ABSTRACTS
SOCIETY FOR ECONOMIC BOTANY
41ST ANNUAL CONFERENCE

INVITED SYMPOSIUM

ROOTS IN THE PAST, SEEDS OF TOMORROW: SOWING THE FUTURE OF ECONOMIC BOTANY

WAGNER, GAIL E. (Department of Anthropology, University of South Carolina, Columbia, SC)

Roots in the Past: A History of the Society for Economic Botany

From its inception in 1958 and constitutional beginning in 1960, a number of objectives, themes, and activities have characterized the Society for Economic Botany. Set up as a cross- and multi-disciplinary society "to foster and to encourage scientific research on the uses of plants and to make the results of such research available to the scientific community through scientific meetings and the publication of a journal," the Society has been a synthetic, unifying organization with international members from pure and applied sciences, including academia, industry, botanical gardens, and governmental agencies.

Economic Botany, the Society's adopted quarterly journal, was begun by Edmund H. Fulling at the New York Botanical Garden in 1947. Our strong ties to this organization continue today. Likewise, we continue to hold annual invited symposia on chosen topics, and stay in dormitories when we meet at universities. Except when meeting jointly, our meeting format schedules one presentation at a time to encourage multidisciplinary exchange. Our discussions about education and teaching, begun at the initial organizing conference in 1958, continue today in both tried and new formats. By its interest in plants useful to humans, the Society for Economic Botany has always looked to the future and addressed current issues, yet it maintains strong traditional links with its own beginnings.

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SALICK, JAN (Curator of Economic Botany, Missouri Botanical Garden, St. Louis, Missouri)

Ecological Ethnobotany Developing

Ecological Ethnobotany has its roots in traditional ethnobotany while growing with ecology, exploring rich and productive intellectual ground developed within ecology and relevant to ethnobotany. Ecological genetics began with field studies examining the role of environment in genetic selection certainly important to ethnobotany with the human environment bring about domestication, landraces, and genetic variation. More recently, ecological genetics includes the proliferating molecular techniques, which help elucidate obscure evolutionary relationships in ethnobotany. Physiological ecology or autecology allows ethnobotany to investigate the physiological variation within and adaptations of plants important to people. Population ecology is full of import for ethnobotany allowing

us to ask questions about plant life cycles, sustainable harvests, and plant reproduction. Plant community ecology can be used to investigate and compare human management of forests and fields. Ecosystem ecology deals with nutrient, carbon, and energy fluxes meaningful for evaluating sustainable management of those same forests and fields. Landscape ecology ties together different ecosystems and different human management, scaled to holistic human interaction with their environment. Global ecology has yet to be addressed convincingly in ethnobotany but remains a tempting goal for the future: what are the global implications of human interactions with plants? As a whole these ecological investigations of plant-people interactions comprise the developing field of ecological ethnobotany: historically rooted in ethnobotany, growing from methodological and theoretical issues in ecology, and ready to flower and fruit with future applications.

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LEWIS, WALTER H. (Department of Biology, Washington University, St. Louis, MO)

Pharmaceutical Discoveries Based on Targeted Ethnomedicinal Plants

There is worldwide need for using targeted ethnomedicinal data obtained from indigenous and other peoples in the discovery process leading to the development of new pharmaceuticals to improve human health. Results of biodirected screening against malaria, tuberculosis, and other organisms showed significant inhibition in vitro using crude extracts of Aguaruna medicinal plants. Fractions of the most active extracts using similar and additional screens have provided characterized compounds with high levels of efficacy. The value of this ethnobotanical approach as a model for future research will be discussed.

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GYLLENHAAL, CHARLOTTE (Program for Collaborative Research in the Pharmaceutical Sciences, College of Pharmacy, University of Illinois at Chicago), Djaja Djendoel Soejarto (University of Illinois at Chicago), Le Thi Xuan (National Center for Science and Technology), B. H. Southavong, S. Bouamanivong, J. Pezzuto, H. Fong, M. O'Neill, J. Tarzian-Sorensen, G. Tan, and N. V. Hung

Ethnobotanical Aspects of an International Cooperative Biodiversity Group project in Asia

The University of Illinois at Chicago is leading an International Cooperative Biodiversity Group program aimed at drug discovery, conservation and economic development with institutions in Vietnam and Laos, and with Glaxo-Wellcome as an industrial partner. Analysis of plants used in traditional medicine is part of the project. Scientists from the Vietnamese and Lao institutions are conducting surveys of medicinal plant use in the two countries, and in Vietnam the project is assessing herbal medicines for use in economic development. The ethnobotanical methods and benefit-sharing goals and the challenges in implementation in this multi-institution, multi-cultural situation will be discussed.

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MARTIN, GARY (Director, The Global Diversity Foundation, B.P. 262, Marrakaech-Medina, MOROCCO)

Training for the Future: Educational Opportunities in Economic Botany and Ethnobiology

If ethnobotany and economic botany are to be viable disciplines, we must focus our efforts on three crises: (1) the depletion of key biological resources; (2) the transformation -- and often impoverishment – of traditional ecological knowledge and (3) the decreasing number of researchers who are trained to participate in the study, monitoring and reversal of the previous two trends.

While we continue to analyze biological and cultural diversity around the world, we must support -- especially in developing countries – anthropologists, biologists, historians, linguists and other field-oriented researchers interested in the relationship between culture and environment. In particular, we should provide training and field research opportunities that stress interdisciplinary, ecosystems approaches to integrating the diverse concepts, methods and perspectives that ethnobiology embraces.

In addition to other incentives, we should continue to build an educational program that includes undergraduate and post-graduate degrees as well as shorter certificate and diploma training courses. Drawing upon my past involvement with the WWF-UNESCO-Kew People and Plants Initiative, my current teaching in the ethnobotany MSc program of the University of Kent at Canterbury and the Royal Botanic Gardens at Kew, and my future work with The Global Diversity Foundation, I will discuss the advantages and drawbacks of various training options.

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MCCLATCHEY, WILL (Department of Botany, University of Hawaii, Honolulu)

Future Roles of Economic Botany and Ethnobotany

SUBMITTED PAPERS, POSTERS, AND FILMS

Experimental Replication of 17th Century Native Agriculture: A Methodological Approach to Northeastern North America

Attenborough-Deakin, Lauri-Ann (York University, Ontario)

The objective of this research is to replicate traditional systems of corn cultivation based on first-hand descriptions by early contact European explorers/Jesuits (c. 1600 A.D.) and substantiated by the memory of Six Nations agriculturalists today. With over 65% of the Native diet fulfilled by corn, both Champlain (c. 1615) and Sagard (c. 1624) agree that corn was “their principal food and usual sustenance”. Flint and soft/flour corn best encompass the description of what has been found on archaeological sites, and in the

writings of the early observers. The traditional variety "Iroquois White Flour Corn" (*Zea mays amylacea*) has been used to accomplish the goals of this research. (Paper)

Indigenous Conservation of Totora (*Schoenoplectus Californicus*, Cyperaceae) in Peru

Banack, Sandra Anne (Dept. of Biological Science, California State University, Fullerton), **Xanic Rondon**, (California State University, Fullerton, and **Wilfredo Diaz Huamanchumo** (Huanchaco Peru)

We investigated the persistence of *Schoenoplectus californicus* (Cyperaceae), totora, in two Peruvian communities: Huanchaco and Lake Titicaca. We predicted that a plant with high saliency to the local culture would have a high level of associated indigenous conservation. Totora has a history of use for boats, houses, mats, fans, food, and as a fertilizer. Its use continues into the present in communities with a tight association to water as their economic base. We found the reeds actively cultivated in both communities. In Huanchaco the reeds cannot survive without human intervention. Totora's importance in both fishing and tourism has been responsible for the preservation of totora. (Paper)

Temperate and Tropical Pharmacopoeias: How Different Are They?

Bennett, Bradley C. (Dept. Biological Sciences, Florida International University, Miami, FL)

Dan Moerman (1991) introduced regression residual analysis as a tool for analyzing medicinal floras. In a recent publication (Moerman et al. 1999), he and colleagues found remarkable consistency among tropical pharmacopoeias. The one tropical example they analyzed appeared to be very different. Examining my data from the Shuar of Amazonian Ecuador reveals a contrasting pattern. Differences between the tropics and temperate zone are not as great as might be expected. In part, this is due to the use of introduced plants as medicines and the near ubiquitous medicinal utilization of widespread families such as Apiaceae, Asteraceae, Lamiaceae, and Solanaceae. (Paper)

Crosscultural Phylogenetic Medical Ethnobotany

Bletter, Nathaniel (City University of New York/New York Botanical Garden)

Ethnobotany has proven to be a valuable method to find new herbal medicine and plant-derived drugs, but given limited resources, thousands of plants to consider, and many cultures to investigate, where can we focus our attention? I explore a new way to determine plants with high medical potential that are worthy of further investigation by finding related plants from unconnected cultures used to treat related diseases, corroborating that the plants are biologically active. Herbal remedies for diabetes and eczema collected from herbalists from four cultures around Manhattan, NY – Ayurvedic, Chinese, European/North American, and Latin American – are compared. (Paper)

Cassava Diversity Among the Amuesha

Campbell, H. Russell (Ohio University, Athens, OH) and **Jan Salick** (Missouri Botanical Garden)

Cassava (*Manihot esculenta*) is a dietary staple and major carbohydrate source for millions of people in the tropical world. In 1999 we collected cassava varieties from the same Amuesha households that Salick et al. (1997) collected from in 1986. Morphological features for the collections were compared with t-tests and ordination and the results indicate significant difference. The varieties of cassava have changed but are equally diverse and most of the diversity is managed by elders and an ancient shaman. Crop diversity is a foundation of sustainable agriculture and understanding its generation, maintenance, and change is indispensable for continued agricultural stability and resilience. (Paper)

Phytochemical variation in wild populations of three species of *Aloysia*: Implications for Medicinal Plant Conservation

Chapman, Rebekah (Ecology Department, University of Georgia), **Jim Affolter** (State Botanical Garden of Georgia, University of Georgia), and **David Giannasi** (Botany Department, University of Georgia)

Species of the genus *Aloysia* are used throughout Argentina for their medicinal properties and are important components in the *yerba mate compuesta* industry. Most of these plants are currently wildcrafted throughout the country. Quantitative phytochemical analyses (TLC, GC/Mass spec) are being performed to examine within population variation in the species *Aloysia triphylla*, *A. polystachia*, and *A. gratissima*. We will be identifying the different essential oil and flavanoid concentrations in the stems and leaves of these three species. This analysis will also be used to compare chemical concentrations in wild species with those found in cultivars and samples obtained from local vendors. (Poster)

Biocultural Diversity Hotspots and GIS Analysis: Alta California as a Case Study

Chung, Eugene Richard (New York Botanical Garden/ The Graduate School of the City University of New York)

The world's five most linguistically diverse areas are also biodiversity hotspots. Of these, the documentation of the biotic diversity of the Alta (Upper) California Floristic Province (UCFP) and of the linguistic diversity of the Upper California Indigenous Culture Region (UCICR) is the most complete. GIS analysis demonstrates that the boundaries of the UCFP and the UCICR correlate closely. They form a biocultural diversity hotspot of high plant and language family endemism, with 52 endemic plant genera, 2124 endemic plant species, 3488 native plant species, 14 endemic language families, and multiple dialects of at least 72 endemic languages, in 18 language families. (Paper)

Economic Botany in a Distance Learning Environment

Crone, Wilson (Department of Biology, Hudson Valley Community College, Troy, NY)

The interdisciplinary nature of economic botany should make it an appropriate choice for a distance learning course. The following is based on an elective offering in economic botany at a community college. Structured modules help to ease students into the necessary software environment. A major consideration in distance learning is to create an interactive atmosphere and hence, a class room "presence." Multiple hot links to Internet resources, discussion sessions, and student submission of images (or objects to scan and view) help to make the course a participatory experience for those taking it. (Paper)

Begonia or be *Oxalis*: Confusion Between Spanish and Aztec 'Sour Herbs'

Delfeld, Margaret Anne (Independent, Brownsville, Wisconsin)

The Spaniard who came to Mexico after the Conquest were accustomed to using 'sour herbs', usually *Oxalis* species, to perk up salads and sauces. In Mexico the Aztecs sold 'sour herbs', *xoxocoyolli*, in the markets. Some were *Oxalis* species, but most were *Begonias*, a completely unrelated genus. Sahagun lists six *xoxocoyollis* that were sold for food; several others were so harsh-flavored that they were used only as medicines. The Spaniards had never seen *Begonias*. To this day, many people thank the Nahua name *xoxocoyolli* and its variants applies only to *Oxalis* species. (Paper)

An Evaluation of Research Methods and Results from Studies of *Andrographis paniculata* (Burm.f.) Nees (Acanthaceae).

Dolan, Joe (University of Hawaii at Manoa) and **Will McClatchey** (University of Hawaii at Manoa)

Recent interest in the Asian medicinal plant *Andrographis paniculata* has mainly focused upon anti-biological properties and uses. However, in the research reviewed, clear methodologies are often lacking or don`t significantly address the cultural contexts of *A. paniculata* usage. For those people that use *A. paniculata*, contexts of usage are critical to understanding desirable/undesirable outcomes of its usage. "Types" of information resulting from the research reviewed have greater or lesser value when considered in light of their cultural contexts. Ranking of the reliability of different "types" of published information and degree to which the research addresses cultural practices will be discussed. (Paper)

Neem: From Ethnodentistry to Dental Products

Elvin-Lewis, Memory (Dept of Biology, Washington University, St. Louis)

Neem has a long history of enthnodental use, and its twigs are the most popular chewing-/stick on the Asian subcontinent and Burma and are also used for teeth cleaning throughout Africa and in Guyana, South America. Microbiological studies validating this empirical selection suggests that much of neem's antiodontopathic potential is related to its fluoride content and a variety of antibiotic, anti-inflammatory and anti-plaque properties found in the twigs and oil. These data correlate well with clinical trials utilizing extracts of the twigs or dentifrices containing neem oil that indicate that plaque indices are significantly reduced and that gingivitis is ameliorated. All these studies validate the worth of neem in promoting dental health. What remains unknown is if like fluoride in common dentifrices, daily exposure through dental hygienic practices also results in the assimilation of a wide vareity of neem components, including those that affect fecundity. Since this issue is critical to the promotion of neem for dental use, it is important that a better understanding of the pharmacokinetics of the compounds relevant to this aspect are fully understood. (Paper)

A Novel Window into Maize Evolution

Eubanks, Mary W. (Senior Research Scientist, Department of Botany, Duke University, Durham, NC)

Maize replicas on pottery from Oaxaca, Mexico and the North Coast of Peru are positive casts from molds made from actual ears. These unique botanical facsimiles have been systematically characterized by comparison to indigenous Latin American maize races. The presence of South American maize on Oaxacan urns and of Mexican maize on Peruvian vessels signals cultural contact between Mexico and Peru during the Classic period, 1800-1300 BP. The racial biodiversity depicted on Peruvian pottery suggests northern Peru was an important center of trade that extended from Chile throughout northern South America into Central America and Mexico. (Paper)

Hat Weaving: Culture, Economy and Conservation

Fadiman, Maria (University of Texas at Austin)

In Becal, Campeche, Mexico, local economy and cultural identity are built around the industry of weaving the leaves of *Carludovica palmata* Ruíz & Pavón (Cyclanthaceae), and *Sabal mexicana* Mart. (Arecaceae) into hats. These plantations do not appear not to deplete soil nutrients, so new land does not have to be cleared for sustainable production. Although the weaving industry in Becal is beginning to decline, it is increasing in smaller towns where weaving has been recently introduced. A small *ejido* in southern Campeche, originally settled by people from Becal, is currently starting a weaving industry with the palm *Cryosophila stauracantha* (Heynhold) R.Evans. (Paper)

A Comparison of Plant Knowledge in Two Peruvian Communities

Graham James (University of Illinois at Chicago)

Can a comparison of plant knowledge in two culturally different, but ecologically similar communities provide any insight into the complexities of plant-people interactions and adaptive variation? Is there any relationship between biological diversity and cultural diversity? This paper will correlate, compare and contrast the biological and cultural data from a series of botanical collections that were conducted in 1997 and 1998 in two communities in eastern Peru. About 75 plant families and 177 genera are represented for the 700 specimens collected as part of the study. (Paper)

Current Ethnobotany of the Eastern Band of the Cherokees: An Assessment of Change

Hall, Karen C. (Plant Physiology, Clemson University)

Recently, with the Eastern Band of the Cherokee Indians, there has been a drive to preserve tribal heritage. Building on that impetus, this research seeks to provide a modern glimpse and historically comparative study of medicinal plant use. The approach involves making a record of present-day medicinal plant use among herb doctors of the Tribe. The Shannon-Weiner index will be used to assess cultural change by comparing current data with two historical records created fifty years apart. Additionally, through consensus, a plant or plants will be chosen for efficacy testing using modern extraction and analytic methods followed by bench-top bioassays. (Poster)

What Effects, New Roads: Indigenous Agriculture in the Amazon

Hamlin, Catherine (Environmental Studies Program, Ohio University) and **Jan Salick** (Department of Environmental and Plant Biology, Ohio University)

The Amuesha of the upper Peruvian Amazon traditionally practice multifaceted swidden agriculture, though arrival of a road in 1984 to the Palcazu valley may have influenced Amuesha agricultural practices. We inventoried useful species in yard gardens, used vegetation ecology measures of field architecture and species composition, and we interviewed Amuesha agriculturalists about cropping practices and subsistence. Field statistics were described with univariate statistical measures, and were compared to previous data with multivariate paired t tests and polar ordination. Results indicate decreased crop diversity, less cultivation of rice, more agroforestry, and more commercial cropping. (Paper)

Catnip, *Nepeta cataria*: Its Ethnobotany, Anatomy, and Physiology

Herron, Scott (Southern Illinois University, Carbondale)

The catnip plant, *Nepeta cataria* L., is important in economic botany for its commercial value in the pet industry for cats and in ethnobotany as an herbal medicinal treatment.

The secondary plant metabolites which facilitate these uses are stored in microscopic glandular hairs (trichomes). The morphology, anatomy, and some novel mutations of the leaves and trichomes of catnip are explored through scanning and transmission electron microscopy. Trichomes are physiologically dependent on the epidermis. The medicinal uses and feliobotany (use by cats) will be detailed. (Paper)

Harvesting Echinacea angustifolia: Demographic Models and Implications for Sustainability

Hurlburt, Dana Price (Rare and Nongame Species Program, Texas Parks and Wildlife Department, Austin)

Echinacea angustifolia DC. (Asteraceae), a medicinal plant native to North American prairies, has a 100-year history of commercial harvest in Kansas. This study combines ethnobotanical information with demographic modeling to assess *E. angustifolia* populations' potential to sustain harvest. Projections using size-structured transition matrices predict that the sustainable rate of annual harvest is low. Harvesters' practice of digging a higher proportion of plants and allowing the stand to recover for two or more years appears to be economically and ecologically viable. However, unregulated commercial harvest over long periods of high demand cannot be sustained. (Paper)

Basketry Ecology: A Museum- and Market-Based Global Survey

Joyale, Elaine (Arizona State University, Tempe), **Jonathan D. Baker**, **April M. Henry**, and **Melissa A. Rossow**

Basketry ecology aims to link and make transparent the interrelationship of baskets, the plants they are made from, and the humans who make and use them, as well as the environment shared by all three. I use data gathered from museum collections, literature, traders, and area experts to determine the most commonly traded baskets worldwide, the wild-harvested plants they are made from, harvest and management practices, and the cultures that weave them. The resulting synthesis will lead to a better understanding of the relationship of baskets and weavers to the traditional resource management and conservation of wild-harvested plant resources. (Paper)

Domestication Process of *Korali*, *Setaria glauca* (Poaceae)

Kimata, Mikio (Field Studies Institute for Environmental Education, Tokyo Gakugei University)

Setaria glauca is cultivated in mixed stands mostly along with *Panicum sumatrense* in South India, while it and the weedy form are grown with *Eleusine coracana*, *Paspalum scrobiculatum* and upland rice in diverse agro-ecological niches, Orissa state. The grains are used to make six traditional foods as a supplementary ingredient. The weed and mimic weedy forms are used as a fodder for cattle and an insurance crop in famine. The domestication process of *korali* may have independently occurred in two different areas.

This process has been promoted as a mean of imparting adaptation to an arid climate. (Poster)

Economic Botany Global Issues Map and Website

Kipp, Erica (The New York Botanical Garden Plant Research Laboratory, The New York Botanical Garden)

Economic botany deals with plants used for food, clothing, construction material, fuel, bioactive compounds, cosmetics, and any other potentially commercial application. Comprehensive biology courses, as well as botany courses in general, have recently placed greater emphasis on the impact plants have on society. In response to this accentuation, the McGraw-Hill Companies, Inc., has on-line student and instructor resources to compliment each of their general botany texts. In addition to the on-line chapter outlines, summaries, weblinks, quizzes, and flashcards, Erica Kipp of The New York Botanical Garden was brought on board to further enhance the on-line learning center. This interactive approach to learning and teaching now has a botany global issues map available via the website: http://www.mhhe.com/biosci/pae/botany/botany_map/ (Poster)

Traditional Knowledge of Medicinal Plants and International Property Rights: A Cost-Benefit Analysis

Lee, Mollie (University of Georgia)

This is a theoretical analysis of the costs, benefits, and complications of incorporating traditional knowledge of medicinal plants (TKMP) into an international intellectual property rights (IPR) regime. Current manifestations of TKMP and IPR are described, and specific ways in which TKMP could be incorporated into an IPR framework are presented. Three groups that would be directly affected by this incorporation are identified, and the differential distribution of costs and benefits are described. Emphasis is placed on the opportunity costs that would be incurred by incorporating TKMP into IPR rather than pursuing another course of action. (Paper)

Biological Inventory and Local Knowledge in Locating Medicinal Plants

Libman, Amey (Bradley University, Peoria, Illinois)

Plants are important contributors to medicines throughout the world. Increased levels of forest destruction are making it important to find rapid ways to assess forests for their medicinal plant potential. Debate has arisen over whether botanical inventories or indigenous knowledge provide the best information about medicinal plants. A biological survey of an area of premontane wet forest in Monteverde, Costa Rica, and interviews of local people were done to compare which would better assess possible medicinal plants in the area. The end result indicates that the biological inventory is the best way to proceed in locating medicinal plants in Monteverde. (Poster)

Interlinked Roles for Conservation of Language and Biological Diversity Among Ririo and Babatana Speakers of Lauru, Solomon Islands

McClatchey, Will (University of Hawaii at Manoa), **Myknee Sirikolo**, **Jodi Stevens**, **Harry Boe**, **Frederic Votboc**, **Edison Biliki**, and **Michael Wysong**

The island of Lauru in the western Solomon Islands is a high (up to 1060 meters) volcanic island with at least seven distinct culture groups who still maintain traditional languages and distinctiveness. The island is almost completely covered in forest except for small areas where traditional gardens are maintained. People have inhabited the region of Lauru for at least 20,000 years and have developed complex taxonomies of plants, animals and landscapes. Ethnobotanical and linguistic research conducted in 1999 among Ririo and Babatana speakers has resulted in identification of the major indigenously recognized vegetation zones and plant species as well as traditional and recent strategies for interacting with the environment. Indigenous-led conservation strategies will be discussed particularly as they relate to conservation of the Ririo language, tribal lands, and plant knowledge. (Paper)

KUO HINA E HIAPO: The Mulberry is White and Ready to Harvest

Ostraff, Joseph (Department of Visual Arts, Brigham Young University)

A film by Joseph Ostraff and Melinda Ostraff

Tapa cloth or *ngatu* as it is called in Tonga, is cloth made from the bark of the paper mulberry tree. *Ngatu* and its associated patterns continue to carry deep symbolic meaning and ceremonial use. The culminating activity in production of *ngatu* is the weekly *koka'anga*. Women meet together weekly in cooperatives to construct large pieces of bark cloth. This film examines the reciprocal interplay between decisions regarding creative process and maintenance of traditional modes of production of visual culture. (Film)

KAU FAITO'O: Traditional Healers of Tonga

Ostraff, Melinda (University of Victoria, Provo, Utah)

A film by Melinda Ostraff

This film documents the ancient traditional art form of healing and attempts to capture the very essence of being a healer in a changing environment. Traditional healers are shown collecting, preparing and administering herbal remedies that have been passed down from generation to generation. Healers discuss where, why and how they gained their knowledge and why they choose to carry on age-old customs and practices despite the fact that Tonga is becoming a nation increasingly dependent on western medicine. Tonga's traditional healers are adapting their practices to fit niches left by western medicine such as prenatal care and physical therapy. (Film)

The Baobab Tree (*Adansonia digitata*): The Insects it Houses and Their Contribution to the Ecosystem

Owens, Katharine (College of Charleston)

The Baobab tree, *Adansonia digitata*, is used extensively by humans in its native Africa. It hollows out over time enabling it to hold water, which is then utilized by humans and animals in this arid landscape. The insects that live on and near this tree affect the surrounding community both positively and negatively. The baobab houses honey bees and edible insects, as well as larvae of malarial mosquitoes and the cotton stainer – an insect that can wreak havoc on crops. This paper takes a holistic approach to the baobab, considering its uses and effects on humans nearby. (Paper)

A Beginning Study on Bioactivity of North American Medicinal Plant Families

Paul, Alexandra (Columbia University/New York Botanical Garden), **Erica Kipp** (New York Botanical Garden) and **Gary Booth** (Brigham Young University)

Fifty-five plants were extracted and examined for their biological activity as part of a larger study on the bioactivity of North American medicinal plant families, sensu Moerman, versus the bioactivity of non-medicinal North American medicinal plant families, sensu Moerman. Representative from the top ten medicinal families and representatives from the lowest ten non-medicinal families were chosen at random, in order to test the hypothesis that plants from the medicinal families were more likely to show bioactivity than a random sample of plants chosen from the non-medicinal families. We report on the antibiotic activity of four of the plants tested. (Poster)

Inedible Leaf Garnishes in Japanese Cuisine

Pemberton, Robert W. (USDA-Agricultural Research Service, Invasive Plants Research, Ft. Lauderdale, FL)

Leaves of more than 25 plant species used as inedible leaf garnishes were encountered in restaurants and food markets in Japan, and in Japanese-authored illustrated cookbooks. Being inedible these leaves function only artistically and symbolically, representing seasonality, holidays, and auspiciousness. Leaf garnishes on food dishes conform to and enhance complex Japanese culinary aesthetics by helping to express aspects such as negative space. Inedible leaf garnishes may originate from leaf plates and wrappers, and religious and ceremonial use of leaves. Inedible leaf garnishes are common in Japanese cuisine, occur infrequently in other Asian cuisines, and are almost absent in Western cuisines. (Paper)

Breu Resin Harvest in the Eastern Amazon and Its Link to a Bark Boring Beetle

Plowden, Campbell (Ecology Program, Penn State University, State College, PA)

Some Brazilian Amazon forest dwellers collect and sell resins from various species of the genus *Protium* (locally called *breu*). A study with Tembé Indians revealed trees yield an average of 0.7 kg. and up to 11 kg. during initial collection. Weevil larvae stimulate resin flow by chewing into inner bark and then develop inside resin lumps that slowly accumulate on the bark exterior. Lump size is more correlated to the number and size of holes made by larvae than larvae size. Sustainable *breu* harvest should, therefore, consider weevil infestation and growth patterns as well as *breu* tree physiology and ecology. (Paper)

Behavioral versus Cognitive Research Methods in Ethnobotany

Stepp, John Richard (Department of Anthropology,University of Georgia)

Research with the Highland Maya in Chiapas, Mexico, explored the differences between cognition and actual behavior with regard to medicinal plants. Two overlapping medicinal floras are compared: one based on actual use and one based on informant consensus. Actual use was determined by tracking daily medicinal plant use for 208 individuals over a period of one year. Informant consensus was determined through interviews using 200 medicinal plants with high informant agreement across the Highlands. While the two data sets are similar, there are notable differences. These knowledge and utilization differences occur at the inter-household and inter-community levels and also across ecological zones. The two methodologies are compared and their utility in different ethnographic contexts is discussed. (Paper)

The Traditional Medicine of the Ririo Tribe of Lauru, Solomon Islands

Stevens, Jodi (Department of Botany, University of Hawaii) and **Jon Mozena** (University of Iowa)

The Ririo are one of eight tribes on the island of Lauru (Formerly known as Choiseul) in the Solomon Islands. This is the first ethnobotanical study of its kind to be undertaken on the island of Lauru. The Ririo medicinal system including disease causation and classification, traditional healers, treatments, and restrictions is discussed. Some unique beliefs and practices are documented and discussed. Seventy-five plant remedies were recorded from 55 species representing 38 genera and 31 families. (Paper)

Effect of Bark Harvest on Populations of the African Cherry (*Prunus africana*) in Cameroon

Stewart, Kristine (Department of Biological Sciences, Florida International University, Miami, FL)

The African cherry (*Prunus africana*) was once a common tree species on Mount Oku, Cameroon. In the early 1970s, its bark extract was found effective in treating enlarged prostates. I applied matrix models to assess bark harvest effects. Population growth rates for all sites were less than one, indicating population decline; lowest values were for harvested sites. However, values vary due to alternate year fruiting and seedling germination. Values of l varied depending on whether trees were harvested during an "on" or "off" year. Results of harvest frequency simulations were equally variable. This study suggests the current harvest is unsustainable. (Paper)

Uses of African cherry(*Prunus africana*)in the Region of Mount Oku, Cameroon

Stewart, Kristine (Department of Biological Sciences, Florida International University, Miami, FL)

The African cherry (*Prunus africana*) was once a common tree species on Mount Oku, Cameroon. In the early 1970s, its bark extract was found effective in treating enlarged prostates. It is also extremely important to the four ethnic groups who live on the mountain. The durable wood is favored for tool handles and its names reflect this use. It is also a preferred firewood. Traditional doctors told me it was the most important plant in their practices. This study was the first to document its importance in treating animal diseases. Western herbal market demand threatens to decrease supplies of this multi-use tree. (Poster)

Impacts of Harvest on Populations of *Aechmea magdalenae*: Considering the Effects of Ecological and Human Variation

Ticktin, Tamara (McGill University) and Timothy Johns (McGill University and CINE)

Conservation and sustainable management plans for wild-harvested species require analysis of population dynamics as well as consideration of the ecological and human contexts of harvest. We used matrix models combined with participatory research methodologies to examine the impact of harvest on the terrestrial bromeliad, *Aechmea magdalenae*, in Mexico. We illustrate that high levels of harvest may have surprisingly little impact on populations, and emphasize how ecological and economic impacts vary greatly between forest types and local harvest strategies. We use our data to test current methods for calculating maximum sustainable harvests, and suggest some solutions for improving their accuracy. (Paper)

Tzeltal Maya Explanations for the Actions of Medicinal Plants: A Preliminary Study

Waldstein, Anna (Department of Anthropology, University of Georgia)

Ethnobotanists argue that indigenous knowledge of medicinal plants can facilitate the development of new pharmaceuticals. However, little is known about how indigenous peoples perceive the actions of such plants. In 1997, I initiated research on Tzeltal Maya ethnobotanical and ethnomedical concepts that define their perceptions of medicinal plant actions. Through interviews with eleven individuals from Tenejapa, Chiapas, Mexico, I found that the Tzeltal use their five senses to select appropriate medicinal plants, and determine when plant-based medicines are properly prepared. Preparation methods are determined by cultural notions of medicinal plant action, and notions of how plant-based medicines travel through the body. (Paper)

Ethnobotanical Investigation of Acjachemen Percussion Instruments

Walker, Michael (California State University, Fullerton), **Sandra Anne Banack** (California State University, Fullerton) and **Jacque Nunez**, the Acjachemen Nation

We investigate traditional botanical knowledge of the Acjachemen tribe in Southern California. The Acjachemen are interested in gaining recognition for their ethnobotanical knowledge and in documenting their traditions. We specifically document the construction of unique percussion instruments. Previous work has shown that the most important plant used is the blue elderberry, *Sambucus mexicana* C. Presl. (Caprifoliaceae). We investigate the link between plant conservation and the cultural significance of these percussion instruments. We also examine the change in plant use over time and correlate this with local environmental changes. (Poster)

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VIDEOS AND FILMS

Basketry of the Pomo – Introductory Film, 1962, (30 min) 16 mm. Part of the American Indian Film Series out of U.C. Berkeley. This movie shows the Pomo of central California gathering materials for basket-making, preparing the materials, and steps in making the baskets. It demonstrates twining, wicker, making a cradle, and coiling. It shows several basic forms and their uses, as well as designs and patterns.

Beautiful Tree: Chishkale, 1965. (20 min) 16mm. Part of the American Indian Film Series out of U.C. Berkeley, available from the University of California Extension Media Center. Study of how California Indians traditionally used the acorn, *Lithocarpus*. The southwestern Pomo of central California are used as an example. This film shows all stages of processing, from collecting the nuts to processing, preparing for food, and eating. Stories and anecdotes are told, along with statistics.

City Farmers, 1997. (31 min) video. Documentary on community gardening in New York and what it means to the people involved. Very moving and inspirational.

Corn is Life, 1983. (19 min) video. Produced for the Museum of Northern Arizona by Tellens, Inc. Available from the University of California Extension Media Center. In this beautifully photographed, lyrical film, corn is a metaphor for life among the Hopi of northern Arizona. The life span of humans and the growing cycle of corn are intertwined throughout the film. Scenes include naming children with the "mother ear of corn," preparing seed, planting, cultivating, harvesting, roasting, grinding, and making piki. English is narrated over a background of spoken Hopi.

The Flying Farmer, 1989. (27 min) video. This upbeat film introduces us to an extremely likeable organic farmer in Quebec. We see him at home and follow him into the jungle of Peru, where he has helped to establish an organic coffee cooperative. The film gives a good picture of how idealism and realism combine in the real world, and leaves the viewer inspired by what one person can accomplish, despite obstacles and personal sacrifice.

Integrity in Scientific Research
5 Video Vignettes, American Association for the Advancement of Science
Video #3 Of Mice and Mendoza: Sharing in Science
This case focuses on ethical issues related to industrial support of research, including the consequences of such support for the sharing of data and resources and the publication of research results, the role of technology transfer, the effects of commingling public and private funds, and the stresses that scientists encounter when they must make decisions in the face of conflicting professional values, legal obligations, and loyalty to colleagues. Copyright, American Association for the Advancement of Science, 1996**.**

Secrets of the Rainforest, ca. 1989. (24 min) video. A National Geographic Explorer Series, this video features Walter Lewis and Memory Elvin-Lewis. It shows them collecting plant medicinal information in the Amazonian jungle, both in the forest and in villages. The story follows them back into the greenhouse and laboratory at Washington University in St. Louis. Delightful video, follow up showing it in class by referring to the note on "Obstetrical Use of the Parasitic Fungus *Balansi cyperi* by Amazonian Jivaro Women" in *Economic Botany* 44(1):131-133 (1990).

Race to Save the Planet, Seeds of Tomorrow, (58 min) video. A Nova program hosted by Noel Vietmyer. This far-ranging and political film makes a strong case for the importance of saving genetic diversity. It illustrates *in situ* and *ex situ* crop conservation, and poses crop diversity proponent Erma Bennett (wheat) against the finding of the FAO. It touches on biotechnology and seed patenting, and lists major petrochemical and chemical companies who are now in the seed business. The film takes us to a North American grocery, Peru (potatoes), Southeast Asia, Greece (wheat), Arizona (tepary bean), Ethiopia (coffee), and Kenya. Finally, but not least, we are treated to vignettes with Gary Nabhan, Barbara Webster, Giles Wayne, and Pat Mooney and Cary Fowler. This movie is hot stuff guaranteed to inflame your students.

Many of these films are available for rental from a number of places, including Penn State Audio-Visual Services, University Division of Media and Learning Resources, Special Services Building, The Pennsylvania State University, University Park, PA 16802. Phone 1-800-826-0132 or (814)865-6314. Another source is the University of California Extension Center for Media and Independent Learning, 2000 Center St, Fourth Floor, Berkeley, CA 94704. Phone (510)642-0460.