

PLANTS & PEOPLE

A biannual newsletter published by and for the members of the Society for Economic Botany

Volume 14

Spring 2000

In This Issue:

Notes from the Field	2
Jobs	2
Publications	2
Awards	3
SEB Business	3
Past Presidents	4
Ethics	5
Ethnobotanews	6
Meetings	7
Committee Reports	8
Summer Classes	10
In The Classroom	10
Cross-Pollination	11
Botanizing the Web	12
Grazing in the Field	14
Academics	14



SEB 2000 Annual Meeting

The 2000 SEB meetings will be held June 20-25 at the University of South Carolina, Columbia, SC. Registration and call for papers will be mailed to each member, and may additionally be accessed on the SEB web site. For more details and updated information on the meetings, as well as links to the field trip locations, visit the homepage of the USC Department of Anthropology at www.cla.sc.edu/ANTH/index.htm

The pre-registration deadline is Friday, May 5. Registration will begin on Tuesday, June 20 (dormitories open Monday, June 19). There will be a half-day field trip on Tuesday, June 20, from 12:30-5:30 pm to visit a cypress swamp (during the Council meeting), followed by an Opening Reception from 6:00-8:00 pm. The papers will be presented on Wednesday through Friday, June 21-23. There will be optional roundtable luncheon discussion groups by sign-up on these days. We plan a Student Soiree on Wednesday evening, from 6:00-7:30 pm, a barbeque on Thursday evening from 7:15-9:00 pm, and the banquet with distinguished economic botanist (DEB) speaker James Duke on Friday evening from 7:00-9:30 pm. Also, there will be plant craft demonstrations open to all on Thursday afternoon from 4:30-6:30 pm, and from 4:15-7:00 pm there will be an Ethnobotany Methods Workshop for students only. The conference will be followed by two field trips, including a one-day trip on Saturday to visit local sites of botanical interest (7:30 am - 5:30 pm). There will be a two-day

field trip on Saturday (leave 7:30 am) through Sunday (return 5:30 pm) to visit the Low Country, including a tea plantation (tentative), a giant live oak tree, a beach, an 18th century landscaped plantation, and a swamp. The two-day tour will spend the evening and night on Saturday in the heart of downtown Historic Charleston! Dormitories must be vacated on Monday, June 26.

Contact the local arrangements chair, Gail E. Wagner, Department of Anthropology, University of South Carolina, Columbia, SC 29208; Phone: 803-777-6548; Fax: 803-777-0259; Email: gail.wagner@sc.edu

Upcoming Field Trips—Special Events

The field trips planned for after the SEB 2000 meetings are something special and we encourage you to sign up. The one-day trip on Saturday, June 24, which will be led by two South Carolina botanists (Bert Pittman and John Nelson), will visit several types of plant communities, including a sandhills pine forest, a white cedar pond, and a Carolina bay. Plan to get down and dirty on this trip by wading into the bay.

The Low Country trip will showcase all that is "the South". Participants will visit the only tea plantation in the United States (tentative), stop for lunch at a famous, large live oak tree, and spend the afternoon at the beach viewing vegetation and going for a swim. The

Continued on page 3

**Friday Evening Banquet with
DEB JAMES DUKE**

Plants & People

The Newsletter of
The Society
for
Economic Botany

Website:
www.econbot.org

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The articles within the Newsletter are independently submitted and do not represent the position of The Society for Economic Botany as a whole.

Deadlines for submissions are February 1 (Spring Issue) and September 1 (Fall Issue).

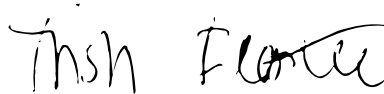
Notes from the Field

Dear Members,

We continue to expand the Newsletter with your input. There are a few new things for you. The new ethics column is great so write back your experiences. Then in response to my request in the last issue, Kurt Reynertson is writing a new column about primary fieldwork of students. Also Charles Heiser has written a piece on naranjillos in the Past-Presidents column. Finally, the website and ListSers are very active and I would like to know what types of things you prefer in the Newsletter versus the Internet.

But the most important issue in this volume is the SEB annual meeting. Gail Wagner has worked hard to provide detailed information and easy on-line registration for the 2000 meeting. So read carefully, and sign up now for South Carolina in June.

Trish



Job

Wanted: Researcher/writer with advanced training in nutrition, pharmacy, nursing or other health-related field and interest in herbal medicines/phytochemicals. Full-time position with alternative/complementary medicine center available immediately. Send writing sample and resume to Block Medical Center, Attn. Dr. Gyllenhaal, 1800 Sherman, Suite 515, Evanston IL 60201

Publications

Here are some listings that I have received, but have not seen all the books. If you get copies please let us know by sending a short review.—Trish Flaster, Ed

Native Plant Journal

This may be of interest to you: A new journal, first year subscription is free. <http://www.its.uidaho.edu/nativeplants/native-plants@envirolink.org>

Ethnoecology: Knowledge, Resources and Rights. 1999. Gragson, Ted L.; Blount, Ben G. (eds). Athens: University of Georgia Press. ISBN 0-8203-2128-1.

Traditional Medicine among the Ngaju Dayak in Central Kalimantan: The 1935 Writings of a Former Ngaju Dayak Priest. 1998. Klokke, A.H. (ed). Borneo Research Council Monograph Series, Vol. 3. Phillips, ME: Borneo Research Council, Inc. ISBN 0-9629568-7-2.

Growing 101 Herbs That Heal, Tammi Hartung, 2000, Storey Books, ISBN 1-58017-215-6, \$24.95. This book is a great tool for the gardener, farmer, budding herbalist, or home healthcare provider. It has charts and discussions on garden designs as well as how-to's on planting, propagation, natural elimination of garden pests, and medicine preparation. The medicinal plant section includes plant form, description, habit, companion plants, harvesting, market potential, medicinal use, part used, and medicinal preparation. Anyone can pick it up and absorb its useful information.

CALL FOR SEB HISTORY AND ACADEMIC FAMILY TREES

Please help! We want to construct academic family trees at the 2000 SEB meetings. If you know some connections or history, or have old photographs (or stories) to share, please contact Felix Coe, Dept. of Biology Box 5063, Tennessee Tech University, Cookeville, TN 38505, USA. Phone: 615/372-3134; Fax: 615/372-6257; Email: fgc9930@tntech.edu

SEB 2000 Field Trips

—continued from page 1

evening and night will be spent in Historic Charleston where participants can choose their own activities: stroll the Market and talk with sweetgrass basketmakers, take a carriage ride, visit Waterfront Park, sign on for a walking tour on ghosts, bars, or back alleys, or just stroll through town. The tour will spend Sunday morning at historic Middleton Place, famous for its landscaped grounds and as the site of introduction of several ornamentals. See how indigo dye is made and enjoy a delicious lunch. During the afternoon the participants will visit a cypress swamp. Be sure to bring your camera and sunscreen for this trip.

Awards

BSA Student Poster Award

The last outstanding student contribution awarded by the Botanical Society of America, Economic Botany section, in the XVI International Botanical Congress at St. Louis was entitled: "NON-TIMBER FOREST PLANT RESOURCE (NTFP) ASSESSMENT IN A MATURE FOREST OF AMAZONIAN ECUADOR".

Manuel J. Macia, Real Jardin Botanico, Plaza de Murillo, 2, E-28014 Madrid, SPAIN

\$500,000 Grant Funds Research/Recovery Plans for New England's Rarest Plants

The New England Wild Flower Society (NEWFS) has recently received a five-year, \$500,000 grant from an anonymous foundation to write Research and Recovery Plans for 100 of New England's rarest plants. This is one of the largest grants ever given for plant conservation in the U.S. and it is the first grant to develop conservation plans specifically for this region's rarest plant species.

Bill Brumback, Conservation Director of NEWFS, explained, "The purpose of the grant is to keep the our rare plant disappearing—to keep natural heritage of Each plan will be ten for plant spe- Endangered Spe- include a descrip- status, distribu- the plant in North America and New England; the species biology; the current and historical status of each of the New England occurrences including background on each occurrence; the goals for the plant in New England; and the conservation actions to be taken. Once the Plans have been developed, they will be reviewed by NEPCoP's Regional Advisory Council and State Task Forces before implementation.

By design, none of the Research and Recovery plans are for plants on the Federal Endangered Species List that requires plans as part of the listing process.

They have graciously offered to share some slides of these plants. Contact: Barbara Pryor, Public Information Director; Email: pryor@newfs.org Phone: 508/877-7630, ext. 3501; <http://www.newfs.org>

Plans include description of plants in New England

most vulnerable of cies from disap- them as part of the New England. similar to plans writings on the Federal cies List. They will tion of the general tion, and range of

SEB Business

In the Mail

By now, you should have received the recent President's letter, abstract forms, the ballots, and bio-sketches of people running for office. Please return those as soon as possible or notify us if you have not received them.

—Trish Flaster, Ed
Email: tflaster@rmi.net

All registration information is at your fingertips to sign up for the annual meetings in Columbia South Carolina, June 19-23. Look on our webpage, www.econbot.org

Call for Papers

The call for papers and registration materials for the SEB 2000 meetings are about to go out and the registration information will be posted on the SEB web page at www.econbot.org

This year for the first time we have the possibility of on-line submittal of abstracts and registration. However, we ask that those of you who can easily pay by check do so, rather than use a credit card (since the Society pays a fee for each credit card use).

Pre-registration and abstract deadlines are MAY 5. For those of you making plane reservations: Dormitories will be available starting Monday, June 19; Tuesday there is a half-day field trip to a swamp from 12:30-5:30, Council Meeting from 11:30-5:30, and a welcome reception from 6:00-8:00 pm; Papers are Wednesday-Friday; Wednesday evening a Student Soiree; Thursday afternoon are craft demonstrations and the Ethnobotany Methods Workshop (for students only); Thursday evening the barbeque; Friday evening the banquet with featured DEB speaker James Duke. One-day field trip on Saturday 7:30am-5:30pm to botanical locations. Two-day field trip on Saturday 7:30 am to Sunday 5:30 pm to Charleston and the Low Country. Monday, June 26 the dormitory must be vacated.

Pre-registration/Abstract
Deadline is May 5

Roundtable Luncheon Discussions

Last year we met for topical discussions at lunch, and it was a huge success. This year you can sign up to buy a box lunch on those days you want to join such a discussion group. We have set up a discussion on education on Wednesday, June 21 (led by Brad Bennett) and on one ethics on Thursday, June 22.

This is a call for other roundtable topics and leaders: Please notify me at gail.wagner@sc.edu (not the ListServ) to lead a discussion (Wed - Fri only). Likewise, please notify me if you would like to discuss a particular topic, but don't want to lead it.

Gail E. Wagner
Past President and Local Arrangements
Chair, gail.wagner@sc.edu

Past Presidents

The naranjilla *Solanum quitoense* and relatives after 38 years,
by Charles Heiser

When the editor wrote me requesting a contribution for the newsletter, I was working on a paper on the naranjilla *Solanum quitoense* for the Fifth International Solanaceae Conference (to be held in the Netherlands, July 23-29, 2000). It was my favorite plant of the moment and I wondered if it might serve as a subject. Would it be possible for me to come up with anything new on the naranjilla? I can hear some readers saying that has never stopped Heiser from writing anything before. Well, I shall try to come up with a few new things, but more than that I shall try to point out some questions that remain unanswered after 38 years of intermittent study of the subject. I first tasted the juice of the naranjilla when I went to Ecuador on a sabbatical leave in 1962. After getting my family and me settled in a hotel, Dr. Jorge Soria, a former student of mine, took us to the Hotel Quito to sample jugo de naranjilla. The hotel had a potted plant of the naranjilla growing in the lobby as something typical of the country or perhaps because of its striking appearance. Quito is far too high for the normal growth of the plant. I was not surprised at the green color of the juice nor its delightful flavor, for I had read about them before. Not long after sampling the naranjilla I had my first tastes of the tree tomato (*S. betaceum*) and the pepino (*S. muricatum*). I think they both have very fine fruits but I don't think that either is the equal of the naranjilla. Yet, today both the tree tomato, often called tamarillo, and the pepino may be seen in the markets in the United States as well as in Europe and Japan. We owe their presence here to the New Zealanders who recognized their potential and developed these South American plants as export crops. On occasion in recent years I have also seen fruits imported here from Andean countries. When the Spanish arrived in the Americas, the naranjilla apparently was confined to the northern Andes where it remained until about 50 years ago when it became established and accepted in Panama and Costa Rica. In the 1960's it was introduced into Guatemala by the Campbell Soup Company, which hoped to develop a mixed fruit

drink similar to their V-8 for vegetables. The project was abandoned in 1972, but the plants remained. Some years ago I heard that the fruit was not well accepted by the Guatemalans but I have no recent information on the subject. Certainly the naranjilla has been tried in many other countries. I have sent seeds to many places in the last 30 years but I have had no reports on its success or failure in any of them. If the naranjilla is as superior as I have claimed why hasn't it become available in the United States? A number of factors are involved, and I am not sure that I know all of them. For one thing, the naranjilla has rather strict requirements as to rainfall, temperature, and

soil. It is not particularly variable for a domesticated plant, much less variable than the pepino, for example. Very important also is that it is subject to a large number of pests and diseases. Probably the most serious is root knot nematode to which it is most susceptible. As a result of nematodes this perennial is now grown as an annual crop in some places. Today the countries where the naranjilla is grown can hardly produce enough to meet their own demand. The most recent development in the naranjilla story is the breeding of root knot nematode resistant plants. Thirty years ago I discovered that all of my plants of the naranjilla and related species growing in the greenhouse were infected with nematodes with the exception of *S. hirtum* (or huevo de gato). Fortunately this wild species could readily be crossed with the naranjilla and gave partially fertile hybrids. In 1984, I sent seeds of various hybrids to Mario Lobo of Colombia and he and other plant breeders at the Corporacion Colombiana de Investigación Agropecuaria worked to incorporate nematode resistance into the lulo (as the naranjilla is usually called in Colombia). In 1998, a nematode resistant variety was released. In Colombia great things are expected of lulo la selva, as it is called. The lulo is a good cash crop and there is even hope that some farmers now growing illicit crops will switch to the lulo. Will the increase in production also mean that I can have naranjilla juice with my breakfast before too many more years?

Continued on page 5



Congratulations

Walter H. Lewis has been awarded a BurroughsWellcome Trust grant for \$400,000 (direct costs) as part of its New Initiatives in Malaria Research. The grant began July 1999...for 4 years. He said of the grant, "I was very surprised to get it, for mostly grants go strictly to medical/molecular genetics types of research. Only 2 awards were fully funded as I understand it."

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Ethics

by Charlotte Gyllenhaal

The Society for Economic Botany Ethics Committee decided at the Annual Meeting in August 1999 to institute an ethics column for discussion of the many controversial ethics issues in ethnobotany and economic botany today. The ethics column will be edited by the members of the Committee in rotation, so that a variety of different views and concerns can be addressed. All columns will be made in response to a

question submitted either by a Society member or student, or by a Committee member, and all will consist of responses from more than one scientist concerned with the question. We feel that there is no "right" answer for many of the ethical questions with which we concern ourselves today, and that for many of the others, there may be a right answer, but we have not as a community come to an understanding of what it

might be, so the representation of many views in response to these questions is important. We hope that the publication of these questions and answers will stimulate debate among Society members, and we invite members to submit more questions to the column in the future. We will also consider for publication responses to questions already posed that represent views not already stated.

Continued on page 8

Past Presidents *Continued from page 4*

The naranjilla belongs to the section *Lasiocarpa* of *Solanum*. In the monograph of the section by Michael Whalen et al. (1981) 13 species were recognized. As I interpret the section today there are only 11 species, 10 native to tropical America and one to Asia. At

known, which is almost certainly the ancestor of the domesticate. It, of course, has much smaller fruits and usually the leaves and stems are prickly. Hybrids are known between the naranjilla and the cocona.

In 1982, when I attended a conference on the naranjilla in Ecuador, Saul Camacho took me to the INIAP experimental station near Baeza to see their plants. He was particularly interested in showing me one plant and asked me if I knew what it was. I had never seen anything like it before but it looked like it combined some of the features of the naranjilla and the cocona. Indeed, it was the hybrid. I was surprised because for many years I had tried to make this hybrid in the greenhouse without success. I was even more surprised when I learned that the hybrid had been made by a campesino, Raul Viteri. Although the hybrid had the disadvantage of having smaller fruit than the naranjilla (Viteri had used the wild cocona as one parent), it resisted nematodes and other plagues better than the naranjilla, perhaps because of hybrid vigor. The Puyo hybrid, as it became known as, was propagated vegetatively and Viteri sold cuttings of it. When I returned to Indiana I renewed my attempts to secure the hybrid between the two species, but still without success.

My next trip to Ecuador in 1988, I found large naranjillas in the markets but when they were opened I found that all of the seeds were flat. This was rather puzzling but a little detective work by Soria and me soon provided an answer. We learned that a few years earlier at Palora, weeds had been sprayed with 2-4,D. Some of the spray

had drifted onto a planting of the flowering Puyo hybrids growing nearby which resulted in fruits much larger than normal. Since that time hybrids in flower have been deliberately sprayed with dilute solutions of 2-4,D to increase the fruit size, although some people in Ecuador are opposed to the practice. On my return to Indiana I again attempted to make hybrids between the species. This time I used only very large fruited coconas for the one parent, for I was hoping to secure a larger fruited hybrid that would make it unnecessary to spray the hybrids with 2-4,D. This time, again after many pollinations, I was rewarded with two partially filled seeds and these were grown on a nutrient agar supplied by Carlos O. Miller (Heiser, 1993). The hybrid plants indeed did bear large fruits, larger than those of the naranjilla, in fact. They also differed from the Puyo hybrid by giving orange rather than green juice. When Soria visited Indiana a couple years later he carried cuttings to Ecuador on his return. These were introduced in the INIAP experimental station at Palora and came to be known as the Palora hybrid. Although the color of the juice has been a slight handicap in the adoption of the plant, the Palora hybrid has several other advantages (Heiser and Anderson, 1999) in addition to the much larger fruit. It is now widely grown in Ecuador and has spread into southern Colombia. Currently it is estimated that over 60 percent of the naranjilla produced in Ecuador is from the Palora hybrids. As of this writing lulo la selva has not been introduced into Ecuador.

(to be continued in future issues)

**Student - Past President
Soiree Wednesday
6:00 pm to 7:30 pm**

one time I thought I knew how and approximately when the ancestor of the Asiatic species arrived from the Americas. I now think I was wrong and as yet I have no other hypothesis to offer. Several other members of the section, both domesticated and wild, are used for food. Some of them may deserve greater use and are worthy of inclusion here. The cocona or tupiru, as it is usually known in Spanish speaking countries, or cubiu in Brazil (*S. sessiliflorum*) is a lowland species cultivated in the upper Amazon basin for its fruit, used both for juices and as a vegetable. As most of my fieldwork has been done in the highlands I am not as well acquainted with this species as I am with the previous one, but I know it has a fine juice. It may be even more widely cultivated and used by more people than is the naranjilla. This species is much more variable than the naranjilla, particularly in the size, shape, and color of the fruit. A wild variety is

Ethnobotanews

There have been several times that members have been attacked by RAFI's flagrant and often unfounded statements. Here is another case of which I have included only a short excerpt. And the rebuttal from Drs. Berlin—Please follow through on your own accord to keep this group aware of the truth.
—Trish Flaster, Ed.

<http://www.rafi.ca/>
2/1/1999 News Releases
Biopiracy Project in Chiapas, Mexico
Denounced by Mayan Indigenous Groups
University of Georgia Refuses to Halt Project

Eleven indigenous peoples' organizations are demanding that a US\$2.5 million, US-government funded bio-prospecting program suspend its activities in Chiapas, Mexico. Despite the protest by local Mayan organizations, the University of Georgia (US) says it will not halt the five-year project, which aims to collect and evaluate thousands of plants and microorganisms used in traditional medicine by Mayan communities.

Collectively known as the Council of Indigenous Traditional Midwives and Healers of Chiapas (Consejo Estatal de Parteras y Medicos Indigenas Tradicionales de Chiapas), the 11 Mayan organizations are denouncing the bio-prospecting project, and they are asking other indigenous people in Chiapas to refuse to cooperate with the researchers. The project is led by the University of Georgia, in cooperation with a Mexican university research center, El Colegio de la Frontera Sur (ECOSUR), and Molecular Nature Ltd., a biotechnology firm based in Wales, U.K. For more information contact:

Consejo Estatal de Parteras y Medicos Indigenas Tradicionales de Chiapas, at OMIECH:

Sebastien Luna, Rafael Alarcon, Antonio Perez Mendez, Margarito Ruiz, Isidro Lopez Rodriguez. Phone/fax: +52-67-8 54 38 (from Mexico 01-967-8 54 38) omiech@laneta.apc.org.
Dr. Alejandro Nadal
Tel + 52-5-4493089

RAFI
International Office
Phone: 1-204-453 52 59
rafi@rafi.org

Responses:

My dad used to chide me, "son, you've learned just enough to become completely misinformed", when I would claim

SIGN UP NOW!

- ⇒ **Low-Country Tour**
Saturday (7:30 am)
through Sunday (5:30 pm)
- ⇒ **Local Botanical Sites Tour**
Saturday (7:30 am to 5:30 pm)

expertise on some topic for which I had inadequate information. That's what RAFI has done in the case of the Maya ICBG. Their report has caused a lot of damage that, with time, we hope can be corrected.

Brent Berlin
Group leader, Maya ICBG

Whose Knowledge? Whose Property? Whose Benefits?

The strange case of OMIECH, RAFI, and the Maya ICBG

Elois Ann Berlin and Brent Berlin
Laboratories of Ethnobiology, Department of Anthropology, University of Georgia, Athens, Georgia And Area de Conservación de la Biodiversidad, El Colegio de la Frontera Sur, San Cristóbal de Las Casas, Chiapas, México
13 December, 1999

On the 1st of December, a posting appeared on the website of Rural Advancement Foundation International (RAFI), a Canadian-based NGO, attacking a research project in which we are engaged in Chiapas, Mexico as "biopiracy". The article, about the Maya International Cooperative Biodiversity Group (Maya ICBG), is filled with inflammatory accusations, untruths, and is a blatant misrepresentation of our motives for conducting the project. A number of individuals have responded to the posting in our defense. Professor Darrell Posey, a

leading scholar and activist in indigenous intellectual property matters wrote to Mr. Pat Mooney, Director of RAFI, that "...given my belief that Dr Berlin is one of the scientists on this planet who is most serious about collaborating with indigenous communities in equitable ways that respect their values and cultures—why has RAFI decided to promote what appears to me to be a smear campaign against him and his project? Is this because you still fundamentally believe that there are no possibilities for equitable and sustainable use of traditional resources? While this may be a valid political and ethical position, it may not be advancing the interests of indigenous and local communities." (Email message from D. Posey to P. Mooney, 8 Dec 1999).

Persons interested in more information about the Maya ICBG can visit website <http://guallart.dac.uga.edu> or contact the authors at eaberlin@arches.uga.edu or obberlin@arches.uga.edu.

Continued on page 7



Ethnobotanews *Continued from page 6*

The "White List" - Threat to Ethnobotanical & Biodiversity Research

Submitted by David Theodoropoulos

How would a complete lock down on new plant germplasm affect your work? You may not have to wait long to find out. The national Invasive Species Council is developing a national management plan dealing with so-called "invasive aliens" to be completed August 2000. At the ISC's inaugural meeting Co-Chair Interior Secretary Bruce Babbitt called for implementation of "white list" legislation in which all species are presumed

invaders", "the scourge that has insidiously ravaged our natural heritage", "like metastatic cancer". Is this the language of science? Of reasoned debate? For well over 10 years we have been subjected to the inflated claims and fevered rhetoric of the anti-"invader" crusaders. The Exotic Pest Plant Councils, funded by the herbicide industry and with their boards of directors frequently compromised by the presence of employees of herbicide manufacturers, and the Natural Areas Association (likewise with a Monsanto employee on its board), are at the

Students!

Join the Student Ethnobotany Network Listserve at

<http://econbot.org/students/network.html>

guilty, and are prohibited entry into the US until proven innocent. Currently, only known weeds and other genuine threats to agriculture and wildlands are prohibited. A sensible approach—centuries of experience have taught us which species are pests. Under the white list, expensive "risk assessment" protocols and safety testing will be required for any species not previously approved. But, all attempts at risk assessment to date have been failures. History should make us fearful of quick-fix solutions to complex problems.

Under the white list, any organism with any potential to naturalize anywhere in the US would be prohibited—a tropical that "might" naturalize in southern Florida would be prohibited for a researcher in Minnesota. Taxonomists will have to pay for sterilization of any herbarium specimens with seed attached; botanic gardens will face another expensive hurdle in their efforts to exchange and safeguard living biodiversity. Immigrants will have no access to traditional vegetables, herbs, and remedies. Medicinal-plants researchers and new-crops researchers will find the available flow of living material reduced to a trickle.

Those who are promoting the white list call naturalized species "silent green

forefront of this media sensationalism.

If voices of reason do not speak out, the language of hysteria will dominate. Decisions on public policy will default to the compromised spokesmen of the herbicide and regulatory industries.

We are aware of how important the free flow of germplasm is to feeding and healing an ever-expanding human population, as well as to biodiversity. Remember how hard it is to repeal bad laws already in place.

Contact the Co-chairs of the ISC: Secretary of the Interior Bruce Babbitt, US Dept. of the Interior, 1849 C. Street NW, Washington, DC 20240; Phone: 202-208-3100; <bruce_babbitt@ios.doi.gov>; Secretary of Agriculture Dan Glickman, USDA, 200A Whitten Bldg., 1400 Independence Ave., SW, Washington, DC 20250; Phone: 202-720-3631; Fax: 202-720-2166; <agsec@usda.gov>; Secretary of Commerce William Daley, US Dept. of Commerce, 14th Street & Constitution Ave. NW, Washington, DC 20500; Phone: 202-482-2000; Fax: 202-482-2741; <WDaley@doc.gov>.

Meetings

III Ethnobiology and Ethnoecology Brazilian Symposium July 16-21, 2000. Piracicaba, Sao Paulo Brasil. For further information: <http://www.sbee.org.br> or Email: iisbee@esalq.usp.br. Contact: Marina Campos: campos_marina@hotmail.com

Ethnobiology, Biocultural Diversity, & Benefits Sharing

7TH INTERNATIONAL CONGRESS OF ETHNOBIOLOGY, 23-27 October 2000 Univ. of Georgia, Athens, Georgia, US <http://guallart.dac.uga.edu/ISE>
CALL FOR SYMPOSIA & PAPERS: Send abstracts (less than 500 words) by email (preferred) to rstepp@uga.edu or by mail to: 7th International University of Georgia 250 Baldwin Hall Athens, GA 30602-1619

Medicinal Plants, Traditional Medicines and Local Communities in Africa: Challenges and Opportunities of the New Millennium, 16-19 May, 2000; Nairobi, Kenya

Submit abstracts, register, make inquiries, to Ernest Rukangira <erukangira@iconnect.co.ke> Environment Liaison Centre International (ELCI), P.O. Box 72461, Nairobi, Kenya Phone. (254-2)562022/576114, Fax: 572175 or Barbara Gemmill at herren@africaX-Mozilla-Status:0009rd Gerry Bodeker at gerry.bodeker@green.oxford.ac.uk; GIFTS of Health Green College, Univ. of Oxford, Oxford OX2 6HG, UK; Phone: (01865)-274770, Fax:01865-274796

NTFP session at ISSNRM Conference 2000.

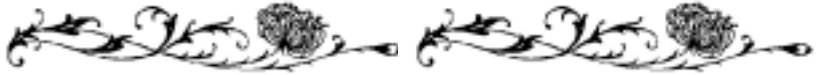
Eighth International Symposium on Society and Natural Resource Management, early summer, 2000, at Western Washington Univ., Bellingham, WA. Call for Papers: Submit to Bob Muth at rmm@forwild.umass.edu or Dick Hansis, Coordinator at rah14@humboldt.edu Environmental Science, Humboldt State University, Arcata, CA 95521, Phone: 707 826-4148, Fax: 707 826-4145

Continued on page14

Barbeque on Thursday 7:15-9:00 pm

Committee Reports

by Gail E. Wagner



Report from the Education Committee

The Education Committee had a busy and productive year. We composed the Society's first attempt at a web page on education. The web page includes links to economic botany, ethnobotany, and related courses on the web; links to sites about education, teaching, and teaching resources (such as digital images); links concerning careers; links to visual databases and related databases; the table of contents of selected textbooks, teaching ideas, and a list of movies/videos; and the text to all previously published in the Classroom columns.

A number of activities at the upcoming 2000 meetings at the University of South Carolina emphasize education and students. Premier among these is the Ethnobotany Methods Workshop free of charge to all students (sorry, it's for students only) on Thursday afternoon from 4:15-7:00 pm and led by Gary Martin (WWF) and David Lentz (New York Botanical Garden).

Ethics *Continued from page 5*

This issue's question was submitted by an ethnobotany student. The editor for this column is Dr. Charlotte Gyllenhaal; correspondence concerning the present question, and questions for future columns, may be submitted to her at gyllenha@uic.edu, or at the following postal address: Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy Room 331, mc877, University of Illinois at Chicago, 833 South Wood Street, Chicago IL 60612-7231.

Ethics question: Publication of Ethnobotanical Research Results

I am a graduate student studying medicinal uses of plants by an indigenous community. In my education, I have learned that ethnobotanists are becoming ever more aware of the implications of the Convention on Biodiversity, and the concepts of Prior Informed Consent for study of traditional knowledge, as well as ideas of intellectual property rights over such knowledge, and sharing of financial rewards and other benefits resulting from study of traditional plant knowledge. One of the issues raised by consideration of the Convention is the question of publication of traditional knowledge of, for instance, medicinal uses of plants. Free and open publication of the results of research has always been considered critical to the development of a scientific field such as ethnobotany – and the ability to put the results of research into the form of a dissertation is critical to the careers of graduate students, such as myself. I appreciate the ideals and requirements of scientific research and know that I need to conform to them if I am to contribute to this field.

On the other hand, I am concerned that if I publish the results of my research on the medicinal uses of plants by the indigenous community I am studying, that knowledge will enter the public domain, and could be used by a pharmaceutical company or governmental body to discover a new drug – which could then be commercialized without making any financial or other return to the community that originated the use of the plant. If I were collecting medicinal use data specifically for a drug company, say, for use in their drug discovery program, I can see that this problem could easily be resolved: I would certainly have a contract with the company that would provide for sharing any profits from discovering the drug with the indigenous community. But that is not going to be the case for graduate students doing their first projects, or for others doing “pure” ethnobotanical research. If I publish my data, my community collaborators will have no way of controlling its use. If I do not publish it, I will not be able to have a scientific career. If no one published their data, ethnobotany as a science would cease to exist.

How can I resolve this dilemma? Is there any way I can protect the data I gather from inappropriate use? How are other scientists dealing with this problem?

The Workshop will focus on how to collect craft information, and will tie in to the concurrent plant craft demonstrations (open to everyone). There will be a Student Soiree on Wednesday evening from 6:00-7:30 at which we hope to mix Past-Presidents and students and stir well. During the conference we would like people to draw their academic family tree, and we plan to provide an occasion to pose for academic family photos! Finally, we will hold at least one roundtable luncheon (available by pre-registration) on education, once again providing an opportunity for any member to provide input about education.

Please feel free to contact any member of the Education Committee: Brad Bennett (chair), Cath Cotton, Elaine Joyal, Gary Martin, Will McClatchey, or Beryl Simpson.

Report from the Ethics Committee

The Ethics Committee posted an Ethics Page on the SEB web site! If you haven't already checked it out, take 10 minutes to browse. It includes the SEB Guidelines of Professional Ethics as well as a brief history of how we arrived at these guidelines. The site invites you to comment on the Guidelines: if you disagree with the Guidelines, let us know! The site also includes links to other codes of ethics and ethical guidelines; organizations, bibliographies, and resources on ethics; and a glossary of terms. In addition, we list short ethical dilemmas suitable for use in teaching, as well as an extensive bibliography on ethics relevant to economic botany.

Continued on page 9

⇒ **Cypress Swamp Tour (half-day)**
Tuesday afternoon 12:30-5:30



Ethics *Continued from page 8*

Response 1:

From Lawrence Kaplan, Ph.D., past Editor, *Economic Botany*

The student has written many laboratory reports, term papers and probably a thesis or two, and may recognize that there are different sorts of scientific papers. For analytical papers, we want to know what the author expects to accomplish, why the work was undertaken in the first place, what kind of information is presented, how it relates to current work reported in the

If I publish my data, my community collaborators will have no way of controlling its use. If I do not publish it, I will not be able to have a scientific career.

literature, and what is to be concluded when the information has been analyzed. It is axiomatic among teachers and ingrained into students that the information presented in analytical papers must be reliably collected and fully reported. In contrast, descriptive ethnobotanical papers report unbiased observations usually in the form of lists of species, their uses in the communities where collected and cross-culturally, their phytochemistry, and the like in order to enter them into the record. These observations, when published become available to readers and scholars and, in ethnobotany, to native peoples present and future.

Ideally, those species, which are thought likely to have useful or interesting biological activity, should be evaluated, and all property rights should be settled before publication. The results should be included in the manuscript. But the likelihood of this being fully accomplished is remote. Consequently, if the ethnobotanist decides that certain species' identities are to be withheld from publication until they are tested and their property rights are resolved; this must be explicitly acknowledged. More important, in addition to acknowledging that data have been withheld, the author may not draw conclusions, statistical or anecdotal, which rely on withheld data.

Don't ask your editor, your readers, or your thesis committee to "just take my word for it." The value of descriptive papers does not lie in their conclusions, but in the complete and accurate report of observations. They are also less likely to be publishable than analytical manuscripts and are weakened by omitting data.

If the ethnobotanist takes an extreme view and believes that none of the species collected should be published until they are biomedically tested and their property rights are settled, it is difficult to see how a timely publication could result. This aspect of the student's dilemma brings up another issue—perhaps not recognized by the fledgling ethnobotanist: The

ethnobotanical knowledge of a particular human population deserves its own respect as knowledge. Scientists respect knowledge by recording and publishing it in a way that makes it available to those who share an interest in it. By so doing, that knowledge also becomes part of the record that will be available to the very population among whom it was gathered and who may very well be in the process of losing it. Given the low probability of finding a new plant remedy with commercial potential, I would suggest that the cultural value of recording their knowledge in the published record is likely to be greater for an indigenous people than is any economic value resulting from the disposition of intellectual property rights.

Response 2:

From Sarah Laird, doctoral student, Department of Anthropology, University College, London

You have hit upon a very important element of ethical and equitable biodiversity research relationships in today's world. Publication of research results is an important way for researchers to communicate with each other, and share their findings with audiences outside their institutions or respective fields of study. However, as you point out, publications (including

databases), are the most common route through which information on traditional knowledge, and medicinal plants, travels to the private sector. Although many of our drugs are based on long histories of traditional use, today's drug development programs – most employing ultra- high throughput screening – rarely involve ethnobotanical collections. A very few companies will use traditional knowledge (gathered through field collections, literature, or from database searches) to guide them in testing, and to determine appropriate models, but many will consult ethnobotanical literature/databases only once activity has been identified. The vast majority of ethnobotanical information used by the private sector comes via academic publications – this creates significant responsibilities for accountability, on-going consultation with local groups, and clear agreement on how recorded information may be disseminated and used.

It is beyond the space we have here to cover the wide range of possible approaches to ethical publication practices, and we refer readers to the upcoming manual described below. A few innovative strategies developed to date include:

- The International Society of Ethnobiology Code of Ethics was ratified in 1998; at the same time, Draft Guidelines for Research, Collections, Databases, and Publications were developed to give special attention to issues associated with ownership over and control of data and field collections, including responsibilities of researchers' connected to publication.
- Use of the Precautionary Principle in ethnobiological research has been advanced by Kelly Bannister and Katherine Barrett (in preparation). They argue that publications present opportunities for uncontrolled appropriation and exploitation of traditional knowledge and resource by third parties, and propose a mechanism that requires all users to seek consent through direct interaction with indigenous communities. Bannister elected to forgo certain types of funding, and to defer publications of phytochemical data on Secwepemc ethnobotany, until community review and approval were in place.

Summer Classes

I have been told that listing courses in the Spring issue is not as helpful as putting this information in the Fall issue. That is a good suggestion and I will try to respond. However, I am listing these few in hopes that someone will send in lists of other classes. In addition, internships are also of interest for gaining experience in the fields of economic botany and ethnobotany. If you have worked as an intern, please send in your experiences to the Newsletter, -Trish, Ed, tflaster@rmi.net

Workshop dates throughout the year are available by request

Rainforest and Marine Biology Workshops

Mike Nolan, Director, rainforest@mail.org
Rainforest and Reef, 29 Prospect NE Suite #8, Grand Rapids, Mich. 49503 USA, Phone/Fax: (616)776-5928/Toll Free: (877)967-7467

Praise for Summer Classes

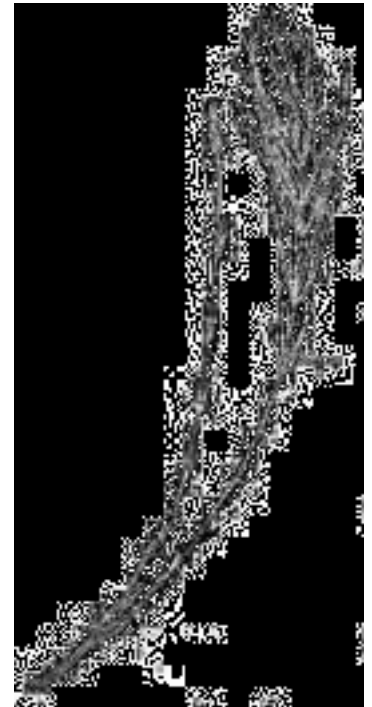
Trish,
I took a wonderful ethnobotany field course last summer in Panama. The professor is Dr. Bradley Bennett from Florida International University. His e-mail is: bennett@fiu.edu. The course is offered through the Institute for Tropical Ecology and Conservation, and their e-mail is: ITEC@earthlink.net> We all LOVED the course! I would be happy to talk with anyone about it who is interested. Maria Fadiman <mfadiman@mail.utexas.edu>

Another class is Dr. Paul Cox's Tropical Ethnobotany Course. This class is held at the National Tropical Botanical Garden in Kauai, Hawaii. I took the class this summer. It is good for people with little background. You learn how to interview (very helpful), collect plants, etc. In addition, you learn a lot about Pacific Ethnobotany, especially Samoan (Dr.

Cox's specialty) and Hawaiian traditional plant uses. The class is pretty good. It is offered in August. To learn more contact omalley@ntbg.org

Belizean Bush Medicine Camp 2000

July 8-16, 2000 Ix Chel Farm, San Ignacio, Belize. Come join Rosita Arvigo and Belizean traditional healers as a camper, ages 10-13, as a counselor, or intern. Contact the Farm for details of this summer program with field trips to iguana and butterfly farms, Mayan ruins, and rainforest and herbal education. Bush Medicine Camp email: ixchel@btl.net, Ixchel Farm, San Ignacio, Cayo, Belize



In The Classroom

By Gail E. Wagner

Don't put off responding to the call for one-page teaching examples! Your one-page hands-on teaching examples or teaching tips for teaching economic botany or ethnobotany are due. We would especially appreciate it in digital form, if possible: send it in the text of an email or as an attachment (tell us what computer language you used). Again, those who contribute will receive a copy at half cost; those who don't will pay full cost to pick up a copy at the meetings. Please send to: Ethnobotany Teaching Tips, Gail E. Wagner, Department of Anthropology, University of South Carolina, Columbia, SC 29208; Email: gail.wagner@sc.edu
Take a look at the last issue to see an example of the type of submission we are seeking.

In the next issue of "In the Classroom", we plan to interview Bill Crone (Hudson Valley Community College, Troy, NY) about teaching economic botany through distance education.

In this issue we feature one of the few summer field schools in ethnobotany offered in the United States. Taught by Enrique Salmon at Fort Lewis College, Durango, Colorado, this one-month field school covers a lot of intellectual and geographic territory.

Field Studies in Ethnobotany, by Enrique Salmon (Salmon_E@grumpy.fortlewis.edu)

Field School dates: June 5 - July 7, 2000.
Fort Lewis College, Durango, CO.

The intention of this field study is to offer students the opportunity to learn ethnobotanical knowledge of the Southwest. Students will be introduced to the field of ethnobotany, and the study of the interrelationships between plants and people. Students will learn to prepare plant voucher specimens and present their field projects. After learning the basics of ethnobotanical methods, theory, interviewing, and plant collection, the students will visit various plant communities of the Southwest and learn to collect and assemble plant-related stories and traditions.

There will be two field trips to visit a Hispanic and an Indigenous community. The course will also focus on a two-week segment where students will research and build an Ethnobotany Trail at the Durango Nature Center. We will camp out primarily during the field trips.

In the past this field course has studied paleoethnobotany with Karen Adams, lived on the White Mountain Apache Reservation for three weeks, taken a three-week ethnobotanical tour of the Greater Southwest, tended Hopi agricultural fields, collected medicinal plants with Navajo herbalists, and learned to fill our stomachs with wildcrafted foods from the Sonoran desert and the Four Corners region.

Although each summer the students learn about the botanical aspects of the Southwest, they also focus on the cultural perceptions of plants unique to the various cultures of the region. This is accomplished through metaphor and discourse analysis and by searching for cultural models encoded in language and cultural actions.

Cross-Pollination

by Kurt Reynertson

Original research is not just the domain of tenured professors. Many students are actively involved in exciting research projects of their own. But there is little opportunity for students to share their ideas and research interests with an audience outside their own department. With this in mind, we have started a new column to spotlight the research interests of ethnobotany students within the larger community. Cross-pollination of ideas is the aim in giving students a forum and a larger audience.

Students: this is your chance to make your voice heard! Send us a description of your current research.

Contact: Kurt Reynertson,
reynk738@lehman.cuny.edu,
Dept of Biology, CUNY-Lehman
250 Bedford Park Blvd. West
Bronx, NY 10468

Biocultural Diversity Hotspots: Alta California as a Case Study,

by Eugene Richard Chung

Luisa Maffi's biocultural diversity concept states that linguistic diversity is spatially correlated with biotic diversity through co-evolution. David Harmon demonstrated this on the level of countries. It is further visible on the finer scale of indigenous culture regions. The

Alta California Area is one such example. The literature documents the great biotic diversity of the Alta (Upper) California Floristic Province (UCFP). The linguistic diversity of the Upper California Indigenous Culture Region (UCICR) is perhaps more complete than it is for any other comparable area. The boundaries of the UCFP and the UCICR correlate closely, forming the Alta California BioCultural Diversity Hotspot.

The Alta California BioCultural Diversity Hotspot (ACBCDH) is a place of mountains and islands rich in serpentine, granitic, carbonate, volcanic and alkaline edaphic endemic plant taxa,

Continued on page 16

Ethics *Continued from page 9*

- Scientific pressure to publish 'as much as soon as possible', dissociation of researchers from the implications of their research, and a reluctance to acknowledge that academic publications are not distinct from the world of commerce has made it difficult for some to balance community and scientific needs (Milliken, in press). W. Milliken devised the compromise of publishing the names and use of only species widely published as having been used in the same way elsewhere, and including only the genus of those species with restricted or specialized use to the Yanomami with whom he worked (Milliken and Albert, 1996; Milliken, 1997).

- Elaine Elisabetsky and Darrell Posey devised a "Reader's Moral Advisory" to attach ethical and moral conditions to the use of information presented in a paper on Kayapo medicinal plants (Elisabetsky and Posey, 1994). Although not carrying legal weight, this was an early effort to prevent commercial use of ethnobotanical information contained in the paper without further negotiations with Kayapo communities.

Economic botanist's responsibilities have transformed over the past decade. This results from a convergence of issues, including the 1992 Convention on Biological Diversity, growing recognition of the rights of indigenous peoples and local communities to better control and benefit from the research process, and dialogue within professional researcher circles which has yielded valuable insight, and useful

documents like the International Society of Ethnobiology's Code of Ethics, and Draft Research Guidelines. Practical approaches to addressing these issues – including codes of ethics and research guidelines, institutional policies, and innovative ways to manage publication of data – are included in an upcoming manual: Biodiversity and Traditional Knowledge: Equitable Partnerships in Practice, by Sarah A. Laird, published by Earthscan, London (www.earthscan.co.uk). In particular, you might want to read Chapter 5: Publication of Biodiversity Research Results and the "Flow" of Knowledge, by Sarah A. Laird, Miguel N Alexiades, Kelly P. Bannister, and Darrell A. Posey.

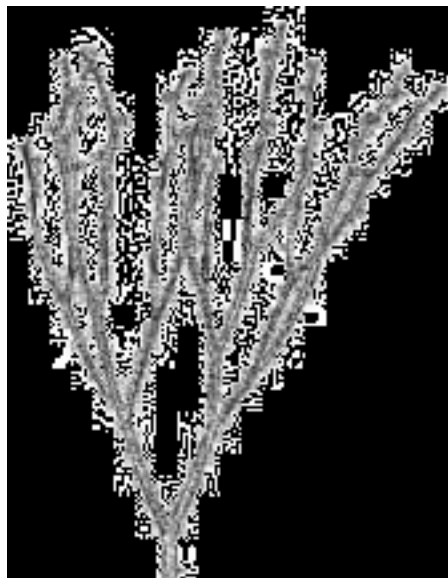


Photo Credit : Gerald Carr

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- Elisabetsky, E. and D.A. Posey (1994), "Ethnopharmacological Search for Antiviral Compounds: Treatment of Gastrointestinal Disorders by Kayapo Medical Specialist," in Chadwick, D.J. and J. Marsh (eds) (1994), Ethnobotany and the Search for New Drugs. Ciba Foundation Symposium 185, John Wiley & Sons, Chichester. pp 77-94.
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- Milliken, W. (1997), "Traditional Antimalarial Medicine in Roraima, Brazil," Economic Botany 51(3): 212-237.
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Continued on page 13

Botanizing the Web

The Asian Studies WWW Monitor: Vol. 6, No. 98, 04 Nov 1999

<http://gmr.landfood.unimelb.edu.au/Plantnames/>

Multilingual Multiscript Plant Name Database of the Institute of Land & Food Resources, Univ. of Melbourne, Australia lists plants categorized by use. Each specific name is associated with common names in several languages and, in some cases, a photo and description. Botanical names are listed in Arabic, Chinese, Danish, Dutch, English, French, German, Italian, Japanese, Latin, Portuguese, Russian, Spanish, Thai, Vietnamese. It is all on line, all free access, and no special software is required to read foreign scripts.

Kew Garden Arid and Semi Arid Website

<http://www.rbgekew.org.uk/ceb/sepasal/>

Major database on wild and semi-domesticated useful plants of tropical and subtropical drylands is now available for searching via the Internet. The Survey of Economic Plants for Arid and Semi-Arid Lands (SEPASAL) database began at Kew in 1981. SEPASAL includes information on more than 6,200 useful dryland species, excluding major crops.

SEPASAL forms part of Kew's Centre for Economic Botany (CEB). It collates widely scattered published information on uses, distribution, characteristics, and environmental tolerances of dryland plants.

There are two levels of access to the system. By using the public web interface, anyone can search the database by scientific or vernacular names to see if a plant is represented in SEPASAL. To search by other criteria, e.g., uses, distribution, and to view detailed information on the plants, users need to apply for a login. This is easily done by clicking on the "Apply for a Login" button on the first screen.

Account applications can then be processed and users notified of their userid and password. When applying for a login, be sure to provide as much detail as possible on the project you are working on, and the use to which SEPASAL data will be put, as this will help us to process your application quickly.

For more information, and to gain access to the database, see SEPASAL's home page at or email:

sepasal@rbgekew.org.uk

Steve Davis, s.davis@rbgekew.org.uk

Survey of Economic Plants for Arid and Semi-Arid Lands (SEPASAL)

Royal Botanic Gardens, Kew,
Richmond, Surrey TW9 3AE, UK

Phone: +44(0)181 332 5772.

Fax: +44(0)181 332 5768

Searchable Non Timber Forest Product Bibliography Online

<http://www.ifcae.org/cgibin/ntfp/db/dbsql/db.cgi?db=bib&uid=default>

The web-based international bibliographic database on NTFPs is a free, non-profit venture. It is now online with over 1,300. The database editorial committee is actively seeking authors to write critical reviews and abstracts for records. Details are on the website. Additionally, if you have published or know of published materials on NTFPs not in the database, please fill out a submission form online so we can add

them. Please alert us if you find errors in any records and they will be corrected. Our funds have not permitted us to reformat every record: thus, you will find some discrepancies in the bibliographic styles between records. Occasionally there may be a question mark next to a date or other field (e.g., publisher) because our source of information was incomplete. Such records were included if enough information was present for a researcher to locate the record in a library or other source.

The majority of the records are in English because startup funds originated from the U.S. National Assessment on Non-Timber Forest Products. Options for expanding the database to include non-English publications pertaining to NTFPs are currently being explored.

Looking for visuals for a presentation?

<http://chili.rt66.com/hrbmoore/HOMEPAGE/>

This is a great site for visuals. Go beyond the home page and there is an alpha listing by genus.

Centre for International Ethnomedicinal Education (CIEER)

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

An internet newsletter for Ethnobotanical Researchers, keeping you apprised of course availability & other courses.

Centre for International Ethnomedicinal Education and Research

Mike Thomas at mthomas@cieer.org
P.O. Box 14352, Gainesville, FL 32604,
Cellular: 352-219-5110

President's Committee of Advisors on Science and Technology report on biology.

<http://www.siu.edu/~ebl/>

Recommendations from this committee affect Federal Agencies including, NSF, DOE, USDA, which includes the Forest Service, Fish and Wildlife, etc. The current proposed budget has already incorporated suggestions from this report.

Thanks, Miriam Kritzer Van Zant

Information on ginseng:

http://www.traffic.org/bulletin/bulletin_vol18_no1.pdf

Websites to Visit

Like the ones listed earlier, here are sites you might want to visit on a regular basis:

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

<http://hammock.ifas.ufl.edu/~micheal/eb/conferences.html>

<http://www.people.memphis.edu/~sma/2000.html>

<http://www.pharma.ethz.ch/pharmacognosy>

<http://www.bioresources.org/conf.htm>

I would suggest that the cultural value of recording their knowledge in the published record is likely to be greater for an indigenous people than is any economic value resulting from the disposition of intellectual property rights.

Ethics *Continued from page 11*

Response 3:

From Doel Soejarto, University of Illinois at Chicago, Editor, Journal of Ethnopharmacology

As a researcher and editor of the Journal of Ethnopharmacology, it is my strong view that students or researchers in ethnobotany should publish the results of their work, including information on plant uses as part of the scientific process, provided prior informed consent is obtained from the individual or community who gave the information. The keyword here is prior informed consent or permission.

Although the possibility exists that the information published may result in the discovery and development of a product, the chances are extremely slim that a product would indeed make it to the market based on ethnobotanical knowledge. In the case of a pharmaceutical product, the reason for this is as follows.

One, through years of association with chemists and biologists/pharmacologists in a collaborative program on drug discovery from plants, and through opportunities of occasional association with the pharmaceutical industry, I know that the chances of discovering a biologically active compound from plants that will eventually make it to a commercial product is very low, usually stated to be one in 10,000. In fact, chemists in pharmaceutical companies make tens of thousands of compounds through the synthetic process and expect only one that will make it to the market as a drug product. An example to reinforce this statement is the discovery of calanolide A from the Malaysian rain forest tree Calophyllum lanigerum var. austrororiaceum (Guttiferae) in 1992 by scientists at the US National Cancer Institute, as a result of screening thousands and thousands of plant samples from tropical rain forests of the three continents. Today in 2000, eight years later, this compound (but in its synthetic version) is still in Phase I clinical trial as a "possible" drug to treat AIDS. At any time, calanolide A, like many others may fold and no commercial product result. Incidentally, the plant sample that originally gave active anti-HIV test results was collected in Sarawak in 1987, and not as a result of ethnobotanical knowledge. A cooperative arrangement

is already in place between the government of Sarawak and the company working on developing calanolide A, as required by the National Cancer Institute. The point here is that, any information on a specific medicinal use of a plant that may lead to the testing of the plant sample and, if active as claimed, the isolation and characterization of the active compound(s), followed by animal testing (preclinical trials), clinical trials Phase I, Phase II, and Phase III reduces the probability of a commercially derived drug from that plant to almost zero.

Two, in order for a pharmaceutical company to convert a discovery of a biologically active compound to a commercial product, the discovery must be protected or patented. This allows the pharmaceutical company that has been licensed the patent (i.e., permitted to use the patented compound by the patent holder) the ability to develop a

it is possible that the claim for patent protection will not be approved by the Patent and Trademarks Office PTO. I am simplistic here and may sound naive, but that is the rule. That means that once ethnomedical data are placed in the public domain through scientific publication, or known widely by the public or communities, a patent protection potentially cannot be obtained. Examples exist whereby a patent protection was issued to a claim of discovery related to a specific ethnomedical claim. Recently, however, the PTO did invalidate a patent claimed on the "ayahuasca" plant by a US citizen, because the PTO's original decision to award the patent protection is considered "flawed", as contested by indigenous community leaders from the Amazon Basin (where ayahuasca is native and known widely for use as claimed in the patent) and by legal experts. There are some other

Although the possibility exists that the information published may result in the discovery and development of a product, the chances are extremely slim that a product would indeed make it to the market based on ethnobotanical knowledge. In the case of a pharmaceutical product, the reason for this is as follows.

drug with a monopoly on the manufacture of the product for an extended period, allowing the company to recuperate its investment, which may run into \$300 million to \$400 million, based on present estimates. Unless there is a monopoly — a protection under the patent law — no company will be willing or able spend that much money to develop a new drug. The point here is, in order to receive patent protection, the discoverer of a compound will have to show that the information that led to the discovery had not been in the public domain. This means that, if information on the uses of plants for medicinal purposes has previously been published,

recent examples. In other words, there are claims for reforms to the patent law. Such reform may involve a requirement for the inventor to assure in writing to provide a share of the benefits (royalties) that may result with the originator of the information.

To be just, however, the answer to the student's question is more complex and needs a much longer essay to reply. In fact, books are already written to that effect, but the answer I stated above represents the substance of my view.

Grazing in the Field

Notes from Members about their field work or experiences

Living Collections

"Usha Palaniswamy, PhD"

<palanisw@spf1n1.uconn.edu>

I am teaching a course on medicinal plants and am looking for some plant species that I can use as display or maintain in my greenhouse space at the University of Connecticut. I have only started, so any species (live plants or propagation materials) that you are able to contribute will be accepted with appreciation.

In a conversation on Black American's ethnobotany some references were listed from Amazon.com:

Ethno-Botany of the Black Americans, William E. Grimi / Hardcover / Published 1976 Our Price: \$24.95 (Special Order)

Ashanti Blood in the New World: The Ethnobotany of the African Diaspora, Anthony K. Andoh, et al. / Paperback / Published 1997

Ashanti Blood in the New World: The Ethnobotany of the African Diaspora, by Kali Sichen (Photographer) \$24.95 Paperback - 320 pages 1 edition (December 1999) North Scale Inst. Pub; ISBN: 0916299546

I am writing a paper on the relationship between low-income people/regions and gathering of medicinal plants (or other non-timber forest products) in the US and what does that mean in terms of addressing conservation of economically important plants. Poverty and natural resource extraction is addressed in literature most commonly as a problem in developing countries, but the US has regions where similar dynamics occur and people collect plants as an additional source of income.

I have a thesis by Monique Kolster addressing this issue in relation with Echinacea and an Indian reservation in northeastern Montana. Also, Marla Emery wrote a thesis on non-timber forest products as livelihoods in Michigan's Upper Peninsula.

Please let me know if you know of other sources I could consult.

Thanks.

Martha Martine

Email: MarthaXXI@cs.com



Meetings *Continued from page 7*

Proceedings from the International Symposium "Cactus Pear and Nopalitos Processing and Uses"

Santiago, Chile, September 24-26, 1998. Organized by the "Facultad de Ciencias Agrarias y Forestales, Universidad de Chile" and the FAO International Cooperation Network on Cactus Pear with the sponsorship of FAO, the FIA Foundation from the Ministry of Agriculture of Chile and the "Sociedad Agrícola Los Tunantes S.A". Arias, Enrique (AGPC) email: Enrique.Arias@FAO.ORG; website: <http://146.83.41.81/cactus/cactus.htm>

IVth International Cactus Congress

October 22-27, 2000. FAO Institut National de la Recherche Agronomique de Tunisie Rue Hédi Karray, Ariana 2049, Tunisia, Phone: (+216.1.230024), Fax: (+216.1.752897) Email: nefzaoui.ali@iresa.agrinet.tn Guidelines are forthcoming for abstract submission.

Seminar on Harvesting Non-Wood Forest Products

October 2-8, 2000 Izmir Turkey Contact: Dr Erkan Ispirli, email: obdi-f@tr.net-net.tr Department Chief of Foreign Relations and EC Department Orman Bakantigi, Atatürk Bulvarı, 153, 06199 Bakanlıklar/Ankara Turkey Phone: 0090-312.4177724, Fax: 0090.312.4179160

Academics

New Research Center in Turkey

A center for the study of useful plants of Bodrum is being created by the ACADEMIA MEDITERRANEA HALICARNASSENSIS FOUNDATION in Bodrum. The basic aim of the Bodrum Research Center is to collect data on the useful plants of the Bodrum peninsula and Muğla province, and their traditional uses for food, medicine, dyes, fuel, fodder, and other purposes. For further information contact: Dr. Füsün Ertu, fertug@attglobal.net

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Tropical Botany Course

NSF Chautauqua course on Tropical Economic Botany Course # 90 on Tropical Economic Botany, was offered March 7-10 in Mayagüez, Puerto Rico, may be of some interest to some members of the Society for Economic Botany. Information on the course and registration procedures is available at the Chautauqua website: www.engrng.pitt.edu/~chautauq

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Please write for next year's class dates, -Trish, Ed, tflaster@rmi.net

Ethics *Continued from page 13*

Column Editor's Response

It seems that we have already raised a question for which our community has no answer, and a question that in fact generates more questions. Dr. Kaplan's response usefully directs us to consider the nature of different types of ethnobotanical publications. Ms. Laird's response points out some of the strategies that have been adopted by ethnobotanists in publishing results. Dr. Soejarto's response points out to us some of the realities of the world of drug development, which is one setting where the potential exploitation of ethnobotanical knowledge might take place, and brings up the question of the patent system. All these questions revolve around ideas in the Convention on Biodiversity: the idea of the intellectual property rights of indigenous peoples, the nature of intellectual property that is held by communities rather than individuals, the proper and just means and methods of ensuring returns of profits of drug development to people whose knowledge led to the discovery of a drug. While this may be a rare occurrence, it is certainly going

to happen sooner or later – probably sooner. In this case, will the problem of prior publication of ethnobotanical knowledge prevent a patent being issued on the drug? Different countries may interpret this question differently, and while the notion of patenting plant species or varieties whose properties were discerned as a result of traditional knowledge was rejected in the ayahuasca case, there are many situations in which this might not apply to compounds isolated from a plant (e.g., Huft, 1995). What should we do about the manufacture of the increasingly profitable herbal medicines, which are unpatentable as such, but still potential moneymakers, and for which there is yet to be any discussion of return of benefits to indigenous peoples?

We are as a scientific community on the horns of a dilemma brought about by our own success in alerting the world to the validity of ethnobotanical claims. It is clear that we need to keep in mind the primacy of adhering to the principle of informed consent, and the clear moral authority of the idea that people should receive some benefit if their ideas are

used to make money for other people, and to improve the health or well-being of the world. How to implement these principles is going to vary for different scientists working in different countries, and we are just beginning to realize what models for ethical interaction may exist. It is certainly becoming obvious that advisors of graduate students are going to have to be careful to ensure that the students enter into ethnobotanical studies in settings that are going to allow them to work ethically, and without long delays in obtaining permission to publish their data from the communities with which they work. Ethnobotanists have a really significant challenge to explore in responding to these new ethical imperatives; we will probably make mistakes along the way, but we must listen to many different voices in reaching a clear understanding of this problem as a community.

Huft, M.J. Indigenous Peoples and Drug Discovery Research: A Question of Intellectual Property Rights. Northwestern University Law Review 89:1679-1730. 1995.

Botanizing the Web *Continued from page 12*

USFWS Website for Plant Conservation

<http://www.nps.gov/plants/medicinal/>.

We would appreciate your review and suggestions regarding the content of our site. Send your thoughts and suggestions directly to me. Thanks, Julie (Julie_Lyke@fws.gov or (703)358-1708 x5054).

An Ethnomycology Website

<http://www.sirius.com/~holy/mushroom.html>

FAO Website

<http://www.fao.org/waicent/faoinfo/forestry/nwfp/public.htm>

Among the various publications is "An Overview of Non Timber Forest Products in the Mediterranean Region" prepared by the NTFP project of WWF MedPO. The publication discusses the importance of biodiversity in Mediterranean forests, traditional management and conservation, commercialisation and certification issues related to NTFPs in the region.

Aboriginal Rights Website

<http://www.atsic.gov.au>.

This site on ethnobotany in Australia covers work by aboriginal researchers from Curtin University's Center for Aboriginal Studies on health, education, and ecological conservation issues. Also, it has a section on Intellectual Property Rights.

Submitted by Carol Brandt <cbrandt@unm.edu>



Cross-Pollination *Continued from page 11*

with 28 non-overlapping floristic subregions. The unusual Mediterranean climate regime of the ACBCDH fosters 69% vernal pool endemism, with 73 out of 200 plant taxa in that habitat being endangered. The ACBCDH has 52 endemic plant genera, 2124 endemic plant species, out of a total native flora of 3488 species, and 565 taxa that are threatened or endangered. With 100 endemic indigenous languages in six families, of which fifty are extinct and fifty are endangered, the ACBCDH is a hotspot of linguistic diversity, at both the lower level of individual languages and the higher level of families. The Yukian language family is endemic to the ACBCDH. The Native Californians intensively managed the ACBCDH by burning, pruning and coppicing, allowing dense human populations by increasing the carrying capacity of the land. The biota of the ACBCDH had to adapt to a culturally diverse range of land management practices. To this day, Native Californians continue to gather plants for food and basketry materials.

Within the ACBCDH, the Klamath-Siskiyou center of plant diversity stands out as a bioculturally rich and distinct area. It has nearly 280 endemic plant taxa as well as three indigenous languages families, Na-Dene, Algic and Hokan. The indigenous Hupa, Tolowa, Yurok, and Karuk nations of the area share aspects of their folklore, ethnomusicology, and religion that distinguish them from other parts of the ACBCDH. Four additional examples of biocultural diversity hotspots are New Guinea / northern Australia, the Caucasus mountains / Kurdistan, Mesoamerica (especially Oaxaca state, Mexico), and the mountainous regions encompassing northern Vietnam, Laos, northern Thailand, northern Myanma, and Yunnan province, China. Of these, the ACBCDH stands out as the only one located in an area of Mediterranean vegetation that until two centuries ago was based on the hunter / gatherer society rather than an agricultural subsistence mode. As such, the ACBCDH provides a valuable set of data in understanding the relationship between linguistic diversity and biodiversity.

*Eugene is interested in looking at the broader picture of the spatial distribution of linguistic diversity, biodiversity and the endangerment of both. He is currently enrolled in the CUNY Graduate Center / New York Botanical Garden Ph.D. program in plant science, researching the role of chile peppers (*Capsicum spp.*) in the Mayan civilization. He is focusing on the Kaqchikel Mayan folk taxonomy of *Capsicum spp.*, the western molecular systematics of cultivated varieties of *Capsicum spp.* and their phytochemistry. He has studied languages from multiple language families, including three Mayan languages. Eugene earned an MS in biology from the New York Botanical Garden / NYU and a BA in geography from UCLA.*



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