

ABSTRACTS
26th ANNUAL ETHNOBIOLOGY CONFERENCE

Abbott-Jamieson, Susan (NOAA Fisheries) and Jennifer Isé (NOAA Fisheries)

[Session XVI]

OUTREACH AND SCIENTIFIC MANAGEMENT BENEFITS OF COLLECTING FISHERMEN'S KNOWLEDGE IN A MAINE COMMUNITY

The Traditional and Local Fisheries Knowledge Project is an outreach project NOAA Fisheries is developing to be piloted in a coastal Maine community during the 2003/04 academic year. The outreach benefits of the project from NOAA Fisheries' point of view include inspiring a new generation of fisheries scientists, managers, and policy makers, while hoping to improve relations with fishers regulated by the agency. The long-term scientific management benefits include developing a fishers' traditional knowledge database through collaborative research that can become a tool for scientific research for fisheries management.

Adams, Karen R. (Gila River Indian Community)

[Session I]

ETHNOBIOLOGY AS A CAREER: PROFESSIONAL PERSPECTIVES OF VALUE

A Career Questionnaire filled out primarily by senior Society of Ethnobiology members reveals we have come to this profession via numerous paths. We find ourselves in a diversity of work environments, most often in universities and colleges. Our successes are varied, though our hurdles seem shared. Having a mentor has been critically important to many of us, and we in turn mentor others to promote the profession. Many of us feel fairly compensated for what we do. Our collective advice may provide valuable perspective to younger scholars seriously considering or currently on a career path in Ethnobiology. One example of a non-traditional career will be offered.

Aldasoro Maya, Elda Miriam (University of Washington), and Eugene Hunn

[Session XIV]

ETHNOENTOMOLOGICAL KNOWLEDGE OF TEENAGERS IN SAN JUAN MIXTEPEX, OAXACA, MEXICO

The relation between insects-people is a cultural domain of ethnobiology that has been little studied. In the present research project we explored the ethnoentomological knowledge of teenagers in a Zapotec community in Oaxaca. Zapotec is one of the major Mesoamerican ethnolinguistic groups with important cultural heritage. During July 2002, teams of teenagers were organized in a contest to collect insects and form a community entomological collection. Through interviews and participant observation, names, uses, and myths about insects were recorded. Each participant was submitted to a 3 minute test of names, the results which were analyzed to discover the most salient categories of insects and the "mental distance" between them.

Anderson, Danica, (Washington University, Missouri Botanical Garden) Jan Salick, and Wu Ruidong

[Session XIX]

TIBETAN ETHNOBOTANY OF SACRED SITES ON *MENRI* (MEDICINE MOUNTAINS): VEGETATION, USEFUL PLANTS, AND ENDEMIC PLANTS

Tibetan Doctors of *Menri* (Medicine Mountains) state that sacred sites protect populations of useful plants. We test this hypothesis using GIS analyses with geographic, vegetation, and sacred site layers along with tables of useful and endemic plants. Vegetations, useful plants and endemic plants characteristic of sacred sites are compared with random points in the area. Vegetation of sacred sites did not differ significantly from random, while useful and endemic plants did, as suggested by the Tibetan Doctors. Based on these preliminary data, we propose a more detailed plant community study with Tibetan Doctors on ethnobotany of sacred sites.

Anderson, E.N. (University of California)

[Session III]

SUSTAINABLE DEVELOPMENT IN QUINTANA ROO?

The possibility of “sustainable development” has been questioned. Yet, if we define “development” as “more wealth per capita,” Maya agriculture in Quintana Roo could develop significantly while also improving environmental conservation. Building on the existing patterns of swiddens, homegardens, and forest resource use, a few local communities have succeeded with ecotourism; game management for sustainable hunting; game farming; intensive fruit or vegetable growing; sustainable forestry; medicine and craft production from forest products; and other tactics. The major Maya advantage has been incomparable knowledge of the environment. The major problem has been marketing. This paper outlines a comprehensive strategy for building on the above to create a viable Maya economy.

Anderson-Fung, Puanani (University of Hawai‘i)

[Session III]

IDENTITY CRISIS OF A HAWAI‘IAN FERN & RELEVANCE FOR SUSTAINABILITY

Conflict arose between native Hawai‘ians and scientists when botanists could find no evidence to support the Hawai‘ian claim that their beloved *laua‘e* fern (*Phymatosorus grossus*) had been part of their culture for centuries. This discrepancy was resolved by scrutinizing botanical records, Polynesian plant names, Hawai‘ian language literature of the 1800s and interviews with cultural experts and field botanists. Both the name *laua‘e* and its cultural significance had been transferred from an endemic plant species, *Microsorium spectrum*, to an alien fern *Phymatosorus grossus*. This story suggests a model for optimizing “sustainability,” that combines belief, value and tradition, with current environmental circumstances.

Avendaño Gómez, Aidé (Unidad de Biología, Tecnología y Prototipos UNAM), Rafael Lira Saade, Beatriz Madrigal Calle, Edmundo García Moya, Marcos Soto Hernández, and Alfonso Romo de Vivar

[Session XI Poster]

TRADITIONAL USE OF THE SEED OF *PRUNUS SEROTINA* SUBS *CAPULI* EHRH (ROSACEAE) OF SIX COMMUNITIES IN THE STATE OF TLAXCALA

The “capulín” (*Prunus serotina* subsp *capuli* Ehrh) is a traditionally important species that has been used in Mexico since the prehispanic period. It has been used in different ways, but the

consumption of its fresh and prepared seeds are the main use in Tlaxcala. The “capulín” seed is of such importance that different communities in Tlaxcala are dedicated to collection, treatment (washing, roasting and salting) and commercialization of the prepared seed. There is also a traditional nomenclature given to many characteristics of this species. The Otomí women in Tlaxcala are mainly dedicated to selling roasted and salted “capulín” seeds for their subsistence.

Avendaño Gómez, Aidé (Unidad de Biología, Tecnología y Prototipos UNAM), Rafael Lira Saade, Alejandro Casas, and Patricia Dávila Aranda

[Session XI Poster]

TRADITIONAL USE AND MANAGEMENT OF *CEIBA PARVIFOLIA* “POCHOTE” (BOMBACACEAE) IN SOME COMMUNITIES IN THE TEHUACÁN VALLEY

Ceiba parvifolia “Pochote” (Bombacaceae) is found in Central Mexico in tropical forests.

Archaeological studies in caves of the Tehuacán Valley indicate that people of the area have used its fruit for approximately 5000 years. Nowadays, the whole plant is used with different purposes such as a source of wood; the fruit’s fibers are used as a substitute for cotton, its leaves as food for an edible caterpillar called “Pochocuil,” its flowers for foraging, its bark as medicine and most importantly, its seeds are consumed and commercialized in the region. The species is used in wild populations and people recognize and select phenotypes with the best characteristics.

Ballard, Heidi (University of California, Berkeley)

[Session III]

HARVESTER SCIENTISTS: RESEARCH ON THE IMPACTS OF HARVESTING SALAL (*GAULTHERIA SHALLON*) IN OLYMPIC PENINSULA, WASHINGTON

In the context of emerging management strategies for non-timber forest resources in the United States, the local ecological knowledge that harvesters possess is often ignored in public and private land management decision-making. As a case example, both resident and migrant harvesters of understory species on the Olympic Peninsula, Washington, have extensive knowledge of overstory-understory relationships and how silvicultural practices affect understory biological and commercial production. This paper describes a project underway on the Olympic Peninsula that uses a participatory research approach to develop harvest experiments and best management practices with harvesters of salal (*Gaultheria shallon*), an understory shrub used in the multi-million dollar floral greens industry.

Bannister, Kelly (University of Victoria), and R. Michael M’Gonigle

[Session XIII]

PLANTS, KNOWLEDGE, POWER AND WEALTH: ETHNOBOTANICAL INSIGHTS THROUGH THE LENS OF ECOLOGICAL POLITICAL ECONOMY

A key obstacle to furthering the debate on promotion and protection of Indigenous knowledge within ethnobiology may be the focus on intellectual property rights regimes, while ignoring larger questions of ‘how research contributes to the production of knowledge’ and ‘how knowledge acquires value.’ We use ecological political economy as a framework to examine the role of ethnobotanical research in unwittingly directing flows of wealth in a particular direction. Viewing ethnobotany as a potential vehicle for broader political and economic pursuits, which reinforce inequitable power structures, requires re-examination of relationships between plants, knowledge and cultural treatments of wealth creation and political power.

Behr, Towagh (University of Victoria)

[Session XI Poster]

COMMUNICATING NUU-CHAH-NULTH TEK

With fewer than three percent of the Nuu-Chah-Nulth people still speaking their language, much of their Traditional Ecological Knowledge (TEK) and language is endangered. How to best ensure that this knowledge is taught to younger generations and preserved is a contentious issue. A response has been the development of interactive CD-ROMs. These are one way to address the needs of both social and ecological systems in Clayoquot Sound. The CD-ROM project is a model for developing archival resources and interactive teaching tools. A flash-animated poster and sample of an interactive CD-ROM will be presented at the poster session.

Berkes, Fikret (University of Manitoba)

[Keynote Speaker – Thursday 7:30-9:30, NSH All Sections]

SACRED ECOLOGY: ENVIRONMENTAL KNOWLEDGE AND SUSTAINABILITY

There has been a great deal of interest regarding the question of how indigenous people use their knowledge to manage their relationships with the natural environment. “Conservation,” in this context, is a bitterly contested field. But this is so perhaps only because conservation is a socially constructed concept, and the predominant Western definition of conservation is at odds with the concepts of sustainable resource use in many indigenous societies and other traditional peoples. The paper will illustrate this idea from the resource use practices of the Cree people of James Bay, northern Canada.

Bovy, Kristine (University of Washington)

[Session XV]

EXPLAINING LONG-TERM CHANGES IN WATERBIRD POPULATIONS IN THE PACIFIC NORTHWEST: HUMAN PREDATION AND NATURAL EVENTS

Waterbirds were important resources for native peoples in the Pacific Northwest Coast, providing down, which was woven with goat or dog wool or nettle fiber to make blankets and clothing, and meat when stored salmon resources became depleted. However, little zooarchaeological research has been conducted on birds from sites in this region. I am interested in both the long-term interaction between people and birds, and how other natural factors (climate change, tectonic events) may have affected and helped to structure these waterbird populations. Changes in the avifaunal record from the Minard site on Grays Harbor, Washington will be discussed.

Butz, Ramona (University of California, Davis)

[Session I]

THE IMPORTANCE OF CONSIDERING GENDER IN ETHNOBIOLOGICAL RESEARCH, PART II: A QUALITATIVE ANALYSIS OF MEDICINAL PLANTS FROM TANZANIA

This presentation is Part II of two papers on the importance of gender consciousness in ethnobiological research. Historically, ethnobotanical, anthropological, and ethnographic studies have often overlooked women’s specific knowledge in regions where plant and animal use varies widely between the sexes. The Maasai of northern Tanzania and southern Kenya are one of Africa’s most well-known and studied pastoral peoples, yet the published literature on the

Maasai has been conducted principally by male researchers focusing on male informants. Because of sex-based taboos, even where women were interviewed by men, a significant portion of their knowledge would not have been disclosed. This is particularly true for medicinal and culturally sensitive knowledge. This paper demonstrates the critical nature of women's participation in ethnobiological studies by highlighting the knowledge of Maasai women with respect to medicinal plants and associated rituals used for women's reproductive health.

Castle, Lisa (University of Kansas) and Kelly Kindscher

[Session X]

HUMANS IN THE MATRIX: ENHANCING PLANT POPULATION DEMOGRAPHY WITH HUMAN OBSERVATION

Plant population projection matrices, used to model population changes and identify sensitive life stages, are often made by ecologists without specific consideration of human use. Ethnobotanists, meanwhile, rarely track plant demography. When studying populations of edible and medicinal plants, utilizing both approaches together yields synergistic results. This is illustrated by the specific case of searching for a sustainable harvest level for prairie turnips (*Pediomelum esculentum*). Combining ethnobotanical information with population monitoring and matrix creation has resulted in a more realistic matrix, reasonable parameters with which to test with the matrix, and designs for several manipulated experiments.

Chávez A., Victor M. (Jardín Botánico, Instituto de Biología, Universidad Nacional Autónoma de México), M. Rosas-Blanco, T. Balcázar, E. Herrera, J.C. Flores, O. González, F. Navarro, E. Linares, I. Kaczmarek, and R. Bye

[Session XI Poster]

***IN VITRO* REGENERATION OF ENDANGERED SPECIES AS A USEFUL TOOL IN ETHNOBOTANY: AN EXAMPLE FROM SIERRA DE OAXACA, MEXICO.**

The mazateca indigenous community of the Sierra de Oaxaca (Mazatlán Villa de Flores, Oaxaca México) in agreement with the Jardín Botánico, Instituto de Biología, UNAM, established a Plant Tissue Culture Laboratory to train students and other community members in order to propagate sustainability *in vitro* plants of cultural importance. The present study shows micropropagation results of endangered species of orchids, cacti and Asteraceae that we obtained at UNAM in order to demonstrate to the mazateca community that technology transfer is viable and that such knowledge can contribute to their cultural, scientific, technologic, and economic development.

Chung, Eugene Richard (CUNY Grad Center/N.Y.B.G.)

[Session V]

A REPRESENTATIVE SAMPLING OF OUR BIOCULTURAL DIVERSITY: ETHNOBIOLOGY OF THE NATIONAL HERITAGE FELLOWS, MASTER FOLK ARTISTS OF THE UNITED STATES

Collectively, the National Heritage Fellows form a body of artists, from 49 states, who maintain a kaleidoscopic diversity of ethnobiological knowledge in the United States. Some of these master artists cultivate their own plant raw materials, including a bonsai tree sculptor, a nye flute maker and player, a Cajun heirloom brown cotton spinner and weaver, and a Western Mono basket gatherer and weaver. Additionally, their knowledge encompasses such traditions as a

Tolowa regalia gatherer and maker, Kumu Hulas who keep an epic song that has inspired them to environmental activism, a Sea Islands seagrass basketmaker, and a Hispano wood carver.

Pat Cirone (EPA)

[Session XVI]

THE INTEGRATION OF LIFEWAYS INTO EPA'S DECISION MAKING

In 2001, EPA and the tribes formed a Tribal Science Council. The council is made up of scientists from EPA and tribes across the United States. One of the main concerns raised by the tribes was subsistence or tribal lifeways. They were particularly concerned about how tribal lifeways are incorporated into EPA's risk assessments. EPA uses risk assessment as the organizing framework for the scientific analysis of the likelihood of effects due to exposure to contaminants or other environmental stressors. EPA has initiated a series of workshops, discussions, and grants to the tribes to begin a dialogue about the integration of tribal lifeways into risk assessment and EPA's decision making.

Crawford, Stuart (University of Victoria)

[Session XI Poster]

SECWPEMC TRADITIONAL USE PLANTS ON KELASCEN AND IMPLICATIONS FOR LOGGING

Kelascen (Mt Ida, BC) is traditionally used by members of the Adams Lake and Neskonlith Bands of the Secwepemc Nation. Tolko Industries is now logging on Kelascen. The Adams Lake Band and Tolko have agreed to investigate how logging can impact Kelascen's traditional value. Several different harvesting techniques and site preparations for restocking are being tested. The plant communities were surveyed on Kelascen before harvesting and 63 species were found that had been identified by Secwepemc elders as having specific cultural significance. BACI analysis will be used to monitor responses of important traditional use plants to the different logging practices.

Darby, Melissa (Lower Columbia Research & Archaeology)

[Session XV]

WAPATO FOR THE CORPS OF DISCOVERY: OBSERVATIONS OF *SAGITTARIA LATIFOLIA* MADE BY LEWIS AND CLARK ON THE LOWER COLUMBIA RIVER IN 1805 AND 1806

Sagittaria latifolia Willd. (Chinook Jargon: Wapato) was an important esculent root for the Indians who lived along the Lower Columbia River Estuary. Vast wapato wetlands inspired the Corps to name this regions 'Wapato Valley.' The journal entries describe the traditional use of this tuber, the Chinese counterpart, harvest methods, cooking and palatability. Clark wrote that the people in this region had permanent houses and "hunt some roots in their own villages..." (Clark in Jackson 1962:500). This paper will explore what the journals tell us about seasonality, harvest, abundance, trade and settlement patterns in Wapato Valley.

Davidson-Hunt, Iain J. (University of Manitoba)

[Session VI]

ADAPTIVE LEARNING AND SOCIAL-ECOLOGICAL RESILIENCE: PLANTS, DREAMS AND ELDERS OF ISKATEWIZAAGEGAN INDEPENDENT FIRST NATION, ONTARIO

This paper explores Anishinaabe knowledge of plants. It begins with a standard ethnobotanical examination of plant classification and nomenclature. The paper then turns to an examination of how elders' memories of plants became authoritative. This includes a consideration of knowledge transmission from one person to another, elders to youth, people of similar age and between people from different societies. How does a person learn about plants in a way that their knowledge can become authoritative? The paper ends by discussing how an institution of knowledge can authorize individual creativity so that new members can lead to institutional development within a society.

Detwiler, Kandace (University of North Carolina) and Deborah A. Keene

[Session XII]

RETHINKING LATE PREHISTORIC SUBSISTENCE ON THE GEORGIA COAST: EVIDENCE FOR AGRICULTURE AT THE GROVE'S CREEK SITE (09CH71)

Subsistence studies of the Eastern Coastal Plain have long been plagued by poor preservation and limited recovery of organic remains. The recovery of significant quantities of plant materials during recent excavations at the Grove's Creek Site in coastal Georgia is thus a notable feat. The analysis of these samples, including a brief spatial analysis, provides valuable information about the subsistence practices of late prehistoric peoples. The presence of corn, beans, and squash, among a variety of wild fruits, seeds, and nuts, indicate that the site's inhabitants practiced much more substantial agriculture than has been previously described for this region.

Drew, Joshua A. (Columbia University)

[Session I]

BRIDGING THE DIVIDE: CO-INTEGRATION OF ETHNOBIOLOGY AND CONSERVATION BIOLOGY

Despite often having complementary goals, the disciplines of Ethnobiology and Conservation Biology too often fail to work in a collaborative fashion. In this paper I highlight some of the ways in which the two disciplines fail to communicate, the historical reasons for the divide, and ways practitioners in both disciplines can better bridge the gaps. Some solutions include 1) understanding the underlying philosophies of the two disciplines – their cultures of research and dialogue, 2) increasing communication of goals and actions, and 3) fostering a more collaborative work environment – enabling 'value added' research to be undertaken.

Dublanica, Keith (Skokomish Tribe)

[Session XVI]

SKOKOMISH ECOLOGICAL RESTORATION PROGRAM

The Skokomish Indian Tribe is incorporating a multi-faceted approach in addressing ecological restoration. The Skokomish Indian Tribe are "The People of the River." Their Reservation is at the Great Bend of southern Hood Canal's (a.k.a. Twana Fjord) in western Washington of 5,000+ acres is a small fraction of the Tribes Treaty-defined area of 2.2 million acres. Approximately half of the Reservation is characterized as varieties of wetland or wetland-influenced, following

Cowardin classifications. The watershed has undergone dramatic changes due to forest practices, loss of off-channel areas, hydroelectric diversions, all resulting in cumulative negative impacts to the historical estuarine salt marshes and delta near the mouth of the River and distributor slough. Goals associated with this ecological restoration include expanding the current area for its support of a weaving material, sweetgrass, (*Schoenoplectus americanus*), salmon stocks (*Oncorhynchus* spp.) and the Olympia oyster (*Ostera conchophylla*), all endemic to the locale, but threatened or diminished in distribution due to the watershed activities. The Tribe's major ecological strategy, in addition to providing environmental education, involves removal of dikes and seawalls, along with changes of negative watershed practices. Traditional ecological knowledge along with mutual and reciprocal agency interdependence will be discussed.

Dunham, Deirdre (St. Lawrence University), and Brian Banton, and C.R. Ramirez-Sosa
[Session XI Poster]

TREE USES IN A SELECTIVELY CUT FOREST IN EL SALVADOR

We conducted a quantitative ethnobotanical study in el Salvador. The uses of all woody stems (except for Lianas) >/ 5cm within a 1 hectare of a selectively cut forest were obtained via field interview of a local elder male. Uses include medicine, technology, food, recreation, and construction. This study demonstrates that this type of forest contains a high percentage of useful plants for the local inhabitants despite human disturbance. This study is part of a long-term ecological study in the country. Future interviews will be conducted with native females for comparison.

Durant, Kanani (University of Hawai'i, Manoa) and Levon 'Ohai, Will McClatchey
[Session IV]

HAWAI'IAN TRADITIONAL RATIONALE FOR SELECTION OF MEDICINAL PLANTS

Recent studies of Pacific Island health care traditions have frequently noted that modern healers use a mixture of plant materials that are indigenous, ancient introductions, and recent introductions. Furthermore, the more commonly used species are often those of recent introduction. We hypothesized that, although the plants being used are of recent origin, the logic behind their selection is ancient and represents a continuous tradition of exploration and incorporation of new pharmacopoeia elements. Hawai'ian traditional logic was explored through participant oriented interviews and training sessions. Sessions were followed by directed questions intended to elucidate rationale for selection of specific plants and means for incorporation of newly encountered plants into existing pharmacopoeia. Rationale for usage of various plants are presented and discussed in light of the hypothesis. Recently introduced plants have been found to be incorporated into modern Hawai'ian pharmacopoeia using ancient logic followed by expansion of their roles using modern and culturally external rationale.

Eloheimo, Marja (The Evergreen State College and University of Washington)
[Session XVIII]

GIFTS OF THE FIRST PEOPLE: AN ACADEMIC (AND PERSONAL) PERSPECTIVE ON A TRIBAL-ACADEMIC COLLABORATIVE PLANT PROJECT

For several years I have been privileged to work with traditional leader, subiyay - Gerald B. Miller, and other members of the Skokomish Indian community on a project to help revitalize the

traditionally close relationship between plant people and human people. Doing so has changed me both professionally and personally. Over the years, the project has expanded from a native medicinal plant trail to the sayuyay Plant Project with medicinal gardens organized by body system, and then to “Gifts of the First People” embracing medicinal as well as edible and other useful aboriginal and introduced plants. In this paper I will discuss my roles in multiple communities with regard to this project - college faculty member, doctoral student, project initiator and coordinator, and friend/colleague of subiyay. These roles often call for conflicting priorities, practices, and even values. As subiyay has stated, I am following “where the trail leads.”

Fediuk, Karen and Brian Thom

[Session XIII]

CURRENT & DESIRED USE OF TRADITIONAL RESOURCES IN A COAST SALISH COMMUNITY: IMPLICATIONS FOR FOOD SECURITY AND ABORIGINAL RIGHTS IN BRITISH COLUMBIA

In 2001 the Hul’qumi’num Treaty Group, which represents Cowichan, Chemainus, Penelakut, Lyackson, Halalt and Lake Cowichan First Nations, commissioned a study of contemporary use of traditional resources (TR). Nineteen percent of households participated. There were important differences between current and desired use of TR. Members articulated reasons for these differences. We suggest that important food security questions can be raised when the results of this survey are seen in context of current poverty and medical census data and the communities own analysis of barriers to harvesting. These questions underscore the importance of being able to continue to exercise aboriginal rights.

Figueroa, Alejandro (St. Lawrence U.), and Carlos R. Ramirez-Sosa.

[Session XI Poster]

MESOAMERICAN FORESTS: THE MAYA CONNECTION

The uses of *Brosimum alicastrum* have been obtained from published studies and surveys of scientists currently working in the region. The seeds of this tree are known to have been consumed by the ancient Maya similarly to corn and that the forests may have been managed for their production. One result of this practice may be the dominance of this tree in Mesoamerican forests. Based on these assumptions we suggest that the uses of *B. alicastrum* are of greater importance to humans in Mesoamerica than in South America, and is perhaps the reflection of the past.

Flaster, Trish (Botanical Liaisons, LLC)

[Session XVI]

MONITORING OF WILD PLANTS: A COMMUNITY EFFORT

U.S. Fish and Wildlife’s Medicinal Plant Working Group has coordinated, with the help of volunteers, U.S. Forest Service, Native Tribes, and Garden Club of America, the ecological monitoring and sustainable harvest of *Actea racemosa* and *Actea podocarpa* populations in several sites on the east Coast. Trish Flaster, Conservation and Ethnobotany committee chair has coordinated a site in the Rocky Mountains for *Ligusticum porteri*. These species are considered “At-Risk” as they are in demand in the natural products industry, but little or no data is available on their biology or chemistry. The research sites are chosen, plotted, plants counted, and root samples chemically evaluated. This is the 4th year of the *Actea* project and the first for the

Ligusticum. The presentation will detail all the collection parameters and the goals of this young, but unique project where volunteers, public and private companies, government, Tribes and non-government agencies work together in the field.

Gade, Daniel W. (University of Vermont)

[Session VIII]

***MANIHOT ESCULENTA*: NOMENCLATURE RUN AMOK**

I discuss the old binomials and the six common names used in English for the plant that is today called *Manihot esculenta* Crantz. In the early nineteenth century, the sweet vs. bitter antimony was enshrined as worthy of species separation; by the 1960s, this duality had been abandoned. The welter of vernacular names used in English – an anarchic language with an overloaded lexicon – has hindered communication and complicated bibliographical searches. Two of them (cassava, tapioca) are metonyms, a usage which has led to confusion between plant and product; two are taken directly from other languages (yucca from Spanish; mandioca from Portuguese); one (yucca) continues to be confounded with a plant in an entirely different family. Only one common name – manioc – deserves to be used throughout the English-speaking world because of its precedence, clarity of meaning and international resonance.

Garibaldi, Ann (University of Victoria)

[Session VI]

BRIDGING CULTURE, RESTORATION, AND ETHNOBOTANY: THE STUDY OF WAPATO (*SAGITTARIA LATIFOLIA* WILLD.) IN INTERIOR B.C.

Integrating research methods from the natural and social sciences is challenging, particularly when seeking to identify and strengthen environmental restoration needs. The definition and exploration of “cultural refugia”— locations that have served as havens from disturbance that may now function as areas for the expansion of traditional ecological knowledge and landscape memory — may be a helpful model. This paper chronicles the process of integrating cultural landscape knowledge in both ecological and social terms through a case study of wapato (*Sagittaria latifolia*) in the Salmon River delta of British Columbia, traditional territory of the Secwepemc people.

Ghimeray, Amal Kumar (Mt. Everest Higher secondary school, Bhaktapur, Nepal)

[Session V]

WILD EDIBLE ANGIOSPERMS OF ILLAM HILLS (EASTERN NEPAL)

Illam hills, North East part of Nepal, surrounded by Jhapa (south), Pachther (west) and India in the East, is rich in biodiversity. Research work was conducted during different months of different years to find out the different types of wild edible angiosperms used by local people, their sources, importance, nutritional value, and economic potential by field and market observation and participatory rural assessment methods. During the study period more than 60 varieties of wild edible angiosperms were found. Their availability in different seasons and marketing status of some of the wild edible angiosperms were studied. Rich diversity occurring in Rosaceae, Euphorbiaceae, Lauraceae, Moraceae, Areaceae, Anacardiaceae, and Dioscoriaceae, are direct substitute of foods of local people. Scientific study on their food values, more economic and nutritional potential have to be studied.

Glover, Denise M. (University of Washington)

[Session XIX]

IS IT ALL A MATTER OF CLASS? VARIATIONS ON MEDICINAL PLANT CLASSIFICATIONS BY TIBETAN DOCTORS IN RGYALTHANG

Tibetan medicinal plants can be classified in a variety of ways. Most contemporary Tibetan texts of materia medica divide plants roughly according to morphology and/or physical characteristics (woody, herbaceous, or having sticky substance). While Tibetan doctors (*emchi*) know this system of classification, they seldom use it when referencing similarities and difference between plants. Through the use of pile sorts, triads, and directed interviews, it is demonstrated that the overriding classificatory system of medicinal plants for practicing *emchis* and pharmacologists is one in which plants are classified according to the illnesses they treat. Other types of medicinal plant classifications by *emchi* are discussed, with possible explanations given for these variations.

Grayson, Donald K. (University of Washington)

[Plenary Session, Thursday 9:00-9:30 a.m., NSH All Sections]

NORTH AMERICAN PLEISTOCENE OVERKILL?

Some 35 genera of mammals became extinct in North America toward the end of the Pleistocene. The best-known explanation of these extinctions maintains that they all occurred around 11,000 years ago and were caused by human—Clovis—hunters. This view, most successfully argued by Paul Martin, has been widely adopted by ecologists and conservation biologists and is beloved by the popular media. It is not, however, particularly popular among archaeologists and paleontologists whose work focuses on the late Pleistocene of the Northern Hemisphere. It is easy to show why this is the case: of the four major premises of the “overkill hypothesis,” only one has any empirical support, and it would seem to be irrelevant to the North American situation.

Greer, Nan (University of Washington)

[Session X]

THE SUSTAINABILITY OF TARO FARMING AS A WETLANDS MANAGEMENT METHOD

Planting taro (*Colocasia esculenta*), an important cultural staple, Hawai‘ians created anthropogenic wetlands supporting diverse species, including the Hawai‘ian stilt (*Himantopus mexicanus knudseni*); coot (*Fulica americana alai*); gallinule (*Gallinula chloropus sandvicensis*); and duck (*Anas wyvilliana*), all endangered. While archaeological evidence of natural wetlands in Hawai‘i is non-existent, historic correlations exist between the decrease in taro acreage and endangered waterbirds. Taro farms are wetland ecosystems providing critical habitat for waterbirds. The author’s research suggests that farmers maintain intricate knowledge concerning wetlands ecology and waterbirds, and that locally derived Traditional Ecological Knowledge provides key insights in designing recovery plans for endangered species and ecosystems.

Hastorf, Christine A. (University of California, Berkeley)

[Session XII]

THE STABLE YET DISSONANT NATURE OF WILD AND DOMESTIC FOOD AT ÇATALHÖYÜK

From the recent investigations at the Anatolian Neolithic site of Çatalhöyük, we have learned that its location was based on a foraging worldview; on a hillock by a river in the middle of a marsh. Many of the foodstuffs gathered and hunted are lacustrine as well as from mountain forests. Its symbolism also is of the wild, portraying wild animals, as well as bringing bones into the houses. There is a parallel world of farming and herding that contributes to the cuisine but not the imagery. Cereals, pulses, goats, and sheep are steadily consumed, but are treated differently in storage and consumption.

Herron, Scott (Ferris State University)

[Session X]

THE CURRENT TRADITIONAL ECOLOGICAL KNOWLEDGE OF THE ANISHINAABEK GREAT LAKES INDIANS

The TEK of Anishinaabek (Ojibway, Ottawa, Potawatomi) plant specialists will elucidate how natural resources can be extracted from the Great Lakes region in an ecologically sustainable manner. The innate and learned observations of the interconnectedness of aquatic and terrestrial ecosystems will be discussed in reference to critical cultural plant resources such as the paper birch, wild rice, sweet grass, American ginseng, black spruce, and tobacco. The mechanisms that maintain the survival of Anishinaabek TEK include the oral tradition, ongoing participation in local and regional ceremonies, and use of evolving symbols such as the medicine wheel.

Housley, Lucile A. (BLM)

[Session III]

“SEED BANKING” OF CULTURAL PLANTS – A LONG TERM STRATEGY FOR SUSTAINABILITY IN SOUTHEASTERN OREGON?

One of the main concerns of Tribal people is the guarantee of sustainability concerning resources on public lands. The glaring problem is – how to define sustainability? Tribal peoples in Southeastern Oregon have confirmed their concerns in terms of having plant resources available to them for collection numbers and needs. This is not defined in terms of biodiversity, biomass, or scientific terms used by land managers. One way to meet different expectations of Tribal peoples and biologists who manage public lands, is by creating a “seed bank” for cultural plants that can be used for restoration of public lands and create sustainable plant communities for Tribal uses.

Huckell, Lisa W. (University of New Mexico) and Christine S. VanPool

[Session V]

THE RITUAL ROLE OF SACRED *DATURA* IN THE PREHISTORIC AMERICAN SOUTHWEST

The use of psychoactive plants for magico-religious purposes is a global phenomenon, with the powerful and dangerous datura among those most widely exploited. Despite a significant Southwestern ethnographic record of use, datura’s place in regional prehistory remains virtually unknown. New information derived from archaeobotany, rock art, ceramic imagery, and distinctive ceramic spiny fruit effigy vessels is used to infer cultural, areal, and temporal

distributions and relationships. The results are evaluated within the broader contexts of an ancient and widespread substrate of shamanism, and a Mesoamerican entheogenic tradition of psychoactive plant use.

Huish, Katherine (Brigham Young University) and Ryan David Huish

[Session IV]

ETHNOBOTANICAL RESEARCH IN TONGA: IN-DEPTH STUDY OF THE TRADITIONAL TREATMENTS FOR INFECTION

Tonga is growing in recognition as an important source of traditional healing knowledge. Since healers use intricate methods of preparation for their treatments, a treatment's success may lie in a specific, time-tested mode of preparation and application. Detailed documentation of traditional preparation techniques is a crucial factor in securing accurate results in association with laboratory tests. Three months of research in Tonga, including over 22 interviews with healers, reveals significant variation in plant preparation techniques for 61 separate treatments against skin and mouth infections. Techniques include the use of acidic solvents, heating, and physical manipulation.

Huish, Ryan David, (Brigham Young University), Rex G. Gates, and Katherine Huish

[Session IX]

ETHNOPHARMACOLOGICAL ACTIVITY OF THE TONGAN ETHNOPHARMACOPOEIA

Much of the ethnopharmacopoeia of Tonga treats infections. During a three month period, ethnobotanical interviews were conducted to identify and collect plants traditionally used to treat skin and mouth infections. Methanol and hexane extracts from these plants were tested against microbes in established laboratory bioassays. Seven of the 36 plant species collected showed significant inhibition (>40%) against the growth of *Staphylococcus aureus*, *Escherichia coli*, and/or *Candida albicans*. The most effective was the MEOH extract of *Syzygium corynocarpum* (Myrtaceae), which inhibited *Staphylococcus* growth by 99.7%. Further fractionation and additional testing are underway.

Ignace, Marianne (Secwepemc Education Society, Simon Frazer University), and Ron Ignace

[Session VI]

TRADITIONAL ECOLOGICAL KNOWLEDGE AMONG B.C. FIRST NATIONS: MEANING AND NARRATIVE

Discourse on Traditional Ecological Knowledge of British Columbia's First Peoples has recognized explicitly the roles of language and narratives as a key component of environmental knowledge systems. Secwepemetsin oral literature, for example, is rich in detail of both specific environmental information - names and cultural applications of various plants, animals and habitats - and peoples' perceptions of the environment that guide and direct their practices and approaches to their lands and resources. Narratives and languages of land-based peoples are particularly important for teaching and disseminating environmental knowledge.

Isaacs, Jon (URS)

[Session XVI]

USE OF TRADITIONAL KNOWLEDGE IN THE NORTH STAR OFFSHORE OIL AND GAS DEVELOPMENT PROJECT ENVIRONMENTAL IMPACT STATEMENT

Federal and state agencies have historically relied on western scientific research and engineering when making decisions on management and development of resources in the Arctic. In doing so they often overlook the knowledge of local residents that is based on years, even generations, of experience and observation. The agencies cooperating in preparing the Beaufort Sea Oil and Gas Development/Northstar Project Environmental Impact Statement (EIS) and BP Exploration Alaska committed to incorporating the traditional knowledge of residents of the North Slope into the EIS. Project elements included developing a Traditional Knowledge Work Plan; collecting and analyzing available written and taped transcripts from previous state and federal oil and gas lease sales, environmental impacts statements, and other applicable hearings; developing a database to catalogue testimony and Traditional Knowledge (TK) collected; developing survey instruments; approving collection protocol and collecting TK in three North Slope communities; and holding meetings with key village informants. Traditional knowledge was incorporated into relevant technical sections in the EIS chapters for 1) affected environment, 2) environmental consequences, and 3) mitigation.

Janni, Kevin D. (University of Hawai'i at Manoa)

[Session IV]

THE ETHNOBOTANY OF *PSYCHOTRIA* L. (RUBIACEAE): A PAN-TROPICAL SYNOPSIS

The pan-tropical genus *Psychotria* L. (Rubiaceae) is one of the largest groups of woody dicotyledons in the world. It has been hypothesized that the ubiquity of *Psychotria* species is a result of a few widely distributed species that have given rise to many narrow endemic species through the evolutionary process of allopatric speciation. This presentation discusses more than 50 species of *Psychotria* that are utilized by indigenous peoples throughout the tropics to treat more than 20 different kinds of ailments. These data demonstrate a global pattern of human knowledge for selecting medicinal plant species. Further comparative studies will enable ethnobiologists to make generalizations about human knowledge of biological resources.

Jones, Linda S. (Sitting Bull College)

[Session XI Poster]

***ECHINACEA ANGUSTIFOLIA*: A STANDING ROCK NATION VIABILITY STUDY**

Echinacea angustifolia has been used medicinally by the Lakota people for thousands of years. Recently *Echinacea* has also become a popular "herbal remedy" for non-Indians. This new-found fame has promoted over-harvesting, which has caused the decimation of many *Echinacea* stands. Commercial cultivation of this herb may afford wild stands some protection. To successfully cultivate *Echinacea*, we must first discover its optimum growth conditions. Eight sites were evaluated for slope, aspect, soil type, stem length, seed count, and plant density. It was found that *Echinacea angustifolia* prefers a 0-2% slope, an eastern aspect, sandy soils, and ample (but no standing) moisture.

Kenny, Mary Bea (Lakehead University) and William H. Parker

[Session VIII]

OJIBWAY PLANT TAXONOMY OF LAC SEUL FIRST NATION, ONTARIO, CANADA

A preliminary study was undertaken to collect plant taxonomic information of the Ojibway (Anishinaabe) of Lac Seul First Nation, Ontario, Canada. Plant classification at Lac Seul is based on gross morphology but also reflects traditional utilization of the plants. The Lac Seul people have names for two overlapping all-inclusive categories representing trees and all deciduous plants. They also recognize five life-form taxa that are clearly morphologically defined: “conifer,” “angiosperm tree,” “shrub,” “herb, fern or fern ally,” and “moss.” Three additional groupings, “medicinal root,” “berry,” and “bark plant” reflect cultural utility and overlap with the five principal life-forms.

Klinhom, Usa (Mahasarakham University, Thailand), Komgrit Wongpakam and Sriarch Kathakorn

[Session XI Poster]

BIODIVERSITY CONSERVATION AND CULTURAL FOREST MANAGEMENT

The objective of this study was to examine ecology in concept of social science and applied science for natural resources management. The Shanon-Wiener Index was used to compare for biodiversity in two type of cultural forest. There were traditional knowledge for separating cultural forest into 3 parts (protected area called “Pa Don Pu Ta”, public area and cemetery area). The result showed that the biodiversity in protected area and public area was not different. Usually the protected area was smaller than the public area at least 3 times. There were some activities such as examining lower jaw of chicken for telling fortune in village. We found that this activity could be used for the environmental.

Kuhnlein, Harriet (McGill University)

[Session III]

DILEMMAS FOR SUSTAINABILITY OF TRADITIONAL FOOD USE IN ARCTIC CANADA

Research with the Dene/Métis, Yukon First Nations and Inuit in the Canadian Arctic have shown the importance of nutrient and cultural benefits as well as contaminant risks of use of several important species. While traditional food comprises a community average of from 6-40% of total daily dietary energy, it is vitally important for several key macronutrients, vitamins, and minerals. Seasonality, age, and gender are determinants of extent of use of wildlife species. The Inuit marine food system contains levels of chlordanes, toxaphene and mercury that exceed current recommendations. Since the use of wildlife as food in Canada is not governed by health protection authorities, complex decision making on consumption is made by the individual.

Lake, Frank K (Oregon State University)

[Session VI]

THE INTEGRATION OF TRADITIONAL ECOLOGICAL KNOWLEDGE AND ETHNOBIOLOGY FOR SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES IN THE KLAMATH-SISKIYOU ECO-REGION, USA

Indigenous people of the Klamath-Siskiyou eco-region developed sustainable management practices by learning to live as a part of their local ecosystems. Traditional Ecological

Knowledge (TEK) and Cultural Environmental Management Practices (CEMP) enabled indigenous people to utilize many local natural resources in ways that fostered or maintained biodiversity and productivity. Ecological literacy and ethnobiology are products of TEK and CEMP that may be integrated with Western science to restore ecological integrity of local ecosystems. Models and examples of TEK and CEMP will be used to discuss how sustainable use and management of natural resources can be achieved today.

LaRochelle, Serge (University of Manitoba), and Fikret Berkes

[Session VI]

TRADITIONAL ECOLOGICAL KNOWLEDGE IN PRACTICE FOR EDIBLE WILD PLANTS: SUSTAINABLE USE OF BIODIVERSITY BY THE RARÁMURI IN THE SIERRA TARAHUMARA, MEXICO

The Rarámuri who live in the Sierra Tarahumara of Chihuahua State, Mexico, have developed harvesting strategies for edible wild plants that have the effect of conserving biodiversity of their forest ecosystem. This paper presents the results of ethnobotanical research undertaken in the community of Basihuare, which shed light on the Rarámuri worldview that respects the interconnected relationship between people and their forest environment. This traditional philosophy forms the basis for sustainable resource management, reflected in strategies of selective harvesting, environmental modification and domestication. These activities provide the opportunity for harvesters to monitor the landscape, as well as present a setting for the communication and exchange of traditional knowledge. The key to sustainability in the Sierra Tarahumara may be the maintenance of traditional management practices for a diversity of edible wild plants that lead to the conservation of biodiversity by creating patchiness and renewing plant cover on the land.

Latina, Luci, (University of Connecticut) Judy Logback, and Heather Lloyd

[Session II]

“WE BRING THE AMAZON TO YOU:” CALLARI COOPERATIVE HANDCRAFT SALES AMONG THE KICHWA IN THE CONTEXT OF A GLOBAL MARKET

Some 15 poverty-stricken Kichwa communities in the Napo Province of Ecuador hand make and market crafts of 100% natural non-timber rainforest products of native Amazonian species. The Callari project was formed in 1998, in an effort to control overharvesting of natural resources and to provide much needed incomes to their families in this region. Callari members monitor production through strict harvesting limits to ensure sustainability. Callari exports select products made from renewable resources. Direct commercialization through a non-profit foundation eliminates intermediaries and guarantees higher profits for artisans as well as offers competitive prices to foreign consumers.

Law, Wayne, (Washington University) Jan Salick, and Norbu Cili

[Session XIX]

COMPARING CONSERVATION PRIORITIES OF USEFUL PLANTS: BOTANISTS AND TIBETAN DOCTORS

In the *Menri* (Medicine Mountains) of the Eastern Himalayas, Tibetan Doctors were interviewed about their most useful plants and the conservation status of these plants. Professional botanists working in the area also helped The Nature Conservancy establish a list of threatened useful plants. We compare these two methods for determining conservation priorities and find they

differ significantly both in species identified (PCA) and in conservation priorities (Wilcoxon Signed Ranks $p < 0.05$). We conclude that opinions from both groups should be considered in establishing conservation priorities and sustainable conservation programs. Variation and patterns within Tibetan medicine as described by the doctors are also discussed.

Lepofsky, Dana (Simon Fraser University), Emily Heyerdahl, Dave Schaepe, Ken Lertzman, and Robert Mierendorf

[Session VI]

**BLENDING TRADITIONAL AND WESTERN SCIENTIFIC KNOWLEDGE:
HISTORICAL DYNAMICS IN CHITTENDEN MEADOW**

We used traditional ecological knowledge, combined with archeological and paleoecological methods to tease out the historical dynamics of Chittenden Meadow, a low elevation meadow in the upper Skagit Valley. The recent history of the meadow results from complex interactions among fire, soil, and climate. The presence of people in the meadow's past is clear, but their role in these interactions remains vague. We hypothesize that the historic cessation of prescribed fires, combined with low spring snowpacks since the late 1970s, are responsible for the recent tree invasion of the meadow. Recreating the ecological context for prescribed burning is important to the Sto:lo who are interested in all aspects of their past, and for managers who want to re-introduce fire in the context of ecosystem-based management.

Lyon, Linda M. (Frostburg State University) and Linda H. Hardesty

[Session II]

**NON-DOMESTICATED MEDICINAL PLANTS IN THE MARKETPLACE SYSTEM
OF ANTANANARIVO, MADAGASCAR**

Non-domesticated medicinal plants are important revenue for Malagasy people. We investigate the reliance and continuing interest in traditional medicine by the Marina people by examining the marketplace system where plants are distributed. Data were collected over six weeks using various survey techniques resulting in an intensive inventory of plants with medicinal purposes from all over the island. Recorded were how illnesses were treated using combinations of medicinal plants prescribed by vendors. Our analysis also depicted a lack of understanding among vendors of the pressures placed on plant resources. Trends were examined from a behavioral ecology approach to resource use.

Manzanero, Gladys (Jardín Botánico Regional, Oaxaca) and Alejandro Flores

[Session XI Poster]

**ETHNOBOTANY ZAPOTECO HOMEGARDENS IN THE RINCON'S ZONE IN
OAXACA, MEXICO**

The zapoteco homegardens are common in most of the houses in the Rincon's zone in Oaxaca. They are managed for the woman of the house. We carried out a study of the socioeconomic, cultural, biotic, and kind of use of the plants of ten zapoteco homegardens. We used a hierarchical clustering method to understand the similarities between these homegardens. They had variability in their floristic composition, life forms, and kind of use. The variability could be the response of the homegarden boss (almost always a woman) to her principal activity or the necessity of food for the family.

McCune, Letitia (McGill University)

[Session IX]

THE IMPORTANCE OF PLANT PART SELECTION ON THE ANTIOXIDANT ACTIVITY OF TRADITIONAL PLANT REMEDIES

Antioxidant levels are important in diabetes and the complications of diabetes. Different plant parts of 35 medicinal species used for the symptoms of diabetes and the complications of diabetes by the Indigenous Peoples of the boreal forest of Canada were analyzed for antioxidant activity. Significant differences in activity were observed between the extracts of those parts used medicinally, the other parts sampled from the same species, and from parts selected at random. The results scientifically verify the importance of traditional gathering practices in the selection of plant parts used in traditional plant remedies.

McMillen, Heather (University of Hawai'i)

[Session IV]

MERGING MEDICINES: A CASE STUDY OF BIOMEDICAL AND INDIGENOUS MEDICAL PRACTITIONERS IN TANZANIA

Using the example of a Tanzanian healer who specializes in treating HIV/AIDS, I will discuss healer-bioscience interactions. These interactions are multi-directional, with knowledge flowing from hospital to healer (e.g., biomedical models of disease) and *vice versa* (e.g., local illness categories, plant medicines). In this case study, hospital nurses are involved in distributing the healer's plant medicine to patients. A discussion of this relationship illustrates the effects of healer-bioscience interactions, including the refashioning of adopted knowledge (both indigenous and biomedical) and modifications in the work and status of healers and biomedical health workers.

Miller, Gerald Bruce – subiyay (Traditional Leader, Skokomish Indian Tribe)

[Session XVIII]

GIFTS OF THE FIRST PEOPLE: A COLLABORATIVE (TRIBAL-ACADEMIC) PROJECT INVOLVING INDIGENOUS MULTI-USE OF ABORIGINAL AND INTRODUCED PLANTS IN THE PACIFIC NORTHWEST

"Gifts of the First People" is the theme of this cooperative project. According to Twana belief, the trees and plants were the first created people. Their gifts to those who were created later were food, medicine and materials for survival. I have been working with Marja Eloheimo and her students from The Evergreen State College on this and other projects for the past eight years. Earlier, the project was called "sayuyay" ("medicine of the plant people") and involved only aboriginal medicinal plants from Twana territory. In retrospect, however, my ancestors quickly adopted the use of valuable introduced plant species into our culture. This is the direction that the project now takes. Our demonstration garden is becoming home to over two hundred and twenty five plant species from our traditional gathering environments as well as other herbal traditions. Our garden demonstrates plants for food, medicine, basketry, dye, spiritual health, and fragrance. Some are endangered and some are difficult to propagate. I will discuss how some aspects of our new venture mirror ancient traditional ways.

Minnis, Paul, (University of Oklahoma), Michael Whalen and Ryan Howell

[Session XII]

PREHISTORIC FARMING AND FEASTING AT CASAS GRANDES, CHIHUAHUA, MEXICO

Casas Grandes, in northwestern Chihuahua, was one of the major communities in the ancient Puebloan world. Recent research at a secondary center (site 242), study of its artifact assemblages, as well as analysis of nearby fields suggest that political integration, if not control, in the surrounding region was aided by elite control of some food production and production of food or drink for communal feasting.

Mitchell, Todd (Swinomish Indian Tribal Community)

[Session XVI]

NATIVE USES OF WETLANDS AND NATURAL RESOURCE PLANNING

The Swinomish Indian Tribal Community's Wetlands Cultural Assessment Project is developing an understanding of Swinomish cultural values of wetland systems. The "traditional" wetland inventory and assessment methods do not adequately identify wetland functions or uses related to Tribal cultural values. Without a cultural assessment, culturally important values may not be correctly integrated into resource management and policy. This project will develop a cultural resource module that can be incorporated into wetland assessments to better inform natural resource management and policy development. In developing this module, local native knowledge will be gathered about the traditional uses of native wetland vegetation and wildlife. Vegetation and wildlife habitat requirements will be related to the wetlands in the wetland inventory and GIS mapfiles will be updated with this information. With this local native knowledge incorporated into wetland assessments, we hope to protect and preserve Reservation wetlands for both cultural uses and ecological functionality.

Morales, Helda (El Colegio de la Frontera Sur)

[Session XIV]

PEST MANAGEMENT IN TRADITIONAL TROPICAL ECOSYSTEMS: LESSONS FOR SUSTAINABLE AGRICULTURE

Here, I review the scanty literature on traditional pest management in the tropics and present results of interviews conducted by my research team in the highlands of Guatemala and Chiapas. I discuss how traditional practices involving site selection, soil management, timing of planting and harvesting, crop resistance, intercropping, weed management, harvest residue management, repellents and traps may enhance natural regulation of potential pests. I conclude that although pest management professionals focus most of our efforts on pest *control*, the *preventative* approach taken by traditional farmers is more efficient.

Nolan, Justin M. (University of Arkansas), Michael C. Robbins, Douglas B. Noltie, and Todd R. Gemeinhardt

[Session VIII]

CATCHING ON: COGNITION AND THE ACQUISITION OF FRESHWATER FISH EXPERTISE

This study examines how the acquisition of expertise through formal training influences cognition from a longitudinal perspective. Here we focus on the domain of freshwater fish, using ethnoscientific methods to investigate the similarity judgments by fisheries and wildlife students

both before and after the completion of a course in Ichthyology. Using a control group of Anthropology students for comparison, we find that both groups adopt a perceptual-functional system of classification at time 1, while the Ichthyology group shifts to a phylogenetic method after the course at time 2. The control group demonstrates no change. We suggest that educators concerned with this sustainable resource can profit from these findings by appropriately structuring both scientific and public communications.

Oguamanam, Chidi (University of British Columbia)

[Session XIII]

OPTIONS FOR THE PROTECTION OF TRADITIONAL KNOWLEDGE: TOWARDS A CROSS-CULTURAL DIALOGUE ON INTELLECTUAL PROPERTY RIGHTS

This paper re-examines the debate over the protection of traditional knowledge in the specific context of traditional medicine and the patent regime of intellectual property rights. It reviews recent institutional developments for the protection of local knowledge at the WIPO and CBD levels which point to the dawn of a cross-cultural outlook on intellectual property rights. The outlook focuses on the customary protocols and regimes for the protection of local knowledge in indigenous communities. The paper will examine the potentials and challenges posed by this approach and how it advances the global search for appropriate protection for local knowledge.

Ostraff, Melinda (Brigham Young University)

[Session II]

LIMU: SEAWEED IN TONGA – A SUSTAINABLE RESOURCE?

Seaweeds (*limu*) have a long tradition of human use in Tonga. Poorer families who reside near tidal areas rely almost exclusively on ocean resources for their family's nutritional needs and eat *limu* as part of their regular diet. However, most Tongans consume *limu* as a novelty item in their diet, with the exception of times of stress that follow major hurricanes and droughts. One specific type of *limu*, *tanga'u* (*Cladosiphon* sp.), is now being commercially harvested in Tonga and sent to Japan. There are no rules or laws establishing a gathering season nor restricting the amount of *limu* that can be harvested. Conservation is practiced primarily on a passive level in Tonga, meaning that conservation takes place mostly because of other issues. Up until now, *limu* has been a sustainable resource. In this paper I will investigate the lack of formal conservation methods, limited research, and recently introduced industrial farming techniques that impact the future of *limu*, as a sustainable resource.

Peacock, Sandra (Okanagan University College)

[Session XVIII]

“THE MOUNTAINS ARE OUR PILLOWS:” HIGH PLACES IN THE LIFE OF A PLAINS PEOPLE

The Blackfoot-speaking Piikáni peoples have a long and intimate relationship with *mistakis* or “the backbone” – the Rocky Mountains that form the rugged western margin of their traditional homelands in Alberta and Montana. *Mistakis* is the home of the Thunderbird, a place of visions, the source of sacred medicine bundles, and the location of numerous plants and animals essential to Piikáni physical and spiritual well-being. This paper explores this ancient and enduring relationship and the role of these high places in sustaining generations of Piikáni people.

Pearsall, Deborah M. (University of Missouri)

[Session XII]

DETECTING AGRICULTURE IN THE ENVIRONMENTAL RECORD

Early indications of prehistoric agriculture in forested environments are often environmental disturbances identified in paleoenvironmental records. The onset of swiddening (4500-7000 B.P.) and intensive agriculture (2300-4000 B.P.) in the Neotropics has been identified using such indicators. Underlying interpretations is a model for agricultural evolution formulated by Boserup, that agriculture evolved from extensive to intensive. I discuss an alternative model proposed by Denevan, that agriculture began as annual cropping in floodplains, and explore implications of this perspective. An example from lowland Ecuador suggests that floodplain environments were cropped prior to forested uplands, culminating in an agricultural system sustainable for 3000 years.

Pfeiffer, Jeanine (UC Davis, ECO-SEA) and Tado Community

[Session I]

THE IMPORTANCE OF CONSIDERING GENDER IN ETHNOBIOLOGICAL RESEARCH, PART I: A QUANTITATIVE ANALYSIS OF EDIBLE PLANTS FROM EASTERN INDONESIA

To date, most quantitative ethnobiological studies calculating ethnobotanical use values, plant cultural significance values and variation in ethnobotanical knowledge have relied primarily, if not exclusively, on surveys of male knowledge. In cases where women were also surveyed, no analytical distinction was made between male and female knowledge. This lack of gender consciousness results in biased research design, imbalanced analysis, and potentially erroneous conclusions, which in turn affect the theoretical and empirical implications of the studies. This paper, Part I of II, presents the results of an ethnobotanical study where gender considerations were incorporated from start to finish in a quantitative study using matrixed survey design and nonlinear statistics. The results of the study are contrasted and compared with related studies on wild-harvested foods from North and South America, Asia and Africa.

Pfeiffer, Jeanine (UC Davis, ECO-SEA) and Henderikus Eddy

[Session XIII]

FIELD ETHICS 101 FOR ETHNOBIOLOGISTS: INCREASING EFFICACY, RELEVANCE AND POWER OF COLLABORATIVE RESEARCH

Ethnobiology is a scientific discipline ideally suited to collaborative research with local communities and practitioners. Involving locally trained research associates, indigenous parataxonomists, tribal elders, and native experts in research design, analysis, and publications can greatly increase the scope and relevance of field studies. Field research alone is powerless to reverse the loss of biocultural diversity or to protect endangered societies. Participatory field research - research activity involving indigenous peoples/local communities in research design, implementation, analysis, and application to real life issues – has the potential and the power to guide native communities in making more informed choices regarding their cultural and ecological futures. By working collaboratively, local peoples and outside researchers can develop and test the conceptual and empirical tools necessary to identify endangered traditions and natural resources, determine the forces which threaten them, and develop strategies to conserve both biological and cultural diversity.

Ramirez-Sosa, Carlos R. (St. Lawrence University) and Larry French

[Session IX]

WHY STUDY THE LIFE SECRETS OF ENDEMIC MEDICINAL PLANTS?

Endemic medicinal plants need to be studied beyond their uses. This is particularly important if they have high potentials for the treatment of infectious diseases. Their demise can be prevented by understanding their ecology to allow us to propagate them *in vivo* or *in vitro*. *Aristolochia salvadorensis* (Aristolochiaceae) is an example and model that involves both scientific and ethical challenges. Family-specific acids and a novel compound have been isolated from the roots. Its ecology and reproductive biology have been studied. We suggest that basic research should always be done before endemic medicinal plants are collected from wild populations.

Ramos-Elorduy, Julieta (Instituto de Biología, UNAM), and José Manuel Pino Moreno

[Session XIV]

CONSERVATION OF SOME EDIBLE INSECTS IN MEXICO AND THEIR SUSTAINABILITY

In the research “Insects as Source of Proteins in the Future,” we have recorded 504 species of edible insects in different states of Mexico. These species number, their consumption daily, their seasonal exploitation, and care given to them by peasants indicated to us their possible sustainability and their importance as a natural renewable resource in the nutrition and the economy of diverse ethnic groups that dwell in our country. Many of them have been used since pre-Hispanic times and are still used today. We show some examples of their utilization, handling, conservation and achieved sustainability.

Reed, Matthew A. (St. Lawrence University), and Carlos R. Ramirez-Sosa

[Session XI Poster]

POLLINATION BIOLOGY OF AN ENDEMIC MEDICINAL PLANT FROM EL SALVADOR

The pollination biology of *Aristolochia salvadorensis* (Aristolochiaceae), an endemic medicinal plant of El Salvador was studied during the summer of 2002, the rainy season in El Salvador. Plants with flowers were observed throughout the day, when the insects are active. Insects visiting the flower were captured and photographed using a Nikon digital camera mounted on a Leica stereomicroscope. Results indicate that, unlike several other *Aristolochia*, various invertebrates may contribute to the pollination of the species, among them are flies, beetles and ticks. These kinds of studies are important in the conservation and management of medicinal plants.

Rosas López, Rocio (UBIPRO, Fes-Iztacala, UNAM), and Martín Paredes Flores, Isabelle Blanckaert, Rafael Lira, and Patricia Dávila Aranda

[Session XIV]

THE USE OF PLANTS IN TWO INDIGENOUS COMMUNITIES ON THE VALLEY OF TEHUACÁN-CUICATLÁN: SAN RAFAEL-COXCATLÁN AND ZAPOTITLÁN DE LAS SALINAS, PUEBLA

Comparative ethnobotanic study about the knowledge and use of plants in two communities of the Valley of Tehuacán-Cuicatlán, Puebla, inhabited by two indigenous groups: Popólocas in Zapotitlán-Salinas and Nahuas in San Rafael-Coxcatlán. The results show that the people in these communities used 495 species (50% of all plants reported for all Valley of Tehuacán-

Cuicatlán). 289 plant ethnospecies were quoted, mainly for food, firewood, and medicine in both communities. People from studied communities depend on the native vegetation and classify the plants according to the places from which they get these resources. Besides the wild species directly extracted from the vegetation, there are other kinds of management, such as cultivation.

Rucks, Penny (Meredith) (Consulting Ethnographer)

[Session X]

WADÁKŠA[?]: WASHOE SPINACH

A presentation on research with elders of the Washoe Indian Tribe of Nevada and California into the historic use and significance of *Lupinus polyphyllus*. Although no longer a component of contemporary diets, *wadákša[?]* is remembered as an important leafy green, spring tonic, and winter food. Traditional harvesting and preparation is discussed, as is the nutritional and cultural significance of these potentially toxic emergent greens. The use of this tonic-vegetable is compared to *Stanleya pinnata* by the Northern Paiute (and others). Findings are presented to elicit information about similar uses by other groups.

Salick, Jan (Organizer, Missouri Botanical Garden)

[Session XVII]

INTELLECTUAL IMPERATIVES IN ETHNOBIOLOGY: OPEN DISCUSSION ON NSF WORKSHOP

The National Science Foundation is funding a process by which we ethnobiologists are invited to intellectually define our field, its intellectual content, methods, and applicable analyses and to review the present state of and need for education, funding and international collaboration in ethnobiology. An initial workshop was held at the Missouri Botanical Garden that brought together a broad array of mid-career ethnobiologists from ten countries representing fields from archaeology to mathematics, from systematics to ethnography, and from pharmacology to linguistics. Now we open the discussion to include the full membership of the Society of Ethnobiology. How can we meet NSF's expectations for high quality research while maintaining our interdisciplinary strengths? This discussion will result in a white paper on ethnobiology within the purview of the National Science Foundation. Please discuss your positive perspectives on research objectives in ethnobiology; on modern methodology appropriate for studying plant/animal-people interactions; on quantitative analyses for our multidisciplinary data; on interdisciplinary education models to train students and practitioners of ethnobiology; on academic funding sources for ethnobiology; and on international collaboration within ethnobiology.

Salick, Jan, Jessica Woo, Ruth Sherman, Norbu Cili, An na, and Sonam Dorje

[Session XIX]

TIBETAN ETHNOBOTANY AND GRADIENT ANALYSES OF *MENRI* (MEDICINE MOUNTAINS), EASTERN HIMALAYAS

People, plants and their interactions respond to environmental gradients; this is particularly significant along elevational and aspect gradients in the eastern Himalayas (2500-5000 m), NW Yunnan. Canonical Correspondence Analysis (CCA) shows strong correlations among vegetation, plants used by Tibetans, and these environmental variables. Species richness (S) and diversity (H') of useful plants and plant biodiversity are highest at elevations >4200m—Alpine Meadows—which we prioritize for conservation. Additionally, there is a high correlation

between useful plant species and plant biodiversity (S: $R>0.6$, $p<0.0005$; H': $R>0.8$, $p<0.0005$). This emphasizes the vital link between biodiversity conservation and sustainable natural resources of priority to local people.

Salmón, Enrique (Fort Lewis College)

[Session XVIII]

BRINGING THE CLOUDS HOME: THE HOPI PLANT REDISTRIBUTION PROJECT

Loss of biodiversity is increasing the gradual decline of traditional land ethics that harmonize Hopi land-use with the natural world. When traditional land management stops, the ceremonies stop, as well as the Hopi knowledge of land management that preserved their local environment for so many centuries. Village elders contacted the lead researcher to ask if he would be interested in conducting the Hopi Plant Redistribution Project (HPRP) to aid them in their desire to redistribute several culturally important plants near the villages where they are used. The project will locate, identify, re-propagate, then transplant selected plants near the villages.

Sepez, Jennifer (NOAA Fisheries), Moses Dirks, and Jay Orr

[Session XVI]

THE NAME OF THE FISH: USE OF INDIGENOUS LANGUAGE IN CREATING SCIENTIFIC NAMES FOR NEWLY DISCOVERED SPECIES

In “The Name of the Rose” Umberto Eco implicitly argues against Shakespeare’s “rose is a rose” object ascendancy, elevating the importance of the power of language itself. In this case, the object is a nameless fish. The paper describes a collaborative effort between NOAA Fisheries scientists (a taxonomist and an anthropologist) and speakers of Unangan, the Aleut language, to name a newly recognized species of snailfish (*Careproctus* sp.). This effort represents the first time such a collaborative endeavor has been undertaken by NMFS, and is part of a larger trend in the agency towards integrating traditional native knowledge into fisheries science. Though the name and the knowledge of this fish are new, the naming process honors the ongoing relationship between the people of the Aleutian Islands and the local environment, and recognizes the power of naming, beyond just the referential.

Sharma, G.K. (University of Tennessee, Martin)

[Session IV]

ETHNOMEDICINAL FLORA AND LOCAL HEALTH TRADITIONS IN LADAKH

Beyond the captivating Himalayas, the crystal-clear skyline, and the rich heritage of Buddhism, one specific aspect of Ladakh that has always fascinated the medical community is the indigenous system of medicine and the medicinal flora of this elusive region. Amchi system (Tibetan) of medicine, which is an ancient offshoot of the Ayurvedic system of medicine, is the indigenous system of medicine, in which herbs, minerals, and animal products are utilized for the treatment of a wide variety of ailments. The Outer Himalayas are the main source of the medicinal herbs used in Amchi system of medicine.

Stevens, Michelle (Eden Again Project, Iraq Foundation) Suzie Alwash, and Azzam Alwash
[Plenary Session, Thursday 9:30-10:10 a.m., NHS All Sections]

ECO-CULTURAL RESTORATION OF THE MESOPOTAMIAN MARSHLANDS IN SOUTHERN IRAQ

The Eden Again Project is developing an eco-cultural restoration plan for the Mesopotamian Marshlands, assisted by both a scientific Technical Advisory Panel and ethnographic interviews with exiled Ma'dan people. Since 1991, over 7,000 square miles of marshlands have been drained and approximately 300,000 Iraqi people exiled or “disappeared.” Marshes were traditionally tended through burning and harvesting of reeds for mat weaving, Mudhif (guesthouse) and home construction, fodder production for water buffalo, and fish, and waterfowl habitat. The conceptual restoration plan will address remediation, needs of returning refugees, local capacity building and stewardship, limited water supply, conservation biology and diminished wetland resources.

Storm, Linda (University of Washington)

[Session XV]

PRAIRIE FIRES AND EARTH MOUNDS: THE ETHNOECOLOGY OF MIMA MOUND PRAIRIES

A synthesis of historical, ecological and ethnographic data suggests that some Native peoples used and managed prairie ecosystems in North America. People in California, Washington, and Texas managed important root and seed food resources by intentional broadcast burning and other horticultural practices. Prairies with Mima mounds may have contributed to wild plant food cultivation, because their form and associated functions for routing and dispersing water around the mounds could enhance both spatial diversity and seasonal abundance of selected plants. A conceptual model that describes how fire-managed Mima mound prairies might have contributed to traditional ecological management of prairies will be presented.

Subiyay (Listed as: Miller, Gerald Bruce)

Todt, Donn (Ashland Parks Department), and Nan Hannon

[Session XV]

ACORN ECONOMICS

A fourteen-year record of acorn production along the Oregon-California border demonstrates the variability of the acorn crop produced by two species of oaks. Variability in production correlates with masting cyclicity that is in turn influenced by climatic trends. Understanding the diachronic variability and trends of oak masting has practical applications in the fields of wildlife management, landscape ecology, conservation biology and landscape restoration. Our primary focus, however, is to report a longitudinal record of masting variability and to suggest how that variability may have influenced the economies and adaptations of regional pre-contact Native American peoples.

Todt, Donn (Ashland Parks Department), and Nan Hannon

[Session V]

BLOSSOMS FROM THE FLOWERY KINGDOM

Chinese sacred lilies (*Narcissus tazetta* var. *orientalis*) are one of the few non-Chinese ornamental flowers to be integrated into traditional non-Chinese culture. To Chinese living

abroad they were (and are) easily portable and living reminders of home and tradition. In Chinese-populated mining towns of the Fort West they were grown and displayed as an accompaniment to the traditional Chinese New Years Celebration. The plants were then incorporated into local garden floras where they persist in some climatically favorable locations.

Trusler, Scott (Wintergreen Consultants), and Leslie Main Johnson

[Session XV]

“BERRY PATCH” AS A KIND OF PLACE: THE ETHNOECOLOGY OF BLACK HUCKLEBERRY RESOURCES IN NORTHWESTERN CANADA

The Gitksan and Wet’suwet’en of Northwestern British Columbia formerly managed patches of black huckleberry, which was the most important plant resource of their seasonal round. Managed sites included patches of a wide variety of elevations, aspects, and moisture regimes. Proximity to salmon fishing sites, village sites, or sites for harvest of alpine resources such as mountain goat or marmot proved to be a common factor in known historic berry patch sites. We conclude that characterization of the ideal site type for aboriginal *Vaccinium membranaceum* management must include the economy and social institutions of the local First Nations.

Turner, Nancy J. (University of Victoria)

[Session VI]

THE DYNAMICS OF PEOPLE-PLANT RELATIONSHIPS: EXAMPLES FROM THE GITGA’AT FIRST NATION OF HARTLEY BAY, BRITISH COLUMBIA

The Gitga’at are a Tsimshian-speaking people whose main community is Hartley Bay on the north coast of British Columbia. Preliminary studies indicate that at least 90 plant species are known to one or more Gitga’at elder, with nearly 170 different uses. Salience of these species has diminished over the past 200 years; today only 35 species and 55 uses have moderately high to high salience. Reduced levels of use and knowledge of these plants are attributable to: functional replacement by introduced plants or product; loss of use/knowledge continuity due to changing lifeways, perspectives, and educational practices; and loss of easy access to species because of economic restructuring.

Wilcox, Wendy (Brigham Young University)

[Session II]

BLENDING OLD AND NEW GARDENING METHODS IN TONGA

The traditional Tongan diet is continually being influenced and changed by the marketing and importation of Western food. Soda pop, ice cream, and white bread have made their way into nearly every home on the islands. Despite these influences, many families still rely on the traditional resources of the land and sea. Traditional farming techniques combined with home gardens help satisfy dietary needs. Commercial crops are grown for income to purchase additional goods. In this paper, I will discuss how traditional growing methods are blended with home gardening and commercial crops to support and feed growing families.

Williams, Dai

[Session XII]

THE USE OF NETTLE BAST IN CORDAGE AND CLOTHING IN RURAL JAPAN

The oldest known example of woven cloth in Japan was discovered at a shell mound dating from the Jomon period at around 6000 years ago and was made of nettle bast. There are a number of

types of nettle native to Japan and all those used for producing fiber are perennials. In remote rural communities they were harvested each fall and the bast was used widely for cordage and everyday work clothing. The strength and durability of their thread gave all nettle fibers an important place sustaining the rural economy of areas where they grow.

Wongpakam, Komgrit (Walai Rukhavej Botanical Research Institute), Bhuvadol Gomontean, Sutira Kumkatak, Kuekoon Pimdee, Weera Thongnetr, and Khathakorn Seear

[Session XI Poster]

SURVEY SPECIES DIVERSITY OF CULTURAL FOREST (NONPROTECTED AREA IN RURAL) NORTHEASTERN THAILAND

This poster presents a study of species diversity in cultural forests in northeastern Thailand. The study was conducted in Po Pan cultural forest (non-management area) at Na Doon district and Sue Taow cultural forest (management area) at Chieng Yuen district in Maha Sarakham Province. There were 63 species and 78 species of flora in Po Pan cultural forest and Sue Taow cultural forest, respectively. There were 105 species (59 avian species, 23 amphibian species, 15 reptilian species, and 8 mammalian species) in Po Pan cultural forest and 130 species (80 avian species, 22 amphibian species, 15 reptilian species and 13 mammalian species) and in Sue Taow cultural forest. The diversity of flora and fauna in Sue Tao cultural forest was higher than in Po Pan forest because of larger forest area, better forest management, and local organization.

Xu Jianchu (Kunming Institute of Botany)

[Session XIX]

ETHNOECOLOGY: PRINCIPLES AND PRACTICES FOR RESOURCE GOVERNANCE IN NORTHWEST YUNNAN, SOUTHWEST CHINA

Northwest Yunnan has been internationally identified as a globally significant region for its rich biodiversity, rare ecosystems and high concentration of endemic biodiversity. Many conservation targets within the region are significant for their rarity, the ecological services they provide and for their role in supporting habitats of rare and endemic species. In the past, NW Yunnan's abundant natural forests were seen as a valuable resource with which to fuel economic growth. Following disastrous flooding of the Yangtze River in 1998, natural forests have become increasingly valued by government for watershed protection. A ban on logging in all natural forest has had major adverse impacts on rural livelihoods. NW Yunnan has an extensive system of nature reserves, which aim to conserve biological diversity. However, the region is also heavily populated by peoples who are excluded by nature reserve regulations from access to a variety of natural resources that are essential to their livelihoods and well-being. To address the diversity, dynamics and complexity in NW Yunnan, an innovative ethnoecology approach to biodiversity conservation is required.

Yongping, Yang (Kunming Institute of Botany)

[Session XIX]

ETHNOBOTANICAL KNOWLEDGE AND SUSTAINABLE USE OF TARO (*COLOCASIA ESCULENTA* L.) IN YUNNAN, CHINA

Yunnan is located in the southwest China, bordering with Southeast Asian countries. It is well-known in China for its rich unique physical conditions, biological and cultural diversity. Taro (*Colocasia esculenta* L.) is a widespread cultivated root crop in Yunnan, with enormous wild,

feral taro plants and a variety of traditional taro cultivars. On the basis of our field surveys, this paper presents Yunnan's rich taro diversity and relevant ethnobotanical knowledge in terms of cropland selection and management, processing and storage methods, indigenous nomenclature and taxonomy of taro. Meanwhile, the threats and potential countermeasures for sustainable use of taro are primarily discussed.