

# BULLETIN

WINTER 2002

VOLUME 48

NUMBER 4

# PLANT SCIENCE

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

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At this time last year the *Plant Science Bulletin* highlighted the E.A. McIlhenny Natural History Collection as one of the less well-known botanical treasures in the United States. With the holiday season upon us it's time to showcase another gem in our collection of arboreta, gardens, and museums that may not be well-known to many members of the Society. This time the focus is on a living collection that has been a campus landmark for years, but which is now growing in size and national and international stature – the Sarah P. Duke Gardens at Duke University, Durham, NC.

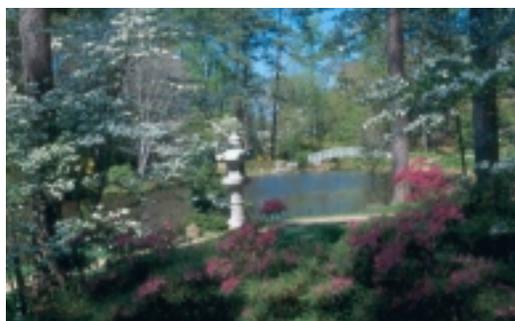
Last spring I had the opportunity to participate in a workshop at the new Doris Duke Center at the Gardens. What a wonderful educational facility! However, I have to admit that it was difficult to keep my mind “on task” with the gardens beckoning just outside the doors. The gardens take advantage of the natural terrain to divide the collection into major sections focusing on horticultural or botanical themes. A highlight for me was seeing one of the original *Metasequoia* trees, grown from seed collected at the “discovery” of living specimens in 1941. (I've also seen the specimen at William and Mary - - does anyone know the whereabouts of other “original” trees?)

Those of you from the east coast, who are driving to Botany 2003 in Mobile, will have the opportunity to visit the Gardens at Duke. Leave yourself plenty of time to explore – a full day if possible. You won't be disappointed. And while you're there (or at any one of our local gardens or museums) you also might want to think about offering support. The easiest thing would be a monetary contribution or pledge. These are hard financial times for all of us, but it's especially true for scientific and educational collections that are often under-appreciated by the general public. You might also consider offering your time, talent, and expertise. It's a great chance to engage in practical application of our profession!

-editor

## Sarah P. Duke Gardens

Tucked neatly into the heart of the Duke University campus, the Sarah P. Duke Gardens enjoys a respected reputation both locally and internationally. The Gardens has become a polished, gleaming gardening jewel, but it had much humbler beginnings. To make Duke Gardens blossom into the spectacular set of gardens it is today, it took foresight, determination and a bit of



**VIEW OF CULBERSON ASIATIC ARBORETUM**

luck.

In the 1920s, what is now Duke Gardens was a weedy ravine. Although a lake had originally been planned for the area, that idea had been scrapped. Dr. Frederic Hanes, one of the original faculty members of the medical school, saw this area as a potential new home for his favorite flower, the iris. Hugo L. Blomquist, chair of the Duke Botany Department, opposed the idea of a garden with only iris. He felt iris should just be part of the complete garden, filled with different representatives from other species. Hanes brought in Philadelphia horticulturist John C. Wister to analyze the situation. Wister, after some consideration, suggested a \$30,000 total to begin the new garden — \$15,000 for construction, \$15,000 for planting. That \$30,000, however, was just not feasible in the Depression

### *PLANT SCIENCE BULLETIN*

ISSN 0032-0919

Published quarterly by Botanical Society of America, Inc., 1735 Neil Ave., Columbus, OH 43210  
The yearly subscription rate of \$15 is included in the membership dues of the Botanical Society of America, Inc. Periodical postage paid at Columbus, OH and additional mailing office.

POSTMASTER: Send address changes to:

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era. All planning at the University level stopped.

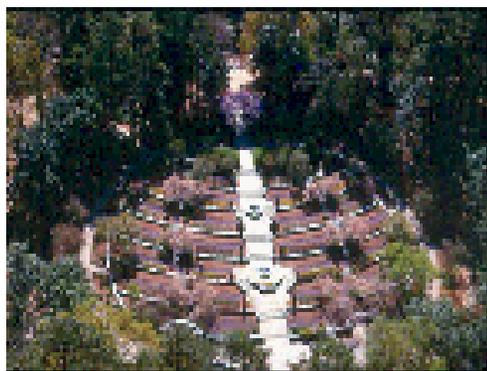
Hanes didn't let that stop him. He asked Sarah Pearson Angier Duke, widow of Duke University co-founder Ben Duke, to donate \$20,000 for a garden that would be named for her. It wouldn't be enough money, but with Mrs. Duke's funding, the University again became interested in the project. The first planting in 1935 featured 40,000 iris, 25,000 daffodils, 10,000 small bulbs and various annuals.

That delight was short-lived, however.

Rain caused problems (iris rot, for one) because of the poor drainage. At one time in 1934, horticulturist Thomas Norfleet Webb wrote to Wister that there were "at least" three acres of water standing in the Gardens at that time.

Sarah P. Duke, the Gardens' original benefactor, died in 1936. Hanes then approached Sarah's daughter, Mary Duke Biddle, and asked her to participate in the Gardens project as a way to honor her mother. He had already talked with legendary landscape architect Ellen Shipman to create a formal garden as a lasting memory of Sarah P. Duke. Mary was delighted with the idea.

Shipman, a landscaping renegade at a time when there were almost no women in the profession, fell in love with the Italian garden design work of Charles A. Platt. His ideas and Shipman's implementation created the Italian villa concept that is known today as The Terraces.



In fewer than 12 acres, The Terraces packed in many unique garden architecture features as well as plants. Shipman's plans provided a number of delightful touches that would astound visitors for decades to come. At the top of a hill, an iron Pergola was constructed. Chinese wisteria, still magnificent today when it blooms, was planted to crown it. Low retaining walls were built with rock dubbed "Duke stone." Walkways were designed to bisect the terraced beds of plantings. Fountains, complete with statues, decorated the center. At the bottom of The Terraces, a small koi pond was located.

Rock wall designer Frederic P. Leubuscher was hired to create the rock garden, Shipman's idea for the sharp slope behind the small koi pond. Approximately 50 tons of N.J. limestone were brought in for the project. Leubuscher and his crew embedded the stones into the slope for a natural look. Around the edges of The Terraces, Shipman envisioned *Magnolia grandiflora*.

After spending 1938 in construction, The Terraces reopened with much ceremony in 1939. The 1940s saw the Gardens fill out, and the general public seemed to discover it. Much was written in local newspapers that soldiers were seen strolling the Gardens. Additional staff members were hired. In 1945, the Gardens' first director was named.

William B.S. Leong, Boston landscape architect and planner, was hired to develop a master plan for the Gardens' 55 acres. (The Gardens has just begun the undertaking of developing a new master plan.) It was with this plan in the 1960s that much of the current look was developed. Part of the Leong plan incorporated the concept of the disappearing vista, a popular design technique in Europe. With this feature, the tall grand spires of Duke Chapel slowly disappear from sight as the visitor begins the slight incline at the Gardens' entrance.

The Gothic gate welcomes visitors. When visitors walk through the gates, the path leads directly to the Rose Circle with its 16 varieties. From

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the Rose Circle, visitors may access other areas of the Gardens.

Roses figure prominently at the Gardens. The Rose Circle itself contains 300 bushes of its 16 different varieties. A species rose collection also exists in the Asiatic garden. A David Austin collection of nine different varieties and approximately 40 bushes is planted on the South Lawn.

The right path from the Rose Circle leads to the William L. Culberson Asiatic Arboretum (CAA.) This garden became possible when a wide dam (1982) was built to control the stream that had previously constantly overflowed the Gardens. A lake was formed at the Gardens' north end. This lake has become the center point of a spectacular Asiatic collection of plants that would ultimately bear the name of Duke botanist William C. Culberson.



weeping habit, and 'Ornatum,' not because it's unusual but because it's such a beautiful specimen.

The left path from the Rose Circle leads to the Azalea Court, the H.L. Blomquist Garden of Native Plants, and The Terraces. That path is called the Perennial Allée and is home to a number of interesting specimens that provide year-round delight to all who stroll through. Of particular interest are: Climbing Carolina Aster (*Aster carolinianus*), White beautyberry, *Aster tataricus*, Allegheny Spurge, *Euphorbia amygdaloides*, *Phlomis fruticosa*, *Lilium formosanum*, *Yucca filamentosa* 'Gold Heart' (a variegated Spanish Dagger), *Indigofera kirilowii*, *Kirilow Indigophera*, and *Arum italicum* (Italian arum.)

Just this summer, The Terraces were given a facelift. Retaining walls were reworked.



Like Hanes, Culberson, director of the Gardens from 1978 to 1998, was a man with a dream. His idea was to develop an area that would clearly demonstrate the close relationship between plants of the southeastern United States and eastern Asia. In this 20-acre area of the Gardens, hundreds of plants with an Asian heritage are planted. Placed throughout the CAA are numerous Asian stone lanterns, a tea house, an arched bridge and a zig-zag bridge.

According to CAA Horticulturist Paul D. Jones, the strength in the Asiatic collection is represented by specific examples vs. cultivars or selections. Camellia japonica selections and hybrids, for example, are a strength of the CAA collection. Several unusual species not normally found in public gardens would be the CAA's *Sassafras tzumu*, *Taxus mairei* or any of the several Asian species of *Lindera*. Jones, who has traveled to China numerous times on seed-collecting trips, also has a growing collection of species from China, grown from seed of documented sites in the wild.

The CAA also has a unique collection of Japanese maples. Most notable are 'Shishigashira,' the Lion's Head Japanese Maple, 'Kasagiyama,' because of the most unusual color of the new foliage, 'Omurayama,' because of the

Fresh soil was added to the terraced beds. As new planting selections are made, some decisions are firm. The Terraces' legendary collections of daylilies, paeonies, and hostas will continue. The SPDG's collection of Hemerocallis features award winners such as the Stout and Lennington award winners, designations set by the American Hemerocallis Society.

The H.L. Blomquist Garden of Native Plants was first mentioned in the Leong master plant as, simply, "a fern garden." Today, it represents well the southeastern region of the United States with more than 900 different species of native plants in its 6.5 acres. A small pond, complete with millstone stepping stones, is just one focal point in the Blomquist. A second pond, the Sunny Pond, was built in the early 1990s in the southwest corner of the Blomquist. A particularly charming structure – the Bird-Viewing Shelter – is the newest construction. Built to resemble a bird house, the building is a delightful find for Blomquist visitors. Much of the current Blomquist was developed by horticulturist Ed Steffek, who worked in the Blomquist for almost 25 years, until his sudden death in 2001.

Particularly well-represented in the Blomquist are the native *Trillium* and *Asarum* (syn. *Hexastylus*). At least 16 different endangered

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species exist, including: *Rhododendron minus* var. *chapmanii*, *Sarracenia rubra* subsp. *jonesii*, *Helonias bullata*, *Neviusia alabamensis*, *Conradina glabra*, *Shortia galacifolia*, *Hexastylis virginiana* (syn. *Hexastylus virginicum*, *Hexastylis contracta*), *Cymophyllus fraseri*, *Croton alabamensis*, *Marshallia mohrii*, *Pityopsis ruthii* (syn. *Chrysopsis ruthii*), *Conradina verticillata*, *Hydrastis canadensis*, *Panax quinquefolius*, and *Hexastylis speciosa* (syn. *Hexastylis speciosum*).

Also striking throughout the SPDG are the presence of the native old-growth Pines (esp. *P. taeda* and *echinata*) and the aged *Quercus alba*, *falcata* and *coccinea*.

One of the favorite plantings among both the SPDG horticulturists and the general public would be its splendid example of the Dawn



Redwood, (*Metasequoia glyptostroboides*.) This tree is one of the original trees grown from the first seed collected in China after living members of this species was discovered in 1941.

With the opening of the new 12,000-square-foot Doris Duke Center in 2001, the SPDG now has a truly unique indoor space for visitor services, horticultural education, special events and its administrative offices.

The Kirby-Horton Hall is the focal point of the building. A magnificently large room, it features a Brazilian cherry floor, Douglas Fir ceiling and vertical beams, cedar ceiling, and birch side walls. The chandeliers were custom-made for the DDC by designer Phyllis Mueller. Each chandelier (at almost 15-foot tall) has a 48-inch diameter basket that is 17 inches tall itself. The panels of the chandelier are laser-cut steel and have a sandblasted exterior. The design was inspired by a vine motif on the door panels of a 19<sup>th</sup>-century Arts and Crafts cabinet made in England by Arthur Heygate Mackmurdo.

The centerpiece of the Entry Garden for the Doris Duke Center is the Iris Fountain, given by Dr. Robert Teabeaut to honor the memory of Dr. Frederic M. Hanes, his friend and mentor. In addition, the walkways, galleries and terraces of the Center are

paved with Pennsylvania bluestone.

The Entry Garden for the Doris Duke Center is framed by the Wickersham Pergola, a wood structure designed to provide a vine-covered entryway extending the full width of the front entrances to the Center.

Just outside the Doris Duke Center, a new amphitheater and pool are located. Four new gardens have been planted as well.

The Serpentine Garden extends along the east border of the Doris Duke Center Gardens and creates a backdrop for the North Terrace and Tent Lawn, visually separating the Center from the Horticultural Service Complex. This garden features an interesting redbud from China, *Cercis chinensis* 'Avondale.'



The White Garden is located on axis with the Pennsylvania bluestone pathway leading from the North Terrace to the amphitheater. On display is a variety of shrubs and perennials that will provide year-round bloom, including Pearlbush (*Exochorda*), a white Wisteria, and a *Lycoris alba*.

The East-Meets-West Garden demonstrates again the splendid horticultural link between North American and Asian plants. A stunning splash of *Acer* 'Sumin-nagashi,' *Matsumurae* Group, is settled in a grove behind a new pond. The new Water Garden creates unity among the Doris Duke Center Gardens. Greg Nace, associate director of horticultural operations, plans to raise Amazon water lilies from seed to accent the water.

In a sunny 600-square-foot room in the Doris Duke Center, the Harriet Jackson Phelps Library welcomes anyone with a horticultural question. This horticultural library features nearly 2,300 volumes.

Also located within the Horticultural Complex are the Valhope Greenhouses.

The SPDG works to develop and keep friendly ties with the community. SPDG has worked with South Eastern Efforts Developing Sustainable Spaces or, more simply put, SEEDS. That group's mission is

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to challenge and support neighborhood residents, community activists, city government, and corporations. It strives to bring community groups together to help them transform underutilized and vacant urban land into productive, community-controlled places. SEEDS uses SPDG's greenhouses to jumpstart seedling production. The SPDG also collaborated with the Durham Sister Cities program on an Ikebana flower arranging demonstration. Currently, the SPDG is coordinating with DSC to build a Japanese pavilion. From Duke's campus, professors use the Gardens' to facilitate their teaching programs. For example, limnology classes take core samples from the pond; geology classes learn surveying by surveying around the pond.

Educational classes – on every topic from bonsai gardening to what makes a plant grow – are popular with area adults and children. One particular favorite is a horticultural-therapy program that takes the Gardens to hospitalized children. Several educational courses are created and taught through the combined efforts of SPDG staff and representatives of the local Durham County Masters Gardeners. Classes in plant systematics (to encourage the public to learn locally botanically interesting trees and shrubs) are often taught to packed rooms. An annual Easter Sunrise Service is hosted at the Gardens as well as a number of performances by area dance groups and the annual nationally acclaimed American Dance Festival.

—Nancy Oliver, Sarah P. Duke Gardens, Box 90341, Duke University, Durham, NC 27708-0341, 919-668-1704 <mailto:noliver@duke.edu>

## News from the Society

The Botanical Society of America is pleased to present its first ever Executive Director in Bill Dahl. Bill comes to us from Richmond Fellowship New Zealand Incorporated, New Zealand's leading innovator and provider of community-based behavioral health and social services. As General Manager for Richmond he assisted in the development of a culture-based on meeting its members' needs and ensuring its service offerings meet the needs of the people and mission it was instigated to serve. Bill led the organization with a strong emphasis on strategic development and sound business practices.

Bill holds a Masters of Business Administration degree from the University of Canterbury, based in Christchurch, and holds dual citizenship (USA and New Zealand). He will be responsible for the operation of the Botanical Society of America office based in St. Louis, Missouri; manage membership in general with particular emphasis on membership

services & development; and run BSA's fundraising programs. Bill will also act as one of our relationship



links with other like societies.

Father of two great kids (Rebecca 20 and Peter 18). Rebecca is a student at Victoria University in Wellington and Peter has just graduated from high school and is considering his options (may want to come to the US of A to play rugby).

## News from the Sections

### ARCHIVES and HISTORY SECTION

Betty Smocovitis, former section chair, has asked me to chair the section and I have accepted. Larry Davenport graciously has offered to serve as co-Program Chair for our meetings. Therefore we are now asking for your assistance in organizing the next Historical Section program. We wish to encourage our members and their students and colleagues to present a paper or poster at the Botany 2003 meetings in Mobile, Alabama. If you know of anyone working on an historical project that would have interest to our membership please encourage them to participate. Additionally, we are updating our list of section members and would encourage you to send us your latest postal and email address for our records. If you are not currently a member of the Archives and History section we welcome your affiliation. Thanks, Lee Kass and

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## Meet me in Mobile!

### Personalia

#### Darbaker Prize

**Dr. Arthur Grossman** of the Carnegie Institution of Washington was selected for the 2002 Darbaker Prize. This award has been given by the Botanical Society of America since 1955 for meritorious work on microalgae, as judged by publications over a two-year period. Dr. Grossman's recent publications reflect his long-standing and diverse interests in algal biology, and include studies on cyanobacterial nutrient and light responses, and the characterization of light-harvesting systems in two major groups of algae. Dr. Grossman is also enthusiastic in promoting algae as model organisms, being deeply involved in the development of genomics tools for the study of gene expression in the green alga *Chlamydomonas*, and instrumental in the development of one of the first transformation systems for diatoms. We congratulate Dr. Grossman on his Darbaker Prize!

#### 2002 Lawrence Memorial Award

**Andrew L. Hipp**, at the University of Wisconsin – Madison, is the recipient of the 2002 Lawrence Memorial Award. A student of Paul E. Berry, Mr. Hipp has undertaken a phylogenetic and taxonomic study of *Carex* section *Ovales*. He will use the proceeds of the Award to support his field studies of the *Carex microptera* complex. Commemorating Dr. George H.M. Lawrence, founding Director of the Hunt Institute for Botanical Documentation at Carnegie Mellon University, the annual Award of \$2000 is made to an outstanding doctoral candidate for travel in support of dissertation research in systematic botany or horticulture, or the history of the plant sciences, including literature and exploration.

#### Plowman Research Award

**Pedro Lezama Asencio**, Universidad Privada Antenor Orrego, Trujillo, Peru received the Plowman Research Award to support the study: "Biodiversity and Systematics of *Lupinus* (Tourn.) L. in Department Ancash, Peru"

The genus *Lupinus* (Tourn.) L. (Fabaceae) contains ca. 300 spp., of which 200 are distributed in the Americas. The genus *Lupinus* has only four domesticated species, though it is an important crop plant in the Andes of South America, and Peru in particular. While many cultivars have their origin in the Mediterranean region, *Lupinus mutabilis* is derived from South America. Members of *Lupinus* form associations with rhizobia bacteria (*Bradyrhizobium* spp.) and these are potentially "species-specific." In Peru, ca. 84 species of *Lupinus* are recorded, and of these, 60 are reported for the Department of Ancash. This total number remains controversial and it has been suggested there are possible hybrid swarms. To date, 15 different "morpho-type" species have been identified in the northern sector of Department of Ancash. These require identification and placement in accepted nomenclature. This study has allowed for collecting native species, identifying species boundaries, and applying the proper nomenclature to the representatives in the Ancash region. The hypothesis that the rhizobia bacterial are "species-specific" will be tested when all bacteria have been characterized and species concepts refined. *Lupinus* species have may play an important role in sustainable agriculture, due to their ability to be cultivated in soils poor in nutrients by the fixing of nitrogen by the symbiotic bacteria *Bradyrhizobium* spp.

The Plowman Research award allowed for a visit to the Field Museum and Missouri Botanical Garden, where Dr. David Neil had amassed a large number of loans from major herbaria (including F) of Andean *Lupinus*. Dr. Neil is conducting a monographic study of Andean *Lupinus* in conjunction with Dr. Colin E. Hughes (Oxford University), which includes DNA analysis. Appropriate DNA samples from Ancash will be included in these studies and will allow for testing hypotheses of species relationships and specificity for bacterial strains. It is hoped that by expanding our knowledge of the native members of *Lupinus*, we may be able to develop additional species having characteristics favorable for cultivation. These may include disease resistant, increased nutritional content, and potentially better adaptations to local environments. Understanding the taxonomic diversity and variability in *Lupinus* may allow us to progress on other research fronts.

## THE HIGHLANDS BIOLOGICAL STATION COURSE OFFERINGS IN 2003

The Highlands Biological Station, located in the Southern Appalachian Mountains in southwestern North Carolina, is pleased to announce its summer course offerings for 2003. These courses are taught at the advanced undergraduate-graduate level, and credit for all courses is available through UNC-Chapel Hill or Western Carolina University.

***Conservation Biology of Amphibians*** May 19-May 31 Three semester hours. Raymond D. Semlitsch (University of Missouri)

This course is designed for advanced students and wildlife professionals who are interested in understanding the basic processes that regulate natural populations of amphibians, as well as contemporary problems associated with the conservation of amphibian diversity. Students will participate in a class field project on the effects of forest management practices on woodland salamanders and sharpen their communication skills through individual presentations on selected topics.

**Prerequisites:** herpetology or vertebrate biology, ecology or population biology, or permission of instructor.

***Taxonomy and Natural History of Southern Appalachian Mayflies, Stoneflies, and Caddisflies*** June 2-14 Three semester hours. John C. Morse (Clemson University)

Natural history and taxonomy of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera), including systematics, ecology, and behavior of larvae and adults, with emphasis on those aspects important in ecological studies, biological monitoring of water quality, and sport fishing. Insects will be collected from mountain stream habitats, and identifications will be done in the laboratory.

**Prerequisites:** general biology, entomology, or permission of instructor.

***Conservation Biology—Principles for Conservation Illustrated by the Diverse and Dynamic Landscape of the Southern Appalachians*** June 16-28 Three semester hours. Peter S. White (University of North Carolina at Chapel Hill)

This course presents the major biological principles that are important in our efforts to conserve biological diversity. The setting of Highlands Biological Station will allow us to examine and illustrate those principles through field work in Great Smoky Mountains National Park, the Blue Ridge Parkway, and the Highlands area. Topics to be covered include: the history and philosophy of conservation goals, the definition and measurement of biological diversity, island biogeography and conservation, communities and ecosystems, natural disturbance and patch dynamics, the special problems of islands, exotic species, and ecological restoration. Students will explore computer simulations of ecosystem and population dynamics, population genetics, and island biogeography.

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

***Forest Ecosystems of the Southern Appalachian Mountains*** June 30 - July 12 Three semester hours. Thomas R. Wentworth (North Carolina State University), J. Dan Pittillo (Western Carolina University), Peter S. White (University of North Carolina at Chapel Hill)

The purpose of this course is to introduce students to patterns and processes in forested ecosystems of the Southern Appalachian Mountains. The focus is on natural vegetation, with an emphasis on vascular plants. Through lectures, readings, and discussions, students will be introduced to a series of topics, including biogeography, paleoecology, classification of vegetation, regional environmental patterns, succession and community dynamics, vegetation/environmental relationships, and current threats to the integrity of these systems. Trips to a variety of natural areas will illustrate these topics in the field. Students will be expected to participate fully in all group activities and to maintain personal journals summarizing the information presented.

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

***Vascular Plants of the Southern Appalachians*** July 14 - 26 Three semester hours. Paul S. Manos (Duke University)

The vascular flora of the Southern Appalachians is extremely rich. This course will introduce students to the full diversity of vascular plants, focusing on identification of characteristic and endemic taxa. A variety of keys and regional floras will be used. There will be lectures, labs, and field trips to sites in the Blue Ridge Mountains and

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Great Smoky Mountains National Park. Field trips will involve some moderate hiking.

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

***Bryology—an Introduction to Mosses, Liverworts, and Hornworts of the Southern Appalachians***  
July 28 – August 9 Three semester hours. Paul G. Davison (University of North Alabama)

The Highlands area is the wettest place in eastern North America and harbors an incredible diversity and abundance of bryophytes. This course examines the systematics, morphology, and ecology of this diverse, but often overlooked, group of plants. Field trips to collect specimens will be followed by microscopic examination in the laboratory to identify these to species. A collection will be required.

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

Costs include a course fee of \$400 per 2-week course, charged to all students; a registration fee of \$80, charged only to students who wish to register for credit; and housing costs of \$40 per week. Courses may be taken without credit, but preference is given to degree-seeking students who wish to enroll for credit.

The Highlands Biological Foundation, Inc., offers limited financial aid, typically a subsidy amounting to one-half of the course fee, to qualified students. 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 <http://www.wcu.edu/hbs>.

## Ode to code (by Don Les)

You may have me, you can take me; sometimes you'll even tell me,

I am money, you can spend me; but can you really spell me?

Poems are very nice because the words are meant to rhyme,

But spell me similarly, and you'll see that I'm no lime.

Which family am I in?

## Symposia, Conferences, Meetings

### Deep Achene: The Compositae Alliance First International Meeting - South Africa

**WHEN:** 9-10 January 2003

**WHERE:** Environmental Education Centre  
National Botanical Garden  
2 Cussonia Avenue  
Brummeria  
Pretoria, South Africa

**REGISTRATION:** \$50 (50 Euros) includes lunch and tea for both days. The registration form (attached) and checks, made out to the National Botanical Institute, should be sent to our local host Dr. Marinda Koekemoer (PRE). Please send a copy of the form to Funk as well. There is a much reduced rate for local participants and they should contact Marinda for additional information.

**TITLES AND ABSTRACTS:** Titles are due 15 November 2002 (please include the tribe name or names in your title). Abstracts (150 words) should arrive by 10 December 2002. Please send Titles and Abstracts by email, fax or letter to Funk and to Koekemoer. We will use the same guidelines for abstracts as used by the SAAB website (<http://www.up.ac.za/academic/botanv/SAAB>) although they will be processed separately. Please note: Do Not submit your title and abstract through the SAAB website, send it directly to Funk and Koekemoer via email, fax or letter.

A program with abstracts will be sent via email to all participants around the 15<sup>th</sup> of December, and a printed version will be part of the registration packet. After the meeting we hope to publish revised abstracts and perhaps a meeting summary in the *Compositae Newsletter*.

**PROGRAM:** There will be talks as well as posters. There is at least one person per tribe invited to give an overview of our current level of knowledge in that tribe. In addition, anyone is welcome to present a contributed paper and/or poster.

The Program will be divided into three parts.

Part I: An overview of the family and the three subfamilies will be presented on the morning of Day 1. A large cladogram with all the "latest" groupings will be posted in the room to encourage comments.

Part II: The afternoon of Day 1 and most of Day 2 will be devoted to talks and posters organized by tribe beginning at the base of the diagram and working up the tree. Each tribe of any size has a coordinator(s) who will present a talk on the tribe and organize the talks and posters for that group. The small tribes will be picked up by the subfamily speakers or by those covering the sister tribe.

**Outgroups:** Melanie Devore

Barnadesieae: Tod Stuessy and Estrella Urtubey (?)  
Mutisieae: Jorge Cnsci(?), Vicki Funk & Santiago Ortiz  
Cardueae (Cynareae): Nuria Garcia-Jacas & Alfonso Susanna  
Vernonieae: Sterling Keeley & Harold Robinson(?)  
Liabeae: V. Funk & Mike Dillon (?)  
Arctoteae: Nigel Barker, V. Funk & Per Ola Karis(?)  
Lactuceae (Cichorieae): Walter Lack & Joongku (?)  
Calenduleae: Bertil Nordenstam  
Gnaphalieae: Randal Bayer, Ilse Breitwieser & Jo Ward  
Anthemideae: Linda Watson, Christoph Oberprieler and Joan Valles  
Astereae: Tim Lowrey & Lowell Urbatsch  
Inuleae + Plucheeae: Arne Anderberg (?)  
Senecioneae: Beiril Nordenstam  
Heliantheae: Jose Panero & Bruce Baldwin  
Eupatorieae: Ed Shilling (?) & H. Robinson (?)  
(Names followed by a "(?)" indicate that the individual may not be attending the meeting)

Part III: At the end of the second day there will be a general meeting to discuss several subjects of importance to the Compositae research community. Topics include the possibility of a meeting in Vienna, Austria, hosted by Tod Stuessy either during or after the International Botanical Congress in 2005. The purpose of this 2005 meeting would be to produce a published work similar to the volumes by Heywood, Harborne & Turner (1977). Also on the agenda are efforts to provide some voluntary organization for investigations into the evolution of the family. For instance, the designation of a list of characters that should be included in general descriptions (a draft is to be provided by David Keil), a discussion of molecular markers and ways to approach areas of the cladogram that lack resolution, the possibility of a repository for published sequences that would be analyzed annually to provide insight into the evolution of the family, how to use the Deep Achene project to raise funds for research, etc. Anyone with topics they wish to discuss should contact Funk. Depending on the number of titles submitted, part of this discussion may take place on the evening of the Day 1. If anyone would like to help organize and moderate the discussion, please contact Funk.

**ACCOMMODATION:** As many of you know, the Deep Achene meeting is taking place at the same time as the South African Association of Botanists (SAAB) meeting, 7-10 January, 2003. Their web site (<http://Mwww.up.ac.za/academic/botany/SAAB>) has a list of accommodations. Other accommodations

somewhat closer to the Garden are as follows:  
Bed & Breakfast (Guest Houses)

1. Bosau (Single, R230; Double R350 per room)
2. Weavind (R250 per person)
3. Sugar & Spice (R250 per person)  
[www.geocities.com/sug\\_spiceza](http://www.geocities.com/sug_spiceza)
4. Khayaletu (Single, R180; Double~ R300)  
[www.khayaletu.co.za](http://www.khayaletu.co.za)  
Hotel (Breakfast excluded)  
Holiday Inn Garden Court (Single, R749; Double, per person sharing, R658)  
[www.sixcontinentshotels.com/ld/HL/hd/preha](http://www.sixcontinentshotels.com/ld/HL/hd/preha)

Currently the exchange rate is about 10 Rand to the dollar or Euro. Marinda can ask someone to make a reservation for you at one of the Bed & Breakfasts without a website; if you have any difficulty please contact her.

**FIELD TRIP:** Marinda is organizing a 10 day field trip leaving on the 11th of January to Lesotho and the Natal Drakensberg / Sani Pass area. The cost of the trip will be approximately \$1000 (or Euros) which will include all lodging, meals, and transportation. Marinda is looking into some less expensive options and we hope to have a less expensive price tag for the trip. We will have some final information soon. Those wishing additional information should contact Marinda as soon as possible.

**SIDE TRIPS:** If you have extra days there are a number of interesting places for short trips. Some possibilities are:

1. Pilansberg Reserve ([www.knet.co.za/pilansberg/about\\_the.html](http://www.knet.co.za/pilansberg/about_the.html) and [www.africantravel.com/sa/tshukudu/](http://www.africantravel.com/sa/tshukudu/)) and Sun City (<http://l/sun-city-south-africa.go2africa.com>) [2-3 days]
2. Cradle of Mankind ([www.kenyalogy.com/eng/info/histo.html](http://www.kenyalogy.com/eng/info/histo.html)) [3 days]
3. Buffelskloof Nature Reserve ([www.sabie.co.za/about/natural\\_heritage.html](http://www.sabie.co.za/about/natural_heritage.html)) [3 days]
4. Sight seeing in Pretoria and Johannesburg  
You can find all of these 'on line' and Marinda can give you additional suggestions and information.

Dr. Marinda Koekemoer  
National Herbarium  
National Botanical Institute  
  
Private Bag X10I  
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([mk@nbipre.nbi.ac.za](mailto:mk@nbipre.nbi.ac.za))

Dr. Vicki A. Funk  
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USA  
Tel: 202-357-2560  
Fax: 202-786-2563  
([funk.vicki@nsmnh.si.edu](mailto:funk.vicki@nsmnh.si.edu))

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## Illinois Symposium on Invasive Species

The Illinois State Academy of Sciences, The Nature Conservancy, and the Illinois Department of Resources will sponsor a symposium on Illinois invasive species on 5 April 2003 at Illinois State University, Normal. Plenary session speakers include: David Thomas, Chief of Illinois Natural History Survey, David Lodge, Department of Biology, Notre Dame University and a member of the Federal Invasive Species Advisory Council, Phil Lounibos, Department of Entomology & Nematology, University of Florida, Ann Bartuska, Executive Director, Invasive Species Initiative, The Nature Conservancy, and Lynn Padovan with the State of Illinois Governor's Office. The symposium will also include Round Table Discussions on a variety of topics related to invasive species, and a poster session. To receive additional information and a registration form email ([invasives@mail.bio.ilstu.edu](mailto:invasives@mail.bio.ilstu.edu)) or mail your name and address to:  
Roger C. Anderson, 4120 Biology Department, Illinois State University, Normal, IL 61790-4120.

## Second International Elm Conference - 20-23 May, Valsain, Spain

The second International Elm Conference, hosted by the DGCN, Ministry of Environment, will provide an international exchange of information about established and emerging methods of saving the remaining elms. Experts from around the world will present current research on elm ecology, conservation, biotechnology, breeding, pests and elm diseases. The objectives and topics to be discussed will follow those presented at the 1st International Elm Conference (The Morton Arboretum, Chicago, 1998):

- \*Building dialog between researchers and practitioners
- \*Providing information about elm conservation and management
- \*Developing ideas for elm improvement
- \*Involving citizenship with elm research

The Conference is structured in four plenary sessions: Elm Ecology, Conservation and Breeding, Pests and Diseases, and Biotechnology. At least two invited speakers will present key lectures on the state-of-the-art and research needs. The Conference will be held in the National Centre for Environmental Education (Valsain, Segovia). Tours through Segovia, Madrid and to elm forests will be available. The Conference will be international and

interdisciplinary. Official language is English. Papers will be published after the Conference.

For more information, or to register, please inquire by e-mail to: [info@elmconference.com](mailto:info@elmconference.com) or to Dr. Christopher Dunn, The Morton Arboretum, Lisle, IL 60532 ( [cdunn@mortonarb.org](mailto:cdunn@mortonarb.org) )

## 4th International Plant Biomechanics Conference 2003

The 4th International Plant Biomechanics Conference will be hosted by Michigan State University, East Lansing, MI U.S.A. from 20 to 25 July, 2003. The organizing committee, chaired by Drs. Frank W. Telewski and Dr. Frank W. Ewers, with Dr. Guillermo Angeles, Dr. Larry Drzal, Dr. Barbara Gartner, Dr. Lothar Koehler, Dr. Wendy Silk, Dr. Hanns-Christof Spatz, and Dr. Thomas Speck as members, invites contributions on a wide range of topics related to plant biomechanics:

- 1) General Biomechanics
- 2) Biomechanics and Ecology
- 3) Biomechanics and Evolution
- 4) Trees and Wood
- 5) Biomechanics and Genetic Modification
- 6) Mechanoreception and Early Signal Transduction
- 7) Mechanics of Growth Processes
- 8) Applied Biomechanics I Whole Plants and Plant Products
- 9) Applied Biomechanics II Fibers and Composites
- 10) Xylem Pressure and Water Transport
- 11) Fluid Dynamics
- 12) Properties of Cell Walls
- 13) Fracture Mechanics
- 14) Modeling

Prospective speakers are requested to submit abstracts of their papers or posters to the conference secretary by e-mail:

[biomechanics2003@cpp.msu.edu](mailto:biomechanics2003@cpp.msu.edu). The deadline for submitting abstracts is 15 December 2002. The campus of Michigan State University is located in the heart of the beautiful Great Lakes Region. For further information visit the conference website (<http://www.plantbiomechanics2003.msu.edu>). For additional information or questions, contact Dr. Frank W. Telewski ([telewski@cpp.msu.edu](mailto:telewski@cpp.msu.edu)) or write:

Dr. Frank W. Telewski  
W. J. Beal Botanical Garden  
412 Olds Hall  
Michigan State University  
East Lansing, MI 48824  
U.S.A.

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## Announcement of the 2006 International Solanaceae Conference and Poster Photo Competition

The VI International Solanaceae Conference will be held in Madison, Wisconsin from July 23-27, 2006, at the Monona Terrace, situated on Lake Monona. This modern facility, situated within walking distance of the State Capitol, hotels, and scenic State Street, represents an ideal venue for this conference. It will be held in conjunction with an annual meeting of the Potato Association of America. The International Solanaceae Conferences have been held every 5-6 years and all have resulted in published proceedings, as will this one. Details of the conference are being formulated, and can be viewed at: [www.hort.wisc.edu/PAA-Solanaceae](http://www.hort.wisc.edu/PAA-Solanaceae). The conference will be further advertised by full-color posters to be distributed worldwide, and we solicit artwork of any Solanaceae theme that will form the centerpiece of the poster. The contributor of this artwork, and sponsors to the conference will be acknowledged on the poster. For more information, please contact the conference organizer: David M Spooner, USDA Agricultural Research Service, UW-Madison, Department of Horticulture, 1575 Linden Drive, Madison, WI 53706; 608-262-0159; [dspooner@wisc.edu](mailto:dspooner@wisc.edu).

### Other News

#### Plant Group Seeks To Nip Invasives In The Bud

**St. Louis** – Botanists, nursery professionals, farmers and gardeners are arming themselves to fight back against “plant thugs,” the growing invasion of rogue plants that mar yards, fields and even whole ecosystems.

For a number of reasons, including the sale of non-native species via the Internet, the infiltration of invasive plants has turned into an onslaught, causing large-scale environmental damage and economic losses running into the billions of dollars. That’s why the plant community – everyone from window box gardeners to botanical gardens professionals and nursery operators – is fighting back.

A group of botanical garden representatives, nursery professionals, landscape architects, garden

clubbers and government experts recently gathered at the Missouri Botanical Garden in St. Louis to explore new ways of fighting unwanted species. Invasive species pose a significant environmental threat,” said Dr. Peter Raven, Director of the Missouri garden, “and a huge economic problem to agriculture, nurseries and homeowners. We can work together to solve the problem, or by omission or commission exotics will defeat us.”

As a follow-up to the December conference, the group has released the *St. Louis Declaration on Invasive Plant Species* along with a set of guidelines for all types of growers referred to as *Draft Voluntary Codes of Conduct*.

To get the word out, the group has created a website, [www.mobot.org/iss](http://www.mobot.org/iss), where gardeners, botanists, landscape architects and nursery operators – anyone who grows plants – can learn more about how to stop the spread of invasives.

For many, the fight to quell common weeds like dandelions and Queen Anne’s lace is little more than a yearly nuisance. But many lesser known – and far more dangerous – “plant thugs” pose a serious environmental threat. Plants like the Brazilian pepper in south Florida, brome grass in the southwest, kudzu in the southeast and English ivy in the northwest can wreak havoc in natural areas, decimate biodiversity and change the basic ways native ecosystems work.

The Missouri Botanical Garden and the Royal Botanic Garden at Kew, England, convened the St. Louis workshop. Other participants include the American Association of Botanical Gardens and Arboreta, the American Nursery and Landscape Association, the American Society of Landscape Architects, The Nature Conservancy, the Garden Club of America and others.

A second meeting to further refine the *Draft Voluntary Codes of Conduct* and discuss how to turn plans into action is scheduled for this fall at the Chicago Botanic Garden.

Often brought from overseas with the best of motives – feeding livestock, halting erosion and brightening gardens and flowerboxes – plant predators can sweep across fields and forests and out-compete native flora for light, water and nutrients. Growing sales of exotics through mail-order houses and the Internet have worsened the problem.

“There needs to be a change so we can move away from trying to control invasive plants once they’re here to preventing their arrival in the first place,” said Sarah Reichard, a biologist at the University of

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Washington in Seattle.

The workshop's findings set forth a list of principles, "The St. Louis Six," which seeks to provide professional and amateur growers with a blueprint for preventing the spread of harmful exotics. These guidelines call for:

- \*Plant introduction protocols that reduce the chances of bringing in nuisance plants.

- \*Adherence to national goals and standards while taking regional differences into account.

- \*Promoting prevention and early detection as the most cost-effective methods of fighting invasives.

- \*Added emphasis on research, public education and professional training.

- \*Organizing a cooperative campaign that includes leaders from horticulture, the nursery industry, weed science, ecology, conservation, botanical gardens, garden clubs, the media, schools, landscape architecture, foundations and government agencies.

- \*Formulation of an overall strategy based on voluntary action, sound management practices and appropriate legislation.

- \*Invasives have serious economic implications, and there is growing awareness of the problem among nursery operators.

Craig Regelbrugge of the American Nursery Landscape Association said the nursery industry is committed to implementing voluntary guidelines and educating both industry members and consumers. The Florida Nurserymen and Growers Association has already taken steps to thwart the spread of exotics, said FNGA representative Hugh Gramling. The group asked Florida producers to stop growing and distributing 13 plant species three years ago, a list that has now grown to include 45 species considered invasive in the state.

**For More Information, Contact:**

Darrel Morrison, University of Georgia, (706) 542-8293; [darrelmo@arches.uga.edu](mailto:darrelmo@arches.uga.edu)

John Randall, The Nature Conservancy, (530) 754-8890; [jarandall@ucdavis.edu](mailto:jarandall@ucdavis.edu)

Craig Regelbrugge, American Nursery and Landscape Assn. (202) 789-5980; [cregelbrugge@anla.org](mailto:cregelbrugge@anla.org)

Sarah Reichard, University of Washington (206) 616-5020; [reichard@u.washington.edu](mailto:reichard@u.washington.edu)

Jocelyn Sladen, Garden Club of America (540) 349-3248; [jocelya@erols.com](mailto:jocelya@erols.com)

Peter White, North Carolina Botanical Garden (919) 962-6939; [peter.white@unc.edu](mailto:peter.white@unc.edu)

Web Site: [www.mobot.org/iss](http://www.mobot.org/iss)

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## Priceless New England Literary Collection Establishes Major Botanical Library at Chicago Botanic Garden

The Chicago Botanic Garden has acquired thousands of rare books and journals from the Massachusetts Horticultural Society, Boston, MA, including first editions of Darwin's botanical works and a collection of botany, horticulture and gardening journals published in the 18<sup>th</sup> century.

Like a virtual time machine, the collection provides clues from yesterday as to how plants have changed and evolved through six centuries, as it gives the Garden one of the country's top historical library collections and forms the basis for research and education on par with the world's greatest museums.

Containing historical and scarce volumes dating back as far as the 1400s, the priceless collection includes 2,219 rare books and 2,000 journal titles. It significantly expands the size of the Garden's existing June Price Reedy Horticultural Library, which already holds more than 18,000 books on gardening, horticulture and botany; 400 journals; almost 2,000 rare books and journals; 200 videos; and thousands of nursery and seed catalogs.

In the 19<sup>th</sup> century, scholars saw this collection as the oldest, most complete and best-organized strictly horticultural library in the world. Thirty-percent of the collection's rare books have publication dates between 1400 and 1799; 60 percent of the books were published in the 19<sup>th</sup> century. Many of the collection's books and journals are not available for study anywhere else in the Midwest, and are of limited access in a few academic and specialized libraries on the East Coast.

"This collection fits into the collections of area libraries, such as the Newberry, Morton Arboretum and the Field Museum of Natural History, as if it were a missing puzzle piece," said Larry DeBuhr, the Garden's vice president of education. "With this collection, Chicago libraries and libraries at the great universities of Chicago, Northwestern, and Illinois, can proudly claim to have one of the strongest natural history book collections in the world."

The oldest book in the collection - - published in Treviso, Italy in 1483 - - is "De Historia Plantarum" by Theophrastus, who was Aristotle's favorite student and is often thought of as the father of botany. The book is the result of an order by Pope Nicholas V for a Latin translation of Theophrastus' manuscripts.

# The Dead Grandmother / Exam Syndrome and the Potential Downfall Of American Society.

Mike Adams, Biology Department  
Eastern Connecticut State University  
The Connecticut Review, 1990

It has long been theorized that the week prior to an exam is an extremely dangerous time for the relatives of college students. Ever since I began my teaching career, I heard vague comments, incomplete references and unfinished remarks, all alluding to the "Dead Grandmother Problem." Few colleagues would ever be explicit in their description of what they knew, but I quickly discovered that anyone who was involved in teaching at the college level would react to any mention of the concept. In my travels I found that a similar phenomenon is known in other countries. In England it is called the "Graveyard Grannies" problem, in France the "Chere Grand'mere," while in Bulgaria it is inexplicably known as "The Toadstool Waxing Plan" (I may have had some problems here with the translation. Since the revolution this may have changed anyway.) Although the problem may be international in scope it is here in the USA that it reaches its culmination, so it is only fitting that the first warnings emanate here also.

The basic problem can be stated very simply:

**A student's grandmother is far more likely to die suddenly just before the student takes an exam, than at any other time of year.**

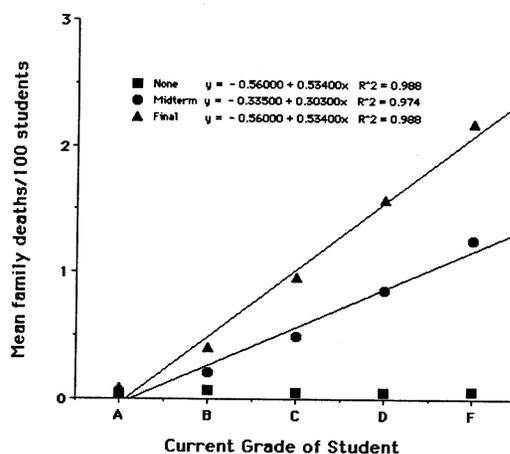
While this idea has long been a matter of conjecture or merely a part of the folklore of college teaching, I can now confirm that the phenomenon is real. For over twenty years I have collected data on this supposed relationship, and have not only confirmed what most faculty had suspected, but also found some additional aspects of this process that are of potential importance to the future of the country. The results presented in this report provide a chilling picture and should waken the profession and the general public to a serious health and sociological problem before it is too late.

As can be seen in Table 1, when no exam is imminent the family death rate per 100 students (FDR) is low and is not related to the student's grade in the class. The effect of an upcoming exam is unambiguous. The mean FDR jumps from 0.054 with no exam, to 0.574 with a mid-term, and to 1.042 with a final, representing increases of 10 fold and 19 fold respectively. Figure 1 shows that the changes are strongly grade dependent, with correlation coefficients of 0.974 for mid-terms and 0.988 for

finals. Overall, a student who is failing a class and has a final coming up is more than 50 times more likely to lose a family member than an A student not facing any exams.

	Current Grade					
Next exam	A	B	C	D	F	Mean
None	0.04	0.07	0.05	0.05	0.06	0.054
Mid-term	0.06	0.21	0.49	0.86	1.25	0.574
Final	0.09	0.41	0.96	1.57	2.18	1.042

**Table 1:** The mean number of family deaths/100 students for periods when no exam is coming up, the week prior to a mid-term exam and the week prior to finals. Values are corrected for the number of students in each grade class and the relative frequency of mid-terms and finals.



**Figure 1.** Graph of data in Table 1, showing the relationship between exam, student grade and FDR. The equation for the simple linear regression on each is shown, as is the correlation coefficient.

Only one conclusion can be drawn from these data. Family members literally worry themselves to death over the outcome of their relatives' performance on each exam. Naturally, the worse the student's record is, and the more important the exam, the more the family worries; and it is the ensuing tension that presumably causes premature death. Since such behavior is most likely to result in high blood pressure, leading to stroke and heart attacks, this would also explain why these deaths seem to occur so suddenly, with no warning and usually immediately prior to the exam. It might also explain the disproportionate number of grandmothers in the victim pool, since they are more likely to be susceptible to strokes. This explanation, however, does not explain why grandfathers are seldom affected, and clearly there are other factors involved that have not been identified. Nonetheless, there is considerable comfort to be had in realizing that these results indicate that the American family is

obviously still close-knit and deeply concerned about the welfare of individual members, perhaps too much so. As some colleagues have expressed some degree of skepticism over my interpretation of these data, I have extended the scope of my research into the phenomenon. Using readily available sources (including the National Census Bureau and *The National Enquirer*) have examined the relationship between education and family structure. Interestingly, there appears to be no correlation between FDR and the size of the extended family (Table 2). Either large families worry less on a per capita basis than do small families, or there is a single "designated worrier" in each family, who bears the brunt of the danger. The exceptionally high death rate among grandmothers (24 times greater than for grand fathers) suggests the latter explanation is correct. If not, then people from very small families would be well advised to discourage other family members from attending college, since the potential risk becomes excessive with so few members to share the danger.

	Number in family, excluding student						
	1	2-3	4-8	8-15	16-30	30+	
Mean FDR	<0.01	0.66	0.71	0.62	0.73	0.64	0.68

Table 2. Mean FDR for all exam periods and all student GPAs over the last decade. Families ranging in size from 1-30+ show no significant correlation (0.04) between family size and FDR. The figure for students with no family would have been zero, except for a single family-less student (a member of the baseball team) who tragically lost at least one grandmother every semester for four years.

The problem is clearly far more pervasive than most people realize. For example, if one examines the percentage of the population attending college and the mean divorce rate on a country by country basis, there is a very strong positive correlation between the two. The United States has the highest percentage of its population attending college and also the world's highest divorce rate, while South Yemen is last in both categories. Although this study is still in progress and will form the basis for a future CSU grant proposal, it seems results already are becoming clear. As more people go to college, their families find that, for safety reasons, it is wise to increase the number of grandmothers per family. Since there is currently no biological way of doing so (though another grant proposal in preparation will ask for funds to look into the prospect of cloning grandmothers, using modern genetic engineering techniques), the families must resort to increasing the pool by divorce and remarriage. Sociologists may wish to use these data to examine the effect of education on family structure from a new

perspective.

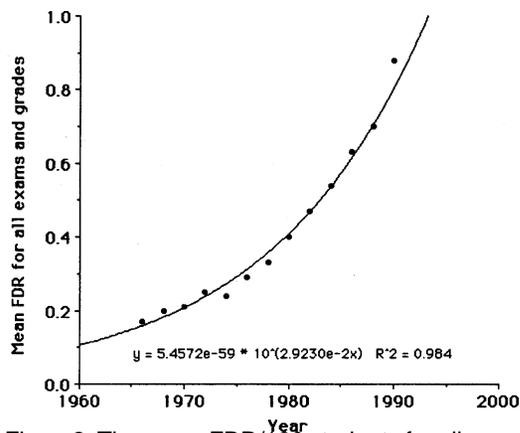


Figure 2: The mean FDR/100 students for all exams and all grades of students for the years 1968-1988. The best fitting curve shows an exponentially rising curve, with the equation shown in the figure.

While the general facts of this problem have been known, if not widely discussed, I have recently become aware of a potentially far more dangerous aspect of the whole process. This trend came to light when a student reported two family members dying prior to an exam. Examination of the numbers of deaths over the last two decades clearly showed a "death inflation". When the figures for all students and all exams are pooled for each year, a disturbing outcome is seen (see Figure 2).

The FDR is climbing at an accelerating rate. Extrapolation of this curve suggests that 100 years from now the FDR will stand at 644/100 students/exam. At that rate only the largest families would survive even the first semester of a student's college career. Clearly something will have to be done to reverse this trend before the entire country is depopulated. Three possible solutions come to mind:

- 1. Stop giving exams.** At first glance, this seems to be the simplest answer to the problem. Like many simplistic solutions, however, it fails to consider the full ramifications of such a course. Without exam results, all medical schools would be forced to close their doors, having no way of distinguishing worthy students. The resultant dearth of physicians in the next generation would throw so many other professionals (tax accountants, malpractice attorneys, golf pros, etc.) out of work that the economy would go into a nosedive. Regrettably, this solution must be abandoned since it is more dangerous than the original problem.
- 2. Allow only orphans to enroll at universities.** This is an extremely attractive idea, except for the shortage of orphans. More could be created of course, but this

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would be morally wrong, and in any case would replicate the very problem we are trying to avoid *i.e.* excessive family deaths.

**3. Have students lie to their families.** Students must never let any of their relatives know that they are at university. (Initial field tests show that keeping just the grandmother ignorant is neither feasible nor safe for the rest of the family.) It is not enough merely to lie about exams; if the family doesn't know when the exams are, they may then worry constantly and this may lead to even higher death rates. The only solution is that the family must never be aware that the student is even enrolled at a university. Students must pretend they are in the armed forces, have joined some religious cult, or have been kidnapped by aliens. All of these alternate explanations for their long absences will keep the family ignorant of the true, dangerous, fact. Although it might be argued that such large-scale deceptions could not be maintained for long periods, the success of many politicians suggests otherwise.

It will take time to discover whether any of these solutions are feasible. In the interim, the problem is clearly far too important to be ignored. Following the government's lead on so many similar, potentially catastrophic problems (global warming, the ozone layer, and ocean pollution), I propose that a commission be established to study the problem in more depth. While the state is deciding on the make-up of such a committee and what its charge should be, I would urge all members of the academic community to start keeping their own records. If faculty throughout the country were to send me summaries of their own knowledge about this matter, I could compile a follow-up report for publication in a year or two.

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## Native Plant Makes History

AUGUST 28, 2002 - For the first time in history, a plant has been delisted from the federal List of Endangered and Threatened Plants due to its recovery in the wild. The U.S. Fish & Wildlife Service removed the Robbins' cinquefoil (*Potentilla robbinsiana*), a rare plant that was on the brink of extinction just a few years ago, from the federal List of Endangered and Threatened Plants. The plant's recovery was aided by the conservation efforts of a partnership among the Fish and Wildlife Service, the U.S. Forest Service, the Appalachian Mountain Club, and the New England Wild Flower Society. A member of the rose family, Robbins' cinquefoil (*Potentilla robbinsiana*), also called the dwarf cinquefoil, occurs only in the alpine zone of the

White Mountain National Forest in New Hampshire. Robbins' cinquefoil is a small, almost stemless perennial that measures 2 to 4 centimeters in diameter and bears a yellow flower. Flowering generally begins in early June and lasts approximately three weeks.

Prior to receiving Endangered Species Act protection in 1980, the known main population of Robbins' cinquefoil numbered only 3,700 plants. Robbins' cinquefoil was threatened by plant collectors and disturbance from hikers along the Appalachian Trail. In 1983, the White Mountain National Forest and the Appalachian Mountain Club rerouted the trail away from the species' critical habitat and built an enclosure to protect the primary population.

To meet the objectives of the recovery plan for Robbins cinquefoil, the Appalachian Mountain Club undertook the tasks of trail relocation, public education, biological research, seed collection and overseeing the transplant efforts in the field. With plants provided by the New England Wild Flower Society, biologists from all the partner agencies and organizations successfully reintroduced two additional populations to suitable habitat in the National Forest. Today the population totals more than 14,000 plants.

"The successful, dramatic recovery of Robbins' cinquefoil is an example of the power of federal/private partnerships to benefit imperiled plants, fish and wildlife," said Dr. Mamie A. Parker, regional director of the U.S. Fish and Wildlife Service in the Northeast. "The White Mountain National Forest is committed to protecting this small plant's habitat, the Appalachian Mountain Club is committed to managing habitat and monitoring the population, and the New England Wild Flower Society is committed to successfully propagating plants for reintroduction. All were vital to Robbins' cinquefoil recovery."

"Although the New England Wild Flower Society has been propagating endangered plant species for decades, the collaboration between the organizations was the real key to the success of this project," said Bill Brumback, director of conservation for the New England Wild Flower Society. "The techniques learned during the project will continue to be highly applicable for other alpine species." "Thanks to our partnership with the Appalachian Mountain Club, the Forest Service, and the New England Wild Flower Society, two new populations have successfully reproduced," said Parker. "The species no longer is threatened with extinction." Although Endangered Species Act protection has been removed, Robbins' cinquefoil will be protected in perpetuity thanks to an agreement between the Service and the White Mountain National Forest. The Service will also monitor the cinquefoil's status for at least five years to ensure that any unexpected population declines can be addressed.

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## Announcements

### Hunt Institute for Botanical Documentation offers online Linnaean exhibition to inspire future students of Linnaeus

Pittsburgh, PA—Swedish botanist, physician, and zoologist Carolus Linnaeus (also Carl von Linné, 1707–1778) was famous for sending his students around the world to explore and collect specimens. The Hunt Institute for Botanical Documentation is pleased to enable new generations of Linnaeus' students to explore, collect and learn by making our spring 2002 exhibition, *Order from Chaos: Linnaeus Disposes*, available online at our Web site ([huntbot.andrew.cmu.edu](http://huntbot.andrew.cmu.edu)). Linnaeus devised comprehensive, consistent schemes for classifying and describing plants and animals and for assigning two-word scientific names to all species, thus laying the foundations of modern biological systematics and nomenclature. Pages of manuscripts, plant portraits, portraits of botanists and rare books from the Institute's Archives, Art Department, and Library, including the Strandell Collection of Linnaeana, highlight Linnaeus' achievements in the broader context of botany over two millennia. We invite everyone to become one of Linnaeus' students as he brings order from the chaos of early scientific thought and practice while inspiring future generations of botanists.

The first section of the exhibition covers pre-Linnaean botany. Long before Linnaeus, classical science was important in the shaping of subsequent science in the West. Transmitted through the cultures of the Mediterranean area, classical science was recovered during the Renaissance and ensuing Scientific Revolution, and undergirded the search for a new botanical system. Highlights from this portion include four pages of a 13th-century Arabic manuscript, several leaves from a 15th-century incunabulum herbal, *Gart der Gesundheit*, and a number of books from the 15th and 16th centuries.

The second section shows how Linnaeus drew on the work of his predecessors and contemporaries and developed a coherent system for describing and naming organisms that has continued into the present. Key works by Linnaeus including his *Species Plantarum* (1753) and *Genera Plantarum* (1754), which are the starting points for botanical binomial nomenclature, are featured as well as books, portraits and biographical information of his predecessors and contemporaries.

The third section explores the Linnaean inheritance. It shows how Linnaeus' students travelled the globe to explore and collect information and specimens, and how aspects of the Linnaean system have enabled amateurs and professionals worldwide to identify, name and describe plants for more than two centuries. Included are books by Linnaeus' students, along with portraits and biographical information, and selected examples of post-Linnaean works showing how aspects of his system have been used from the 18th century into the present day.

The exhibition was a collaborative effort by Institute staff that used resources from all of our departments. The exhibition was organized by Charlotte Tancin, Librarian; Angela Todd, Archivist; Gavin D. R. Bridson, Bibliographer; Lugene Bruno, Assistant Curator of Art; James J. White, Curator of Art; and Alain Touwaide, Visiting Scholar, History of Medicine Division of the National Library of Medicine, Scientific Collaborator, Section of Botany, National Museum of Natural History, Smithsonian Institution, and Adjunct Research Scholar, Hunt Institute, with assistance by Scarlett Townsend, Editor; Frank Reynolds, Graphics Manager; and Lisa Ferrugia, Archival Assistant. Kristina Lamothe, Research Assistant, designed the online exhibition. The exhibition hung in the Hunt Institute gallery from 28 April to 31 July 2002.

Even while planning the exhibition for the gallery, we knew that our ultimate goal was to place it on the Web. It was still challenging to organize the artwork, portraits and books, which either hung on the wall or were displayed in cases, into a Web-format while retaining the look and feel of a hanging exhibition. The online version enabled us to add text and images. We included passages from the books that Linnaeus cited in *Species Plantarum* as well as a bibliography and a list of Web links. We plan to add a bibliography for the pre-Linnaean section and enlarged images for each artwork and book. We are pleased with the way the online version has evolved and even more so with the opportunity to make this information available not only to the botanical community but also to the public.

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians,

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conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was founded in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971, the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography, and the Library. The current collections include approximately 28,000 books; 24,000 portraits; 30,000 watercolors, drawings and prints; and 2,000 autograph letters and manuscripts.

Hunt Institute for Botanical Documentation  
Carnegie Mellon University  
5000 Forbes Avenue  
Pittsburgh, PA 15213  
Contact: Scarlett T. Townsend  
Day Phone: 412-268-7304  
Email: [st19@andrew.cmu.edu](mailto:st19@andrew.cmu.edu)

## Herbarium On-line

The Oregon State University Herbarium Vascular Plant Specimen database is now online. Over 47,000 specimen labels have been entered to date, representing ca. 30% of the Oregon specimens in the herbarium. These can be searched by taxonomic name, collector, date, and county. For most taxa, at least one specimen has been entered for each Oregon county it occurs in. All Oregon specimens have been entered for selected genera including *Allium*, *Carex*, *Festuca*, *Salix* and *Senecio*. All conifer specimens (Cupressaceae, Pinaceae, Taxaceae) and most weed species have also been entered. Visit the database at [http://www.orst.edu/dept/botany/herbarium/db/vasc\\_plant.html](http://www.orst.edu/dept/botany/herbarium/db/vasc_plant.html)

Aaron Liston  
Department of Botany & Plant Pathology  
Oregon State University  
Corvallis, Oregon 97331-2902 USA  
<http://www.orst.edu/dept/botany/herbarium>

## Announcement of Plant Talk

Anyone interested in plants and their conservation around the world should take a look at **PLANT TALK**.

Published quarterly by the National Tropical Botanical Garden and read in over 120 countries, **PLANT TALK** brings botanists, conservationists, horticulturists, students and amateurs a unique source of news and information. Its spectacular color features highlight places of special botanical interest; the news section reports from the front line of conservation; and the numerous reviews of new floras and field guides provide valuable references as do the quality reports on Red Data Books. Take a look at the **PLANT TALK** website ([www.plant-talk.org](http://www.plant-talk.org)) and you will find it provides a unique resource for a wide audience. This informative periodical is available by subscription for US\$28 (a year) by contacting the Americas office at PLANT TALK, PO Box 354841, Palm Coast, FL 32135-4841, USA, or for subscriptions for the rest of the world at PLANT TALK, 10 Princeton Court, 55 Felsham Rd., London SW15 1AZ, UK.

## A Classic State Flora Returns to Print

Over 60 years since its original publication in 1940, the *Flora of Indiana* by Charles C. Deam continues to serve as the primary source of information for those seriously involved in field botany and as a standard among state floras. The *Flora of Indiana* has just been brought back into print by The Blackburn Press, making it available again to libraries, scholars, botanists, ecologists, landscape architects, horticulturists and others who wish to own or replace a copy of an invaluable reference.

In working on the book, Deam examined over 84,000 specimens; and from these he prepared keys, species accounts and range maps showing the occurrence of each species by county in Indiana. These maps reflect detailed accounts as of 1940 and remain useful in determining the general range of a species in the state. The 1,236-page reference is finding new uses today in natural landscape restoration and protection.

"The *Flora* is clearly more than a list of plants. Many treasures are found within its pages, ranging from topics on early 20th century agrarian culture to herbal cures. There are frequent references to discussions with "old timers", including some of whom were the first European settlers in the state. I enjoy reading the *Flora* like some read novels," says Michael A. Homoya, Botanist/Plant Ecologist with the Indiana Department of Natural Resources, in his foreword to The Blackburn Press reprinting. "It brings me great pleasure that the *Flora* is available again, allowing others to share in the pursuit of understanding, and ultimately the appreciation and

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protection of our native plants and natural areas. So whether you're a professional botanist, ecologist, teacher, wild-flower enthusiast, naturalist, forester, wildlife biologist, soil scientist, landscape architect, horticulturist, or just someone wanting to know what that plant is in your backyard, this book is for you."

For more information, we invite you to point your browser to:

<http://www.blackburnpress.com/floraofindiana.html>

Flora of Indiana by Charles C. Deam, ISBN 1-930665-59-8, Hardcover, 1,236 pages, \$124.95

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## **Essential Book on New Zealand's Unique Vegetation Returns to Print**

Originally published in 1991, *Vegetation of New Zealand* by Peter Wardle offers a comprehensive description of that country's unique flora and highly diverse vegetation. The text, supported by over 300 photographs, maps and diagrams, has made an outstanding contribution to the understanding of the biology of these islands. The Blackburn Press has returned the book to print with a new preface by the author.

With its isolation from other lands, its latitudes extending from subtropical to sub-Antarctic, and its long evolutionary history, New Zealand has a vegetation of interest to botanists, foresters, ecologists and conservationists world-wide.

Chapters 1-4 describe the New Zealand environment, flora and fauna; and they discuss the origins, relationships, life forms and reproductive aspects of the indigenous vegetation. Chapter 5 is a synopsis of vegetation types, habitat classes and environmental processes; it serves also to define the terms in which these are described in the book. Chapter 6 contains an outline of the geographic divisions of the country. Chapters 7-9 offer expanded descriptions of plant communities, preceded where appropriate by information on their structure and characteristic species and genera. The concluding chapters discuss ecological functions and processes.

*Vegetation of New Zealand* is an essential book for botanists, ecologists, conservationists and many others who love New Zealand's plants, animals and landscapes.

"The breadth of scholarship displayed by Peter Wardle is impressive. The book as a whole is remarkably readable; testimony to that comes from this reviewer, who read all 672 pages in one day and was still captivated at the end!"-*Annals of Botany*

"This is a great book and a major achievement by the author. It will be a source book for many years to come."-*Vegetation*

"This book is a magnificent successor to Cockayne's *Vegetation of New Zealand*."-*Biological Conservation*

*Vegetation of New Zealand* by Peter Wardle, ISBN 1-903665-58-X, Hardcover, 682 pages, \$89.95

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## **Conference of Orchidology**

The Jardín Botánico Lankester of Universidad de Costa Rica which is dedicated to the Orchid conservation is organizing a Conference of Orchidology that will be held in Costa Rica the next year. The main objective of the Conference is to stress the importance of public awareness about the global themes related to the Orchid conservation. In this way, the Conference tries to assemble in Costa Rica specialists in conservation, academics, researchers, orchid lovers, producers and sellers, officers of the Government agencies, scholars and general public. For additional information contact:

Isela Picado  
Lankester Botanic Garden  
Public Relations  
P.O. Box 1031-7050  
Cartago, Costa Rica, A.C.  
Road from Cartago to Paraíso, Km 4.  
Phone: (506)552-3247  
Fax: (506) 552-3151

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## Award Opportunities

### Research Fellowship in Conservation Biology

The New England Wild Flower Society announces that applications are now being accepted for prestigious fellowships offered jointly by the National Science Foundation and the New England Wild Flower Society. Applicants may select from more than 50 plant species for projects to provide data on critical aspects of the life history and ecology of these species. These data are central to devising sound conservation strategies.

Interested advanced undergraduate and early graduate students demonstrating potential for completing outstanding research in biology may submit a 5-page project proposal, a *curriculum vitae*, and two letters of recommendation. The proposals are due February 5, 2003. Please visit the Society website at <http://www.newfs.org> for complete information and proposal guidelines, or contact Elizabeth Farnsworth for more information at [efarnsworth@newfs.org](mailto:efarnsworth@newfs.org) or phone 508-877-7630 ext 3207. Generous stipends for the 2003 field season of \$3,750 each, plus support of \$250 are offered for Fellows to prepare and present their finding at a New England Wild Flower Society Research Roundtable in September, 2003. Individual assistance in experimental design, analysis and preparation for publication will be provided.

The New England Wild Flower Society is the nation's oldest institution dedicated to the conservation of wild plants, and sponsors educational and conservation programs throughout New England. The Society owns and operates Garden in the Woods, a 45-acre living museum of native plants and the NEWFS nursery, the largest supplier of nursery-propagated native plants for sale in the Northeast.



### William L. Brown Plant Genetic Resources Fellowship

The Missouri Botanical Garden invites applications from suitably qualified, highly motivated graduates for the William L. Brown Plant Genetic Resources Fellowship. This fellowship supports graduate study in some aspect of economic botany and plant genetic resources for students from South Asia. Successful applicants will receive stipend and tuition support for 2 years of M.S. study or 5 years of study towards a Ph.D.

The purpose of the William L. Brown Plant Genetic Resources Fellowship is to educate botanists who will become active researchers and decision-makers in their home countries. The fellowship is designed to attract and support individuals from South Asian countries who will return to their country or region following graduation and make a significant difference in economic botany and in the development, application, and conservation of plant genetic resources. To this end, fellowship recipients will be encouraged to do thesis and dissertation research in South Asia.

Applicants for the William L. Brown Plant Genetic Resources Fellowship must have a bachelor's degree in biology/plant sciences and be able to demonstrate strong scientific and leadership potential in plant genetic resources. These fellowships are open to students from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, and Nepal.

The Missouri Botanical Garden offers a broad-based program of graduate studies in botany in cooperation with Washington University and University of Missouri-St. Louis. Students apply to and enroll at one of these universities and complete the degree requirements of that school, but have full access to the staff, facilities, laboratory, and research opportunities available at the Garden. The exceptional faculties and programs at these universities in plant systematics, population biology and genetics, ecology, and molecular biology, combined with the excellent herbarium, library, greenhouse facilities, and research staff at the Garden, make this a unique and stimulating graduate program. The Garden's strong commitment to tropical research provides students with outstanding opportunities for field-oriented studies. Peter H. Raven, Director of the Garden, is Engelmann Professor of Botany at Washington University, and

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## Announcing the Second Annual

### National Science Foundation/ New England Wild Flower Society Research Fellowship Program in Conservation Biology

many of the Curators are adjunct faculty members at the participating universities. Students may pursue doctoral degrees at Washington University or masters or doctoral degrees at University of Missouri-St. Louis.

Acceptance as a William L. Brown Fellow is dependent on admission to one of the associated University graduate programs (note that GRE and TOEFL scores are required). A committee at the Missouri Botanical Garden will subsequently review and select the William L. Brown Fellow from among these applicants accepted by the universities.

Application deadlines are 15 December 2002.

In addition, a one-page essay on the applicant's research interests and career goals is essential. Interested students should apply directly to one or both of the affiliated universities (see web applications below) and also send a copy of their applications and one-page essay to Dr. James S. Miller, William L. Brown Curator of Economic Botany, Missouri Botanical Garden, P.O. Box 299, St. Louis, MO 63166-0299.

Applications for Washington University:  
Graduate Program in Evolutionary and Population Biology:  
<http://dbbs.wustl.edu/Programs/popbio1.html>

Division of Biology and Biomedical Sciences homepage:  
<http://dbbs.wustl.edu/>

Applications for University of Missouri-St. Louis:  
Biology Department homepage:  
<http://www.umsl.edu/~biology>

MS and PhD graduate program requirements:  
<http://www.umsl.edu/~biology/gradprogram/index.html>

Missouri Botanical Garden homepage:  
[www.mobot.org](http://www.mobot.org)

If you require assistance with the application process, please contact the Manager of Graduate Studies at the Missouri Botanical Garden, Dr. Mick Richardson <[mick.Richardson@mobot.org](mailto:mick.Richardson@mobot.org)>.

The New England Wild Flower Society (NEWFS), the oldest plant conservation organization in the United States, has been awarded a National Science Foundation grant to support six students to perform basic scientific research addressing species of conservation concern throughout New England.

These prestigious fellowships will provide generous stipends (\$3750) for the 2003 field season, plus support (\$250) for Fellows to prepare and present their findings at a New England Wild Flower Society Research Roundtable in September 2003.

Certain research-related equipment will also be available for use by Fellows. Individual assistance in experimental design, data analysis and preparation of results for publication will be provided by Elizabeth Farnsworth, Ph.D., Biologist at NEWFS. We seek research proposals from advanced undergraduate or early graduate students who have demonstrated potential for completing outstanding research in biology. These proposals must address one or more species of rare plant taxa for which we have completed Research and Conservation Plans, and be designed to provide data on critical aspects of the life history and ecology of these species. These data are central to devising sound conservation strategies. Thus, in completing a project, the Fellow will generate useful, publishable information and gain excellent experience in all phases of biological research. Applications consist of a 5-page project **proposal**, a **curriculum vitae**, and **2 letters of recommendation**.

**Due date for proposals:** February 5, 2003. Notification of Fellowships will be made in early March, 2003.

Please visit the following links for a full list of these potential project topics (<http://www.newfs.org/nsfquestions.htm>), background information on the target plant species (<http://www.newfs.org/conplans.html>), and guidelines for proposal preparation (<http://www.newfs.org/nsfguide.htm>). **For more information**, please contact: Elizabeth Farnsworth (508) 877-7630, ext. 3207 or email: [efarnsw@mtholyoke.edu](mailto:efarnsw@mtholyoke.edu)

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## GRANTS-IN-AID OF RESEARCH IN 2003

The Highlands Biological Station, an interinstitutional center of the University of North Carolina, is pleased to announce the availability of scholarships and grants-in-aid of research for the 2003 field season. The Station is located in the Southern Appalachian Mountains in southwestern North Carolina at an elevation of 4,000 feet. The region receives 80-100 inches of precipitation per year and supports a remarkable diversity of life. A recent article in *BioScience* identified the region as a hotspot for diversity of life, among others, salamanders, land snails, spiders, trees, and fungi. There is a long and distinguished history of biodiversity studies at the Station.

Facilities include research labs with refrigerators, freezers, ultracold freezers, microscopes, and field sampling equipment; a research library with a reprint collection and subscriptions to many ecological, systematic, and evolutionary journals; an aquatics lab with several outdoor artificial streams and six large indoor aquariums; two large, walk-in environmental chambers; and dormitories and kitchens for use by researchers. The Station operates the Highlands Nature Center and the Highlands Botanical Garden, which includes a 5-acre lake. There are numerous tracts of Forest Service land in the area, and the Station cooperates with the Coweeta Hydrologic Laboratory, a Long-Term Ecological Research (LTER) site, which is located 18 miles away.

Grants-in-aid and scholarships are available to predoctoral graduate students and postdoctoral investigators for the support of research on the habitats and organisms of the Southern Appalachians. Awards are made for projects that involve residence at the Station for one to twelve weeks. Applications for grants are reviewed by the Board of Scientific Advisors, representing the 34 colleges and universities in the Southeast that belong to the Highlands Biological Foundation, Inc. Application forms can be obtained from Dr. Robert Wyatt, Executive Director, Highlands Biological Station, P.O. Box 580, Highlands, NC 28741. We prefer, however, that forms be downloaded at <http://www.wcu.edu/hbs>. They must be returned before 1 March 2001. Applicants will receive notification of the decision of the Board by 1 April 2001. Awards are based on the period of residency at the Station in accordance with the following schedule: predoctoral, \$250/week; postdoctoral, \$400/week. Recipients of scholarships and grants-in-aid are provided research space without charge.

## 2003 Lawrence Memorial Award

The Award Committee of the Lawrence Memorial Fund invites nominations for the 2003 Lawrence Memorial Award. Honoring the memory of Dr. George H.M. Lawrence, founding Director of the Hunt Institute for Botanical Documentation at Carnegie Mellon University, the annual Award of \$2000 is made to an outstanding doctoral candidate for travel in support of dissertation research in systematic botany or horticulture, or the history of the plant 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 nominations 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 2003 and should be directed to: Dr. R.W. Kiger, Hunt Institute, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213-3890 USA. Tel. (1412)268-2434.

## National Security Education Program

### 2003 David L. Boren Graduate Fellowships

The Academy for Educational Development (AED) invites applications for the year 2003 National Security Education Program (NSEP) David L. Boren Graduate Fellowships competition. These Fellowships enable U.S. graduate students to pursue specialization in area and language study or to add an important international dimension to their education. Created by Congress to address the need to increase the ability of U.S. citizens to communicate and compete globally, NSEP embodies a recognition that the scope of national security has expanded to include not only the traditional concerns of protecting and promoting American well-being, but the new challenges of a

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global society, including: sustainable development, environmental degradation, global disease and hunger, population growth and migration, and economic competitiveness.

Boren Fellowships are intended to provide support through overseas study and limited domestic tuition to students who will pursue the study of languages, cultures, and world regions deemed critical to U.S. national security. Excluded explicitly is study of Western Europe, Canada, Australia, and New Zealand. Fellowships are awarded in a broad range of academic and professional disciplines including business, economics, history, international affairs, law applied sciences and engineering, health and biomedical sciences, political science and other social sciences. Award recipients incur a requirement to work for an agency or office of the federal government involved in national security affairs or in the field of U.S. higher education in an area of study for which the Fellowship was awarded, in that order of precedence.

**Eligibility Requirements:** Applicants must be U.S. citizens enrolled in or applying to graduate programs in accredited U.S. colleges or universities located within the United States. All applicants must include study of a modern language other than English.

**To Apply:** Guidelines and applications forms for NSEP David L. Boren Graduate Fellowships may be obtained from our Web site at <http://www.aed.org/nsep>. They also may be obtained by contacting AED at 800-498-9360 or 202-884-8285, or by e-mail at [nsep@sed.org](mailto:nsep@sed.org).

**Deadline:** Applications must be **postmarked by January 31, 2003**. No faxed submissions accepted; late applications will not be reviewed.

## Positions Available

### PLANT BIOLOGIST

The Botany Department, University of Wisconsin-Madison, invites applications for a tenure-track ASSISTANT PROFESSOR to begin as early as August, 2003. We seek an individual who uses innovative approaches to study significant questions in the field of PLANT STRUCTURE (which may range from the cell to organismal level). The successful applicant will be expected to develop a nationally competitive research program and will have ample opportunities to form productive collaborations within the large and strong community of plant biologists on the Madison

campus. Teaching responsibilities include an undergraduate course in plant structure (anatomy/morphology/development) and contributions to teaching at the introductory and/or graduate level.

Applicants should submit their curriculum vitae, a statement of research and teaching goals, selected reprints, and have three letters of recommendation sent to:

Dr. Donna Fernandez  
Plant Structure Search Committee  
Botany Department, 132 Birge Hall  
430 Lincoln Drive  
Madison, WI 53706-1381  
Email: [dfernand@facstaff.wisc.edu](mailto:dfernand@facstaff.wisc.edu)

To ensure competitive consideration, applications should be received by December 15, 2002. Please note that unless confidentiality is requested in writing, information regarding applicants must be released upon request. Finalists cannot be guaranteed confidentiality. UW-Madison is an Equal Opportunity/Affirmative Action Employer.

### INTEGRATIVE ORGANISMAL PHYSIOLOGIST

University of North Carolina, Chapel Hill

The University of North Carolina at Chapel Hill invites applications for a tenure track position at the level of ASSISTANT PROFESSOR in the Department of Biology. We particularly encourage applications from individuals who use integrative approaches to understand the physiology and functional diversity of whole organisms of any taxon. The appointment will be effective July 1, 2003. Please submit a curriculum vitae, a statement of research and teaching interests, up to three publications, and four letters of recommendation to: Dr. Ken Lohmann, Chair, Integrative Organismal Physiologist Search Committee, Department of Biology, CB#3280 Coker Hall, University of North Carolina, Chapel Hill, NC 27599-3280, USA. Closing date: open until filled, but to receive full consideration, all application materials must be postmarked by January 10, 2003. The University of North Carolina is an equal opportunity, affirmative action employer and strongly encourages applications from women and minorities.

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## Updated Positions Available Listings At BSA Website

Current position announcements are maintained on the Botanical Society's website Announcement page at URL <http://announce.botany.org/>. Please check that location for announcements that have appeared since this issue of *Plant Science Bulletin* went to press. To post an announcement, contact the webmaster: [bsa-webmaster@botany.org](mailto:bsa-webmaster@botany.org).

## Where Can A Student Get Traditional Training in BOTANY?

It seems like every few years, *Plant Science Bulletin* runs an article on the demise of botany departments as they are merged into large biology departments, organismal biology departments, evolutionary and environmental biology departments, or something similar (see for instance,

Vol. 46 (1), 2000). We have argued that one result of this organizational shift would be a reduction in the number of students trained in such traditional fields as plant taxonomy and plant morphology and that as a result, there would come a time when colleagues in applied fields, and even in cell/molecular areas, would find a shortage of qualified scientists who could help them to identify a plant or a specific structure. WE SEEM TO HAVE REACHED THAT POINT! I was recently informed that the United States Forest Service is now having difficulty finding young scientists competent in plant identification. ITS TIME TO GET THE FACTS - - AND YOU CAN HELP by submitting the following information about your program: your School; your Department; Traditional Botany Courses offered (and number of students in each per year). Send the information to: Marsh Sundberg, Editor, *Plant Science Bulletin*, Department of Biological Sciences, Emporia State University, Emporia, KS 66801. or, email: [sundberm@emporia.edu](mailto:sundberm@emporia.edu). Results will be summarized in the next issue of *PSB*.

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**Conservation of Wood Artifacts.** Unger, A., A. P. Schniewind, and W. Unger. 2001. ISBN 3-540-41580-7. (Cloth US\$225.00). 378+xvii Springer-Verlag, Berlin. - The science of wood anatomy deals with the structure of wood and how it develops. This book deals with how it is degraded, providing an interesting perspective on wood destruction by a variety of environmental and biological factors. While it is not written for plant anatomists, an understanding of how wood is formed, the chemistry and function of lignin, and other factors are clearly and accurately discussed in some detail.

Perhaps the oldest record of wood preservation is the tar on Noah's ark. Later attempts at wood preservation, other than using termite and fungus resistant woods, involved smoking and charring wood as well as salt and oil treatments. After a short, but very interesting chapter on the history of wood preservation, wood structure and chemistry is discussed followed by the properties of wood. These chapters are a good review of the topics with extensive, up to date references.

The bulk of the book deals with the deterioration, diagnosis, and preservation of wood. A great amount of detail is included. For example, arsenic compounds were used by Leonard da Vinci for preserving wood. Perhaps the best-known wood preservative to Americans is creosote. Looking up creosote in the index, however, is not simple (see below). Life histories of wood destroying organisms are provided, often with helpful illustrations.

There are three indices: Chemicals and Materials Index, Trade Name Index (which directed me to a chronology of wood preservative use where I learned that creosote is a term coined by Franz Moll in 1836 for coal tar), and Index of the Scientific Names of Organisms. Curiously, the Latin names of trees are not listed in the scientific name index nor in any index.

This book will be a must for anyone working with wood artifacts and should be in university and museum libraries. - Lytton John Musselman, Biology Department, American University of Beirut. Permanent address: Department of Biological Sciences, Old Dominion University, Norfolk, Virginia 23529-0266. USA.

**Bamboo for Gardens.** Meredith, Ted Jordan. 2000. ISBN 0-88192-507-1 (Cloth US\$39.95) 408 pp, Timber Press, Portland, Oregon, pp.406. - The good quality binding with a hard cover and an attractive, illustrated jacket, make this book already a tempting choice for any sophisticated gardener. As soon as we open it we are struck by the quality

of the print and paper, as well as by the clarity of the design that facilitates the reading. As well, it contains five schematic figures and numerous illustrative color pictures.

The content is ordered in nine chapters. The first of them refers to the taxonomic location of the woody bamboo, presenting a simple and interesting up-to-date analysis on the subfamily Bambusoideae to which they belong. The treatment of the origin and distribution of the genera is based on revised bibliography and it contains several concepts endorsed by outstanding specialists in the topic. It includes interesting data on the phylogenetic relationships based on recent molecular studies, some of which are currently being carried out by specialists consulted by the author. The differences between the woody bamboo and the herbaceous ones, are presented in simple form; the virtue lies in the fact that these concepts have had little diffusion in the field of gardening. Chapter two deals with the morphological structure of the bamboo in 47 pages, profusely illustrated with photographs of numerous details: canes, knots, rhizomes etc. In the text the appropriate terminology is used, supported by an explanatory glossary. Subsequently a detailed information is included on the cultivation and propagation of the bamboo, accompanied by illustrative pictures. In the chapter referred to the taxonomy there are 40 genera and around 300 species and subspecific categories ordered in alphabetical form. Most of the genera are cultivated and original from Asia, but also information about the following native genera of America are included: *Chusquea*, *Guadua*, *Olmea*, *Otatea*, *Raddia* and *Rhipidocladum*. For each species the following aspects are considered: size, diameter of the culm, temperature and light requirements, and data on their origin.

It should be remarked, for the improvement of further editions, that the generic and specific names don't include the corresponding authors' names, and the information about each taxa is not comparative in extension. The illustrative pictures are excellent in quality, but they are not numbered nor referred to in the text.

The author also refers to the uses of bamboo and finally includes a list that facilitates the selection of the appropriate species for their cultivation in gardens. The bibliography is adequate and it reflects the author's genuine interest in bamboo. His sufficient documentation and relevant consultation with specialists in these grasses, give extra value to this publication. -Zulma E. Rúgolo de Agrasar, Instituto de Botanica Darwinion, Labardén 200, C.C. 22, (1642) San Isidro, Buenos Aires, Republica Argentina  
E-mail: [zrugolo@darwin.edu.ar](mailto:zrugolo@darwin.edu.ar)

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**Dirr's Trees and Shrubs for Warm Climates.** Dirr, Michael A. 2002. ISBN 0-88192-525X (Cloth US\$69.95) 448 pp. Timber Press, Inc. 133 S.W. Second Avenue, Suite 450, Portland, Oregon 97204-3527. On the back cover jacket to *Dirr's Trees and Shrubs for Warm Climates* there is a photo of the author hugging a tree. He is not smiling. Before the reader even opens this latest work from Michael A. Dirr, a glance at the back cover makes one thing apparent: he loves plants – but this is not to be confused with any sort of puppy love or any schoolboy crush. This is serious business.

Michael Dirr first published his *Manual of Woody Landscape Plants* in 1975. Now in its fifth edition (1998), the *Dirr Manual* is considered by some to be the bible of woody plant cultivation in North America. Dr. Dirr is now mentioned with the likes of L.H. Bailey and Alfred Rehder as one of the most important contributors to, and promoters of, the field of woody plant horticulture.

In 1999, Dirr continued to set the standard when he released *Dirr's Hardy Trees and Shrubs*, a full-color photographic companion to the *Manual* that treats plants grown in USDA hardiness zones 3-6 (a great improvement over 1978's entirely black-and-white *Photographic Manual of Woody Landscape Plants*). Dirr has now completed his trilogy by publishing *Dirr's Trees and Shrubs for Warm Climates* (for zones 7-11), which picks up where *Hardy Trees and Shubs* left off; that is, somewhere in southern New Jersey.

*Trees and Shrubs for Warm Climates*, like its predecessor, is a user-friendly and attractive book. The photographs, all taken by Dirr, are outstanding and often highlight the most characteristic attributes of a given plant. These images are accompanied by concise plant descriptions, including growth habit, cultural considerations, geographic origin, common or recommended cultivars and varieties, and the candidly poetic commentary readers of Dirr have come to expect from his works (of *Mitchella repens*, he writes "To appreciate this small woodland citizen is a signal that all biological entities, great and small, are important.").

Given the limitations of its format (more photos and more species with less text), the book is best used in concert with the *Manual* (or any other woody landscape reference), although more than a few species included in this photographic companion will not be found described there. Alone, *Dirr's Trees and Shrubs for Warm Climates* is a detailed and beautifully illustrated plant encyclopedia – if you will, a souped-up coffee table

book for serious gardeners and landscape professionals.

I am particularly fond of the book's third and last section, "Selecting Plants for Specific Characteristics or Purposes," a collection of plant lists for assorted design and cultural characteristics. By including this section, the author makes it easy to plug into his wealth of experience and apply it directly to the home landscape. Whether one desires a shade-tolerant tree with fragrant flowers or a shrub with ornamental fruit that responds well to hedging, Dr. Dirr has a list of possibilities. These lists are easily cross-referenced with the plant profiles in the aptly titled alphabetical (by genus) section, "A-Z Illustrated Guide to Trees and Shrubs for Warm Climates." Lists of native plants and useful wildlife plants might have been nice additions.

Dirr deserves credit for the inclusion of plant profiles for a number of native species, some of them uncommon choices for the residential landscape. Several native oaks and maples are profiled and recommended. He also gives high marks to *Leucothoe racemosa* (sweetbells leucothoe), *Wisteria frutescens* (American wisteria), and *Viburnum cassinoides* (witherod viburnum), among others.

From a botanical sciences perspective, Dirr's body of work has appeal as a means by which to familiarize oneself with exotic woody plants, both in terms of their culture, identification, and systematics, and in light of their realized or potential interactions with natural plant communities. This latter information is often understated, however, since Dirr infrequently comments on the invasive or potentially invasive nature of the species included in his books. As an example, the *Manual* promotes the use of *Berberis thunbergii* (Japanese barberry), but never mentions that this species is perhaps the most noxious woody invader of Northeastern woodlands. *Trees and Shrubs for Warm Climates* follows in similar fashion. At least 24 of the exotic species profiled in the book are listed by the National Park Service (Swearingin 2002) as either invasive or potentially invasive. Dirr issues warnings for only a few of these – regarding *Ligustrum sinense* (Chinese privet), he writes "I urge abstinence"; and he calls *Melia azedarach* (Chinaberry) "a scourge over much of the South" – but he mostly skirts the issue with even the most problematic taxa. *Bauhinia variegata* (Orchid tree), though listed as one of Florida's most invasive plants (F.E.P.P.C. 1999), comes highly recommended as "a beautiful specimen shrub or tree" for zones (9) 10 to 11. Invasive throughout the Southeast, *Elaeagnus pungens* (thorny elaeagnus) is lauded by Dirr for its toughness and ability to grow "anywhere," both

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characters that contribute to it being a problem in natural areas.

I am aware of the fact that Dirr's books are reference manuals for woody landscape plants, not treatises on the ecological interactions between our native flora and the many plants introduced through cultivation, but this highly influential author's near-inattention to the issue of invasive species is unfortunate. One is hard pressed to even find the term "invasive species" in a Dirr publication. This is, perhaps, a reflection of how sticky this issue has become, his choice an unspoken declaration of neutrality in the perceived war between plant conservationists and the nursery industry.

In the first section of *Trees and Shrubs for Warm Climates*, "Reflections on Garden-making in Georgia," Dirr writes "There is balance in nature that translates to the garden." My hope is that the author, and every great plantsperson like him, recognizes the role that ecologically-informed landscaping might play in retaining that balance.

Eco-politics aside, this book is still worth including in any botanical library. In fact, all three books in the aforementioned trilogy should be fixtures in the collections of herbaria, universities, and any individual with even a passing interest in the cultivation and identification of woody landscape plants. – Christopher T. Martine, Department of Ecology and Evolutionary Biology, University of Connecticut, 75 North Eagleville Rd., U-3043, Storrs, CT 06269-3043.

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#### **An Illustrated Encyclopedia of Clematis.**

Toomey, Mary, and Everett Leeds. 2001. ISBN 0-88192-508-X (cloth \$US59.95. 426pp. Timber Press, 133 SW Second Ave., Suite 450, Portland, OR 97204. – In recent years, gardeners and horticulturalists have embraced the cultivation of *Clematis*. This widespread, diverse (> 1000 species and cultivars) genus in the Ranunculaceae is well-suited to planting in gardens in the temperate zone, and the range of flower colors and sizes have broad

appeal. Among several gardeners' guides to *Clematis* published in recent years, this book is one of the most comprehensive and lavishly illustrated.

The book is divided into two sections. Part I describes the history and botany of *Clematis*, and appropriate methods for cultivation, pruning, propagation, and treatment of diseases. Most of this information is focused on growing *Clematis* in Europe (especially Britain), as the authors are major players in the British Clematis Society. They do, however, include a chapter on *Clematis* in North America (by Maurice Horn and Linda Beutler). Maps illustrating the hardiness zones of both North America and Europe are also provided. The detail on cultivation *etc.* is thorough, and this book likely will serve as the benchmark for future publications on cultivation of this genus. The brief chapter on history and botany is stronger on the former than the latter; emphasis is placed on cultivars, cultivar groups (based on flower-size and whether or not they flower on new wood or old wood), and pruning groups. The "botany" of *Clematis* includes only rules of nomenclature and general characteristics (leaf arrangement and shape, flower parts) of the family and genus. The weakness of this part is illustrated by the statement that "all hybrids are cultivars", following (by two sentences) the statement that hybrids can occur naturally in the wild. Nonetheless, Part I is an indispensable reference for the home gardener and professional horticulturalist.

The meat of the book, however, is Part II. Occupying nearly 75% of the book, this part details nearly 600 species and cultivars of *Clematis*. They are arranged alphabetically by species or cultivar name, and for each is provided a concise description, including flowering/pruning group, synonymy, origin (geographic for species, parentage for hybrids and cultivars), habit and life form, height, description of flowers and leaves, flowering time, cultivation requirements, and hardiness zone. Each is also illustrated with a photograph, usually a close-up of the flower, but occasionally of a group of flowers or the whole plant scrambling on an appropriate structure (fence, rose-bush, *etc.*). For someone planning a garden and seeking appropriate colors and textures, this catalogue is invaluable.

Overall, *An Illustrated Encyclopedia of Clematis* lives up to its advance billing. It is an elaborate and exhaustive reference for horticulturalists and gardeners. The photographs are exquisite and show off *Clematis* in all its variety. This book will complement coffee tables and garden workshops equally well. – Aaron M. Ellison, Harvard Forest, PO Box 68, Petersham, MA 01368.

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**Mints: a family of herbs and ornamentals.**

Lawton, Barbara P. 2002. ISBN 0-88192-524-1 (Cloth US\$27.95) 272 pp. Timber Press, Inc., 133 S.W. Second Avenue, Suite 450, Portland, OR 97204-3527. - Barbara Lawton clearly did a fair amount of research for this book. It begins with a chapter on the history of the Lamiaceae, with a survey of mints in sacred texts, herbals and even Shakespeare. One rather bizarre section treats the so-called language of herbs, a bit of Victorian arcana in which the particular flowers included in a bouquet carried hidden meanings. The second chapter gives a brief synopsis of ethnobotanical, culinary and ornamental uses of mints. As a former publications editor at the Missouri Botanical Garden, Lawton drew upon the library's collections for a number of line drawings and illustrations that are reproduced throughout the book. Most of the drawings are quite good, but the variety of sources results in a stylistic inconsistency that may be bothersome to those readers who are more horticulturally oriented. Sixty-one color plates are included. Overall, the photographs do an admirable job of conveying the beauty and diversity of the family. A few, however, are either out of focus or do such a poor job of showing any useful detail that they should have been excluded. Typical of Timber Press issues, the volume itself is quite handsome: attractively bound, with good quality paper and a pleasant heft.

That's the good news; now for the bad. I found the organization of the book irritating. Chapter 7, titled "The botany of mints", consists of a mere four pages. It gives the number of genera and species contained in the family and briefly discusses plant terminology. The author also includes here a brief explanation of binomials. This information belongs in an introductory chapter, not buried in the middle of the book. A disappointing omission throughout the book is that of authorities for the plant names. A six-page chapter on garden pests and diseases is so general and superficial that it should have been left out entirely. Three chapters discuss various members of the family as herbs, ornamentals and weeds. All the plants described in these chapters are again discussed in Chapter 8, the largest chapter in the book and the one of most interest to gardeners interested in the family. Included here are 67 of the approximately 251 (according to Mabberley, 1997) genera in the Lamiaceae, with brief descriptions of one to several species or cultivars of presumed horticultural interest. It would have been a good deal less redundant had the descriptions in the three earlier chapters (herbs, ornamentals and weeds) been combined with the individual entries of Chapter 8.

A couple of statements required citations. One (p. 67) claims "scientific proof" that the scent of lavender

is linked to the libido. A second (p. 78) refers to "modern studies" which verify the therapeutic qualities of sage.

I presume this book was written with gardening enthusiasts (and possibly plant collectors) in mind. As such, it would have been very nice to have given a few sources for some of the more horticulturally obscure plants included in the book. A few genera can be found easily at nurseries, and many of the species of herbal use should be easily obtained through seed catalogs. I checked a couple of random plant nursery websites and could find no entries for several less well-known genera (e.g. *Eremostachys*, *Cedronella*, *Sideritis*, *Meehania*). I can't imagine how your average gardener would find some of these plants. Still, if there are gardeners or plant collectors out there with a particular love for Labiatae, this book represents probably the most comprehensive horticultural guide to the family. - Jan Barber, University of Missouri, St. Louis.

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[www.monrovia.com](http://www.monrovia.com)

[www.linglesh herbs.com](http://www.linglesh herbs.com) Good source for "herbal" mints

[www.handhbotanicals.com](http://www.handhbotanicals.com) Good source for some of the more unusual genera (*Dracocephalum*, *Ballota*)



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**Westcott's Plant Disease Handbook. 6<sup>th</sup> Ed.** Horst, R.K. 2001. ISBN 0-7923-8663-9 (Hardcover, US \$299.95). 1008pp. Kluwer Academic Publishers, Dordrecht, The Netherlands. First published over 50 years ago, *Westcott's Plant Disease Handbook* is newly revised for the 6<sup>th</sup> time, under the guidance of R. Kenneth Horst, who oversaw the 4<sup>th</sup> and 5<sup>th</sup> editions as well. The "Westcott" from the title is from Dr. Cynthia Westcott, 1898-1983, who first compiled this encyclopedic work. She received her Ph.D. in Plant Pathology from Cornell University in 1932. She later bought a garden that she described as "equipped with all the common plant diseases." She experimented with chemical sprays as well as more natural means of garden maintenance. Then, Dr. Westcott set up "practice" as a plant doctor, making "house calls" to clients' gardens, as needed, during the growing season. She went on to produce several books on garden pests and diseases, including the *Plant Doctor*, the *Gardeners Bug Book*, and the *Plant Disease Handbook*.

The changes made since the last edition, 1990, include an update in the chemical and pesticide regulations, and taxonomic changes in bacteria, fungi, nematodes and viruses. New host plants and new diseases on new host plants have been added. However, photographs, both black and white and the color section, have been retained from the 5<sup>th</sup> edition.

The general arrangement is essentially the same as in previous editions. The Handbook contains just four chapters. The first chapter discusses chemicals and their application, and the second chapter is a presentation on plant pathogens. Then the next nearly 500 pages cover over 2400 plant diseases followed by chapter four, containing a list of 1200 host plants for another almost 400 pages. The diseases are grouped according to their common names in alphabetical order. Treatments are listed when known. Host plants are listed by their common name along with their diseases, which, in many cases, refer back to a detailed entry in chapter three. Geographical locations (mostly by state) are given for the extent of the plant and/or disease. Color photographs display 34 key diseases in addition to black and white photographs of other pathogens. There are also numerous other illustrations augmenting the text.

Additional supplemental material includes a list of Land-Grant Institutions and Agricultural Experiment Stations, Glossary, Bibliography and a comprehensive index. The 75 page index is the adhesive that holds the whole Handbook together. Common and Latin names of host plants, diseases and their Latin pathogens are to be found in the index. The index provides both fast and easy

access to the contents of the Handbook. This exhaustive and comprehensive Handbook is a must-have for the academic reference collection supporting a plant science program. Although aimed at the non scientist, this is still a practical and valuable tool for the serious gardener, plant scientist, landscapist and anyone involved with plants. Its longevity is proof of its effectiveness for the practitioner. Peggy Dominy, Sciences Librarian, Hagerty Library, 33<sup>rd</sup> & Market Sts., Philadelphia, PA, 19104

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**Methods in Comparative Plant Population Ecology.**

David J. Gibson. 2002. ISBN 0-19-850562-0, (paper, US\$45.00) viii+344 pp. Oxford University Press. – Until now, we have had several excellent textbooks of plant population ecology/biology (e.g., Harper 1977, Falinska 1998, four editions of the Silvertown's book) and many useful textbooks of applied statistics for ecologists (e.g., Crawley 1993, Scheiner & Gurevitch 2001). However, what has been missing was an organic connection of these two kinds of resources: a rigorous primer and assessment of the methodology used in observational and experimental studies of current plant population ecology. Gibson's book fills this gap.

The book is organized into three major parts: (1) What is plant population ecology? (18 pages), (2) Planning a study (99 pages), (3) Doing the study (176 pages). In the first part plant population ecology is defined, its history briefly summarized, and its goals outlined. To illustrate the scope of plant population biology, four case studies are here introduced and followed through several of the following chapters of the book. This is a nice approach. Starting with Sarukhán's classic studies of buttercups, through demographic variability of rare *Silene regia*, biological control of

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invasive *Senecio jacobaea*, to herbivory effects on *Raphanus sativus*, the reader is led to ask many important questions: Were the methods appropriate for addressing the research objectives? Were there other variables that should have been measured? Are there obvious sources of error in the applied methods? Are the results relevant for addressing the broader issues?

The second part, dedicated to planning, will be a useful reading for all ecologists. How to ask relevant questions? How to formulate hypotheses? What should be measured? How to design experiments and observations? How to avoid pseudoreplication? These are just examples of questions that are discussed here. Elizabeth John wrote a separate chapter on many useful statistical methods. This is one of the best user-friendly introductions to statistics I am aware of. Statistical correctness and weaknesses of all four case studies are briefly commented at the end of this chapter.

The third part represents the real core of the book. It is somewhat less coherent, but is packed with an incredible amount of information: from the survey of biotic and abiotic experimental treatments, through measurements of relevant environmental variables and plant traits, to useful ecophysiological measurements, molecular markers, elements of growth analysis, germination tests, spatial patterns, life tables, matrix models, cellular automata, and individual-based population models. Tables summarizing advantages and disadvantages of discussed methods are extremely useful. Inevitably, coverage of some topics is only sketchy. Nevertheless, this chapter itself will provide material and references for one semester of teaching and discussions.

There are only a very few critical comments I can make. The first is a herbaceous and temperate bias of the book. Of course, it is much easier to study populations of herbs (all four case studies), small shrubs, and tree seedlings than demography of large trees. Also, the majority of plant population studies have been conducted in temperate regions. However, when José Sarukhán returned from Bangor to Mexico, a new fascinating discipline was born: tropical tree population ecology. Useful introductions are provided by Martínez-Ramos and Samper (1998) and Turner (2001). I would expect somewhat more on methods for studies of interspecific competition (for example an introduction to the reciprocal yield models - Suehiro and Ogawa 1980). It would be helpful if net assimilation rate (NAR) were mentioned as an alternative term for unit leaf rate (ULR, p. 214) and "diffuse competition" as an alternative for

"competitive intensity" (p. 225). In the context of transition matrix models, I am not really happy with statements like " $f_i$  = rate of reproduction (fecundity) for an individual in age class  $i$ " (p. 283), or "fecundity is limited to the rightmost element on the top row that represents the seeds produced by flowering plants..." (p. 284). In the last case, for example, this particular element represents only the mean number of seeds per plant that will be present as dormant seeds one year later (see Fig. 8.17 and Caswell 2001). As the author defines fecundity as "total seed production per year" (p. 220), the above statements could be misleading. For any time step, " $f_i$ " is usually a product of seed production per plant and seed survival into some other category. Many misunderstandings are still associated with construction of transition matrices in plant population biology (Rejmánek 2000). I assume that only one arrow, not two, should go from "Seed" to " $a_{ss}$ " (p. 283). These are just minor problems. Gibson produced a remarkable book! I expect that one whole generation of students will profit immensely from its reading. - Marcel Rejmánek, Section of Evolution and Ecology, University of California, Davis, CA 95616.

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**André Michaux in Florida: An Eighteenth-Century Botanical Journey.** Walter K. Taylor and Elaine M. Norman; 2002; ISBN 0-8130-2444-7 (Hardbound) 246 pp., 30 photographs, 16 maps. \$40.00 University Press of Florida, Gainesville. – Although the name André Michaux has shrunk to a footnote for most American biologists, this book of painstaking scholarship should provide insights into his poorly known explorations in Florida in 1788. It begins with a biographical sketch of André Michaux, including a review of his extensive botanical explorations in eastern North America, followed by a discussion of the political and social conditions in Florida during the late 18<sup>th</sup> century, and then a detailed account of his explorations in northern Florida with his son André François.

After his intrepid botanizing expeditions in the Middle East from 1782 to 1785, André Michaux's reputation as a botanical explorer was so outstanding that on his return from Persia he was selected as King's Botanist to the newly independent United States. With his son François André, he arrived in New York in November 1785 for a sojourn that would last for eleven years. Michaux's primary mission was to collect living native American plant material and send it to France, where plants of economic importance could be propagated. In 1793, with Thomas Jefferson's encouragement, he proposed to the American Philosophical Society an expedition west to the Pacific Ocean—which would have anticipated the expedition of Lewis and Clark. Unfortunately, the arrival of the Ambassador of the French Republic, "Citizen" Genet, sidetracked those plans, and Michaux—no doubt regretfully—had to settle for a trip west to Kentucky.

According to the review of botanical exploration in Florida by Richard Wunderlin, Bruce Hansen, and John Beckner (in Wunderlin & Hansen, *Flora of Florida*, volume 1, 2002), the first significant botanical observations in Florida were made by John and William Bartram in 1765—1767; William Bartram returned to Florida in 1773—1776 for more extensive travels. In the summer of 1786, Michaux visited both Benjamin Franklin and the Bartrams, who showed him their famous garden and told them about their explorations in the Carolinas and Florida. The prodigious energy of the elder Michaux appears to have been matched by his political and social skills that allowed him to establish contacts in Philadelphia, New Jersey, Virginia (where he met George Washington) and South Carolina. It is especially striking to read of his treks into rugged poorly mapped country in winter months when most botanists would have been content to retire to shelter and wait for spring. Michaux's expedition to Florida in 1788 lasted only three months before he returned to his base in South Carolina. His trip was

at least partly inspired by hearing about the travels of the Bartrams through the southeastern U. S. to Florida, and the vivid descriptions of the vegetation that Bartram would soon publish in his classic book of 1791.

*André Michaux in Florida* covers the Florida expedition in much greater detail than the few pages devoted to it by previous writers. The first two chapters provide a succinct account of the late eighteenth century botanical milieu, in both France and the United States, and of the travels of the Michauxs in the eastern United States during the eleven years 1785-1796. Chapter three includes an interesting narrative of the political and social changes in Florida during the last quarter of the Eighteenth Century, when it was first—from 1763 until 1783—controlled by Great Britain, and then for the rest of the century by Spain. The Michauxs arrived in St. Augustine, the capital, only three years after the Spanish takeover, to find a curious amalgam of British settlers still hanging on in their plantations, while in the vicinity of St. Augustine there were settlements of colonists, mainly from Minorca, brought in by the Spanish government.

The three months of the Michaux sojourn in Florida in 1788 are covered in Chapter Four, beginning with an original English translation of Michaux's journal based on the transcription (in French) published by C. S. Sargent in 1889. The journal entries have copious annotations that specify localities in the journal and suggest identifications of species collected or observed. Photographs of specimens in Michaux's herbarium and collecting localities help to give a vivid picture of the plants and landscapes encountered on the trip. Maps (many antique) of most of the places visited are given in detail (some readers might think excessive detail) in Chapter 3. The main text concludes with the Epilogue based on Michaux's journal entries in his final notebook.

A significant part (65 pages) of the text of *André Michaux in Florida* is taken up by two Appendices. Appendix 1 will be of especial interest to botanists because it includes a comprehensive list of the plants observed or collected in Florida by Michaux. The first part of Appendix 1 includes a list (in alphabetical order) of all of the species collected in Florida by Michaux and by the Bartrams. In the second part, records based on Michaux's flora are listed in order in the two volumes (which was originally in the sequence of Linnaean classes, but appears rather confusing to the modern reader). The records are based not only on citations in the *Flora Boreali-America* but also entries in Michaux's journal and notes written on herbarium specimens. Appendix 2 includes letters, list of plants sent to

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France, and other documents, mostly translated into English for the first time.

The Epilogue includes a description of the notorious shipwreck in 1796 on the coast of Holland where Michaux came close to death and lost the early part of his journals and his personal effects, but fortunately his herbarium collection was saved. The annotations following the Epilogue fill in many details not evident in the abbreviated entries in Michaux's journal (which he ceased to keep up after 1797). Michaux, resilient as ever, set to work in Paris writing his two major botanical works: the monograph of oaks (*Histoire des Chênes de l'Amérique*) published in 1801 and *Flora Boreali-Americana*, published posthumously in 1803. Michaux was fortunate in having both works illustrated by Pierre-Joseph Redouté, the greatest of all French botanical artists. Although André Michaux perished in Madagascar in 1802, his son André François, who had played a crucial role in seeing his father's works to press, went on to write the three volumes of *Histoire des arbres Forestiers de l'Amérique septentrionale* (1810—1813), soon translated into *North American Sylva* (1817—1818) and now regarded as a classic.

On his return to France in 1796, André Michaux attempted to receive the funds from the government that he had often requested in vain. The political unrest during the preceding decade no doubt was at least partly responsible, but the French bureaucracy still deserved condemnation for such cavalier treatment—reminiscent of the way the Spanish government stiffed the outstanding New World botanists Sessé and Moçño, Mutis, and Ruiz and Pavon. Nevertheless, Michaux not only achieved all that was expected of him in France, but in less than three years of heroic effort he produced the first two fundamental botanical treatises on North American plants. Charles Sargent (in the *Proceedings of the American Philosophical Society*, 1889) unfairly concluded from the telegraphic prose of Michaux's *Journal* that his "cultivation and literary ability... were not great," and that Achille Richard was the ghost-writer who put together the book on oaks and the *Flora Boreali Americana*. A more nuanced view was provided by Joseph Ewan in the introduction to the reprinted edition of *Flora Boreali-Americana* (*Classica Botanica Americana* vol. 3, 1974). The preface to the flora by André François makes it clear that Michaux's manuscript was not in final form, and required considerable editing, including the efforts of L.C.M. Richard. In view of the short time Michaux had in France before his final trip, it is not surprising that he solicited assistance from his son in preparing the work for publication. There is little if any evidence to support Sargent's adverse judgement, and it is contradicted by other

indications—such as Michaux's skill in composing letters and his adroit relationships with leading scientists in France and with the elite in North America (including Thomas Jefferson and George Washington).

*André Michaux in Florida* is outstanding for its scholarship and documentation; the authors have clearly written with meticulous care to detail. The book is not intended as a popularization, but rather as an account that documents a neglected part of the extensive travels that established André Michaux as the first botanist to both explore eastern North America, make extensive botanical collections, and write the first significant North American flora and the first book about American oaks. For many readers, *André Michaux in Florida* will be most profitably read in conjunction with the biography by Henry and Elizabeth Savage (*André and François André Michaux*, 1986). The detail provided by Taylor and Norman can serve as a model for similarly detailed studies that could be made on other botanical itineraries of Michaux. André Michaux remains a somewhat enigmatic figure, renowned for his enterprise and exploring skills, but without a single known surviving portrait and with his projected memoir of travels never written. That is a tragic loss, but on the other hand his accomplishments were significant, not least in training and inspiring his son André François to extend his work and produce a classic book on North American trees. The authors of *André Michaux in Florida* have provided a critical documentation of Michaux's botanical work in Florida that adds significantly to the historical record. - Grady Webster, University of California, Davis.

**A Field Guide to Tropical Plants of Asia.** Engel, D.H. and Phummai, S. 2000. ISBN 0-88192-542-X (Paper US\$19.95). 280 pp. Timber Press, Inc. Portland, Oregon. A field guide, to be useful, must be arranged so that someone looking at a specimen, in the field, can easily find the information that identifies the specimen. The important word, here, is **easily**. *A Field Guide to Tropical Plants of Asia* comes close to this optimal arrangement. The Field Guide contains over 300 plants. A photograph of each plant and information including the scientific name, English common name, a few descriptive details and the names of the plant, if present, in the languages of five countries (Indonesia, Malaysia, Philippines, Thailand, and Vietnam) comprise the main entry. I suppose that having the common name of the plant in the local language might help to confirm the identity. More information such as habitation, geographical range, leaf and flower

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r features and original habitat are found in the appendix arranged by scientific name.

The guide is arranged into four chapters: Trees, Shrubs, Vines, Groundcovers & Bedding Plants. Within each chapter, the plants are divided into sections according to their most prominent feature: flower, fruit, or leaf. In some cases, of course, a plant may be listed in more than one section. This arrangement makes for a more natural way of observing a plant than many other field guides, by quickly reducing the number of pages and images one has to scan to identify it. Next to its arrangement, the photographs are the guide's second best feature. They are sharp and as true to color as possible. The photographs range in size from full page to about 2.5 in. x 2.0 in. They typically show enough of the whole plant to display its natural habitation. It should be noted that photographs like these are not easily achieved. On the one hand, some of these species may only bloom or fruit on the order of years. Just catching them at the right time is difficult. Secondly, positioning to capture the optimal *in situ* photograph is equally tricky. In other words, the photographs are beautifully presented and a delight to the eye. If nothing else, one can truly admire the skill and effort that went into producing this album of work.

Obviously, a guide consisting of about 300 plants does not even close to the thousands of plant species found in Asia. The title is obviously misleading here. The authors might have been more helpful had they used some form of modifier such as "selected" or "common" or "300 most conspicuous" in the title or subtitle. However, the authors explain they selected plants based on pervasiveness and noteworthy characteristics. In other words, the plant one just happens upon and captivated, desires to know what it is. The title is also somewhat ambiguous in its use of "Asia" as the geographical domain of the Field Guide. More precisely it covers "tropical" Asia (Indonesia, Malaysia, Philippines, Thailand and Vietnam). Some plants actually originate outside of Asia, i.e. Africa, India and the Americas, but have become transplanted throughout the tropics.

The guide contains additional material on definitions of the parts of plants, a glossary, pronunciation guide, bibliography and index. What the guide does **NOT** have is a botanical key. Fundamentally, the guide is a photographic album, albeit beautiful, of some spectacular plants of tropical Asia. This guide is clearly not intended for the professional botanist, but for the interested visitor to tropical Asian parks or nature preserves. - Peggy Dominy, Sciences Librarian, Hagerty Library, 33<sup>rd</sup> & Market Sts., Philadelphia, PA, 19104

### **Flavonoids of the Sunflower Family (Asteraceae).**

Bohm, Bruce A. and Tod F. Stuessy. 2001. ISBN 3-211-83479-6. (Hardcover EUR 202.40). xiii + 831 pp. 56 figures. Springer, Wien, NewYork. www.springer.at. Publication of the "Segregation and recombination of chemical constituents in a hybrid swarm of *Baptisia* ... and their taxonomic implications" by Turner and Alston (1959) and a subsequent paper by Alston and Turner (1963) demonstrated the potential of secondary compounds for systematic purposes and initiated a new subdiscipline in systematics. Fervently pursued for the next 20 or more years by many practitioners, studies resulted in the accumulation of a considerable store of secondary compound data. The authors of this volume have been leaders in the field of systematics of the Asteraceae and chemosystematics during much of this period. There are few as well qualified to produce such a volume as Bohm and Stuessy. Their assemblage and analysis of the huge volume of data for the Asteraceae, a family notorious for its richness in secondary plant products, is an amazing feat.

The first two sections will appeal to a broader audience for their introduction to the Asteraceae and to the flavonoids. In section one the biology, distribution, classification, phylogeny, and biogeography of Asteraceae are summarized in a succinct, lucid style. Section II provides an introduction to the flavonoids as taxonomic markers, structural variation (in Asteraceae), biosynthesis, and biological functions. Here several well-known, mostly non-Asteraceae, examples of the systematic usefulness of flavonoids, including the well-known entrospermae/Caryophyllales case study are summarized. Chapter 6 will be of interest to ecologists, physiologists, and others, as it recounts some of the numerous biological functions of flavonoids. These sections and throughout are a rich source of bibliographic citations for the primary, milestone literature that has shaped our understanding of the family Asteraceae and the flavonoids.

Section III, consisting of 11 chapters, provides an extensive review of the occurrence of flavonoids in Asteraceae organized by tribe. Largely the tribal taxonomy of Bremer (1994) is followed since it is the most recent, comprehensive treatment available, but where appropriate, flavonoid occurrence is evaluated in the context of other treatments as well. Each chapter is devoted to a single or in a few cases two tribes that are arranged alphabetically as are the genera within which makes for easy information accessibility. Flavonoid data, when extensive for a genus, are treated in tabular form. The referencing with serial numbers of chemical structures for various flavonoids are helpful to the reader. The expected caveats

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concerning interpretation of the data such as the variable goals and expertise of the investigator and improved technological advances in isolating and characterizing flavonoids are issued by the authors. Incompleteness of the data for most taxa represents a major obstacle in fully evaluating its significance is a theme restated several times throughout this and other sections of the book.

The efficacy of flavonoids at different taxonomic levels is addressed in section IV with a chapter each devoted to subfamily, tribal, subtribal, generic, specific, and infraspecific levels with many examples provided in each case. An outstanding example provided is that of *Tragopogon* where nearly all biosystematic techniques have been applied. In general, flavonoids for systematic purposes have the most to offer at lower levels in the hierarchy and that they may help resolve problems involving interspecific hybridization, species relationships, and the like. Some interesting correlations at higher levels are evident. Such data take the form of trends and relative percentages of skeletal types, oxygenation patterns, various adornments, etc. Pivotal to assessing homology, as the authors noted, is knowing more about flavonoid biosynthesis.

The last two sections, V and VI, treat "flavonoids as indicators of the evolutionary process" and "flavonoids and phylogeny." A number of case studies are provided showing the contributions and the potential for such data in understanding hybridization patterns and differentiation among populations. The challenge, in the authors' view, is a synthesis involving DNA analysis coupled with flavonoid differentiation in an environmental and genetic context. Interestingly, in section six comparison flavonoid composition of the Barnadesioideae and the Calyceraceae, representative of the most primitive Asteraceae and its sister family, show similarities. Whether this indicates their relatedness or is linked to the ecological circumstances in which they are found remain as intriguing hypotheses. Flavonoid data of other potential sister families such as the Goodeniaceae, Menyanthaceae, and others are also summarily provided. The presence/absence flavonoid data as the authors note at least at higher levels in the hierarchy will never be the primary source of data for phyletic reconstruction. Learning, as the authors note, more "...the genetic and enzymatic basis of biosynthetic pathways, and the potentials for interconversion of compounds under different ecological and/or physiological constraints, can we come to separate phyletic from ecological/genetic dimensions." Following section VI is an addendum that gives information published or

otherwise called to the authors' attention after the manuscript had been sent to press.

Three separate indices are provided. The chemical index is arranged by formal name along with their synonyms in many cases. Pages numbers set in bold type reference pages with the corresponding chemical structures. Immediately prior to the chemical index is a table giving the common names for flavonoids used in the volume, their derived common names, and formalized names. Following the chemical index is the subject index. Chemical structures are similarly referenced here and a "t" identifies pages containing tabulated flavonoid information. The taxon index follows the subject index and also contains the same tabulated information page indicator.

The text is relatively free of errors but a few typos were noted. On page 454 *Brickellia shineri* was also spelled *B. shinneri*. The former appears to be correct. Also, this entry is absent from the taxon index. *Amphiachyris*, in chapter eight, is said by the authors to be a Californian genus of two species. However, neither occurs in California; both grow in Texas with the range of one extending northward and eastward.

The book is obviously essential for anyone working on the systematics or other biological aspects of the Asteraceae. The volume is a comprehensive source of flavonoid data, and it is also contains an excellent compilation of literature citations. It represents an excellent report on the status of knowledge in this field and underscores what hasn't and can be accomplished. Many aspects of this volume as suggested will be of interest to a more general audience and other specialists such as phytochemists, ecologists, physiologists, etc. I expect *Flavonoids of the Asteraceae* to become more useful as the ever increasing number of macromolecular investigations suggest new and at times often unsuspected relationships among taxa. —Lowell Urbatsch, Department of Biological Sciences, Louisiana State University, Baton Rouge, LA 70803

B. L. Turner, Ralph Alston. 1959. Segregation and Recombination of Chemical Constituents in a Hybrid Swarm of *Baptisia laevicaulis* X *B. viridis* and Their Taxonomic Implications. *American Journal of Botany*. 46: 678-686.

R. E. Alston, B. L. Turner. 1963. Natural hybridization among four species of *Baptisia* (Leguminosae). *American Journal of Botany*. 50: 159-173.

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**Generic Tree Flora of Madagascar.** Schatz, George E. 2001. ISBN 1 900347 82 2. (Paper US\$50.00) 477 pp. Royal Botanic Gardens, Kew, and Missouri Botanical Garden, St. Louis. - Madagascar has long been a sort of Ultima Thule for botanists and other naturalists: a remote near-continental island that still yields continuing surprises after two centuries of exploration. The appearance of the *Generic Tree Flora of Madagascar* is the first important technical botanical manual in English to deal with the Malagasy flora.

The book is highly international in its production: there is a foreword in English by the Directors of the two sponsoring institutions (Peter Crane for the Royal Botanic Gardens and Peter Raven for the Missouri Botanical Garden) and an *Avant-Propos en Français* by Directeurs Albert Randrianjafta (Parc Tzimbizaza) and Philippe Morat (Muséum d'Histoire Naturelle, Paris). The Introduction, by George Schatz, is followed by a set of Introductory Keys to families and genera that appear to be modelled on those in the *Field Guide to the Families and Genera of Woody Plants of Northwest South America* by Al Gentry (1993) and *Australian Rain Forest Trees* by Hyland and Whiffin (1993).

The keys lead to unusual genera as well as to families, and depend more heavily than usual on vegetative characters. Keys to genera within families, however, tend to be of a more traditional, more or less synoptic format. A particularly valuable feature is that nearly all genera (471 of 490) are illustrated with both floral and vegetative details. The generic descriptions are brief but sufficiently informative; in monogeneric families they are understandably abbreviated. In addition to the appropriate references in the *Flore de Madagascar*, recent works are cited under each family, although older treatments such as those in *Das Pflanzenreich* are not mentioned. The impressive documentation in the book includes a glossary of terms and index to scientific names, vernacular names, and sources of the illustrations (the majority taken from the *Flore de Madagascar*).

Madagascar—shielded by isolation, tropical diseases, and hostile tribes— was poorly explored for centuries after the first Portuguese visit in 1500. Botanical studies were largely carried on by French scientists, beginning with Chevalier Etienne de Flacourt. During seven years (1648—1655) in the French colony at Fort-Dauphin, working under scarcely imaginable logistic challenges, Flacourt created the first Madagascar herbarium, and may have been the first botanist to assign collection numbers to his specimens. His *Histoire de la Grande Isle de Madagascar* (1658) includes

an appendix that represents the first floristic work on the island. After a hiatus of more than a century, noted botanists including Commerson, Sonnerat, and du Petit-Thouars made trips to Madagascar. However, although they were followed in the 19<sup>th</sup> century by others, notably Goudot and Boivin, when Alfred Russell Wallace published his classic *Island Life* in 1880, for the Malagasy region he relied almost entirely on data from Baker's *Flora of Mauritius and the Seychelles*. By this time British botanists were also active in Madagascar; a British missionary, Richard Baron, collected extensively in the interior of Madagascar and published the first comprehensive checklist, *Compendium des plantes malgaches* (1901-1906). The last work of the great French plant systematist, Henri Baillon, appeared in the *Histoire physique, naturelle et politique de Madagascar*. The general flora of Madagascar, begun in 1936 by H. Humbert and collaborators, *Flore de Madagascar et des Comores*, is still incomplete; although 80% of the families have been covered, the earlier treatments are now of course out of date. Humbert also has provided the most detailed review of botanical exploration in Madagascar (in *Comptes Rendus IV Réunion AEFAT 1961*). The only modern forestry guide is *Palms of Madagascar* by J. Dransfield and H. Benntje. The generic tree flora by Schatz fills therefore fills a critical vacuum.

The prototype of the *Generic Tree Flora of Madagascar* was an unpublished manuscript of the great French forester and botanist René Capuron, who in 1957 circulated mimeographed copies of *Essai d'Introduction de la Flore Forestière de Madagascar*. The high diversity of the Madagascar flora is indicated by the fact that the *Generic Tree Flora* treats 490 genera of trees, 161 of which are endemic—a remarkable statistic scarcely matched in any comparable region of the world. Even more striking is the large number and endemism of the species: 4,220, of which 96% are endemic. The graph of generic diversity by family is also remarkable: although the Leguminosae have the largest number of genera (as usual in most tropical areas), the Euphorbiaceae exceed the Rubiaceae and the Sapindaceae rank fourth, while families such as Sapotaceae and Asteraceae are insignificantly represented. Most neotropical botanists will be startled to find that the Solanaceae are represented by only two genera. These anomalies are no doubt due to the divergence of Madagascar as a fragment of Gondwana that has developed in isolation for much of the Cenozoic.

The *Generic Tree Flora of Madagascar* is not only an effective tool for identifying trees in Madagascar, but it also opens a window on the remarkable diversity of the island continent. It is likely that the 161 endemic genera will be unfamiliar

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to most readers, but they include such charismatic genera as *Takhtajania*, the only Afro-Malagasian genus outside of Australasia, which was not described until 1978. The cactiform Didieriaceae are represented by four genera, of which *Allaudia* and *Didieria* are well known to succulent fanciers. Some familiar genera are a bit difficult to locate because of their recent taxonomic reassignment due to cladistic studies. Examples include *Adansonia*, the baobab tree, which has been moved from Bombaceae to Malvaceae; the eponymous *Flacourtia*, now with the willows in Salicaceae; and several genera of Cappariaceae now under Brassicaceae.

Some readers may find the bibliography inadequate: besides the citations under individual families, there is scarcely a single page of general references following the introduction. However, for those wishing to look further, there is an interesting biogeographic essay on the Internet by George Schatz:

*Malagasy/Indo-australo-malesian Phytogeographic Connections* ([www.mobot.org/MOBOT/Madagasc/phytogeographic](http://www.mobot.org/MOBOT/Madagasc/phytogeographic)). The bibliography to the Internet article includes important books such as *Flore et Végétation de Madagascar* by J. Koechlin et al. (1972), which provides a well-illustrated review of the various Madagascar vegetation types in which many of the remarkable endemic genera occur.

The *Genera Tree Flora of Madagascar* is outstanding among publications in tropical botany on the basis of its attractive format, useful keys and descriptions and critical approach to the data. The book is not only indispensable for professionals who visit Madagascar, but also for armchair botanists who may never get there. It reflects great credit on the author and furthermore is a splendid example of international cooperation among botanists and institutions. – Grady L. Webster, Herbarium, University of California, Davis CA 95616.

**Genera Orchidacearum. Volume 2** (Part 1). Alec M. Pridgeon, Phillip J. Cribb, Mark W. Chase, and Finn N. Rasmussen, editors. 2001. ISBN 0-19-850710-0. \$120.00. Oxford University Press. Great Clarendon Street, Oxford. - As stated in volume 1 of *Genera Orchidacearum*, the aim of publication is to produce a robust and natural account of the orchids at the generic level and above. Orchids represent probably the greatest assemblage of flowering plants, and estimates of the number of species range above 20,000 and of genera 750 or more. Thus the enormity of the task of *Genera*

*Orchidacearum* becomes obvious. The entire work, to constitute five volumes produced over a six-year period, is a *tour de force* that beggars one's credibility. Yet, we already have the first part of volume 2 in 2001, volume 1 having been published in 1999.

The introductory essay, "The origin and biogeography of Orchidaceae" by Mark W. Chase, sets the stage for the alphabetical treatment of 101 genera of the first 7 tribes in subfamily Orchidoideae. Part 2 of volume 2 will treat those tribes formerly included in subfamily Spiranthoideae, now subsumed in Orchidoideae. Remaining volumes will consider subfamilies Vanilloideae and Epidendroideae. Each generic description includes synonymy, nomenclatural derivation, characteristics of the genera complete with illustrations (line drawings and colored pictures), worldwide distribution with maps, as well as the current state of knowledge covering anatomy, palynology, cytogenetics, phytochemistry, ecology, pollination, economic uses, and cultural requirements. Artificial keys to subtribes and genera appear throughout. Generic names and binomials are followed by authors' names with pertinent literature citations. Treatments of each genus are completed by a list of relevant taxonomic literature.

Orchidoideae are predominantly terrestrial herbs well represented in northern temperate and tropical areas of both Old and New Worlds, but particularly so in Europe, tropical and southern Africa, Madagascar, temperate Australia, North America, and temperate South America. Floral features, especially in some of the bizarre, fantastic elements of the Australian genera, are beautifully captured in the fine dissections portrayed by the several illustrators involved in the project. Colored pictures are remarkable for their clarity and representation, mostly of plants *in situ*. Each group of plates is accompanied by a schematic numbering system associated with the legends. In addition to the taxonomic literature accompanying each generic treatment, the volume ends with an exhaustive citation of references, and an index to scientific names and subject categories.

It would be difficult to wax too sanguine about the accomplishments of the editors and expert contributors of the various sections of *Genera Orchidacearum*. This volume, as volume 1, is destined to be the standard against which other similar works will be compared. One cannot praise this work too highly nor to extol its virtues excessively. *Genera Orchidacearum*, volume 2, part 1 is a masterpiece. One hopes the succeeding volumes will rise to the excellence of the current book. - William Louis Stern, Department of Botany, University of Florida, Gainesville, 32611.

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**Triggerplants.** Darnowski, Douglas W. 2002. ISBN 1-877058-03-3 (paperback) 92 pp. Rosenberg Publishing Pty. Ltd., P. O. Box 6125, Dural Delivery Center NSW 2158, Australia. – It is a botanical fact of life that some plants are inherently more interesting to more people than other plants are. Orchids and cacti, for example, appeal in some fashion to a greater percentage of the populace than do sedges and amaranths. This greater appeal is reflected in the formation of specialized societies, the establishment of businesses that profit from such interest, and (what interests us here) the publication of books detailing such plants.

The present volume deals with a group that may not yet have developed the cult following enjoyed by orchids and cacti, but certainly has the potential to do so. Triggerplant is the name applied to any of the almost 200 species of the largely Australian genus *Stylidium* in the family Stylidiaceae. Though esthetics are certainly part of the potential appeal of triggerplants (they are diverse of habit and colorful of flower), their primary “hook” lies in the feature that gives them their name: their seismonastic gynandrium. In each flower, the two stamens are fused to the style of the inferior ovary, forming a curved column-like structure known as a gynandrium. This column is sensitive to touch; when an insect foraging for nectar brushes against it, the gynandrium swings down quickly in a set direction, slamming its anther locules and stigma onto the insect’s body. A load of pollen is thus deposited and/or picked up. Over the course of several hours, this “trigger” resets itself, moving slowly back to its original position to await another potential vector. One can well imagine how such a phenomenon, properly demonstrated, would amuse and delight plant lovers of all ages.

Darnowski indicates (pg. 11) that his main objective in preparing this book was to foster interest in *Stylidium*, a genus he feels has not received as much attention as it deserve. As such, we may fairly evaluate the book on how well it achieves that goal, on the extent to which it makes readers want to cultivate the species in their greenhouses or book eco-tourism holidays Down Under.

All in all, I think it is fair to say that this book goes a long way toward achieving this goal. When it comes to generating interest and enthusiasm, it is axiomatic that a picture is worth a thousand words. The liberal use of high quality color photographs definitely helps the book achieve its goal. Though a few have some technical flaws with composition, focus, and lighting, the overall impression created by the photographs is very positive. I wish I could be as laudatory about the drawings. In any book, there are always a number

of concepts that are better conveyed with line art than with a photograph (e.g., how the seismonastic gynoeceum operates), and so this volume contains a number of such drawings. Sadly, they are very poorly executed and detract terribly from the book’s mission. Some (e.g., pg. 19) resemble the earnest efforts of a child, others (e.g., pg. 32) a doodle on a cocktail napkin. The casually scribbled outline map of Australia (pg. 35) is inexcusable. The book otherwise has such a polished, professional appearance that I cannot imagine why anyone would have thought these drawings were a good idea. (For examples of excellent triggerplant art, see this book’s same-named 1958 predecessor by Rica Erickson.)

Books of this nature generally take one of two tacks. They may steer for the serious scholar or aim for the popular audience. This book, however, does an admirable job of sailing a very broad middle course. Yes, it is true there is no key by which one may identify unknown triggerplants, nor are authors cited for the binomials. But the book does not pretend to be a taxonomic monograph and in any case, there is a comprehensive bibliography in which various taxonomic works are fully referenced. Yes, the author uses some botanical “jargon” and “Latin” names (the bane of many plant lovers). But he explains such things carefully and backs up the explanations with a concise glossary (Appendix I). In a similar vein, this book very nicely addresses the plants from a horticultural perspective as well as from a natural history perspective. Exemplifying the former, we have Appendix III, “Suppliers,” with names and addresses of commercial firms from which seeds and plants may be purchased. As regards the latter, we have Chapter 3, “Where to Find Triggerplants,” describing vividly the general habitats and specific locales in which excursionists might expect to see the plants. We are also given much solid information on the basic biology of the plants, including the fascinating trigger mechanism and the question of carnivory. As with any good book, the author is quite honest about the many things *not* known about triggerplants, questions we would love to know the answers to, but don’t yet.

All in all, Darnowski does an excellent job of pulling together virtually all appropriate information on these plants. The reader of this book will honestly feel that he or she has a good well-rounded knowledge of the genus *Stylidium*, what it looks like, how it lives, and where it fits in The Greater Scheme of Things. – Thomas G. Lammers, Department of Biology and Microbiology, University of Wisconsin Oshkosh, Oshkosh WI 54901.

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## Books Received

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

**The Acheulian Site of Gesher Benot Ya'aqov, Israel: The Wood Assemblage.** Goren-Inbar, Naama, Ella Werker, and Craig S. Feibel. 2002. ISBN 1-84217-072-4 (Cloth US\$45.00) 120 pp. Oxbow Books, The David Brown Book Company, P.O. Box 511, Oakville, CT 06779.

**Alfred Russel Wallace: A Life.** Raby, Peter. 2002. ISBN 0-691-10240-6 (Paper US\$17.95) 368 pp. Princeton University Press, 41 William Street, Princeton, NJ 08540.

**Alpine Plants of North America: An Encyclopedia of Mountain Flowers from the Rockies to Alaska.** Nicholls, Graham. 2002. ISBN 0-88192-548-9 (Cloth US\$49.95) 344 pp. Timber Press, 133 S.W. Second Avenue, Suite 450, Portland, Oregon 97204-3527.

**Anne Ophelia Todd Dowden: A Blossom on the Bough (Catalogue of an exhibition).** White, James J. and Lugene B Bruno. 2002. ISBN 0-913196-74-6 (Paper US\$10.00) 48 pp. Hunt Institute for Botanical Documentation, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213-3890.

**The Botanical Language: An Interactive Guide to Vascular Plants.** Cowl, Virginia A. 2002. CD. 157 Forest Ave., Hudson, MA 01749-1830.

**The Cerrados of Brazil: Ecology and Natural History of a Neotropical Savanna.** Oliveira, Paulo S. and Robert J. Marquis (eds). 2002. ISBN 0-231-12042-7 (Cloth US\$ \$74.50) ISBN 0-231-12043-5 (paper US\$37.50) 398 pp. Columbia University Press, 61 West 62<sup>nd</sup> St., New York, NY 10023.

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**Answer to “Ode to Code” (p133):**

Lamiaceae (Labiatae also acceptable)

Explanation:

You may have [time], you can take [time]; sometimes you'll even tell [time], [time] is money, you can spend [time]; but can you really spell me?

Poems are very nice because the words are meant to rhyme,

But spell me similarly [i.e., thyme], and you'll see that I'm no lime [thyme is not a citrus].

So, the riddle refers to thyme which is in the mint family.



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