510-1. (cloth \$US 69.95). 268pp. Timber Press, 133 SW Second Avenue, Suite 450, Portland, Oregon 97204. — As a somewhat bedraggled graduate student in cryptogamic botany I used to relax by sneaking into the stacks at the Botany Library at Harvard and pore over the luscious illustrations in Curtis's Botanical Magazine. The dusty bindings of its volumes belied the balm of the illustrations within. The composition and color of the drawings brought life onto the old pages of the Magazine, there in the dark of Divinity Avenue. The illustrations were truly inspiring, and while I was working on my dissertation they breathed more than a little life into me. Pat Halliday, a veteran of some 40 years at Kew Gardens in London, has chosen over 120 plates from the Botanical Magazine for this book. They represent her choice of the most attractive illustrations of Rhododendron in the collection. One may infer from the pleasure they broadcast that our author spent more than an hour or two herself, luxuriating among the stacks at Kew.

Now, rhododendrons are something of a matter of taste. Here in New England, at least among cultivated varieties, some people consider rhododendrons to be overachievers, trying too hard to produce a bit of beauty from the rocky, acidic soil. I barely gave them a second look myself until Peter Stevens once showed us the strings of pollen he coaxed out of ready anthers, a gift that I passed on to my own botany students. Earlier this year in a hospital room in Canberra, Australia, a colleague of ours, Heinar Streimann, also a cryptogamist, lay on his deathbed. A friend had brought him a rhododendron cutting from his glasshouse, a species from the Highlands of Papua New Guinea that Heinar and Peter might have brushed against in the course of their prodigious fieldwork there. The subtle

change in the light and the gentle scent that the cutting brought to the room were almost palpable. It gave us visitors, as well as our dying friend a welcome bit of refreshment. The illustrations Pat Halliday has included in this volume accomplish much the same thing. They take us to a world a bit less hurried, a bit less worried, and a good deal more sensuous than our own vale of tears. My favorites are the many illustrations by Walter Hood Fitch, active in the mid nineteenth century, who managed to capture each splendid shadow in his delicately sketched paintings. But if we are tempted to dismiss them as rushed sketches we must ask, how else to render the evanescent inflorescences before their beauty fades? Fitch's prints balance the floral morphology and the disposition of each angle with the ethereal color of the species. His work is sublime.

Halliday's comments introduce the species, discussing the aesthetics, the taxonomic history, and cultural requirements of each. The illustrations are accompanied by a short description with distribution and habitat notes that give the book just the scientific panache that we expect from Timber Press. There is a short but useful glossary, an appendix of the *Rhododendron* species that have appeared in Curtis's *Botanical Magazine* from 1787 to the present, and a brief bibliography that will send interested readers to the stacks themselves. Clearly, the volume at hand goes beyond the author's stated goal of providing just a book of "pretty pictures." While it hardly pretends to fulfill the role of a monograph, there is little doubt that this book will bring pleasure to whoever peruses it. I was lucky to get it for review. I recommend *The Illustrated Rhododendron* for giving or for reference. —Samuel Hammer, College of General Studies, Boston University, 871 Commonwealth Avenue, Boston, MA 02215. cladonia@bu.edu.



Medicinal Plants of the World: Chemical Constituents, Traditional and Modern Medicinal Uses.

Volume 2. Ross, Ivan A. 2001. ISBN 0-89603-877-7. Humana Press, Totowa, New Jersey. 487 pp. -I won't deny it -- plant secondary chemicals intrigue me. Aspects of biochemical production, their medicinal or poisonous potential, and their ability to keep bacteria, fungi, herbivores and even other plants at bay all fascinate me. Given this viewpoint, we're on to the main question of all book reviews -- what does the book cover?

From an ethnobotanical perspective, the book is priceless. *Medicinal Plants of the World* covers information about 24 specific plants in a straightforward fashion. Each chapter covers one plant and is referenced from a wide range of chemical and biological journals -- many which you couldn't find even in big libraries. Each chapter includes the common plant names in places like the USA, and its name in up to 60 other exotic locales like Guinea, Tanzania, South Africa, India, Surinam, etc. From these places, the author includes information on published traditional medicinal uses. Ross's method of information delivery -- alphabetical lists prevail throughout -- makes it easy to scan the traditional use information and identify potential research questions. For example, *Anacardium occidentale* leaves are used in a tea to treat diabetes in Brazil, Jamaica and Thailand. Ross also includes a taxonomic plant description, the origin and distribution of the plant, and a listing of all the identified chemical constituents. Finally, each chapter has a list of the plant's published pharmacological activities, including known toxicity assessments. Sections covering these activities are well defined, so if you are interested in the ability of *Vitex agnus-castus* (chaste tree) to promote fertility or the antiviral activity of *Azadirachta indica* (Neem), you can find it quickly.

The 24 plant species include some we think of as dietary and not medicinal -- although it's now obvious that other cultures have a completely different viewpoint about them! Some of these plants include *Anacardium occidentale* (cashew), *Ananas comosus* (pineapple), *Lycopersicon esculentum* (tomato) and *Musa sapientum* (banana). Other inclusions are both dietary and beneficial, like *Allium cepa* (onion), or are used as spices, like *Myristica fragrans* (nutmeg and mace) and *Laurus nobilis* (bay tree).

Some other chapters cover plants that are locally considered herbal medicines, like *Echinacea angustifolia*, *Ephedra sinica*, *Eucalyptus globulus*, *Ginkgo biloba*, *Glycyrrhiza glabra* (licorice root), *Hypericum perforatum*, *Matricaria chamomilla*, and *Tanacetum parthenium*. Some discuss plants that exhibit both medicinal and poisonous properties, like *Ricinus communis*. Still other chapters include exotic plants, some which have no common name in the United States (e.g. *Morinda citrifolia* and *Tribulus terrestris*).

Would it make a good course textbook? No. Its

encyclopedic nature does not refer to any evolutionary theories (e.g., why plants make these compounds), ethnobotanical methods or biological principles (e.g., what increases chemical production). However, I feel the book will be a welcome addition to college libraries, or personal collections of anyone interested in ethnobotany, natural compound chemistry, pharmacognosy, food science, medical botany, or economic botany. Would I like it on my shelf? Most definitely. Ross's book is a great reference and information source on these plant species, and I fully intend to find the first volume. - Michelle A. Briggs, Lycoming College, Williamsport, PA. 17701.



Mistletoe: The Genus *Viscum*. Büssing, Arndt. 2000. ISBN 90-5823-092-9 (Cloth US\$105.00) 265 pp. Harwood Academic Publishers, Amsteldijk 166, 1st Floor, 1079 LH Amsterdam, The Netherlands. - Mistletoe the Genus *Viscum*, forms the sixteenth volume in the series Medicinal and Aromatic Plants Industrial Profiles from Harwood Academic Publishers. A collection of fifteen articles by a variety of authors, this work informs the reader about a range of aspects of the cultivation and use of mistletoe, perhaps best known from the European species *Viscum album*, with a strong emphasis on medical uses.

Mistletoes, broadly considered, come from the two related families of the Santalales, Loranthaceae and Viscaceae, many of which are hemiparasitic, deriving some nutrients from host plants while also photosynthesizing. At least a few members of the Viscaceae are widely known

for their use in Christmas decorations or for their older association with European druids. Nevertheless, species in these families also come from North and South America, Africa, Asia, and Australia.

The first chapter serves as an introduction to these plants, followed by chapters which consider the mistletoes of various regions from Africa on one hand to Korea and other parts of East Asia on another. After the fifth chapter, a collection of chapters consider sensible topics such as cultivation of mistletoes and their hosts for commercial purposes, the chemical constituents of mistletoes, and medical uses both from modern allopathic studies and from more traditional ethnobotanical sources. The various active ingredients from lectins to viscotoxins receive coverage. These chapters are somewhat uneven—e.g. covering all of the cultivation of mistletoes in one chapter while devoting another entire chapter just to differences in the activities of natural and recombinant mistletoe lectins. Also annoying is the inconsistent terminology used throughout for the partially parasitic nature of mistletoes, including “semiparasitic” and “half-parasitic” along with the more common and more accepted “hemiparasitic.”

This work could have been much better if its focus was clearer. The review of all mistletoes devolves to a concentration mostly on *Viscum album* from Europe. Clearly the book was meant to focus on this species, which the authors note to be used in commercial medicinal preparations mostly in Germany, Switzerland, and Austria. True, this species may be the one best known in the literature and about which more may be found outside ethnobotanical work. However, more illustrations of other mistletoes and consideration of their potential, or a recasting of the title of the volume and of the introductory chapter, would have been more appropriate. Since *Viscum* is a member of the Viscaceae and is the subject of most chapters, the mistletoes of the Loranthaceae, such as the tree-form hemiparasitic Australian genus *Nuytsia*, receive light treatment.

Though a number of typographic errors and other minor errors can be found throughout Mistletoes the Genus *Viscum*, Chapter 3 notably is not well written, particularly because of the choppy style, with abruptly introduced factual information.

This work will be of interest to those working on ethnobotany and with lectins, as well as college and university libraries. Some of the introductory material and selected chapters would make appropriate readings in some courses, though not introductory courses unless a single article were presented. – Douglas Darnowski, Washington College,

Linnaeus: Nature and Nation. Koerner, Lisbet. 2001; Harvard Univ. Press; ISBN: 0674005651 (Paperback \$19.95) - Carl Linnaeus (1707-1778) was an important Swedish scientist who is a hero to most botanists. As an example, during my time as post-doctoral associate at Ohio State University in the late 1980's, I noticed that one botany faculty member was known to dress like Linnaeus during college football games!

Of course, Linnaeus is most famous for his creation of the binomial system and his publication of *Species Plantarum* in 1753. He was a naturalist and taxonomist who also authored many other works including *Systema Naturae* (1735) and *Flora Lapponica* (1737). In addition to his career as a botanist, Linnaeus received a medical degree from Holland. Back in Sweden as a medical doctor, Linnaeus first specialized in treating syphilis, which apparently introduced him to a wealthy aristocratic clientele. His initial faculty appointment was as a Professor of Medicine at Uppsala University in Sweden in 1741, but a year later, the position was changed to one for a Chair in Botany.

While it provides the basic facts of Linnaeus' life, this book was written as a scholarly biography by a science historian. For this reason, I think that the book will be difficult and tedious for most botanists to read because of the disciplinary jargon throughout the book. As an example of such a passage, the author, in discussing how Linnaeus applied his ideas toward economics writes (on p. 97): "More often, like the German cameralists in their uncompromising moments, Linnaeus felt that states should be autarkies, withdrawing altogether from the commercial bonds tying them to peoples and places not politically subjugated to them." Such sentences are typical of the book.

Nevertheless, if one is really interested in Carl Linnaeus, there are many interesting events discussed in the book. Linnaeus was notorious for sending his students on far-flung collecting trips throughout the world, and about half of them died during their journeys. Thus, the author discusses the complex, intricate relationship between Linnaeus and his students. There also is an interesting chapter on how Linnaeus was deeply affected by his field travels in Lapland both in his scientific and economic thinking.

The author mentions many unsavory details about Linnaeus' life ranging from anonymously writing favorable reviews of his own books to attempting to swindle a scientific society by doubling his expenses for field work. The book includes several appendices, one of which is an elaborate chronology of the protagonist's life, and extensive scholarly footnotes. Despite the above caveats, I would recommend this book for those botanists who want a better understanding of forces that shaped the intellectual life of one of the most influential scientists in our field. The book also is recommended for acquisition by all university libraries. - John Z. Kiss, Department of Botany,

Fungal Conservation. Moore, M., M. M. Nauta, S. E. Evans, and M. Rotheroe, eds. 2001. ISBN 0 521 80363 2 (cloth \$US 95). 262pp. Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211.

— I looked forward to the publication of *Fungal Conservation*, hoping for a book that would address in part the critical shortage of biodiversity literature that has come to characterize mycology. Perhaps that unfortunate shortage is nowhere better represented than in this limited collection of papers. Biodiversity, which should be the focus of any conservation question, is treated explicitly in only one paper. The focus of that paper is an explanation of a nationwide biodiversity plan in the United Kingdom, which includes only a handful of fungal species. The paper is characteristic of this volume.

In general, relatively few taxa are covered in the book. Further, the essays predominantly outline perceived issues of fungal conservation in the developed world, effectively ignoring most of the biosphere. Europe, and to a much lesser extent North America, are given the major voice in this collection. A multi-authored paper by a group of forest managers and mycologists (Molina et al.) from Corvallis, Oregon is probably the strongest work of the bunch. It lays out a wide set of conservation problems and attempts to construct broad-ranging strategies for solving them. The Corvallis group addresses questions of community ecology, population biology, and biodiversity management.

The authors draw on a growing body of theoretical and practical work surrounding management issues and apply them to fungal problems. Not surprisingly, the task is monumental, given the vastness and diversity of the forests of western North America. For all the exploration that has occurred over the past century or so, these forests are probably still poorly circumscribed from a fungal biodiversity perspective. Yet a holistic approach of the sort Molina et al. have employed is essential if we are to understand and learn to creatively manage the diverse fungal world. Other than their chapter, the contributions in this volume are mostly concerned with relatively tiny ecosystems in less than a dozen European countries. One asks why the country-by-country approach was taken, as the result is too often an alphabet-soup recounting of national conservation strategies and bureaucracies. Some attempts to address global problems are included in an introductory essay, but these consist of little more than cursory comments, most of which are covered in various chapters.

It may be indicative of the current international state of affairs that the developing world is severely underrepresented in this volume, with the notable exceptions are Cuba and Kenya. There is also a short contribution on genetic strains of edible fungi in China. Was this appropriate for inclusion in a volume on fungal conservation? A further problem is that the bulk of the text in this book is devoted to macrofungi. Of these, fleshy basidi-

omycetes are given most of the attention. Microfungi, which are less well circumscribed, are predictably given less play. Lichens, which make up a large percentage of the ascomycetes, are barely mentioned at all. This is a fatal oversight in my opinion, given the central role that lichenized fungi have played as indicators of environmental health over the past several decades.

To an extent, the summary of fungal conservation work in this book reflects the condition of mycology. Fungal biodiversity and fungal biology are both poorly understood. Yet these disciplines are central to any terrestrial conservation program. Conservation efforts perforce depend upon a vibrant taxonomic community in order to provide an approximate reflection of the species that are 'out there.' But for better or worse, fungal alpha taxonomy has taken a back seat to investigations into phylogenetic questions. Phylogeny is of interest within an evolutionary framework. It may also elucidate monophyletic groups, leading to more reliable classification systems. But phylogenetic studies and their attendant focus on molecular evidence tend to take the focus off of species-level work 'on the ground.' Conservation efforts require a more complete understanding of the diverse species and lifestyles that make up the fungi, but right now the funding is going to other kinds of studies. Ultimately, efforts like those discussed in this book show the potential long-range limitations of this approach. *Fungal Conservation* is a book that describes management plans and practice involving relatively few fungi in relatively few places, mostly in the developed world. It reflects an incomplete approach to fungal diversity and its role in the biosphere.— Samuel Hammer, College of General Studies, Boston University, 871 Commonwealth Avenue, Boston, MA 02215.



Lichens. Purvis, William. 2000. ISBN 1-56098-879-7 (Paper \$US14.95) 112 pp. Smithsonian Institution Press, 750 Ninth Street NW Suite 4300, Washington, DC 20560 - A book that makes lichens accessible to a general audience is a notable accomplishment, and this

work is the perfect compliment to recent, technical publications such as Brodo et al.'s *Lichens of North America* (2001) and Gilbert's *Lichens* (2000). Purvis is the principle author of *The Lichen Flora of Great Britain and Ireland* (1992); indeed, the British have a long tradition of lichenology, and a broad knowledge of their lichen flora. Who better to put lichens in the public eye? This book does exactly that: it is an appealing, generously illustrated, and concise (only 112pp.) introduction to these often-overlooked but fascinating organisms.

I was preparing a lichen lecture for a basic biology class while reading this book, and it was a great help in organizing my presentation. The first ten pages explain what a lichen is, and present important facts about their component fungal and photosynthetic symbionts. They explain that a lichen has a unique, highly-organized thallus that is completely different from that of the individual (cultured) symbionts. This helps differentiate these obligate symbioses from more casual fungal/algal associations (such endophytic fungi growing in seaweeds) or disease situations. The chapter on lichen biodiversity is good; Purvis organizes this section by "fruiting body", providing appealing illustrations of "mushroom lichens" (lichens formed by basidiomycetes), "pin lichens" (bearing maecidia), and "flask lichens" (bearing pseudothecia). This is a better, more natural approach to diversity than the typical explanation of foliose, fruticose, and crustose forms that is found in most lichen texts. It is strange, however, that these latter three terms are avoided throughout the book; at least a brief discussion of them should have been attempted if the reader is to ever (hopefully, eventually) use identification keys.

- The remainder of the book covers lichen ecology, with chapters on lichens in forests, lichens in extreme environments, and biomonitoring. The discussion of lichens in southern rain forests is very good; this habitat is hardly ever considered in other general lichen books. And it is refreshing to see Pacific Northwest lichen biomonitoring projects getting their due-most treatments of lichen biomonitoring only discuss Europe (which is where lichen biomonitoring originated). Perhaps the best thing about these chapters is their story-telling style: lessons in lichen ecology are presented using examples. In a section on arctic tundra lichens, for instance, the dominance of reindeer lichens in such areas is punctuated with the story of the 1986 Chernobyl accident, and how these lichens, by virtue of their ability to concentrate airborne pollutants, poisoned the native people there via reindeer, which feed upon these lichens. Another strong point here is that Purvis generously extols the virtues of herbaria for lichen ecology work: historical specimens make a good base-line for measuring pollution levels in cities, and for monitoring amounts of ozone depletion in the skies over Antarctica.

There are a very few problems with this book that bear mentioning. Although the illustrations and photographs are the most appealing things about the book, too many of them (as well as examples used in the text) seem to feature *Xanthoria parietina*, the common, maritime, orange lichen which graces the cover. In addition, a very few

are mislabelled or confusing. One example will suffice: the bottom lichen on p. 15 should be labelled as containing green algae, not cyanobacteria. Of more serious concern are some biased viewpoints in portions of the text. For example, evidence is presented that supports the idea that an individual lichen thallus may comprise more than one genetic individual. This subject needs further investigation, e.g. DNA fingerprinting studies; the evidence presented in favor of genetic mosaicism is circumstantial at best, and it is still very much a matter of opinion. In any case, though, even if genetic mosaicism does occur in lichens, it is certainly the exception, not the rule (which is something the text omits). Another omission can be found in the section on lichen evolution: while it is certainly true that lichenization has occurred multiple times, it is also true that most lichens are, in fact, more closely related to other lichens than to non-lichen fungi (take, for example, the large lichen orders Arthoniales and Lecanorales). Reading this section might lead one to believe that lichenization (and de-lichenization) has happened randomly in the course of fungal evolution, which is not true. This important point is rarely mentioned when discussing molecular systematic studies of lichens.

All in all, however, this is a very good, well-organized book that invites readers to further explore lichenology. Most of the book focuses on ecology, which is appropriate, because general audiences tend to be most interested in that. The illustrations are high-quality, the text-boxes are interesting, and the chapter on practical projects give some good (if sometimes overcomplicated) ideas for student research. I strongly recommend this book for any botanist's bookshelf or coffee-table. - Scott LaGreca, Farlow Herbarium of Cryptogamic Botany Harvard University.

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Purvis, O. W., B. J. Coppins, D. L. Hawksworth, and D. M. Moore. 1992. *The lichen flora of Great Britain and Ireland*. The Natural History Museum, London.



Fern Grower's Manual: Revised and Expanded Edition. Hoshizaki, Barbara Joe and Robbin C. Moran. 2001. ISBN0-88192-495-4 (Cloth US\$59.95) 624 pp. Timber Press, 133 S. W. Second Avenue, Suite 450, Portland, OR 97204-3527. - The primary audience for this book is gardeners, commercial growers and horticulturalists who have a particular interest in growing ferns, but it will also be an indispensable resource for teaching botanists who want to make living ferns and fern allies available for student study. The first 12 chapters provide the basic background for successful fern cultivation, beginning with a summary of fern morphology and life cycle and how to collect specimens. The chapters on cultural needs, soils and fertilizers are a good basis for growing any type of plant in pots or in beds. They would be a good "manual of operation" for non-professionals interested in running a greenhouse for personal use or to provide classroom materials. Home landscapers will be most interested in the recommendations for transplanting specimens, and appreciative of the notice of legalities and permissions that will probably be required. Botanists will appreciate the instructions for spore culture, which usually do not require permits, and are easier to collect and transport (spores of most species remain viable for a year or more). An added benefit, according to the authors, is that spore-grown plants tend to adapt better to cultivation.

The bulk of the book, fully 2/3 of the 600+ pages, is devoted to identification and cultural requirements of more than 700 species and cultivars of ferns and fern allies cultivated in the United States. Species are listed alphabetically and virtually every entry is provided with silhouette and line drawings (including bar scales) to clearly illustrate key features. Entries include plant size and cultural conditions, detailed descriptions of vegetative features and provenance of non-native species. Although not nearly as detailed as the descriptions in *Flora of North America* volume on Pteridophytes (*Flora of North America* Editorial Committee, 1993), the information provided here is easy to read and interpret and describes the salient features of the fern in question. My only disappointment with the book is the lack of keys to aid in identification. However, the literature cited includes citations of general and regional keys and floras, both national and international, that would fill this need. This book is well worth the reasonable cost and I especially recommend it to botanists charged with overseeing a college greenhouse where it will be well-used both in the classroom and in the headhouse. - Marshall Sundberg, Emporia State University.

Work Cited

Flora of North America Editorial Committee. 1993. *Flora of North America North of Mexico*. Vol. 2. *Pteridophytes and Gymnosperms*. Oxford University Press.

The Cactus Family. Anderson, Edward F. 2001. ISBN0-88192-498-9 (Cloth US\$99.95) 776pp. Timber Press. 133 S. W. Second Avenue, Suite 450, Portland, OR 97204-3527. - The Cactus Family enthralls the reader with over 700 pages of information on the Cactaceae, all presented in a smoothly flowing format. Numerous high quality photographs illustrate the species of the various genera of this family which is nearly endemic to the New World.

The book opens with several compelling pages on searching for cacti in arid South America, and then turns in the same chapter on "Distinctive Features of Cacti" to considering the many characteristic properties which cacti display, from anatomy to physiology to habit. Along the way many interesting facts spice the story, and specialized features of the Cactaceae, such as their possession of betalains and the highly modified shoot known as the areole. Numerous photographs illustrate this introductory chapter, even before the author can move to descriptions of particular species.

Then follows a chapter on "Ethnobotany of Cacti" which considers the various uses to which cacti have been put by native peoples. Some of the most well publicized and familiar uses, such as the function of peyote cacti in religious ceremonies and the role of *Opuntia* as a source of food, receive lengthy treatment before broader cases are considered. Among these latter fall the production of dye from cochineal bugs, cacti as weeds around the world as in

South Africa, and what has to be one of the most striking ethnobotanical facts (see p. 55), ranking with how one contracts kuru for the power to simultaneously fascinate and revolt.

Anderson then offers shorter chapters on the 'Conservation of Cacti' and "Cultivation of Cacti," taking in the former a very reasonable stance in favor of conservation when possible and rescue when that is the only option. The latter chapter, written by Roger Brown, offers basic information on important points such as soil mixtures and appropriate and safe pesticides.

All of the above occupies the author for the first 100 pages or so, at which point comes a chapter on "Classification of Cacti." This includes discussions of the basics of taxonomy and the history of the taxonomy of cacti from before Linnaeus to Berger and beyond. This precedes a scheme which lists the genera of the Cactaceae by Subfamily and Tribe, with the characteristics of the latter group. Then immediately following is "The Cacti" with careful descriptions of individual genera and species, copious illustrated with high quality photographs.

Appendices with maps relevant for understanding the biogeography of cacti and a list of botanical gardens and arboreta with significant collections of cacti round out The Cactus Family along with an excellent glossary and listing

of the literature on cacti.

The Cacti moves effortlessly throughout from topic to topic, and the photographs, both in number and quality, are outstanding. One reservation some might have is the neutral to slightly positive view presented of hallucinogenic experiences that come with taking peyote or the San Pedro cactus. Some students might be led into trouble by this, but this is a relatively minor flaw in an otherwise fascinating book. College and university libraries will do well to order a copy, along with any amateur or professional interested in cacti. The book, because of the photographs among other reasons, would be useful for undergraduate and graduate courses. - Doug Darnowski, Washington College.



Field Guide to Indiana Wildflowers. Yatskievych, K. 2000. ISBN0-253-33828-X (cloth), ISBN0-253-21420-3 (paper), 357 pp. Indiana University Press, Bloomington, Ind. - This publication is the only current field guide to Indiana wildflowers, and as such, it is a welcome addition to the Hoosier natural history literature. According to the publisher, the qualities of this publication include "completeness, strong visual presentation, and simplicity of terminology." (back cover). The publisher further states, "this book will be useful to a broad audience—from the most inexperienced amateur to professionals in many fields." The purpose of my review is to test these claims.

The first issue is that of completeness. The author lists and describes 1, 564 species, a remarkable accomplishment for any field guide. She attempts to include all the herbaceous species that have been recorded for Indiana, except grasses, sedges and rushes. Only a few woody species are included "if they are small and might be mistaken for herbs or if there are just a few woody species in an otherwise herbaceous genus." (p. xi). Personally, I wish more woody species had been included. For example, an amateur viewing Steeplebush (*Spiraea tomentosa*) from

a boardwalk in a bog might not realize that it is a woody shrub and would be frustrated trying to find it in this guide. Even so, the strength of this book is its completeness. Yatskievych appropriately includes a number of introduced species and garden escapes. Known hybrids are also noted, which is very useful.

To evaluate this publication as a working field guide, I field tested it. I especially wanted to test its usefulness for “the most inexperienced amateur.” On several outings, I used the author’s “flower finder guide” (pp. xxiv-xxx) as if I were a total novice at identifying flowers trying to identify some common flowers. For comparative purposes, I attempted to identify the same plants using *Newcomb’s Wildflower Guide*, by Lawrence Newcomb (Little, Brown & Co., 1977).

The field guide is organized by groups of visually similar species. A photograph represents each “visual group”. There are 640 photographs, usually one or more for each genus. To identify a flower using the flower finder guide, the user first puts the flower into one of eight broad groups according the shape of the flower or number of petaloids. Within each of the broad groups, the floral variations are illustrated with line drawings. Each line drawing includes the scientific name and species number of the representative flower of the “visual group.” The botanist turns to the group representative and works through the description of that species and the other species in the group to identify the flower at hand.

I found the flower-finder guide very difficult to use. Although the eight broad categories work, but there are an insufficient number of line drawings to cover all the visual groups within each broad category. Yatskievych tries to compensate for this with lists of other representative species in the group, but these lists can be very long. For example, Swamp Loosestife (*Decodon verticillatus*) has five petals, but it doesn’t really look like any of the 45 line drawings in the five-petal group. There is a list of 51 other plants to try, but no visual clues to help me narrow the list. A beginner would have to start at the beginning and look up each one. *Decodon verticillatus* was number 14 on this list. Finding Spotted Joe-Pye Weed (*Eupatorium maculatum*) and some of the other *Asteraceae* using the flower finder was even more frustrating. Even working backward, looking them up in the index first, then trying to find their numbers in the flower-finder guide, I was unable to determine which line drawing I should use as my guide. I was able to use the flower finder guide to find Kalm’s Lobelia (*Lobelia kalmii*) because I knew I was looking at a lobelia and two lobelias have line drawings in the guide. I’m not sure a total novice would think the flower I saw looked like the line drawing of *Lobelia siphilitica* or *Lobelia cardinalis*, even though the drawings represented these two species superbly. By contrast, using Newcomb’s simple key, I quickly found the correct flower every time.

Like the line drawings, the photographs in this field guide are well done. Most of the photographs illustrate important identifying characteristics, which cannot be said for many field guides that rely on photographs. The layout is very attractive and the printing is clear. The use of various type fonts (bold for flower numbers, italics for scientific name, upper case for common name, etc.) makes the guide very readable. These features and the organization by “visual groups” support the publisher’s claim of “strong visual presentation.” Because I was familiar with all the flowers in my field test, I was able to locate them in the guide using the excellent index. Once there, I was able to use the guide to determine if I was looking at a common species or something more unique. Obviously, a more general field guide like Newcomb’s cannot do this. There was one minor production error; the paperback edition does not have a printed ruler on the last page as described in the preface (p. xii).

Yatskievych’s plant descriptions are very thorough, and follow a formula outlined in the preface. I especially like notation of state status. However, I take issue with the publisher’s claim that the guide uses “simple terminology.” The plant descriptions use botanical terms, which are difficult for a beginner. Sometimes botanical terms cannot be avoided, so again, I compared the Yatskievych’s glossary to Newcomb’s. While Newcomb needs 105 botanical terms in his glossary to describe the flowers, shrubs and vines in his guide, Yatskievych needs 176. Even though her glossary is very complete, it doesn’t help much, since the definitions also use botanical terms. Newcomb’s definitions are far easier for an amateur to understand. For example, Newcomb defines umbel as “a flower cluster in which all the flower stalks radiate from the same point, like the ribs of an umbrella.” Compare this to Yatskievych’s definition, “An unbranched inflorescence with pedicellate flowers attached in a +- radial pattern at the tip of the peduncle . . .” (p. xxii).

This is an excellent guide for experienced botanists who can identify most plants to generic level and find their “visual group” using the index. Anyone interested in Hoosier botany should purchase this for its completeness and the quality photos and descriptions, but amateur botanists may want to carry Newcomb with them into the field. I recommend that every public and academic library in Indiana and bordering states purchase *Field Guide to Indiana Wildflowers*. Donna R.R. Resetar, Moellering Library, Valparaiso University, Valparaiso IN.

Plant Galls of India. Mani, M. S. 2000. ISBN 1-57808-131-9 (cloth US\$112.00) xviii+477 pp. Science Publishers, Inc. PO Box 699, Enfield, NH 03748. — Gall making, the hijacking of plant growth to form feeding and breeding shelters for the gall makers, is a way of life that is at once common and geographically and taxonomically widespread, while at the same time being remarkably hit or miss. Galls can be formed by bacteria, fungi, nematodes, mites, and insects from a number of different orders, among others, and they may be formed on roots, stems, buds, leaves, flowers, fruits, or seeds of host plants spanning the range from ferns to orchids and composites. Still, the great majority of galls are formed by gall makers from a handful of families (eriphyid mites, cecidomyiid gall midges, cynipid gall wasps, and several families of aphids) and a minority of plant species are known to harbor galls. Galls are often communities in miniature, with interactions between the host plant, a primary gall making insect, fungal associates, other insect inquilines, parasitoids and diseases, and vertebrate and invertebrate predators, providing rich material for evolutionary studies. One has only to think of the enormous range of work done on *Eurosta solidaginis* galls of goldenrod to recognize the potential. On top of that, some galls can reduce crop yield or quality, so you might expect these conspicuous deformations of plants to be well known taxonomically, if not necessarily biologically.

In fact, while many galls have been described, there are a surprising number of gall makers known only as larvae or as adults, but not in both phases. This frequent lack of connection between life history stages is largely due to the difficulties of rearing out adults from collected galls or of connecting presumptively gall making adults caught in general collecting to any particular host plant of gall. The situation isn't made any easier by the fact that plant taxonomists typically try to avoid galled organs when making plant collections. Thus the majority of the primary literature on galls and gall makers is to be found in entomological journals or in the publications of natural history museums.

In contrast to the primary literature, with its focus on the gall makers, there is at least a modest secondary literature of semi-popular books describing and picturing the galls in a region. *Plant galls of India* belongs to this literature. The author of this book, like those of most such books, has devoted much of his career to galls and gall makers. Many of the roughly 800 galls gathered in this compendium were originally described by Mani and coworkers over the course of some 50 years. Again, as with most gall books, including for North America, E. P. Felt's (1940) general *Plant galls and gall makers* and R. J. Gagné's (1989) more specific *Plant feeding gall midges of North America*, the galls are arranged by host plants. About 450 host plant species are (mostly) alphabetically arranged under 90 plant families. The plant families (mostly) have the composition and arrangement of the Bentham & Hooker system used in J. D. Hooker's

(1875—1897) 7 volume *Flora of British India*. Ironically, some of the broad family circumscriptions of this system, relatively unfamiliar to North American botanists raised on Engler and Prantl or Cronquist, are returning with avoidance of paraphyletic families (for instance, including *Aesculus* in Sapindaceae).

Each family with more than one included gall has a key to the galls described. The keys are fully dichotomous and based generally on the external characteristics of the galls. Of course, you have to know the identity of the host plant or you will have no hope of identifying a gall using the keys. Specialized terminology is kept fairly light and there is a glossary for the few unusual terms that are used. Each key is followed by the listing of species with descriptions of their attendant galls. I can't quite figure out what sequence the galls within a species follow. Sometimes they are in the order that they fall out in the key. At others, they appear to be organized by the taxonomy of the gall makers. Still others depart from either scheme, or even seem chaotic. All of the galls are numbered, in another mysterious sequence that reflects neither the taxonomy of the host plants nor that of the gall makers, nor do the numbers seem to follow the history of the author's experience with them.

The only apparent practical use of the gall numbers is to shorten the captions of the illustrations. There are about 300 illustrations gathered at the end of the book, including drawings and black and white close-up photographs. These figures cover only about a third of the galls described in the text. They vary in quality. The drawings are very good, but they sometimes show internal details not covered in the text, and it is sometimes difficult to go from figure to text (as in figs. 97—108) because some captions contain no reference to the host plant and there is no index of gall numbers. The galls in the figures mentioned are found on mango, which is given special treatment in the text in a detailed guest contribution by M. D. V. Parthasarathy. The photographs were probably originally sharp, but many have gotten fuzzy through over-reproduction. Even so, they are good enough to help with identification.

This isn't a book that belongs, ready to hand, on the shelf of every botanist and entomologist in North America. Still, for those who are interested in galls, it provides interesting comparisons to galls formed by related insects and mites on this continent. There is also the potential for identifying galls on herbarium material from India and vicinity. And who knows when some of these galls might turn up as introductions here, given the enormous world trade in tropical fruits and house plants. — James E. Eckenwalder, University of Toronto, Department of Botany, 25 Willcocks St., Toronto, Ont. M5S 3B2, Canada.

Poppies: A Guide to the Poppy Family in the Wild and in Cultivation. Revised edition, 2000. Grey-Wilson, Christopher. ISBN 0-88192-503-9 (hardcover US\$37.95) 256 pp. + 32 color plates. Timber Press publishes this book in the United States and Canada under license from its UK publisher B. T. Batsford (<http://www.batsford.com/>; ISBN 0-71348-501-9). - In 1993, the first edition of this book was remarkable for its many spectacular color photographs of gorgeous poppies in full bloom. Today, this book is still remarkable. The photographs, most by the author, are of outstanding quality, showing not only the stunning beauty of these plants, but also their habitat in the wild, growth form, and details of leaf, flower, and fruit morphology. This book is packed with detailed information about every genus of the poppy family, and many species as well. Particularly strong are the notes on native habitat, morphology, history in cultivation, and horticulture. Both the text and drawings are consistently detailed and accurate. The first edition is good enough to have been used as a primary source of morphological data for systematic analyses of Papaveraceae (Loconte et al., 1995; Jork and Kadereit, 1995), and I can attest that much of this data occurs in print nowhere else.

This new edition is even better. It is 50 pages longer, the taxonomy is more current (Papaveraceae has received considerable taxonomic attention in the past decade), and there are many new and even better photographs. Among these are several that show bizarre cultivars both new and old: poppies that look just like common chrysanthemums; and the famous *Papaver somniferum* 'Hen and Chickens', a homeotic mutant in which the stamens are replaced by reduced gynoecia. (Sadly, there still is no photograph of *Bocconia*, a Caribbean endemic that bears a striking resemblance to a medium-sized palm tree.) Most thoroughly revised are the treatments of the two largest genera *Meconopsis* and *Papaver*, plus *Arctomecon*, *Eschscholzia*, and *Glaucium*.

I bought the first edition of this book in 1994 and have enjoyed it ever since; I am delighted to also have a copy of the new edition. If anyone on your gift list is fond of poppies, buy them this book. And buy a second copy for yourself. — Una Smith, Los Alamos National Laboratory, MS K-710, Los Alamos, New Mexico 87545.

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The Trees of Sonora, Mexico.—Felger, Richard, Matthew Johnson, Michael Wilson. 2001. ISBN 0-19-512891-5 (cloth, US\$125.00). 391 pp. Oxford University Press, New York.

Flora of the Gran Desierto and Río Colorado of Northwestern Mexico. Felger, Richard S. 2000. ISBN 0-8165-2944-5 (cloth, US\$75.00). 673 pp. University of Arizona Press, Tucson.

Richard Felger is already well known for his extensive botanical writings on the desert Southwest of Arizona and adjacent Sonora, especially *People of the Desert Sea: Ethnobotany of the Seri Indians*. Now he has produced two volumes that make an important contribution to the botany of the North American desert realms.

The Trees of Sonora, Mexico is mainly a flora with keys to families, genera, and species; botanical descriptions; references; and discussions about the habitats in which the trees occur. Most of the species are illustrated by line drawings, some reprinted from classic sources such as Sargent's *Silva of North America*, but many are originals by L. B. Hamilton and M. B. Johnson. These are supplemented by photographs of trees in their natural habitat. Citations of author and place of publication of plant species names are not provided but can be traced through the references. Instead, Latin names are followed by vernacular names in indigenous languages—a valuable feature.

The floristic part of the book is preceded by a 25 page introduction that includes topographic and vegetation maps; climatic diagrams; and a discussion of the vegetational communities illustrated by photographs of representative landscapes and schematic vegetation profiles. The total number of tree species in Sonora is given as 285—this is low in proportion to the total flora of 5,000 species but not unexpected in such an arid environment. Floristic relationships in comparison to other regions are not discussed, a regrettable lack. However, there is an interesting Appendix on habitat distributions of the trees of Sonora indicating the communities in which each species occurs, from mangroves and thorn scrub to mixed conifer forest. The reader is thus able to gain a rather graphic picture of the impressive vegetational diversity across Sonora.

The book clearly reflects the long-term field work that has been accomplished by Felger and other botanists in Tucson, especially at the Desert Research Institute. The treatments of some families such as the Cactaceae and figs (*Ficus*) constitute detailed essays in desert natural history. It is interesting to contrast the treatment of the oaks (*Quercus*) with that recently published in *Changing Plant Life of La Frontera* by Richard Spellenberg (who was consulted during the preparation of *Trees of Sonora*). The nomenclature is identical, but the Felger version has more local habitat information, whereas Spellenberg gives more quantitative descriptions and more

citations of hybrids. I particularly like Felger's discussion of the palms (Arecaceae), which is based on a recent article in *Aliso* coauthored with E. Joyal. Although we have seen a lot of books on palms in recent years, this one gives an intimate perspective on the Sonoran palm flora, with useful features such as a diagram comparing leaf structure in *Brahea*, *Sabal*, and *Washingtonia*.

The Trees of Sonora is a beautifully produced volume in terms of typography, reproduction of illustrations, and editing; the Oxford University Press continues to maintain the high standards it has achieved publishing botanical texts such as its *Flora of North America* series.

The Flora of the Gran Desierto and Río Colorado of Northwestern Mexico is a rather clumsy name for this handsome book; perhaps a better title would have been *Flora of the Gran Desierto and Pinacate*. The photographs in the introductory section should give even the uninitiated reader a vivid impression of what an extraordinary place the Gran Desierto region is. Pinacate, the blackened cinder peak that rises above the sandy deserts just below the international boundary, is the "Ultima Thule" of the deserts of North America. Even though it lies just below Mexican Route 2, it is moated from the world by its lava flows, craters, and dunes. The aficionado of the desert experience is bound to regard it as a sacred habitat for its uncompromising harshness, moon-like landscape of craters, and its counterintuitively rich diversity of desert plant and animal life.

Richard Felger has been one of the most faithful visitors to Pinacate and the Gran Desierto stretching to the west, and this flora does seem to be a long-continued labor of love. In the Introduction he cites a considerable number of collaborators and field companions, although curiously he does not mention Edward Abbey, with whom he made a trip to the Gran Desierto (including a climb of Pinacate) in the early 1970s. Perhaps his omission of Abbey's account of their trip, which he published in *Cactus Country* (1973), is related to a comment by Abbey about Felger's collecting activities: "Some people collect stamps or beer bottles or wagon wheels; professional botanists collect weeds, press them between wooden plates, and store them away in museum files never to be seen by light of day again." However, Felger no doubt disdained Abbey's cavalier references to the native desert plants as "weeds," as he went on collecting assiduously. Felger published his first overview of the vegetation and flora of the Gran Desierto two decades ago in the periodical *Desert Plant Life*, followed by a synopsis of the flora a decade ago. The present considerably expanded book provides an introduction with two detailed maps of the area and a discussion of the geology and habitats. It is a measure of the environmental marginality of the Pinacate region that instead of vegetation types, there is discussion of specific habitats—dunes, tidal marshes, oases and riverbanks. The total flora for the area of 15,000 square kilometers is given as 589 species, which includes 65 introduced species in non-

irrigated habitats. The entire native flora is only 524 species (a select assemblage of survivors!), but it clearly is not under serious attack by invasive species. The botanical keys and descriptions are comparable to those used in *The Trees of Sonora*, and there are ample illustrations, mostly published earlier. Among the colleagues Felger acknowledges, it would appear that he is particularly indebted to James Henrickson for sharing information from his unpublished *Flora of the Sonoran Desert*.

A feature of *Flora of the Gran Desierto* that is not present in *Trees of Sonora* is the citation of herbarium specimens, the vast majority of which have been made by Felger himself. The specimen citations are an indication that the *Flora of the Gran Desierto* may be considered a "florula" rather than a flora: it is an intensively documented treatment of the plants in a restricted area. Considering that it covers 15,000 square kilometers, the book is perhaps intermediate between the two genres.

Although the number of invasive plant species is low and most of the area has never been (or never will be) cultivated, there are clear indications here and there in the text of modification of wetland habitats. Some of the *pozos* (small springs) in the sand dune areas, as well as the tidal wetlands at the head of the Gulf of California have escaped serious change. The most striking alteration has occurred in the Río Colorado delta, which has been fundamentally transformed due to diversion of essentially all the water in the river. Much of the original vegetation in the Ciénega de Santa Clara has been destroyed and replaced by hypersaline flats or reconstituted stands of cattail, reed, and bulrush. The Quitobaquito oasis, located directly on the international boundary and long settled by the Papago Indians, has survived and is protected in the Organ Pipe Cactus National Park. Felger provides an interesting sketch of the history of human intervention and contemporary efforts at conservation of the plant and animal life, which led in 1993 to the creation of two Biosphere Reserves within the area of the flora. It is somewhat ironic that preservation of this area will be greatly facilitated by the inhospitable nature of the environment. Still, we have to hope that as the Mexican economy improves, the biosphere reserve status will protect the dunes of the Gran Desierto from the ravages of dune buggies, and the ghost of Father Eusebio Kino on the peak of El Pinacate will not be disturbed by construction of a chairlift.

In summary, these two books on Sonoran flora and vegetation are products of the tradition of desert botany studies that began a century ago with the founding of the Desert Laboratory by the Carnegie Institution of Washington. As described by Janice Bowers in an article in *Desert Plants* (1990), the Desert Laboratory was for 37 years the most influential ecological institution in North America, harboring such leading ecologists as Daniel MacDougal, Frederick Clements, and Forrest Shreve. Although the Laboratory at Tumamoc Hill was closed down in 1940 and

turned over to the inept stewardship of the U. S. Forest Service, it later underwent a renaissance under the administration of the University of Arizona. The glorious tradition of Clements and Shreve continues on at the University campus and at other institutions in the area such as the Arizona-Sonora Desert Museum. With *The Trees of Sonora* and *Flora of the Gran Desierto*, Richard Felger, has made a significant contribution in building on the tradition of Forrest Shreve. — Grady L. Webster, Herbarium, University of California, Davis 95616.



Wildflowers of Maine, New Hampshire, and Vermont, in color. Besette, Alan E., Arleen Rainis Besette, William Chapman, and Valerie Conley Chapman, with botanical drawings by Philippa Brown. 2000. ISBN 0-8156-2803-X (paper US\$24.00) 167 p. Syracuse University Press. - This new guide is full of attractive photographs of flowers from the three northernmost states of New England. The geographical focus differentiates it from potential competitors, such as Peterson's *Wildflowers of Eastern North America*, or Newcomb's *Wildflower Guide*, both of which cover a much wider area. The guide covers "nearly 400" species from the area.

The entries are arranged by color, symmetry, number of petals, and leaf shape and arrangement. The table of contents directs the user to the appropriate section of the guide, but does not enable the reader to key out the entries beyond that: you are directed to the general vicinity, and then must look about.

The text for each entry is on a page opposite to the photograph. The texts provide common name, scientific

name, family, flowering season, description of the flower, description of the plant, and habitat; if the plant is threatened or endangered, this is noted. The text uses some basic botanical nomenclature; technical terms are defined in a glossary, and distinctive characteristics of flower anatomy and leaf shape and arrangement are illustrated. There are indices of common and scientific names. Aliens are not noted, and in each section herbs, vines, and woody species are mixed.

Given the other good general guides on the market, would I recommend this for a person newly interested in plants? Well, unfortunately my answer would be "No." The authors have produced good floral photographs and accessible, succinct descriptions. Some of the "comments" appended to species descriptions are interesting, as the brief discussion of the variability of *Plantanthera*. The book is enjoyable to browse through. However, if someone were to ask me to recommend a field guide to help them become acquainted with the wildflowers of the region, I would recommend Newcomb's guide over this one without hesitation. My reasons are as follows.

First, the photographs provide a visual representation of the flowers that allows one to use either the one or the other, depending on one's facility with verbal descriptions of flowers. The photos do not, however, provide the same kind of information about the leaves or other characteristics of the plant. Much of the time this may be redundant, because of the good verbal descriptions, but if the reader is presumed not to be very familiar with plants, the photographs should more consistently provide at least a shadowy hint of the general "look" of the plant. On this score, Newcomb's or Peterson's, with their use of drawings, is more useful.

Second, and for me more important, the choice of species is eccentric, and too restrictive to be useful as a stand-alone guide. Widespread species that one might well encounter in the field are often excluded. For example, there are 5 species of *Solidago* described, but these five do not include *Solidago juncea*, a conspicuous, early, and widespread species, or *Solidago rugosa*. Similarly, two species of *Cornus* are included, but not *C. anomum* or *C. alternifolia*, which are widely distributed as well. Similar comments might be made on genera such as *Rosa*, *Vaccinium*, *Aster*, and others. Meanwhile, rare groups, such as orchids, are very fully represented, and we find four species of *Maianthemum*. Thus, this would be a frustrating guide to rely on in the field, since many plants one would encounter are not present, and instead the book treats many plants that one may never see in the field.

Thus, this book might well serve as a complement to a more comprehensive and balanced guide, but does not live up to its billing as "the most comprehensive, easy-to-use field guide now available" for the wildflowers of the region. - Bryan Drayton, TERC, Cambridge, MA 02140.

The Cambridge Illustrated Glossary of Botanical Terms. Hickey, Michael, and Clive King, 2000. ISBN 0521794013 (paper US\$29.95) 208 pp. Cambridge University Press, The Pitt Building, Trumpington Street, Cambridge, United Kingdom.— Both of the authors of this glossary are botanists and educators who have collaborated before on *100 Families of Flowering Plants* (1981, 1988) and *Common Families of Flowering Plants* (1997). This glossary contains over 2400 botanical terms often referring to the accompanying line drawings ranging from the microscopic to the macroscopic. The intended audience of this book is anyone, beginner or expert, interested in the terminology of botanical description and botany in general. This book is user-friendly. The first 46 pages comprise the glossary of botanical terms with clear, concise definitions and references to appropriate illustrations. The next 161 pages contain many black-and-white line drawings illustrating various botanical concepts and terms. The illustrations are grouped according to particular topics which makes them easy to browse at your leisure. Simple, clear, and well-labeled illustrations are the glory of this work. The glossary and illustrations are conveniently used either together or separately. Beginning students or laypersons may find some of the terms confusing because they are less frequently used in the U.S. or because they describe more detail than is usually dealt with in some introductory texts. *The Cambridge Illustrated Glossary of Botanical Terms* is an excellent, useful resource, worthy of attention from students, teachers, experts, amateurs, and botanical enthusiasts of all kinds. While this book would be an excellent supplement for a plant identification or systematic botany course, it is perfectly delightful by itself. This would not necessarily be a text to use as a supplement to Dutta's *A Class-Book of Botany* simply because it costs about twice as much and Dutta's basic terms with illustrations are presented sufficiently for an introductory course. — James L. Smith II, Biology Department, La Sierra University, Riverside, CA 92515-8247.

A Class-Book of Botany, 17th Ed. A. C. Dutta., Revised by T. C. Dutta, 2000. ISBN 0195653076 (paper US\$14.95) 621 pp. Oxford University Press, Plot A1-5, Block-GP, Sector-V, Salt Lake Electronics Complex, Calcutta 700091, India.— Considering this text as an alternative to a modern U.S. botany text, three things immediately struck me as I first perused the book. The first thing to strike me about this book is its lack of color pictures. The second thing to strike me about this book was its poor quality paper and printing. The third striking aspect of this book was the archaic appearance of its content, it looks like a text from half a century ago or more. While I know that these things

do not necessarily belie the quality of the content of this text, they strike me nonetheless. This book was printed in India and is obviously meant to be as inexpensive as possible to serve its target audience, pre-medical and other students in India. As stated in the preface, the book is written in an easy-to-understand way and is also well illustrated with black-and-white line drawings and a few photos.

This “thorough” revision includes the “addition of several new topics and rewriting many portions of the text on the basis of recent research.” Such added topics include: the importance of forests, ecosystems, techniques of plant breeding and recent advances in botany. Topics being enlarged and added to the text seem humorously belated and in some instances underdone. For example, Part IX, entitled Recent Advances in Botany, includes four chapters each one paragraph long, including: genetic engineering, industrial microbiology, biotechnology, and tissue culture. These four long paragraphs, nearly half a page each, include no illustrations and leave much to be desired in terms of explanation.

Although it hardly seems to be a fair comparison, one might compare Dutta's *A Class-Book of Botany* (ACB) with Raven, Evert, and Eichhorn's *Biology of Plants*, 6th Ed. (BOP), that are texts apparently aimed at a similar or at least overlapping audience. BOP's larger format (10.5 x 9 in. versus 8 x 5 in.) and greater length (944 pp. versus 621 pp.) allow for more factual content, explanatory prose, and profuse illustration. A comparison of the approximate percentage of the textual content of each book dedicated to various topics reveals some interesting facts. The percentage of each text dedicated to physiology and organismal diversity is nearly identical, about 18.5% and 32% respectively. ACB tends to emphasize morphology (28%) and histology (14%) in comparison with BOP (14% and 9% respectively). About 9% of the content of BOP is dedicated to the topic of ecology, which receives a scant 2% of ACB's content. The very important, combined topic of evolution and genetics (3% of ACB) comprises about 12% of BOP's content and the difference in emphasis is mostly due to differential treatment of genetics. This apparent neglect of modern genetics is one of the largest drawbacks of this introductory botany text. Although one could easily argue that these topics need not be treated in so much detail, since they will undoubtedly be covered in other courses. Recent advances in botany and economic botany, which are treated in 3% of ACB, are interspersed throughout the text of BOP.

In summary, *A Class-Book of Botany* undoubtedly serves its purpose in many ways. It is an inexpensive, readable, illustrated text of introductory botany. Although in many parts it sometimes is written much like a dictionary or encyclopedia, there are many illustrations and explanatory charts. Considering this text for use in an introductory botany class, I would praise its coverage of basic botanical information and warn the potential user of the weak content in the areas of ecology and genetics. I feel fortunate, if not guilty, that I and my students are able to afford the luxury of purchasing lavishly illustrated and well supplemented texts. For some though, this text may be a very inexpensive and, with supplemental information, sufficient alternative to the typical botany textbook. — James L. Smith II, Biology Department, La Sierra University, Riverside, CA 92515-8247.

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National Invasive Weeds Awareness Week 2002

(NIWAW III) will be held in Washington, DC the week of February 25 - March 1, 2002. NIWAW III events will focus on invasive weeds and non-native species issues and the critical role of federal programs in dealing with these problems. Specific details for the week are still being planned, but will likely include a breakfast briefing on key national invasive weed issues, meetings with Federal agencies active in invasive weed management, a poster session showcasing invasive weed problems and innovative management strategies, a congressional reception, and more. Additional information is available at www.nawma.org/niwaw.htm

IV Southern Connection Congress

Southern Temperate Ecosystems and Biota: Contributions towards a Global Synthesis

Bariloche, Argentina, 13-17 January, 2003

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Works that describe the results of original research in themes as composition, structure and dynamics of ecosystems, taxonomy, reproductive biology, ecophysiology, biological interactions, phylogeny, evolution, population genetics, paleobiology, ecological and historical biogeography, macroecology, biological invasions, vegetation history, ecosystem conservation, restoration and sustainable management are welcome. Proposals should be sent to Javier Puntieri (IV SCC Local Organizing Committee/Symposia): jpuntieri@crub.uncoma.edu.ar, no later than November 30, 2001.