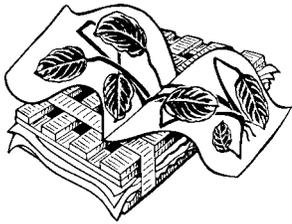


Department of Botany and the U.S. National Herbarium



The Plant Press

National Museum of Natural History
Smithsonian Institution

New Series - Vol. 1 - No. 3

May - June 1993

IUCN Red List of Threatened Plants Released

One out of eight plant species worldwide is at risk of extinction, according to the most comprehensive scientific assessment ever assembled on the status of the world's plants. This announcement was made on April 8 at a press conference at the Smithsonian's National Museum of Natural History as the *1997 IUCN Red List of Threatened Plants* was released. The *IUCN Red List* reveals that 12.5%, or 34,000, of the world's vascular plant species are threatened. In the United States, perhaps one of the most thoroughly studied countries in the world, 29% of the nation's 16,000 plant species are at risk of extinction.

The *Red List* is the result of a 20-year effort by a unique coalition of scientists, conservation organizations, botanical gardens and museums. The *Red List* was published by IUCN-The World Conservation Union and compiled by the World Conservation Monitoring Centre (WCMC). Conservation assessments were provided by numerous scientists and conservationists with major input from the Smithsonian's Department of Botany, The Nature Conservancy, Environment Australia and CSIRO, the National Botanical Institute (South Africa), Royal Botanic Gardens at Kew and Edinburgh, and the New York Botanical Garden.

The Department of Botany has had a collaborative agreement with IUCN and WCMC since 1980 to gather information on threatened plants and habitats in Mexico, Central and South America. Through the efforts of Jane Villa-Lobos, Director of the Latin American Plants

Program, an extensive global network of scientists was established to assemble and monitor vital information on the conservation status of plants in this diverse region. Staff in the department and the plant collections in the U.S. National Herbarium were an invaluable source of information on taxonomy, distribution and conservation status. This scientific data is a major component of the *Red List*.

Of the estimated 270,000 known species of vascular plants, which include ferns, fern allies, gymnosperms (including conifers and cycads), and flowering plants, 33,798 were found to be at risk of extinction. These plants are found in 369 families and are scattered throughout 200 countries. Of the plant species named in the *Red List*, 91% are found only in a single country. A limited geographic distribution can make a species much more vulnerable and may reduce options for its protection. In addition, islands or island groups, which often have high rates of endemism, face particularly high levels of threat to their flora. Seven out of the top ten areas listed according to percentage of threatened flora are islands: St. Helena, Mauritius, Seychelles, Jamaica, French Polynesia, Pitcairn, and Reunion.

A great number of plant species known to have medicinal value are at risk of disappearing, leaving their healing potential unfulfilled. For instance, 75% of the species from the yew family, a source of important cancer-fighting compounds, are threatened. The willow family, from which aspirin is derived, has 12% of its species threatened. Numerous other species whose medicinal value has not yet been studied also are at risk.

The *Red List* shows that 380 species have become extinct in the wild, with an additional 371 species listed as Extinct/Endangered. Over 6,500 species are categorized as Endangered, indicating their numbers have been drastically reduced to a critical level and they are deemed to be in immediate danger of extinction. Threat assessments are assigned according to the pre-1994 IUCN threat categories. The introduction to the book details the purpose and history of the project, an explanation of the information and an analysis of the list, including valuable tables on threatened

**The Red List reveals
that 34,000
of the world's
vascular plant
species are
threatened.**

plants in each country by IUCN category and by major taxa and families.

Publication of the *IUCN Red List of Threatened Plants* marks a turning point for conservation. The book, an important new conservation tool, provides baseline information to measure conservation progress and serves as a primary source of data on plant species. Most importantly, it provides the building blocks on which to base worldwide efforts to conserve plant species and the ecosystems they inhabit. (Also see "Chair With a View" on page 3.)

New Faces

Emilio Bruna, a Ph.D. candidate at the University of California Davis Center for Population Biology, is studying the effects of habitat fragmentation on plant population dynamics at the NMNH Biological Dynamics of Forest Fragments Project near Manaus, Amazonas, Brazil. Bruna is working with **John Kress** and **Preston Aldrich** (Post-doctoral Fellow) on the reproductive ecology and dynamics of *Heliconia acuminata*, conducting field experiments on pollen and resource limitation, pollinator efficiency, and the costs of reproduction. Bruna received a Smithsonian Pre-doctoral Fellowship Award.

The Research Training Program session from May 23-August 3 will include three participants in the Department of Botany. **David Taylor** will be working with **Harold Robinson** on *Pitcairnia*

(Bromeliaceae). David is a senior at Sam Houston State University, Texas. **Thinley Namgyel** will be working with **John Kress** on a phylogenetic and biogeographic analysis of the Himalayan genus *Cautleya* (Zingiberaceae). Thinley is from Thimpu, Bhutan, and a senior at the University of Wisconsin, Madison. **Allison Wack** will be working with **Stan Shetler** on the flora of the Baltimore-Washington Area. Allison is a junior at Randolph-Macon Women's College in Lynchburg, Virginia.

To Order the IUCN Red List

Contact New York Botanical Garden, Scientific Publications, (718) 817-8721; Fax: (718) 817-8842. \$45 (plus postage & handling).

Hammer Awards Presented

On April 21, **Ellen Farr** and **Tom Hollowell** were members of a team of NMNH staff who were awarded one of Vice President Gore's Hammer awards for their work on the Integrated Taxonomic Information System (ITIS). The Hammer Award is Vice President Gore's special recognition for organizations that have made significant contributions in support of the President's National Performance Review principles: putting customers first, cutting red tape, empowering employees and getting back to basics. ITIS is an interagency program that supports a database of taxonomic information on species names. It is the first comprehensive, standardized reference for scientific names (including synonyms and common names) for all the plants and animals of North America and the surrounding oceans.



The Plant Press

New Series - Vol. 1 - No. 3

Chairman, Department of Botany

W. John Kress
(kress.john@nmnh.si.edu)

EDITORIAL STAFF

Co-Editors

Jane Villa-Lobos
(villa-lobos.jane@nmnh.si.edu)
Robert DeFilipps
(defilipps.robert@nmnh.si.edu)

Consulting Editor

Deborah Hinrichs

Circulation Manager

Shirley Maina
(maina.shirley@nmnh.si.edu)

News Contacts

Amanda Boone, Robert Faden, Ellen Farr, George Russell, Alice Tangerini, and Elizabeth Zimmer

The Plant Press is a bi-monthly publication provided free of charge. If you would like to be added to the mailing list, contact Shirley Maina at: National Museum of Natural History, Smithsonian Institution, Department of Botany, NHB 166, Washington, DC 20560, or by e-mail: maina.shirley@nmnh.si.edu.

Web site: <http://www.nmnh.si.edu/botany/html>.

Travel

Laurence Dorr (3/27-4/4) traveled to Panama City, Panama to participate in the "First International Workshop on Sustainable Cacao Growing," which brought together a wide range of biologists, conservationists, and producers of chocolate.

Vicki Funk (4/2-4/5) traveled to Kennett Square, Pennsylvania to meet with the American Association of Botanical Gardens and Arboreta, and to Durham, North Carolina (4/7-4/9) for meetings with students and staff at Duke University.

James Norris and **Robert Sims** (4/3-4/12) traveled to Fort Pierce, Florida to continue marine botanical studies in support of the Marine Algae Eicosanoids Project.

Dan Nicolson (4/8-4/11) traveled to St. Louis, Missouri to attend a meeting of the Steering Committee for the 16th International Botanical Congress.

John Kress (4/15-4/16) traveled to St. Louis, Missouri to meet with the editor of *Biotropica* to discuss the current status of the Association for Tropical Biology's journal.

Visitors

Lynn Raulerson, Univ. of Guam (GUAM); Flora of the Marianas (Apr. 1-Aug. 15)

Jin Shuang Ma, Harvard University (GH); Celastraceae for Flora of China (Apr. 20-25)

Carlos Trejo, Univ. of Puerto Rico (UPRRP); biogeography of the Caribbean (Apr. 15-June 15)

Tina Ayers, Northern Arizona University, Flagstaff, AZ; Lobelioideae (Apr. 24)

Lisa Huckell, Univ. of New Mexico; Dimorphic seeds (May 8-23)

James D. Ackerman, Univ. of Puerto Rico (UPRRP); Orchidaceae of Greater Antilles (June-July)

Thirty-four thousand species of flowering plants, conifers and ferns are threatened with extinction worldwide, including over 4,600 species in the United States alone. This astounding figure was announced to the world on April 8th at simultaneous news conferences in Washington, London, Edinburgh, Sydney, and Cape Town with the publication of the 1997 IUCN Red List of Threatened Plants. The Department of Botany at NMNH has a long history of involvement with the Red List, primarily through the efforts of Jane Villa-Lobos who was one of the original compilers of the plant data from Latin America. Jane deserves much credit for the publication of this work as do the curators in the department who contributed their expertise on various plant groups.

The Red List is important for several reasons, it: 1) is the first comprehensive assessment of threatened plant species worldwide; 2) provides a scientific wake-up call on the status of this significant plant extinction event that is occurring in our lifetime; 3) is the result of a unique coalition of scientists and conservationists working together; and 4) could not have been accomplished without the extensive plant collections housed at museums, botanical gardens and universities.

The interaction between government scientific institutions like the Smithsonian and environmental agencies like the IUCN Species Survival Commission and The Nature Conservancy are essential for conserving the world's biota. The results of the IUCN Red List have made it very clear that such collaborations between research scientists at museums and conservationists at NGO's will be more important as time goes on. The knowledge and information about plant diversity embodied in our scientific collections provide the foundation upon which rational plans for conserving biodiversity can be formulated. With the publication of the IUCN Red List of Threatened Plants we now have a clear picture of the magnitude of this national and global biodiversity crisis.

One of the questions repeatedly asked during the news conference was "How do we know what species should be put on the Red List?" The answer is the basic scientific data needed for this assessment has been obtained through the critical study of collections by taxonomists and field botanists around the world. The 4.5 million plant collections housed at the Smithsonian's National Museum of Natural History, when coupled with the specimens at our collaborating institutions such as the New York Botanical Garden, the Royal Botanic Gardens at Kew and Edinburgh, and the National Botanical Institute in South Africa, comprise an invaluable reference library of nearly 20 million plant specimens.

For the reporters and others who were at the news conference and unaware of our extensive specimen holdings, I provided several "real world" examples:

"Here in Washington we are in the middle of our annual Cherry Blossom Festival. Yet few of us realize that 14% of the species in the cherry family are threatened with extinction. We know this because we can monitor the wild status of these plants using our collections." I then showed a species of *Rubus* (*R. pernagaeus* Fernald) that is nearly extinct in its native state of Virginia, the only state where it is found.

"Palm Sunday has just been celebrated this past weekend; nearly 29% of the species in the palm family are threatened with extinction in their native habitats, both here in the United States as well as worldwide. A species of *Pritchardia* palm," which I demonstrated with a collection of *P. affinis* Becc. from our herbarium, "is now nearly extinct in its native habitats in Hawaii. Although fewer than 65 living plants remain on the Big Island of Hawaii, we still have the opportunity to save this species from extinction. Our collections in the Museum allow us to track the history of decline of such threatened species."

"Flowers of the iris family are one of the most highly prized components of our spring and summer gardens in the United States and Europe. Through our survey of collections at the Natural History Museum as well as other museums and botanical gardens, we now know that nearly 32% of the species in the iris family are seriously threatened." The isotype of *Romulea sulphurea* Bég. collected in 1897 in South Africa served as a perfect example of a species now known to be extinct. "Nearly all of the information we have about this plant is contained in this specimen in our collections here at the Smithsonian."

Finally, I ended with a good medicinal example. St. John's wort, *Hypericum perforatum* L., a time-honored herbal remedy for treating depression, is now one of the most popular medicinals available on the market. St. John's wort is by no means threatened with extinction. However, *Hypericum crenulatum* Boiss. is a threatened close relative from Asia. Its medicinal potential is unknown. Through the use of our collections we can identify such important species for testing as medicines.

The 1997 Red List is obviously a conservative estimate of the number of endangered plant species on the planet. For those countries where the flora is well known the percent threatened is high (for example, the United States with 29% of the total flora threatened.) However, where the flora is still largely unknown and the rate of habitat destruction high, the percent of threatened species is grossly underestimated (for example, Ecuador with only 4.3% threatened and Colombia with a mere 1.4% threatened.) If we are to refine our estimates to reflect the true threatened status of plants on the planet, we must continue to build, maintain and enhance our botanical collections as a vital reference library of our knowledge of the natural world.

Chair

With

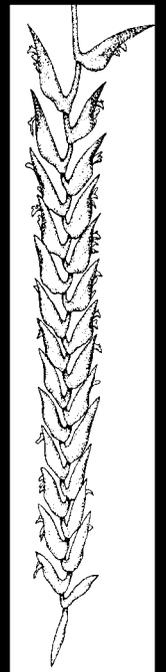
A

View

—

W.

John
Kress



Staff Research

In January **Pedro Acevedo** traveled to Puerto Rico to collect specimens and data on vines for his work on an illustrated field guide to the vines of Puerto Rico and the Virgin Islands. While there, he clarified various taxonomic problems in asclepiadaceous vines and recollected *Marsdenia elliptica* with the help of Frank Axelrod (UPRRP). The species was known from only two collections, and was thought to be extinct for more than 100 years. In February, Acevedo visited Venezuela to join an expedition by Gerardo Aymard (PORT) and Paul E. Berry (WIS) to the Maroa-Yaviata region in the state of Amazonas, resulting in abundant collections.

Bob Faden continued work at the Royal Botanic Gardens, Kew on Commelinaceae for the *Flora of Tropical East Africa* and *Flora Zambesiaca*, on February 11-March 12. Tanzania alone has about 100 of the world's 650 species of Commelinaceae. Faden also made preliminary identifications of ferns collected in Tanzania in 1997 by the head of the Kew ferns section, Bob Johns, who was in Irian Jaya during his visit.

Construction of the new fourth floor of Wing D of the herbarium was still in progress, and a Kew scientist, Keith Ferguson, retired during Faden's visit. There had been essentially no winter in the London area, and *Narcissus* 'February Gold,' for example, actually flowered in February.

On March 18, **Gene Rosenberg**, a research collaborator in the Functional Morphology Laboratory of Mark and

Diane Littler, was guest scientist at the auditorium network site for the Jason Project, an interactive natural history curriculum for middle school students, sponsored by the National Geographic Society and now in its ninth year. For Jason IX, "Oceans of Earth and Beyond," network field sites were linked between a team of diver-scientists in a kelp forest off the Monterey Bay Aquarium in California, and a team diving on a Bermuda coral reef. The two teams of divers could see each other and compare notes in real time, and responded to questions from the students during the telepresence sessions.

Alice Tangerini presented two workshops on botanical illustration to students at Lake Braddock Secondary School (Burke, Virginia) on March 28. The workshops were part of a "Futures Unlimited" conference sponsored by the American Association of University Women, intended to stimulate student interest in math and science, and broaden awareness of careers in scientific and technical fields.

On April 8, the department hosted a press conference to launch the *1997 IUCN Red List of Threatened Plants*. David Brackett (IUCN-Species Survival Commission), Debra Jensen (The Nature Conservancy), Brian Boom (New York Botanical Garden), and **John Kress** informed the media on the importance of plants, their threatened status and the need for plant conservation action. (See pages 1, 3).

John Kress has assumed the position of Executive Director of the Association for Tropical Biology (ATB). ATB was founded in 1963 to promote research and to foster the exchange of ideas among biologists working in tropical environments. The Association publishes the widely distributed journal *Biotropica* and sponsors international symposia on diverse tropical issues. This year's annual meeting

will be held in conjunction with the American Institute of Biological Sciences in Baltimore, Maryland in August. The Smithsonian was instrumental in the founding of the Association during the 1960s and several Smithsonian scientists have held the position of Executive Director in the past, including Donald Duckworth and Thomas Soderstrom. Kress takes the leadership reins from the most recent Executive Director, Julie Denslow from Louisiana State University.

Stanwyn Shetler and **Sylvia (Stone) Orli** have developed a World Wide Web site for the Flora of the Washington-Baltimore Area, which is expected to go public shortly. The site contains: (1) information about the D.C. Herbarium and Stan's Checklist Project; (2) a bibliography with three categories of references, including popular wildflower guides; (3) spring flowering records; (4) a seasonal wildflower gallery of selected color photos; (5) data on the project staff, with photos and brief biographies; and (6) other useful links. The spring flowering records include searchable cumulative lists of the first-blooming dates recorded both for native/naturalized and cultivated plants from 1970 to 1997, and a simplified list of 100 common spring wildflowers. It is hoped that the finished parts of the checklist draft can soon be posted in searchable format and eventually the whole computerized D.C. Herbarium inventory will be made available on line.

The 7th annual Minorities in Science and Technology (MIST) career fair was held April 27-29 at the George Washington University Marvin Center. Over 1,500 high school students learned about career options in the Sciences. Representing Botany were **Sylvia (Stone) Orli**, **Nora Gallagher**, and **Victoria Batista**.

Mellon Foundation Fellowship Recipients Announced

George R. Proctor (SJ) and James D. Ackerman (UPRRP), sponsored by **Pedro Acevedo**, are the recipients of the SI-Mellon Fellowships for 1998-1999. Proctor will visit for a year beginning June 1, and will be working on a treat-

ment of the monocots (except orchids) of Puerto Rico. **Paul Peterson** and **Mark Strong** will be providing treatments for certain groups. Along with Proctor will come project collaborators José Cedeño (UPR) and Patrick Lewis (IJ). Ackerman

will spend 2 months, starting in June, working on Orchidaceae of the Greater Antilles. His graduate student Carlos Trejo will be here April 15-mid June to investigate the biogeography of the Caribbean region.

On the Botany Web

New Algae and Lichens Sites Added

In February and March, the Botany Department premiered two World Wide Web sites, on algae and lichens. Both are accessible from the department's home page (<http://www.nmnh.si.edu/departments/botany.html>). The new Web sites represent significant advances in the department's efforts to make information from the Smithsonian's plant collections and databases available to users around the world.

The algae site is located at <http://www.nmnh.si.edu/botany/projects/algae>. The Smithsonian holds one of the largest collections of algae in the world, including over 183,000 pressed specimens, and 61,600 specimens on microscope slides, in boxes, or preserved in liquid. The collection includes algae from marine, estuarine, freshwater, terrestrial (including caves), and airborne habitats, with principal holdings of green, brown and red marine macroalgae, diatoms and cyanobacteria. The collection has a strong representation from the Gulf of California, Pacific Mexico, southern and central California and the Channel Islands, the Galapagos Islands, Aldabra Atoll, and the Caribbean (especially Florida, Belize, the Bahamas, and Panama).

The algae Web site currently allows searches and data retrieval for brown algae (Phaeophyta) in the Type Collection. Efforts are underway to expand direct access to all of the algal type holdings. Data for the main collection (including the complete Type Database)

can be obtained from in-house staff. Research interest profiles and regularly updated lists of publications (including many abstracts) by the staff are included.

Basic information is also provided on the different algal groups, their economic uses, collecting and preserving algae, references for published marine floras, and hypertext links to other algal sites on the World Wide Web. The new Web site was developed by **Robert Sims** and other botany staff. Comments and suggestions may be sent to Sims or **James Norris** (sims.robert@nmnh.si.edu -or- norris.james@nmnh.si.edu).

The new lichen Web site (<http://www.nmnh.si.edu/botany/projects/lichens>) provides an introduction to the lichen collection and associated research at the U.S. National Herbarium. The lichen collection, estimated at 250,000 specimens, is the largest in North America and one of the ten largest in the world. The collection is worldwide in coverage, and especially rich in North America, emphasizing Parmeliaceae and Cladoniaceae.

The site was designed to provide electronic access to databases, keys, descriptions, maps and illustrations that will be produced in a five year NSF PEET project "Monographic Studies in the Cladoniaceae" centered at the Smithsonian. Currently, the site provides abstracts and descriptions of this and related projects, a biographical sketch and selected bibliography for **Paula DePriest**, and links to the Web sites of other

Botany Web site address

<http://www.nmnh.si.edu/departments/botany.html>.

To visit the algae site

<http://www.nmnh.si.edu/botany/projects/algae>

To visit the lichens site

<http://www.nmnh.si.edu/botany/projects/lichens>

researchers. A link to a sister site maintained by Samuel Hammer at Boston University will be added.

Currently, there are links to a number of existing electronic databases, including the type specimen register and type holdings from Bouly de Lesdain's *Lichens du Mexique* (1922). A database of species epithets in the parmelioid genera will be added in the near future. The site also provides links to checklists and keystolichens of the Guianas produced by Harrie Sipman (B) that reside on the Biological Diversity of the Guianas Program Web site (<http://www.nmnh.si.edu/biodiversity/bdg.htm>). The page "What is a Lichen?" answers basic questions about lichens. The Web site was designed by **Ellen Farr** from materials provided by DePriest. Comments are welcome; contact depriest.paula@nmnh.si.edu.

First Cuatrecasas Lecturer Chosen

The first Annual José Cuatrecasas Lecture will be given by James Luteyn of the New York Botanical Garden on June 25th at the National Museum of Natural History. Luteyn is an internationally recognized authority on the flora of the paramo regions of South America, a topic that was also the specialty of the late Cuatrecasas. The paramos are the subject of a soon to be published book by Luteyn which will include the original black and white photos of the region taken by Cuatrecasas during his extensive travels in

the Andes. The title of Luteyn's presentation will be "Paramos: Plant Diversity at the Top of the Andes." This lecture is sponsored by the José Cuatrecasas Botanical Fund, an international endowment honoring the lifelong work of José Cuatrecasas whose research, especially in the Asteraceae, was devoted to the classification, biogeography, exploration, and ecology of plants of the paramo and subparamo regions of Andean South America. The lecture is open to the public.

This Month in Botany

May 12

Mark A. Treece, Geophysical Laboratory, Carnegie Institution of Washington: "Preservation of Organic Matter in Herbarium Specimens"

May 18

Robert A. Raguso, Department of Ecology and Evolutionary Biology, University of Arizona: "The Evolution of Floral Scent and Hawkmoth Pollination in the Onagraceae"
Both will be held in the Waldo Schmitt Room (W218B), NMNH at 2 p.m.

Publications

Acevedo-Rdgz., P. 1996. The Flora of St. John, U.S. Virgin Islands. *Mem. New York Bot. Gard.* 78: 1-581.

Acevedo-Rdgz., P. 1997. Novelty in Neotropical Sapindaceae I. *Biollania* ed. esp. 6: 143-151.

Acevedo-Rdgz., P. 1997. *Melicoccus jimenezii* (Sapindaceae), una nueva combinacion basada en *Talisia jimenezii*, especie endemica de la Republica Dominicana. *Moscoso* 9: 59-61.

Acevedo-Rdgz., P. 1997. Two new species of *Serjania* sect. *Serjania* (Sapindaceae). *Brittonia* 48: 498-502.

DeFilipps, R. A. 1998. Historical connections between the discovery of Brazil and the neotropical brazilwood, *Caesalpinia echinata* Lam. *Archives of Natural History* 25(1): 103-108.

DeFilipps, R.A. 1998. A house divided (Letter). *Plant Talk* 13: 6.

Dorr, L. J. 1997. Jean Prosper Abraham (1 January 1930-May 1996), Madagascar. *AETFAT Bulletin* 44: 38.

Dorr, L. J. 1998. Review of: *Guide to the National Anthropological Archives, Smithsonian Institution* (rev. & enlarged) by J. R. Glenn. *Taxon* 47(1): 209.

Dorr, L. J. 1998. Review of: *Kalanchoe (Crassulacées) de Madagascar and Plantes médicinales de Madagascar* by P. Boiteau & L. Allorge-Boiteau. *Taxon* 47(1): 231-233.

Dorr, L. J. 1988. Review of: *Retracing Major Stephen H. Long's 1820 Expedition: The Itinerary and Botany* by G. J. Goodman & C. A. Lawson. *Plant Science Bull.* 44(1): 23-24.

Ferrucci, M. S. and **P. Acevedo-Rdgz.** 1997. New and noteworthy species in the Paullinieae tribe (Sapindaceae). *Brittonia* 48: 441-448.

Pruski, J. F. 1997. Review of: The Genus *Jungia* L. fil. (Compositae-

Art by Alice Tangerini

This habit drawing of *Xenophyllum staffordiae* (Sandwith) V.A. Funk, a member of the Asteraceae has only been found in its type locality in Peru and a possible second collector in Bolivia at altitude above 4,000 m. The species was named for Doris Stafford who collected it in 1937 in San Antonio de Esquilache, Peru (near Puno). In 1997, it was moved from the genus *Werneria* to *Xenophyllum* (i.e. "strange leaves") by Vicki Funk (*Novon* 7: 235-241). The drawing will be part of Funk's monograph of the genus

Mutisieae) by Gunnar Harling. *Con News.* 31: 27-28.

Pruski, J.F. 1997. Proposal to conserve the name *Acanthospermum* against *Centrospermum* (Compositae: Heliantheae). *Taxon* 46: 805-806.

Pruski, J. F. and H. Robinson. 1997. Review of: *Cassini on Compositae. Cassini on Compositae III* by R. M. P. C. Janaske, and D. B. Lellinger. *Con News.* 31: 24-26.

Pruski, J.F. and S.F. Smith. 1997. *Tapeinostemon sessiliflorum* (Gentianaceae), a new combination Guayana endemic. *Brittonia* 49: 34

Aaron Goldberg was the first to correctly interpret a type specimen of *Izabala excelsa* Lundell (presumed Nyctaginiaceae) as actually being a member of Opiliaceae, resulting in the new name *Agonandra goldbergiana* Hiepko, *Willdenowia* 27: 225 (1997).

