
33rd ANNUAL MEETING OF THE SOCIETY OF ETHNOBIOLOGY
ʔAtʼagimma (The Spirits of the Forest)
Design used with permission of Kʷ axsistalla
VICTORIA, BC MAY 5-8, 2010

THE CONFERENCE LOGO AND THEME

The logo for the 33rd Annual Meeting of the Society of Ethnobiology was generously donated for the event's use by K^{w}axsistalla, Clan Chief Adam Dick and was created by his nephew, Chief George Shaughnessy and Verna Barker. The artists hold the copyright to the specific design and K^{w}axsistalla owns the cultural and IP rights to the dance and all its uses. The design is the Grouse dancer, the principle character of the Atla'gimma or Spirits of the Forests Dance Complex. K^{w}axsistalla inherited the Atla'gimma from his father's side through Chief Pasa'lathl of Wuikinuxv (Rivers Inlet). Only four sets of Atla'gimma dances came out of Wuikinuxv generations ago and today's owners are K^{w}axsistalla, Chief Richard Johnson, and the Mountain and Webber families.

Our conference theme, "The Meeting Place" is well represented by the Grouse and the other Atla'gimma spirits who gather in the ceremonial "bighouse" to share in the song of sacred interactions that keep the forest ecosystem alive. Just as each Atla'gimma character has their own dance, every ethnobiologist has their own discipline and interests. But, the synergisms of shared knowledge, like the magic of each Atla'gimma spirit dancing to the same music, is far more powerful than the sum of the parts. At our conference, we will "integrate ethnobiological knowledge" by embracing the many different ways of knowing, teaching, and learning about the complex relationship between humans and the natural world, and in doing so, discover a brighter reflection in the eyes of our colleagues.

ACKNOWLEDGMENTS

Our appreciation and respect go to all the First Peoples of British Columbia, Canada and other parts of the world. We especially acknowledge the Lekwungen (Songhees and Esquimalt), Saanich, and other Straits Salish peoples of southern Vancouver Island, as well as the Hulquminum, Kwakwaka'wakw, Ditidaht and Nuu-chah-nulth Nations and communities of Vancouver Island. We are particularly grateful to our friends Greg Sam, Joan Morris, Chief Adam Dick (K^{w}axsistalla), Dr. Daisy Sewid-Smith, Kim Recalma-Clutesi, Chief George Shaughnessy and Verna Barker, and to Fran Hunt-Jinnouchi, Director of University of Victoria's Office of Indigenous Affairs. Fran Hunt-Jinnouchi is also Co-Chair of The First Peoples House Advisory Council, along with Robina Thomas of the School of Social Work; they and the other Council members have graciously allowed us to use this magnificent building as part of our conference venue, especially for the poster session on Thursday and the banquet and "Spirits of the Forest" dance presentation with K^{w}axsistalla on Friday evening.

We gratefully acknowledge the Patrons of First Peoples House: the Honourable Steven L. Point, Lieutenant Governor of British Columbia, and Mrs. Gwendolyn Point. We are grateful to our conference sponsors, including the Murphy Foundation, University of Victoria President and Vice-Chancellor David Turpin, UVic Vice-President Academic Jamie Cassells, Simon Fraser University Vice-President Academic Jon Driver, UVic's School of Environmental Studies and particularly its Director Eric Higgs and School Administrator Lori Erb. We are very grateful to Gary Mitchell, Judith Brunt and the Executive of the Royal BC Museum for making it possible to use the beautiful museum gallery for our Wednesday night reception.

For various critical logistical pieces of the conference, we also acknowledge the Queen Victoria Hotel and particularly Gillian Kleu, and Miranda Kwok, Ronette Nyhan, and especially Lindsay Thompson at the Marriot Hotel. We also thank Val Wilson and Wilson's Transportation Ltd, Jan House at the UVic Housing Department, Daphne Andrews at UVic catering, and Truffles Catering.

For our field trips, we are hugely grateful to Diane Hinkley, Luushiim (Arvid Charlie), Tim Kulchyski, and Ken Elliott, Earl Claxton Jr., Virginia Espinoza, Grant Keddie, Andy MacKinnon, Darcy Mathews, Jen McMullen, Sinclair Philip and the staff at Sooke Harbour House, Lewis Williams, and Nikki Wright.

We take our collective hats off to Cheryl Takahashi – our webmaster. Cheryl has gently and expertly guided this group of anti-technology ethnobiologists into the 21st century. Steve Wolverton, our Society treasurer, Cissy Fowler, our Society secretary, and Natasha Duarte at ISE, did an enormous amount of behind the scenes organizing. Thank you, all!

And, finally, we acknowledge the many, many volunteers who donated their time and good energy to make this event happen. In particular, we thank Kelly Bannister, Brenda Beckwith, Trevor Bennett, Kristina Bowie, Megan Dilbone, Ann Garibaldi, Thiago Gomes, Geneviveve Hill, Jessica Hoskins, Eric McLay, Heather McLeod, Kate Proctor, Naomi deVille, and Shinsaku Shiga. A big thank-you is also due to all of the numerous volunteers who helped with set-ups, clean-ups, and the chaos of conference registrations!

It definitely takes a community to organize an event such as this – and we are hugely grateful to be part of such a wonderful community.

– The organizing committee: Abe Lloyd, Andra Forney, Dana Lepofsky, Denise Glover, Elizabeth Easton, and Nancy Turner.

OVERVIEW SCHEDULE

WEDNESDAY, MAY 5 SCHEDULE

Time	Event	Location
3 – 6 pm	Tour of Ethnobiological Collections – open to all	Royal British Columbia Museum, downtown Victoria
6:30 – 9:30pm	Opening reception, registration, t-shirt sales	First Nations Hall, Royal British Columbia Museum, downtown Victoria

A note about BREAKS: We realize the presentation schedule is very full and there are not as many breaks as would be ideal! However, we opted to have fewer breaks so that we could also have fewer concurrent sessions (i.e., three instead of four). On Thursday and Friday light refreshments will be in the foyer of the Bob Wright building from 7:30 am until 11:30. Snacks, tea, and coffee will also be provided mid-morning (9:30 – 11:30am) and mid-afternoon (2:30 – 4:30pm).

AWARD COMMITTEES

Poster award adjudication committee:

Kimberlee Chambers, Willamette University
Jan Timbrook, Santa Barbara Museum of Natural History
Cassadra Quave, University of Arkansas Medical Sciences

Barbara Lawrence Award adjudication committee:

Kris Gremillion, Ohio State University
Justin Nolan, University of Arkansas
Steve Webber, Washington State University (Vancouver)

THURSDAY, MAY 6 DAYTIME SCHEDULE –ALL EVENTS ARE AT THE UNIVERSITY OF VICTORIA

<table>
<tr><th>Time</th><th>Bob Wright Center
Room B150</th><th>Bob Wright Center
Room A104</th><th>MacLauren Bldg
Room D288</th><th>Foyer, Bob Wright
Center</th></tr>
<tr><td>7:30</td><td></td><td rowspan="2">---
---</td><td rowspan="2">---
---</td><td rowspan="2">Registration, t-shirt sales
(until 5pm)</td></tr>
<tr><td>8:30
9:00</td><td>Opening Words
8:30 – 9:10</td></tr>
<tr><td>9:30
10:00
10:30
11:00</td><td rowspan="2">II. Foundations for Moving Forward
9:10 – 12:10</td><td rowspan="3">IV. Time, Space, & Form in Biological Conservation: Zooarchaeological Perspectives from Deep Time
9:30 -12:10</td><td rowspan="3">V. Bringing Plants to the Table
9:30 – 12:10</td><td>SNACKS
9:30 – 11:30</td></tr>
<tr><td>11:30</td><td>Registration, t-shirt sales</td></tr>
<tr><td>12:00
12:30
1:00</td><td colspan="4">LUNCH (12:10 – 1:30)</td></tr>
<tr><td>1:30
2:00</td><td rowspan="2">II. Foundations for Moving Forward
1:30 – 2:10</td><td rowspan="3">IV. Time, Space, & Form in Biological Conservation: Zooarchaeological Perspectives from Deep Time
1:30 – 4:00</td><td rowspan="2">VI. SoE and Ethics – Discussion Group
1:30 – 2:50</td><td></td></tr>
<tr><td>2:30
3:00
3:30
4:00</td><td rowspan="2">III. Words and Worlds
2:20 – 5:00</td><td rowspan="2">VII. Honoring the Past
3:00 – 5:10</td><td rowspan="2">SNACKS
2:30 - 4:30</td></tr>
<tr><td>4:30</td><td></td><td>Registration, t-shirt sales</td></tr>
</table>

THURSDAY, MAY 6 EVENING SCHEDULE –ALL EVENTS ARE AT THE UNIVERSITY OF VICTORIA

Time	Event	Location
5:15 – 7:45 pm	Poster Reception	First Peoples House, Ceremonial Hall
8:00 – 9:30 pm	Ranjay Singh, Lansdowne Lecture	Bob Wright Center, Room 150

FRIDAY, MAY 7 DAYTIME SCHEDULE – ALL EVENTS ARE AT THE UNIVERSITY OF VICTORIA

<table>
<tr><th>Time</th><th>Bob Wright Center
Room B150</th><th>Bob Wright Center
Room A104</th><th>MacLauren Bldg
Room D288</th><th>Foyer, Bob
Wright Center</th></tr>
<tr><td>8:00</td><td rowspan="4">VIII. The Past, Present and Future of Pacific Marine Resource Management
8:20 – 10:40</td><td rowspan="6">X. Traditional Knowledge in a Changing World
8:30 – 11:50</td><td rowspan="3">XII. Healing the World
8:20 – 10:20</td><td rowspan="2">Registration, t-shirt sales
(until 2pm)</td></tr>
<tr><td>8:30</td></tr>
<tr><td>9:00</td></tr>
<tr><td>9:30</td><td rowspan="2">SNACKS
9:30 – 11:30</td></tr>
<tr><td>10:00</td><td rowspan="3">XIII. Indigenous Peoples' Food Systems: Partnerships in an International Program
10:40 – 12:10</td></tr>
<tr><td>10:30</td><td>Break 10:40 – 10:50</td></tr>
<tr><td>11:00</td><td rowspan="2">IX. Food, Glorious Food
10:50 – 12:10</td><td rowspan="2">Registration, t-shirt sales</td></tr>
<tr><td>11:30</td></tr>
<tr><td>12:00</td><td colspan="2" rowspan="3">LUNCH (12:10 – 1:30)</td><td rowspan="3">Lunchtime Discussion: XIV. Teaching Science Through Ethnobiology (Room D114)</td><td rowspan="4"></td></tr>
<tr><td>12:30</td></tr>
<tr><td>1:00</td></tr>
<tr><td>1:30</td><td rowspan="3">IX. Food Glorious Food
1:30 – 3:30</td><td rowspan="3">XI. Ethnornithology
1:30 – 3:10</td><td></td></tr>
<tr><td>2:00</td><td rowspan="3">XV. Science, Life, and Politics: Tools for Legitimizing Stories
1:50 – 3:20</td><td></td></tr>
<tr><td>2:30</td><td rowspan="2">SNACKS
2:30 – 4:30</td></tr>
<tr><td>3:00</td><td colspan="2"></td></tr>
<tr><td>3:30</td><td>Kim Recalma-Klutesi: Introduction to Atla'kima Spirits of the Forest Dance</td><td colspan="3">---</td></tr>
<tr><td>4:00</td><td rowspan="2">General Meeting – all are invited
4:10 – 5:10</td><td colspan="3" rowspan="2">----</td></tr>
<tr><td>4:30</td></tr>
<tr><td>5:30 – 9:30 pm</td><td colspan="4">BANQUET - First Peoples House, Ceremonial Hall</td></tr>
</table>

ORAL PRESENTATIONS

Thursday, 6 MAY, 2010

I. Opening Words

Bob Wright Center Room B150

8:30 – 9:10 Greg Sam (Saanich First Nation) and Joan Morris (Songhees First Nation)

II. Foundations for Moving Forward: Building Ethnobiological Partnerships

Bob Wright Center Room B150

Session Chair: Marja Eloheimo

9:10 – 9:30 Moller, Henrik, Janet Stephenson, and Rachel Turner
Cross-Cultural Environmental Research and Management Partnerships: Progress and Challenges for Ethnobiology and Science

9:30 – 9:50 Laurendeau, Géraldine*
Transforming Practices, Sharing Ethnobotanical Knowledge in Mashteuiatsh's Innu Community, Quebec: Research Notes

9:50 – 10:10 McCune, Letitia M.
Agricultural Biodiversity, IPR and Benefit Sharing: The Native Seed/SEARCH Example

10:10 – 10:30 Meyer, Karen
Honoring Who Came Before: Native American Ethnobotany at the Missouri Botanical Garden

10:30 – 10:50 Karst, Amanda
First Nations Watershed Planning Framework

10:50 – 11:10 Holcombe, Sarah and Terri Janke
Translating the 'Declaration on the Rights of Indigenous Peoples' into Cultural and Intellectual Property (ICIP) Rights in Natural Resource Management

11:10 – 11:30 Pengelly, Ryan
Indigenous Development of Non-timber Forest Products: an Anishinaabe Perspective from Pikangikum First Nation, Ontario

11:30 – 11:50 Turner, Katherine*
Exploring New Mediums for Maintaining Social-Ecological Relationships: Gitga'at First Nation (Northwest Coast, B.C.) Perspectives on a Local Proposal for Cultural Tourism Development

11:50 – 12:10 Mackin, Nancy and Edosdi (Judy Thompson)
Ethnobotanical Gardens: Connecting Learning to Communities and the Land

LUNCH 12:10-1:30

1:30 – 1:50 Eloheimo, Marja
Tend and Tell: Developing and Interpreting an Ethnobotanical Garden

1:50 – 2:10 Barta-Cole, Heidi, Marja Eloheimo, and Luna Krahe
Tend and Tell: Student Perspectives on Developing and Interpreting an Ethnobotanical Garden

* Barbara Lawrence Award submission

III. Words and Worlds: Describing and Experiencing the World Around Us

Bob Wright Center Room B150

Session Chair: Marsha Quinlan

2:20 – 2:40 Balée, William
Perceived Reality of Cultural Forests

2:40 – 3:00 Lampman, Aaron M.
Interwoven Domains: How Ethnobiological Classification Influences the Depth and Breadth of Ethnoecological Knowledge

3:00 – 3:20 Glover, Denise M.
Historical Dynamics of Classification: The Case of Medicinals in Tibetan Medicine

3:20 – 3:40 Brown, Jason
Word Formation in the Gitksan Ethnobotanical Lexicon

3:40 – 4:00 Ignace, Marianne
Science Education, Indigenous Knowledge and Discourse: Why K-12 Science Education Needs Indigenous Ethnobiology and Indigenous Languages

4:00 – 4:20 Quinlan, Robert and Marsha Quinlan
Modeling Cultural Cognition of Medicinal Plant Use in Dominica

4:20 – 4:40 Tuladhar-Douglas, Will
Biocultural Diversity, Nonhuman Agents, and the Construction of 'Religious' Interactions

4:40 – 5:00 Tuxill, John
The Social, Ecological, and Symbolic Significance of Kernel Colors in Maize

IV. Time, Space, & Form in Biological Conservation: Zooarchaeological Perspectives from Deep Time

Bob Wright Center Room A104

Session Organizer and Chairs: Steven Wolverton & Charles Randklev

9:30 – 9:50 Wolverton, Steve
Going to the Mountain: Applied Zooarchaeology in Environmental Science and Ethics

9:50 – 10:10 Joyce, Megan*
Constructing Nature: Evaluating the Aesthetic of 'the Natural' in the Service of Paleozoology

10:10 – 10:30 Randklev, Charles and Benjamin Lundeen
Prehistoric Biogeography and Conservation Status of Threatened Freshwater Mussels (*Mollusca: Unionidae*) in the Upper Trinity River Drainage

BREAK 10:30 – 10:50

10:50 – 11:10 Peacock, Evan
Freshwater Mussel Remains and Their Use in the Conservation of an Imperiled Fauna

* Barbara Lawrence Award submission

11:10 – 11:30 McKechnie, Iain
Assessing the Scale and Coherence of Ancient Hunting Economies On and Around Vancouver Island using Zooarchaeological Data

11:30 – 11:50 Nagaoka, Lisa
Evaluating the Assumptions behind Pleistocene Rewilding

11:50 – 12:10 Barker, Andrew
Archaeological Protein Residues: A New Line of Evidence in Conservation Science

LUNCH 12:10 – 1:30

1:30 – 1:50 Rosania, Corinne N. *
Utility of Paleozoological Data for Modern Management of Historically Extirpated North American Black Bears (*Ursus americanus*)

1:50 – 2:10 Pierson, Nova and Dana Lepofsky
The Smaller Picture: Pre-Contact Forage Fish Use in the Strait of Georgia and Implications for Conservation

2:10 – 2:30 Thakar, Heather *
Ancient Actions Predict Modern Consequences: Prehistoric Lessons in Species Specific Shellfish Exploitation

BREAK 2:30 – 2:50

2:50 – 3:10 Schollmeyer, Karen Gust and Jonathan C. Driver
The Past, Present, and Future of Small Terrestrial Mammals in Human Diets

3:10 – 3:30 Frazier, Jack
Shallow Time or Old Bones? Which Way Out of the Conservation Maze?

3:30 – 4:00 Lyman, R. Lee
Session discussant

V. BRINGING PLANTS TO THE TABLE: PLANT MANAGEMENT AND USE ON THE NORTHWEST COAST

MacLauren Bldg Room D288

Session Chair: Joyce LeCompte-Mastenbrook

9:30 – 9:50 Keddie, Grant
Stinging Nettle, Fireweed and Spinning

9:50 – 10:10 Anderson, Kat
Prairies and Wetlands of the Lowland Olympic Peninsula: Their Former Indigenous Uses and Management

10:10 – 10:30 Hooper, David A. *
Cultural and Ecological Relationship between the Members of the Nisqually Tribe and Beargrass (*Xerophyllum tenax*) found within Mount Rainier National Park

* Barbara Lawrence Award submission

10:30 – 10:50 McLay, Eric
In Search of Camas: Archaeological Correlates of Camas Root Intensification on Vancouver Island and Southern Gulf Islands, British Columbia

10:50 – 11:10 Mathews, Bethany and Leroy Keener
"The Greatest of All Delicacies": Waterlogged Archaeology and the Search for Ancient Food Preference on the Northwest Coast of North America

11:10 – 11:30 Mathews, Darcy and Peter Dady
Fuel for Thought: An Introduction to Douglas Fir Culturally Modified Trees

11:30 – 11:50 LeCompte-Mastenbrook, Joyce
A Natural History of Mountain Huckleberry Habitat in the Central Cascade Mountains of Washington State

11:50 – 12:10 Lacourse, Terri, Richard Hebda, and Rolf Mathewes
Combining Paleoecological and Archaeological Data to Understand Past Human-Environment Relations: An Example of Late Holocene Forest Modification from SGang Gwaay UNESCO World Heritage Site, Haida Gwaii (Queen Charlotte Islands), Canada

VI. Developing a Code of Ethics for the Society of Ethnobiology—An Open Discussion

MacLauren Bldg Room D288
Session Chairs: Justin Nolan and Kelly Bannister
1:30 – 2:50pm

VII. Honouring the Past, Honouring the Future

MacLauren Bldg Room D288
Session Chair: Ayron Strauch

3:00 – 3:20 Liswanti, Nining, D. Sheil, M. Boissiere, M. Padmanaba, and I. Basuki
Local Priorities for Biodiversity and Potential Conservation in Papua, Indonesia

3:20 – 3:50 Molnar, Zsolt, K. Hoffman-Puspokladany, and E. Voros
Utility of the Nearly Science-Independent Ecological Knowledge of Peasants in Steppe Conservation in East Central Europe (Hungary)

3:50 – 4:10 Carney, Judith
Integrating Female Knowledge into Mangrove Oyster Development in The Gambia

4:10 – 4:30 Strauch, Ayron M., M.T. Ruraj, and Astier M. Almedom
Traditionally Protected Catchment Forests and Ecosystem Services in Semi-Arid, East African Highlands

4:30 – 4:50 Different Cloud, Linda
A Dual Approach to the Ecological Restoration of *Amphicarpaea bracteata* on the Standing Rock Nation

4:50 – 5:10 Brown, Frank and Y. Kathy Brown
"Staying the Course, Staying Alive," Coastal First Nations Fundamental Truths: Biodiversity, Stewardship and Sustainability

Friday, 7 MAY, 2010

VIII. The Past, Present and Future of Pacific Marine Resource Management

Bob Wright Center Room B150
Session Organizer and Chairs: Megan Caldwell and Dana Lepofsky

8:20 – 8:40 Gordon, Ross *
Folkbiological Analysis and the Cultural Keystone Species Model in High Diversity Coral Reef Environments to Support Sustainability Programs

8:40 – 9:00 Wyllie-Echeverria, Sandy and Victoria Wyllie de Echeverria
Cultural Value of the Seagrass Flora: A Global Story of Diverse Use Over Time

9:00 – 9:20 Cullis-Suzuki, Severn, Nancy J.Turner, Sandy Wyllie-Esheverria, Adam Dick, and Daisy Sewid-Smith
Traditional Kwakwaka'wakw Harvesting of Ts'áts'ayem - Eelgrass, *Zostera marina L.*

9:20 – 9:40 Caldwell, Megan E., Dana Lepofsky, Georgia Combes, John R. Harper, John R. Welch, and Michelle Washington *
A Bird's-Eye-View of Traditional Tla'amin Intertidal Resource Management

9:40 – 10:00 Moss, Madonna L., Virginia L. Butler, and Thomas R. Thornton
Herring Synthesis: Integrating Archaeology, Local Traditional Knowledge, and History in Southeast Alaska

10:00 – 10:20 Wisniewski, Josh
So We Can Get Luck: Kigiqtaamiut Relational Management of Marine Resources

10:20 – 10:40 Salomon, Anne, Nick M. Tanape Sr., and Henry P. Huntington
Weaving Traditional Knowledge, Historical Records and Quantitative Ecology to Illuminate the Causes of Shellfish Declines in Alaska

IX. Food, Glorious Food! The Social and Ecological Context of Food Production and Consumption

Bob Wright Center Room B150
Session Chair: David Cozzo

10:50 – 11:10 Zorillo, Sonia and Francisco Valdez
Corn and the Origins of Socio-Political Complexity in Highland Ecuador

11:10 – 11:30 Moreiras, Diana
Thinking and Drinking Chocolate: Origins, Distribution, and Significance of Cacao in Mesoamerica

11:30 – 11:50 Cozzo, David
Seasoning and the Sacred: Historical Use of Salt and Ashes among the Cherokee

* Barbara Lawrence Award submission

11:50 – 12:10 Toll, Mollie S. and Nancy J. Akins
New Mexico Cuisine: Exploring the Complex Roots of a Regional Tradition in Old Santa Fe

LUNCH 12:10 – 1:30

1:30 – 1:50 Katz, Esther
Use of Food Plants in the Middle Rio Negro (Brazilian Amazon)

1:50 – 2:10 Logan, Amanda*
Cooking the Past? Food Security, History, and Change in Banda, Ghana

2:10 – 2:30 Marston, John M.*
Assessing the Long-Term Sustainability of Agricultural Systems: An Archaeological Case Study

2:30 – 2:50 Mt. Pleasant, Jane
Cereal Grain Farming in Iroquoia and Europe: Explaining the Paradox of Productivity

2:50 – 3:10 Gonella, Michael
The Myaamia and leninši: A Human-Plant Mutualism?

3:10 – 3:30 Markin, Julia
Archaeobotanical Data and the Origins of Political Complexity

X. TRADITIONAL KNOWLEDGE IN A CHANGING WORLD

Bob Wright Center Room A104
Session Chair: Kim Chambers

8:30 – 8:50 Fujimoto, Takeshi
Hulled Barley (*banga*) and Naked Barley (*murk'a*) among the Malo, Southwestern Ethiopia: Cultivation Techniques, Uses and Recent Changes

8:50 – 9:10 Bussman, Rainer W.
East African Plant Use: Differences in Plant Use between Nomadic and Agricultural Societies

9:10 – 9:30 Ross, Nanci J., Jan Salick, Fang Zhendong, and T. Abe Lloyd
Effects of Climate Change on Alpine Plant Diversity and Traditional People in the Hengduan Mountains, China

9:30 – 9:50 McCarter, Joe and Michael Gavin
An Estimate of Ethnobotanical Change from Malekula Island, Vanuatu

9:50 – 10:10 Taylor, David and Gregory Anderson
Taking a Little Bit of Home Along: "Viandas" (Starchy Crops) in the Diet of the Puerto Rican Population of Hartford, CT (U.S.A.)

BREAK 10:10 – 10:30

10:30 – 10:50 Chambers, Kimberlee J.
The Complexity of Factors Influencing Commercial Chiltepin Harvesting in the Rio Sonora Valley: Habitats, Roads, and Relationships

* Barbara Lawrence Award submission

10:50 – 11:10 Konwar, Loveleena and Dolan Konwar
Traditional Dye Yielding Plants of Assam, North East India

11:10 – 11:30 Salick, Jan, Anja Byg, and Robbie Hart
Tibetan Cosmology of Climate Change

11:30 – 11:50 Kirby, Kate, Sarah Gergel, and Domingo Diaz
The Relationship between Cultural Diversity and Agricultural Biodiversity in a Tropical Landscape Undergoing Rapid Economic Development

LUNCH 12:10 – 1:30

XI. ETHNOORNITHOLOGY IN REVIEW, PROSPECT AND PERSPECTIVE

Bob Wright Center Room A104
Session Organizer and Chair: Robert Gosford

1:30 – 1:50 Johnson, Leslie
Thinking About Birds, Thinking With Birds: Perspectives from Northwest North America

1:50 – 2:10 Gosford, Robert
Birds, People and Money: Can Local People Make a Living from Culturally-Based Bird Tourism?

2:10 – 2:30 Pande, Suruchi
Indian Peafowl (*Pavo cristatus*) in Sanskrit literature and The Role of Indian Culture in Its Conservation

2:30 – 2:50 Moller, Henrik, Sam McKechnie, Corey Bragg, David Fletcher, Peter Dillingham, Jamie Newman, and Rosemary Clucas
Mathematical Modeling of Mātauranga Māori: Quantifying the Sustainability Value of Traditional Seabird Harvest Lore

2:50 – 3:10 Pande, Satish and Anvita Abbi
An Ethno-Linguistic Perspective of Names of Birds in Great Andamenese Language

XII. HEALING THE WORLD: TRADITIONAL MEDICINAL KNOWLEDGE

MacLauren Bldg Room D288
Session Chair: Cassandra Quave

8:20 – 8:40 Mollik, Md. Ariful Haque, Md. Nur Kabidul Azam, Md. Torikul Islam, Md. Asif Mahmood Chowdhury, Md. Rofikul Islam, A.T.M. Ali Azam, Shahnaaz Sharfuddin, Rownak Jahan, and Mohammed Rahmatullah
Plant Species Used by the Folk Medicinal Practitioners of Brahmanbaria, Jhalakathi, Jessore, and Kushtia Districts, Bangladesh to Treat Diabetes mellitus

8:40 – 9:00 Anderson, E.N.
Mongol Empire Ethnobiology: Studying Globalization in History

9:00 – 9:20 Quave, Cassandra L.
Mal 'vjnt: Ritual Healing of "wind illness" in Southern Italy

9:20 – 9:40 Hunn, Eugene S.
A Zapotec Medical Ethnobotany

9:40 – 10:00 Cates, Rex G. Michael Stanley, Steven Williams, Brad Prestwich, Mario Diaz, J. Alfonso Fuentes, Luis V. Espinoza, Aaron Innes, Mark Rowe, Carlos Ardon, Berny Galvez, Fredy Coronado, Ramiro Garcia
Improving the Quality of Life of Rural Villagers in Guatemala: A Medicinal Plant, Conservation Biology Project

10:00 – 10:20 Solanki, Meenakshi B., Ashwini A. Kalyankar, and N.S. Tekale
Role of Tribal Women in Conservation of Some Ethnomedicinal Plants

XIII. INDIGENOUS PEOPLES' FOOD SYSTEMS, PARTNERSHIPS IN AN INTERNATIONAL PROGRAM
MacLauren Bldg Room D288
Chair: Harriet Kuhnlein
10:40am – 12:10pm

LUNCH 12:10 – 1:30

XIV. TEACHING SCIENCE THROUGH ETHNOBIOLOGY
MacLauren Bldg Room D144
Session Organizer and Chair: Gail Wagner
12:10 – 1:30pm

XV. SCIENCE, LIFE, AND POLITICS: TOOLS FOR LEGITIMIZING STORIES
MacLauren Bldg Room D288
Session Organizer and Chairs: David Taylor and Steve Wolverton
1:50 – 3:20pm

POSTER SESSION

Thursday, 6 MAY, 2010

5:15 – 7:45 pm, First Peoples House

A. ETHNOBIOLOGY AND ECOSYSTEMS: NORTH, SOUTH, EAST, AND WEST

deVille, Naomi. **Natural Disturbances and Forest Management: Effects on Culturally Significant Understory Plant Communities**

Forney, Andra. **Patterns of Harvest: Impacts of Current Forest Management Regimes on Black Huckleberry (*Vaccinium membranaceum*) Ecology, Productivity, and Harvesting**

Garibaldi, Ann. **Community-based Berry Monitoring in Northeast Alberta**

Ignace, Ron and Marianne Ignace. **Secwepemc Landscape Burning Practices: Views from Practitioners**

Jones, Christopher. **Watershed Education in Arizona and Guatemala: Opportunities for Practical Application of Ethnobiology through Local Volunteer Watershed Stewardship**

Karst, Amanda. **Conservation Value of the Boreal from an Ethnobotanical Perspective**

Miller, Andrew M. **Anishinaabe Views of Boreal Forest Fire, Forestry and Renewal**

Negrelle, Raquel R.B. and Gomes C. Thiago. **Ethnobotanical Study as Basis for the Elaboration of Management Plan of Forest Reserve Embrapa/Epagri (RFEE) in Caçador, Santa Catarina, Brazil**

Proctor, Kate. **Introducing Traditional Blue Camas (*Camassia leichtlinii* and *C. quamash*) Cultivation Practices into a Garry Oak (*Quercus garryana*) Meadow Preserve in British Columbia: Ecological and Social Dimensions of Ethnoecological Restoration**

Varga, Anna and Bölöni János. **Vegetation Dynamics and Ethnobiological Knowledge of Wood Pastures in the Carpathian Basin, Central Europe**

B. Old meets new: (Paleo)ethnobotany & Paleo(ethnozoology) in the Old and New Worlds

Capper, Mairi M. **In Their Words: Using Ancient Written Sources to Interpret the Palaeobotanical Remains of Tell Tayinat, Turkey**

Hawes, Kathleen. **Artifact Plant Material Identification by Cellular Analysis on the Northwest Coast**

Kashap, Arunima and Steve Weber. **Starch Grains as a Tool in Understanding Plant Use Strategies: An Example From The Indus Civilization**

Langlie, BriaAnna, Christine Hastorf, Maria Bruno, Marc Bermann, and Renee Bonzani. **Complicating the Story: Describing a Domesticated Archaeological Morphological Type of *Chenopodium* sp. from La Barca, Bolivia**

McBride, Pamela J. and Nancy Akins. **Early Spanish Cuisine in the City Different**

Spengler, Robert N. III. **Plants in the Diet of Mobile Pastoralists: Paleoethnobotany in Semerich'ye, Kazakhstan, from the Iron Age**

Stahl, Peter and Deborah Pearsall. **Late Pre Columbian Agroforestry in Western Ecuador: Integrating Archaeobiological Data**

Talcott, Johanna. **Archaeological Cucurbits From the Salt Springs Site (8MR2322), Florida***

C. Healing through medicine and rituals

Ganguly, Ramanuj. **The Folk-Ethnoecological Practices in the Temple of Lord Jagannath at Puri**

Hammond, Dawn. **A Medical Ethnobotanical Study in Bohemia - 2002-2004**

Mollik, Md. Ariful Haque, Md. Shahadat Hossan, Abu Hanif, Md. Asifur Rahman, Ahasan Ahmed, Prozzal Roy, Muhammad Tazul Islam, Rownak Jahan, and Mohammed Rahmatullah. **A Survey of Medicinal Plants Used by the Rakhain Tribe, Bangladesh Which Can Serve as Food Supplements**

Mollik, Md. Ariful Haque, Munshi Ahsanul Khasru, Abdullah All Mamun, Md. Ziaul Haque, Dilara Ferdausi, Rownak Jahan, Mohammed Rahmatullah, and Mst. Afsana Khatun. **A Survey of Medicinal Plants Used by Traditional Healers of Madaripur district, Bangladesh**

Parks, Shaina. **Medical Ethnobotany in the Arkansas Ozarks**

Singh, Rani, Ashwini Kalyankar, and N.S. Tekale. **Quantification and Conservation of the Medicinal Plants Used by the Bhil-Bhilalas in Jhabua District of Madhya Pradesh**

Tekale, N.S., Meenakshi B. Solanki, and Ashwini Kalyankar. **Impact of Deforestation on Treasury of Traditional Knowledge**

Todt, Donn L. and Fiore Grey. ***Narcissus tazetta var. chinensis*: Biogeography of a Flower Associated with Lunar New Year Celebrations in East Asia and the Far West of North America**

* Barbara Lawrence Award submission

D. SOWING ETHNOBIOLOGICAL KNOWLEDGE

Carlson, Kitrina and Rebecca Abler. **Traditional Plants Used by the Hmong People in Wisconsin: Preserving Cultural Knowledge in the Undergraduate Classroom**

Glenn, Ashley. **The Conservation of Plants and the Preservation of Traditions: Planning a Sacred Seeds Garden**

Grieve, Sheila. **Developmental Benefits of Plants in the Playground**

Komaromi, Reka. **Sharing Knowledge: Practical Solutions for the Preservation of Biocultural Diversity in the Cameroon-Nigeria Borderland**

Lloyd, T. Abe and Leigh Joseph. **The Vancouver Island and Coastal Communities Indigenous Food Network**

Mueller, Jocelyn. **Including Local Voices in Global Discourse: Case Studies from Boumba, Niger**

Rempel, Sharon Lynn and Bob Wildfong. **Bringing Culture Back to Agriculture: Defining 'Value' for Heritage Seed Conservation**

Anderson, E.N. **Mongol Empire Ethnobiology: Studying Globalization in History** (Session XII)

Chinggis (Genghis) Qan created the largest empire in history, and it soon became a force for rapid exchange of information across vast distances and between quite different cultures. This information exchange was not unprecedented, but was particularly far-reaching. We can learn much from study of two key compilations at the court of the Mongol Empire in China: the court nutrition manual and the encyclopedia of Near Eastern medicine. Between them, they list hundreds of plants and animals. Studying these books brings together ethnobotany, ethnozoology, and archaeology; the archaeology of Central Asia is only now becoming well known. This paper reports on the current state of research and publication in ongoing studies of these books by Paul Buell and myself.

Anderson, Kat. **Prairies and Wetlands of the Lowland Olympic Peninsula: Their Former Indigenous Uses and Management** (Session V)

Prairies and wetlands on the Olympic Peninsula were of crucial importance to tribes for habitation, recreation, and food procurement. Prior to European contact, the indigenous people not only used, but also managed these open environments. First, this paper will provide a general overview of these human-nature interactions on the Olympic Peninsula and then second, it will summarize findings from ethnographic interviews and historical literature reviews conducted between 2002 and 2007 for one specific case study. We will take an in-depth look at one wetland system: The Ozette Prairies of Olympic National Park and review the former uses and tending of these openings by the Makah Nation. How their prior harvesting and management actions can inform our ability to manage these landscapes today for beauty, diversity, and integrity will be discussed.

Babai, Daniel. **Traditional Ecological Knowledge and Agriculture in the Gyimes Region** (Poster Session B)

We carried out our researches in the Gyimes region of the Eastern Carpathians (Central Europe). The goal of our research was to explore the botanical knowledge of the locals. We can claim that people in Gyimes know 62% from the 453 plants identified by us. Also, these people can remarkably characterize the habitat of these species. They connect at least 131 different habitats to the 280 species known by us. The characteristical appearances of the typical habitats are well known by the locals. After exploring the Gyimes vegetation by botanical methods we can get a clear picture of the traditional but constantly changing stock-keeping farming's effects on the vegetation as well as the extent to which local people experience the effects of farming on the vegetation. Their knowledge is to our help in estimating the influences of farming on the vegetation.

Balée, William. **Perceived Reality of Cultural Forests** (Session III)

Human impacts on Amazonian landscapes are often analyzed using scientific methodologies that measure altered frequencies in diversity of species. These impacts over time have been, in fact, not entirely deconstitutive of species diversity, using both alpha and beta measures. Several languages denote a category of high (or old-growth) forest that is not primeval, but rather a recognized consequence of past human activity. Indigenous recognition of human impacts on Amazonian landscapes and species diversity can be revealed through quantitative methods, such as free-listing, which are designed to elicit the many specific contents of these landscapes, when compared to other landscapes not so affected. The results of such research indicate psychological, perceived reality of cultural forests and their diversity at least in certain linguistic and cultural contexts. What remains to be demonstrated is whether such recognition is cross-culturally widespread or universal in the Amazon region.

Barker, Andrew. **Archaeological Protein Residues: A New Line of Evidence in Conservation Science** (Session IV)

Conservation scientists are increasingly turning to the archaeological record as a source of data for making wildlife management decisions. The fragmentary nature of animal remains from the zooarchaeological record, however, is a challenge that can limit an ability to gain meaningful knowledge. Developments in archaeological residue analysis provide an opportunity to expand available data and to test hypotheses with new evidence. By sourcing residues recovered from archaeological artifacts, it is possible to determine which taxa were utilized by humans in the past and how shifts in prey choice reflect changes in human-environment relationships. In addition to informing us about prehistoric biogeography, such data might allow us to evaluate modern sustainability efforts by providing a long term perspective on human impacts. Here, I discuss the potential of archaeological residue research and suggest how it can be used to address questions that wildlife managers face today.

Barta-Cole, Heidi, Marja Eloheimo, and Luna Krahe**. Tend and Tell: Student Perspectives on Developing and Interpreting an Ethnobotanical Garden** (Session II)

Following the presentation that introduces Evergreen's academic program, Tend and Tell: Developing and Interpreting an Ethnobotanical Garden, students in the program share some of the experiences, perspectives, and creative products that the project has generated. These include excerpts from a documentary film, along with other visual and written materials.

Brown, Frank and Y. Kathy Brown. **"Staying the Course, Staying Alive", Coastal First Nations Fundamental Truths: Biodiversity, Stewardship and Sustainability** (Session VII)

The heart of this report is a set of seven fundamental truths that for thousands of years have guided Coastal First Nations. Frank Brown and Y. Kathy Brown assembled these truths through interviews with and advice from elders from three different Coastal First Nations: Pauline Waterfall (Hilistis), from Heiltsuk, Gloria Cranmer-Webster (Wikalalisame'ga), from Namgis of the Kwakwaka'wakw, and Barb Wilson (Kii'iljuus), from Haida Nation. Each is regarded by her community as a "keeper of the knowledge". We initially asked these keepers of the knowledge: "Are there fundamental truths or core values related to biodiversity, sustainability and stewardship?" The unanimous answer was yes. The discussion then shifted to an exploration of the past, including stories and practices reflecting a connection to nature. The result was a description of seven fundamental truths that evolved through a series of discussions and correspondence among the keepers of the knowledge. Each truth is supported by language, maps, practices and stories from the three Coastal First Nations, and each reflects a different connection to the elements of nature.

Brown, Jason. **Word Formation in the Gitksan Ethnobotanical Lexicon** (Session III)

This study examines the ethnobotanical lexicon of Gitksan, an endangered language of BC. The corpus under consideration is the list of terms in Compton et al. (1997). Initial examination indicates that roots comprise 22.8%, while 47.8% of terms consist of compounds (derived forms totalled 13%). Many terms (16.3%) are phrasal. Nearly all of these phrasal forms involve the "false" designation (e.g. "it's a false X"). Many of the compound and phrasal terms are based in other ethnobiological terms, such as *land otter*, *frog*, or *raven*. Compounding here is noteworthy: while there are relatively few root words for plants, there are many compounds formed with the lexical root *sgan* 'plant', which is lacking in the related Southern Tsimshian language (Compton 1993). This is significant because nearly all of these compounds are based on fruits (or other parts such as petioles or rhizomes), indicating this is the most salient level of organization.

Bussman, Rainer W. **East African Plant Use – Differences in Plant Use Between Nomadic and Agricultural Societies** (Session X)

This paper examines the differences in plant use between the Kikyu, Maasai and Samburu societies in Kenya. The Kikuyu people mostly occupy the Central Province of Kenya. Farming is the main economic activity in the area with coffee and tea as the main cash crops. This region has high population density and large concentration of forests, which are facing intense pressure due to over-utilization. The Samburu are pastoralists in Northern Kenya, and have to a larger extent maintained their traditional lifestyle. The "Il-Purko" Maasai live as pastoralists in the South of the country, to which they were moved from Central Kenya by the British Colonial Administration in 1904. The differences in lifestyle and assessment of health needs clearly are reflected in the plant knowledge of the study groups. The Samburu have retained a very large plant knowledge compared to the Maasai. The agricultural Kikuyu used the largest number of plant species.

Carlson, Kitrina and Rebecca Abler. **Traditional Plants Used by the Hmong People in Wisconsin: Preserving Cultural Knowledge in the Undergraduate Classroom** (Poster Session D)

The research objective of this work was to develop a Hmong medicinal plant database that catalogues which plants are used, how they are used, why they are used, and which bioactive plant compounds have been identified in the plants. Using an interdisciplinary, multi-campus approach, an ongoing multigenerational survey of Wisconsin Hmong is underway at several University of Wisconsin campuses to gather these data. Survey analysis indicates that the younger Hmong population does not typically use traditional Hmong medicines, suggesting that the database will serve not only as an important resource for identification of potential sources of medicine, but also as an important record of traditional Hmong culture. The medicinal plant knowledge shared by the Hmong people and the current status of student research into the efficacy of these medicines through bioassay, HPLC analysis and high-throughput screening in zebra fish embryos will also be presented.

Carney, Judith. **Integrating Female Knowledge into Mangrove Oyster Development in The Gambia** (Session VII)

West Africa's near-shore artisanal fisheries are increasingly a focus of development assistance for their potential to raise incomes, promote sustainable resource use, and gender equity. While men dominate fishing, the collection of oysters is a female activity. With a focus on the mangrove estuaries of The Gambia, this paper examines the ways that female gatherers are using ethnobiological knowledge to intensify oyster production while adjusting traditional harvesting practices and cooking methods to curtail mangrove destruction.

Caldwell, Megan E., Dana Lepofsky, Georgia Combes, John R. Harper, John R. Welch, and Michelle Washington. **A Bird's-Eye-View of Traditional Tla'amin Intertidal Resource Management** (Session VIII)*

Intertidal resource management features (clam gardens and fish traps) on the Northwest Coast represent profound indigenous traditional ecological knowledge about marine life and ecosystems. Using aerial photography, we have identified over 130 ancient intertidal features within Tla'amin traditional territory on British Columbia's Sunshine Coast. We combine local Tla'amin ecological knowledge, feature form, and environmental setting to understand how the range of variation encompassed within these intertidal features. The features span the breadth of the intertidal zone and represent a continuum of both incidental and more intensive behaviours that enhance or expand the habitat of desirable species through the promotion of bivalve recruitment and the use of tidal action to increase intertidal resource harvesting.

Capper, Mairi M. **In Their Words: Using Ancient Written Sources to Interpret the Palaeobotanical Remains of Tell Tayinat, Turkey** (Poster Session B)

One of the key dilemmas in palaeoethnobotanical interpretation is that the context of a plant's use is generally not preserved. This problem is compounded when contemporary historical documents are lacking. The site of Tell Tayinat, in the Amuq Valley of southern Turkey, was inhabited very early in the Iron Age, a 'Dark Age' with few written records following the fall of the Hittite Empire. The few historical documents and archaeological remains recovered from early Iron Age contexts in southern Turkey and northern Syria indicate a high degree of cultural continuity from Hittite times. This poster explores how historical sources, in this case the written records of the Hittites, can be used as a tool to aid in understanding the uses and meanings of plants in their ancient societal context.

Cates, Rex G., Michael Stanley, Steven Williams, Brad Prestwich, Mario Diaz, J. Alfonso Fuentes, Luis V. Espinoza, Aaron Innes, Mark Rowe, Carlos Ardon, Berny Galvez, Fredy Coronado, Ramiro Garcia. **Improving the Quality of Life of Rural Villagers in Guatemala: A medicinal Plant, Conservation Biology Project** (Session XII)

Socio-economic indicators from the Chiquimula Department reflect that poverty and extreme poverty exist for villagers. Consequently, rural families are dependent upon medicinal plants because economic conditions do not allow conventional medical and dental treatment. Objectives of this study were to interview families to determine plants used to treat diseases, analyze 200 of those plants for activity against human diseases, and help medical, dental, and agronomy faculty develop medicinal gardens and a Manual of Medicinal Plants. The gardens and Manual will become the basis of an educational program for rural villagers. Of the 130 plants analyzed to date, 33 have significant inhibition levels against *Staphylococcus aureus*, *Streptococcus mutans*, *Lactobacillus acidophilus*, *Candida albicans*, and cervical, breast, skin, and mouth cancers as determined by MICs, CC50s, IC50s, and therapeutic indices. Laboratory inhibition levels from plants containing essential oils are correlated with interview responses regarding plant aqueous extracts used by villagers against respiratory diseases.

Chambers, Kimberlee J. **The Complexity of Factors Influencing Commercial Chiltepin Harvesting in the Rio Sonora Valley: Habitats, Roads, and Relationships** (Session X)

Chiltepins (*Capsicum annuum* var. *glabriusculum*) are a wild relative of domesticated peppers that grow throughout Mexico and in some pockets of the US. In the State of Sonora chiltepins are the predominant ingredient in salsas and are pickled. Harvested in large quantities from the Rio Sonora Valley chiltepins are distributed for commercial sale throughout the region. Not only are chiltepíns culturally and economically valuable but they are an important component of the local ecology. Information gathered through interviews with harvesters, buyers, and landowners

* Barbara Lawrence Award submission

indicates that the wide-scale commercial sale of chiltepins is having significant economic impact in the valley. An interdisciplinary approach to research from both a landscape and human perspective reveals that a diversity of factors influence both the harvest and conservation of this important plant. Land tenure, agricultural potential of land, access to harvesting grounds, and personal relationships are significant in the commercial management and conservation of chiltepins.

Cozzo, David. **Seasoning and the Sacred: Historical Use of Salt and Ashes among the Cherokee** (Session IX)

The value of salt in the human diet and its enhancement of the palatability of food are well known, especially for predominantly agricultural peoples. For an inland, mountainous people, access to salt is often limited. Archaeological evidence suggests salt was processed from mineral springs in the ancestral Cherokee lands well before European contact. The ethnographic record depicts several plants that were burned and used as a salt substitute. Colonial accounts indicate salt as a trade item in the deer skin trade. In their ethnomedical system the Cherokee had numerous restrictions on the use of salt which were extended to culinary ashes. There were also taboos associated with the type of wood ashes to be used in cooking and ramifications for actions that appeared to desecrate the sacred fire and associated ashes. All this points to a complex relationship to salt, a seasoning we take for granted today, and the minerals left behind when plant materials are burned.

Cullis-Suzuki, Severn, Nancy J. Turner, Sandy Wyllie-Esheverria, Adam Dick, and Daisy Sewid-Smith **Traditional Kwakwaka'wakw Harvesting of Ts'áts'ayem - Eelgrass, *Zostera marina L.*** (Session VIII)

Zostera marina L.; Zosteraceae (eelgrass), an aquatic angiosperm, is a keystone species in estuarine systems in the Northern Hemisphere. Underwater prairies, formed by rhizome growth and seed dispersal, increase biodiversity and productivity and are sensitive indicators of ecosystem stability. The Kwakwaka'wakw of Northern Vancouver Island and adjacent mainland of British Columbia historically gathered these rhizomes, called "*ts'áts'ayem* ", for food. Contemporary elders recall harvesting considerable quantities every spring, and have indicated that, like other traditionally harvested plants, *ts'áts'ayem* prairies are more productive when routinely harvested. Through semi-structured interviews and harvesting expeditions with elders, we learned the traditional protocols for gathering *ts'áts'ayem*. With this knowledge we designed controlled *in situ* experiments to test the influence of harvesting on density patterns. Overall, hypotheses gleaned from Kwakwaka'wakw elders' traditional ecological knowledge were supported by our field research and ecological literature, and provided a strong framework for this ethnoecological study of *ts'áts'ayem.*

de Ville, Naomi **Natural Disturbances and Forest Management: Effects on Culturally Significant Understory Plant Communities** (Poster Session A)

In the interior of British Columbia, wildfire and mountain pine beetle have disturbed Montane spruce forests. The commercial forestry paradigm has been to "salvage" log the timber, but the impacts of this practice on ecosystem recovery and on the understory vegetation community is poorly understood, and effects on aboriginal cultural values have not been evaluated. My research integrates ecological science with Secwépemc Nation traditional knowledge. I used an experimental design with stands burned by wildfire and affected by mountain pine beetle, with and without forest harvesting. Here, I focus on the response of culturally significant plants and associated communities to these disturbances. Variability in natural and silvicultural disturbances influences community composition and successional patterns. The mix of disturbance and management influences different plants in different ways. This work contributes to the development of adaptive approaches to managing disturbance prone forests in ways that integrate ecological principles and cultural values.

Different Cloud, Linda. **A Dual Approach to the Ecological Restoration of *Amphicarpaea bracteata* on the Standing Rock Nation** (Session VII)

The loss of culturally important plant species is one of the great challenges facing Indigenous peoples today. Whether species are lost due to climate change or other human impacts, the consequences for Native communities is always palpable. Research has been undertaken to restore the vitally important food plant, *Amphicarpaea bracteata* back to the Standing Rock Lakota Nation in North and South Dakota. *A. bracteata* (aka "mousebeans") is not only important as a food source, but also provides a source of sacred ceremonial practices and recognition of the importance of reciprocity within ecosystems. Both Western and Native Scientific approaches are being used to determine the optimal growth and restoration conditions for this plant. A thorough review of existing literature as well as extensive

interviews with Lakota elders provide the ecological knowledge needed to revitalize the use of *Amphicarpaea bracteata* as a sacred food source.

Eloheimo, Marja. **Tend and Tell: Developing and Interpreting an Ethnobotanical Garden** (Session II)

Working as a multidisciplinary team in a yearlong academic program at The Evergreen State College, students are engaging in hands-on work to transform a fledgling ethnobotanical garden at Evergreen's "House of Welcome" Longhouse by refining existing habitat and theme areas, and developing the *sayuyay* Sister Garden (a medicinal portion of the garden patterned after a project on the Skokomish Indian Reservation). Students are also collaboratively developing interpretive and educational materials, an important part of which has been beginning a poly-vocal book about the garden, its history, its habitats, and its potential for interactive teaching and learning. Through this work, students are creating a valuable educational resource and contributing to multiple communities including Evergreen, local K-12 schools, local First Nations, and a growing global collective of ethnobotanical gardens that promote environmental and cultural diversity and sustainability. This paper describes the project, its academic framework, and imbedded interdisciplinary and intercultural learning opportunities.

Forney, Andra. **Patterns of Harvest: Impacts of Current Forest Management Regimes on Black Huckleberry (*Vaccinium membranaceum*) Ecology, Productivity, and Harvesting** (Poster Session A)

Black huckleberry (*Vaccinium membranaceum*) is the most important subsistence and commercially harvested wild berry in British Colombia. Traditionally it was prolific in openings of the subalpine forest. Fire suppression and timber harvesting have dramatically changed its habitat. Fire suppression has reduced wildfires, and curtailed anthropogenic burning of berry patches by First Nations. Light burning was originally undertaken to maintain openness and enhance productivity. Observational evidence and scientific studies indicate that recent conifer encroachment into huckleberry patches has led to a decreased in berry production. Currently new habitat is created through timber harvesting practices and uncontrolled wildfires. The relative importance of wildfire and clear cut huckleberry habitats as harvesting areas for local resource users is poorly understood. This poster presents a combined ethnographic and ecological approach to explore the linkages between forestry management, huckleberry productivity and harvesting. This research will highlight the impacts of B.C.'s forestry policies on the black huckleberry.

Frazier, Jack. S**hallow Time or Old Bones? Which Way Out of the Conservation Maze?** (Session IV)

Biological conservation - a "science-based, mission-oriented" discipline - has become a significant industry. Slated to protect "natural resources" for future generations and the benefit of humanity, its practitioners deliberate the past and present to make predictions about the future, and to advocate diverse management activities – many of which conflict with general interests of society. Although its foundation is biology, including evolution, the temporal context of biological conservation is typically driven by short-term economic and political conveniences. Rather than employ information from disciplines that specialize in "deep time," conservation postulates commonly make assumptions that are unsupported, unsound, and distorted: the "pristine myth" is routine. This lack of integration and cooperation between disciplines may help maintain certain hegemonic structures and power relations, but it is not conducive of effective conservation. A consolidated, multifaceted strategy is needed to promote genuine integration and interdisciplinary coordination – and meet the goals publicized by conservation biology.

Fujimoto, Takeshi. **Hulled Barley (banga) and Naked Barley (murk'a) Among the Malo, Southwestern Ethiopia: Cultivation Techniques, Uses and Recent Changes** (Session X)

The Malo of southwestern Ethiopia live in a mountainous area. In the highland zone (above 2000 m), they grow barley mainly for domestic consumption. Traditionally, barley (Hordeum vulgare) was an important cereal although now declining. It is locally divided into hulled barley (banga) and naked barley (murk'a). Hulled and naked barleys are then subdivided into two-rowed (locche, literally meaning 'flat') and six-rowed (muume, 'round') types by adding modifiers, such as locche banga (two-rowed hulled barley). While early ripening two-rowed hulled barley was sown twice a year, the practice is almost disappearing. Currently, six-rowed hulled barley is mostly sown once a year. Hulled barley is consumed for beer material as well as for food. Naked barley of both types is found in remote fertile fields. As population has increased and land use has intensified in the highlands, naked barley has diminished, now a vanishing crop.

Ganguly, Ramanuj. **The Folk-Ethnoecological Practices in the Temple of Lord Jagannath at Puri** (Poster Session C)

The present paper is on the famous Jagannath Temple at Puri, Orissa, India that has a continuous history (about 900 years), of change, adaptation and survival; and promotes exclusivism, inclusivism, and pluralism at the same time. Here an effort has been made to understand the dynamic interrelationship between a religious organization, its agent, and the communities of followers, involved constantly in producing codes and representations, thereby, analyze diversified aspects of the role of religion. The approach taken in understanding the above mostly adheres to the Ethnoecological perspective that goes on to show how this religious tradition has gone beyond the contours of rituals and adopted practices that imbibe a sense of responsibility and obligation for the environmental sustainability and rejuvenation. The paper expects to show how the whole community is involved around this religious tradition in undertaking apparently 'religious events' that play positive role in saving the natural environment.

Garibaldi, Ann. **Community-based Berry Monitoring in Northeast Alberta** (Poster Session A)

For many Cree, Dene and Métis people of the Wood Buffalo Region of northeastern Alberta berry harvesting is a much practiced and highly valued activity. However, many people have observed changes to regional berry populations which they attribute to effects from regional large-scale oil sands (bitumen) development. Oil sands' extraction processes release nitrogen (N) and sulphur (S)-based pollutants which have the potential to negatively impact berry species and their habitat. This poster discusses a newly initiated community-based berry monitoring project, designed in collaboration with regional indigenous communities, to assess potential changes in select berry populations due to N and S deposition. Where changes are observed to berry populations, indicators will be developed for use in regional environmental monitoring programs. These indicators will take into consideration both indigenous knowledge and western scientific considerations.

Glenn, Ashley. **The Conservation of Plants and the Preservation of Traditions - Planning a Sacred Seeds Garden** (Poster Session D)

Sacred Seeds, a new conservation program at The William L. Brown Center of the Missouri Botanical Garden, is a network of sanctuaries preserving biodiversity and traditional plant knowledge. We accomplish this through living gardens containing locally important plants, including those of medicinal, ceremonial, food crop, and craft value. We enlist the expertise, unique skills and resources of the local community and together we create useful sustainable solutions. I will outline our approach to conservation, describe the Sacred Seed sanctuaries that are in operation, and highlight a few to illustrate the importance of adaption to conservation success.

Glover, Denise M. **Historical Dynamics of Classification: The Case of Medicinals in Tibetan Medicine** (Session III)

In this presentation, I take an historical approach to classification by examining the categories of materia medica as specified primarily in two Tibetan medical texts, the 8th century classic *Four Tantras (Rgyud bzhi)* and the contemporary text *The Crystal Mirror* (*Shel gyi Me long*). I show that recognized categories of medicinals, as presented in these canonical medical texts, have changed throughout the history of Tibetan medicine. There is not absolute concordance between various texts as to the exact number and kind of categories nor to which category a particular substance should be assigned. In summary, I argue that much of the organization in *The Crystal Mirror* is based on the principle of physical characteristics, rather than that of nature/essence as in the *Four Tantras,* which seems to indicate the influence of Linnaean science. This has important implications for studies of classification, which have largely focus on asynchronic systems and do not adequately focus on the dynamics of classification.

Gonella, Michael. **The Myaamia and Leninši: A Human-Plant Mutualism?** (Session IX)

The *Myaamia* people have harvested *leninši*, common milkweed (*Asclepias syriaca* L.), for at least two centuries for food, fiber and medicine. In this study I reintroduced the indigenous *Myaamia* methods of *leninši* harvesting to examine effects on growth and reproduction. Traditional harvesting sustained growth and reproduction over the four year study. In this respect, the *Myaamia—leninši* relationship is commensalistic, where the harvester benefits and the harvested is unaffected. However, the *Myaamia* also burned the early successional grassland habitats of *leninši* in the fall to sustain populations and harvests of *leninši*. Without burning *leninši* habitats are quickly replaced by woody perennials and *leninši* populations decline rapidly. Hence, the combination of traditional Myaamia harvesting methods leaving *leninši* unaffected and burning methods that benefit *leninši* through reduced species competition and persistent growth indicates a human-wild plant mutualism.

Gordon, Ross. **Folk Biological Analysis and the Cultural Keystone Species Model in High Diversity Coral Reef Environments to Support Sustainability Programs.** (Session VIII)*

The Great Astrolabe Reef, bordering Fiji's Kadavu and Ono Islands, is a high diversity coral reef environment. People from local villages fish the reef for food and to meet demands to obtain cash. Several NGOs have run programs in the area to support sustainable fishing practices. Some Marine Protected Areas (MPAs) are in place and locally managed. In this article, I will utilize folkbiological taxonomic information gathered in the area during recent fieldwork to consider how the use and analysis of broad community taxonomic surveys can assist in selecting key kinds of animals from hundreds for consideration as Cultural Keystone Species (CKS), as defined by Ann Garibaldi and Nancy Turner (1994). I will discuss the applicability of the CKS model to high diversity marine environments and review possibilities for using the right CKS to create emotional engagement, bridge scientific and traditional knowledge systems, and complement MPAs in building sustainable practices.

Gosford, Robert. **Birds, People and Money: Can Local People Make a Living from Culturally-based Bird Tourism?** (Session XI)

In this paper I will examine the potential for culturally-based bird tourism to provide opportunities for employment and economic development for local groups and people. Birding tourism is widely regarded as a lucrative sub-set of the broader tourism market, with a variety of services provided by a wide range of local and international suppliers. Those services range from tours where birds are included in a broader, general product to dedicated birding-only tours. I will examine and compare recent proposals in Australia and several countries in eastern Africa that have sought to develop economic and employment opportunities for local people to enter the birding tourism market by developing and offering birding tourism products that are distinguished by the inclusion of local cultural knowledge of birds into products offered to potential clients. Issues that will be considered include local training requirements, marketing, issues related to access to land and the involvement of national peak bodies and organizations, government assistance and the potential benefits and risks involved in culturally-based birding tourism.

Grieve, Sheila. **Developmental Benefits of Plants in the Playground** (Poster Session D)

Early Childhood Educators recognize that children need to be outside each day, and that a natural play setting benefits children's development. This poster examines the developmental benefits for children when culturally relevant, native plant species are incorporated into children's outdoor play spaces. Photos from the creation of five different children's gardens, located in the outdoor play spaces of early years learning centers an elementary schools in Manitoba will be utilized. The clients of the early years centers are mainly aboriginal children and their families, the elementary schools serve mixed populations which include many Métis and First Nations children. The poster content combines child development with ethnobotany and the use of traditional knowledge in an early years educational setting. It is designed for early childhood educators to use as an activity/idea guide as well as a plant selection aide.

Hammond, Dawn. **A Medical Ethnobotanical Study in Bohemia - 2002-2004** (Poster Session C)

This investigation documented medical plant uses in contemporary family settings in the agrarian region of the Czech Republic in Bohemia. The purpose was to establish a baseline of information about the relationships between medical plants used to "cure" minor family ailments and the users of this traditional knowledge. Information about specimens was elicited and recorded using standard, open-ended, semi-structured anthropological and taxonomic methods and assigned local Czech, Latin and common English names in Prague. As this study was not longitudinal, because it was the first one of its type in the Czech Republic, it is difficult to document changes in plant use knowledge yet. To understand continuing dynamics between humans and plant medicines, more such studies need to be initiated in Central Europe in medical ethnobotany. Future studies would illuminate important changes in human and plant resource interactions through time. This was a starting point study.

Hawes, Kathleen. **Artifact Plant Material Identification by Cellular Analysis on the Northwest Coast** (Poster Session B)

The technique of microscopic identification by cellular analysis of artifacts made from wood and plant materials was pioneered in the 1970's by Janet Friedman. Dr Friedman identified many of the wooden artifacts found preserved in the anaerobic wet-site conditions of the Ozette Archaeological Site in Washington State, and her work has inspired this current research. Identification by cellular analysis is complementary to traditional Native knowledge, as well as ethnobotanical and ethnographic records. This paper describes the process of conservation and identification of a

* Barbara Lawrence Award submission

variety of artifacts from several wet-sites on the Northwest Coast, and has revealed new insights into the choices by earlier Native Peoples of particular plant materials for basketry and cordage, wooden wedges, and fish weir construction.

Holcombe, Sarah and Terri Janke**. Translating the 'Declaration on the Rights of Indigenous Peoples' into Cultural and Intellectual Property (ICIP) Rights in Natural Resource Management** (Session II)

The Australian government's 2009 endorsement of the 'Declaration on the Rights of Indigenous Peoples' brings a renewed recognition and focus on Indigenous knowledge ownership in the area of cultural and intellectual property. However, embedding this rights discourse into the action and language of natural resource management has not been taken up by the government, as yet. Indeed, Australia's federal system, under the Environmental Protection and Biological Resources Act 1999 Cwth (EPBC Act) is ad-hoc with several states and Territories creating their own biological resources acts and regional groups their own management processes. A recent Inquiry into the EPBC Act found that 'each jurisdiction has different rules and requirements for accessing biological resources' and that the 'Nationally Consistent Approach' policy developed in 2000 'should be reinvigorated' (Hawke Inquiry 2009:236). Prior to this Inquiry, in 2008, we were engaged by the NRM Board of the Northern Territory to develop resources and tools to ensure that when ethnobiological knowledge is integrated into resource management programs it is done ethically. This paper will discuss several of the challenges we encountered, which accord with the findings of the recent Inquiry above, and some of the recommendations we made for change.

Hooper, David A. **Cultural and Ecological Relationship Between the Members of the Nisqually Tribe and Beargrass (*Xerophyllum tenax*) Found Within Mount Rainier National Park** (Session V)*

The interactions between people and plants have produced a wide variety of social and ecological effects. In order to understand the variation in human-plant relationships both cultural and biological aspects of these interactions need to be examined. In this ongoing research, I use ethnobotanical, and plant ecology methods to explore how members of the Nisqually tribe harvest beargrass (*Xerophyllum tenax*) within Mount Rainier National Park and what impact this harvesting have on the plant community. The Nisqually harvest beargrass by pulling leaves from the plant. After two years of plant collection, harvested plots had higher percentage of beargrass then the controlled plots. But the difference vanished after three years of no harvesting, and did not correspond with changes in the plant community. Future research includes expanding the data on traditional use of plants found within Mount Rainier National Park, and experimentally harvesting beargrass based on the Nisqually's practices.

Hunn, Eugene S. **A Zapotec Medical Ethnobotany** (Session XII)

Traditional knowledge of medicinal plant use is widely shared in the Zapotec community of San Juan Gbee, Sierra de Miahuatlan, Oaxaca, Mexico. However, several men and women are recognized as particularly knowledgeable in this area. Based on interviews with several such local healers, I have documented some 400 distinct medicinal applications of some 270 plant species to treat nearly 100 locally recognized and named illnesses. Treatments most often involve consumption of infusions as teas or topical applications. Compound recipes are of particular note. Characterization of treatments as "hot" or "cold" in varying degrees is pervasive. A limited comparison of local hot/cold characterizations with a sample from central Mexico suggests that there is substantial agreement across considerable geographic and cultural distance in hot/cold designations. A range of treatments are noted also for psychosomatic/spiritual illnesses, such as "fright," "rage," and "lassitude," some of which may be linked to malnutrition.

Ignace, Marianne. **Science Education, Indigenous Knowledge and Discourse: Why K-12 Science Education Needs Indigenous Ethnobiology and Indigenous Languages** (Session III)

The current provincially authorized Grades K-12 science curriculum sanctions and supports the integration of "authentic" Aboriginal content into the curriculum, stipulating that it "can make the subject more authentic, exciting, relevant and interesting for *all* students." The author will show that such "authenticity" in turn requires a detailed understanding of how "indigenous examples of science" manifest themselves in the everyday observations, reflections and discourses about observed ecological relations, and observations of climate, landscape and changes in them. On the basis of examples from various cultural settings in the process of First Nations language curriculum development, I will show how indigenous languages, sometimes in song lyrics, encode details of ecological knowledge and observations that is easily lost in the process of translation and de-contextualization.

* Barbara Lawrence Award submission

Ignace, Ron and Marianne Ignace. **Secwepemc Landscape Burning Practices: Views from Practitioners** (Poster Session A)

Secwepemc ethnobotany research has confirmed the use of fire management in Secwepemc traditional territory. Since the large wildfires in the Interior of British Columbia in 2003, there has been a renewed interest in forest management practices that incorporate burning into contemporary management regimes. In this paper/poster, we will add to the indigenous knowledge base on Secwepemc (Interior Plateau) burning practices from practitioners' perspectives, focusing on methods of burning, knowledge of season and local moisture levels, local climate and wind patterns and plant growth at crucial times of the year. We will also examine the ways in which such knowledge is expressed in the Secwepemc language. Finally, we will explore why and how such very localized practices that are moreover driven by local and temporal climates and ecologies are not easily compatible with centrally managed forestry practices.

Johnson, Leslie. **Thinking About Birds, Thinking With Birds- Perspectives from Northwest North America** (Session XI)

Birds are salient actors in human environments around the world, and are carriers of meaning, their actions invested with a range of significance. This paper will present thoughts on the significance of birds in several cultures in Northwest North America based on long term research with Gitksan, Witsuwit'en, Kaska and Gwich'in. The observations I share were made by spending time on the land with people and in conversation —that is, in everyday circumstances and through commonly repeated traditional stories. Accordingly what I present is a series of examples of certain salient birds and their meanings across the range of localities where I've worked. As such they are common birds, frequently observed. Relationships with these birds include: commensalism and sharing; power; birds as food; symbolic and metaphoric associations; and ecological relationships. Birds often appear as art motifs, and have strong roles in traditional narratives. Birds also enrich human experience.

Jones, Christopher. **Watershed Education in Arizona and Guatemala: Opportunities for Practical Application of Ethnobiology Through Local Volunteer Watershed Stewardship** (Poster Session A)

Cooperative Extension's Master Watershed Stewardship (MWS) program provides a practical format for making significant human connections with the environment. Participants in programs offered by the author in Arizona and Guatemala have shared traditional and ethnobiological knowledge when discussing watershed values. For example, descendents of pioneering families and Native Americans in Arizona, and Mayans in Guatemala, have both shared their knowledge of traditional farming and grazing practices, fire use, and about plants used for food and medicine by their ancestors. Through the program, participants learn about watersheds and water resources, and meet resource managers and professionals. They then serve as community steward volunteers, often with the same managers and professionals. When the steward's ethnobiological knowledge is made known and appreciated, the managers can better address community resource needs and management objectives. As such, MWS can serve as a conduit in any location to foster practical application of ethnobiology in watersheds today.

Joyce, Megan. **Constructing Nature: Evaluating the Aesthetic of 'the Natural' in the Service of Paleozoology** (Session IV)*

In modern society there is a debate as to what should be done about human impact on the environment. The decision-making process is left to public and private groups: such as scientific organizations and environmental managers. The debate as to which course of action should be taken, if any, is contentious and little to no headway is being made to solve ecological management issues. This paper examines a new way to observe and discuss environmental impact on the basis of aesthetic concepts of the natural world. Concepts such as these are meaning-laden and carry culturally prescribed ideas and attitudes towards the perception of Nature and Man. I examine these concepts and apply them to paleozoology—the study of the zooarchaeological and paleontological records. Culturally prescribed definitions affect the ways that society interacts with the environment; by focusing on a paleozoological evaluation of environmental change, we can better understand the world.

Karst, Amanda. **First Nations Watershed Planning Framework** (Session II)

Integrated watershed management provides an opportunity for people to tailor actions to complement, rather than impact, natural systems – an approach First Nations have traditionally taken, based on a holistic understanding of the world. Existing watershed planning frameworks are based on western knowledge and worldviews and are sometimes

* Barbara Lawrence Award submission

not relevant or respectful of First Nations and their knowledge. A First Nations approach to watershed management has the potential to offer a great deal to integrated watershed management in Canada. CIER is developing a First Nation Watershed Management tool to increase First Nation capacity to engage in watershed planning. We are working with three First Nations to develop and test this tool. The aim is to assist project partners in participating in water management and planning through community engagement and use of Indigenous Knowledge. This presentation will outline the draft framework of the First Nations watershed management tool.

Karst, Amanda **Conservation Value of the Boreal from an Ethnobotanical Perspective** (Poster Session A)

The Boreal region in North America covers a vast area composed of a patchwork of unique habitats. The traditional territories of hundreds of Aboriginal communities are within the Canadian Boreal region. The Boreal has significant ethnobotanical importance to indigenous people from this region and their connections to this landscape are both utilitarian and sacred. Boreal plants currently face widespread human induced pressures including habitat loss and climate change. This paper will outline the variety of ways that indigenous people use the plants in the Boreal region, the significance of plants to their cultures and the major threats to Boreal plants today. The ethnobotanical importance along with the collective traditional knowledge that is unique to and intrinsically tied to this region and the rich variety of plants from which this knowledge stems, lend tremendous weight to the significant conservation value of the Boreal region.

Kashap, Arunima and Steve Weber. **Starch Grains as a Tool in Understanding Plant Use Strategies: An Example From The Indus Civilization** (Poster Session B)

Starch grains extracted from residual material adhering to the edges of the flaked stone tools, accumulated in the cracks and crevices of the tools used for cutting and grinding, inside pots and from dental calculus of humans and animals are providing direct evidence for plant consumption and can aid in the understanding of the dietary practices. This paper explores the potentials of starch grain studies to better understand plant use in Northwest South Asia, during the Indus Civilization. We will also present the results of our preliminary studies on various artifact surfaces and dental calculus (both human and animals) from different Harappan sites in India and Pakistan.

Katz, Esther. **Use of Food Plants in the Middle Rio Negro (Brazilian Amazon)** (Session IX)

Inhabitants of the Middle Rio Negro of Arawak and Tukano descent use a wide range of food plants, especially cultivated ones, at least a hundred species. Ethnic groups of both language families share the same food and agricultural systems, of which bitter cassava is the pillar. Chilli pepper is an important complementary food item. Many species of fruit and tubers - all considered as fruit- both may be eaten as snacks in the fields or between meals and be turned into beer or, for fruit, into juice. An important proportion of the plants is native or known for a long time, while some were introduced over the last decades but were integrated in the food and agricultural systems. The food plants categories will be analyzed here, in relationship to the food processing techniques, the taste categories and the composition of the meals.

Keddie, Grant**. Stinging Nettle, Fireweed and Spinning** (Session V)

An overview of archaeological and ethnological spindle whorls and their relationship to plants.

Kirby, Kate, Sarah Gergel, and Domingo Diaz. **The Relationship Between Cultural Diversity and Agricultural Biodiversity in a Tropical Landscape Undergoing Rapid Economic Development** (Session X)

Despite growing concern over world-wide losses of crop genetic diversity, we still have a poor understanding of the relative importance of cultural and socio-economic factors in influencing the distribution of agricultural biodiversity across landscapes. In a study carried out in collaboration with farmers from thirteen villages and three ethno-linguistic groups in Panama's Darien region, we examined how crop diversity and composition varied amongst cultural groups and with access to commercial agricultural markets. We found that species composition was strongly related to farmers' cultural identity, but that relationships between agrobiodiversity and market access differed by species and amongst farmers of different cultural groups. Here we summarize these findings and explore some of the factors underlying the observed relationships. We then discuss how changes in seed exchange networks in response to market liberalization and rural development may further homogenize the species and landraces cultivated in this landscape over the long term.

Komaromi, Reka. **Sharing Knowledge: Practical Solutions for the Preservation of Biocultural Diversity in the Cameroon-Nigeria Borderland** (Poster Session D)

My research was focused in the highly fertile and both botanically and ethnically diverse area of the Tikar Plain in the Cameroon- Nigeria borderland. This is the first ethnobotanical study with the subsistence farming Mambila community of Somie village and in collaboration with an existing language preservation project, on the patterns of intra-cultural variation of ethnobotanical knowledge. Despite a relatively high level of intergenerational knowledge sharing, socio- economic, socio- cultural and environmental changes are suggesting an erosion of ethnobotanical knowledge among the younger generation of Mambila and call for integrative approaches for the preservation of biocultural diversity and the safeguarding of their cultural heritage. I wish to suggest one practical example of such an approach by presenting a field guide of local plants and their uses, which I compiled for the community based on my findings. This guide is intended to inspire the revival of traditional plant uses and as an educational resource and is currently being edited and extended by the Mambila community.

Konwar, Loveleena and Dolan Konwar. **Traditional Dye Yielding Plants of Assam, North East India** (Session X)

Assam is situated in the North Eastern region of India. The region is very rich in plant bio diversity. Because of heavy rainfall coupled with suitable ecological conditions a large number of plant species grow well in their natural habitats. A good number of these plant species have been used as raw materials for preparation of various dyes by the rural people of the region for coloring the clothes or threads for embroidery. The dyes obtained from plant materials are water soluble and environment friendly. Plants like *Lawsonia inermis Linn., Erythrina indica Lam*., *Bixa orellana Linn.*, *mangifera indica Linn*., *Psidium guajava Linn*., *Eugenia Jumbolana Lam*., *Terminalia catappa Linn*., *E.prostrate* (Linn.), (*Aegle marmelos (Correa*) Linn., *Zizyphus jujuba Lamk*. etc are used as dyes. This paper highlights the need of preserving these plant materials so that they would not go extinct with the availability of synthetic chemical dye in the market.

Kuhnlein, Harriet **Indigenous Peoples' Food Systems, Partnerships in an International Program** (Session XIII)

This session will present partnerships and processes of engagement with Indigenous Peoples in 12 community settings across 9 countries. The overall objective has been to demonstrate how health can be improved through deliberate interventions, guided by community leaders, that stress elements of the local food system. An overview of the 10-year program will be given by Harriet Kuhnlein followed by a 20-minute DVD presentation of the case study partners. Following discussion, a second DVD from the project with the Nuxalk Nation will be shown. The session will close with additional discussion and sharing of resources produced. Participants can preview the DVDs produced from other case studies: Pohnpei (FSM), Inuit (Canada), Gwich'in (Canada), Awajun (Peru) and Maasai (Kenya) at www.indigenousnutrition.org A recently released book about the project from the United Nations FAO also will be described.

Lacourse, Terri, Richard Hebda, and Rolf Mathewes. **Combining Paleoecological and Archaeological Data to Understand Past Human-Environment Relations: An Example of Late Holocene Forest Modification from SGang Gwaay UNESCO World Heritage Site, Haida Gwaii (Queen Charlotte Islands), Canada** (Session V)

We investigated the vegetation history of Anthony Island and the ecological impact of Haida peoples on late Holocene forests by conducting pollen and plant macrofossil analyses on cultural and noncultural sediments near SGang Gwaay village. Fossil pollen assemblages reveal 1800 calendar years of relatively stable temperate rainforest vegetation. However, western red cedar (*Thuja plicata*) abundance declined about 1000 cal yr BP, coincident with radiocarbon-dated occupation of the island by Haida peoples, who rely on cedar for house construction, dugout canoes, monumental poles, and many other items. Decreases in Sitka spruce (*Picea sitchensis*) pollen in sediments from the south end of the village likely reflect removal of spruce when SGang Gwaay village was expanded about 600 cal yr BP. These changes imply diffuse terrestrial resource use; forest modification was primarily through selective resource removal and limited clearing for village areas. This research demonstrates the value of combining paleoecological analyses on non-cultural deposits with archaeological and ethnobotanical data for understanding the prehistoric ecological impact of Indigenous peoples.

Lampman, Aaron M. **Interwoven Domains: How Ethnobiological Classification Influences the Depth and Breadth of Ethnoecological Knowledge** (Session III)

This paper explores intersections of domains of knowledge by examining how a folk classification system can both limit and expand the breadth and depth of ethnoecological knowledge associated with living things in the local environment. Rather than assuming that folk taxonomies are isolated and independent of other forms of ethnobiological knowledge, it may be possible to show that they are fundamentally integrated with ethnoecological knowledge in a myriad of complex and flexible ways. This paper argues that folk taxonomies provide a framework upon which overlapping ecological models are placed, much like a weaving is interlaced with the flexible strings of a loom. Overall, the goal is to examine how domains of ethnoecological knowledge are deeply influenced by the size and structure of the folk classification system, and how this ethnoecological knowledge, in turn, informs how people choose to interact with wild mushroom species on a daily basis.

Langlie, BriaAnna, Christine Hastorf, Maria Bruno, Marc Bermann, and Renee Bonzani. **Complicating the Story: Describing a Domesticated Archaeological Morphological Type of *Chenopodium* sp. from La Barca, Bolivia** (Poster Session B)

This poster will focus on a newly identified, archaeological Formative period, morphological type of *Chenopodium* sp. fruit at the La Barca site, located in the Department of Oruro, Bolivia. Through the use of scanning electron microscopy and multi-attribute analysis, we have documented this new morphological type, which is distinct from domesticated *Chenopodium* sp. elsewhere identified prehistorically in the Andes. As a biological relative of the modern domesticate *Chenopodium quinoa*, the identification of the new anthropogenic morphological type of *Chenopodium* sp. presents us with insights into the many complexities of the process of domestication, specifically pointing to selection occurring in multiple regions. Understanding the process of the domestication of *Chenopodium* sp. in the Andes teaches us about the history of this plant and its ecologies, and informs us about past decisions made and values held by people in their interactions with the landscape and their food supplies.

Laurendeau, Géraldine. **Transforming Practices, Sharing Ethnobotanical Knowledge in Mashteuiatsh's Innu Community, Quebec: Research Notes** (Session II)*

This research on the transmission of indigenous botanical knowledge focuses on how the Ilnuatsh in Mashteuiatsh's community developed strategies to reassure the continuity and vitality of ancestral knowledge, while being confront to conditions that stop them to do so. We will draw a contemporary portrait of *Pekuakamiulnuatsh*'s knowledge, more specifically the medicinal practices linked to the use of *Nitassinan* flora. The skills of people and tools owned by the museum and institutions can nowadays be used as methods for sharing knowledge while creating linkages between elders and apprentices. While less people are living in the forest for extended periods, the community has to create stimulating opportunities to keep the knowledge in circulation and accessible to people. In the actual context, organized activities and revitalization projects can help the transmission of knowledge across the community. As a participative research, observations and interviews done during the ethnographic field were designed to contribute to the transmission and the conservation of indigenous botanical knowledge inside Mashteuiatsh's community. The data gathered could therefore be utilized as content in further organized activities.

LeCompte-Mastenbrook, Joyce. **A Natural History of Mountain Huckleberry Habitat in the Central Cascade Mountains of Washington State** (Session V)

This presentation summarizes an interdisciplinary approach to understanding the long-term history of human interactions with mountain huckleberry and the landscapes where it grows in the southern reaches of Coast Salish territory. Mountain huckleberries (*Vaccinium membranaceum*) are prized by Indigenous peoples throughout the plant's range as a subsistence, ceremonial and cultural resource. In the pre- and early settlement period, Native peoples commonly set fire to huckleberry meadows in order to create or maintain the open conditions that favor huckleberry production. A common perception among Native people today is that due to land management practices – particularly fire suppression - many of these formerly productive areas are now degraded or have disappeared entirely. I will discuss my approach to developing a better understanding of the relationship between changing ecological conditions, structural conditions (climate, colonialism and capital), and Coast Salish uses and management of montane habitats over time, which I will argue is crucial to greater effectiveness in contemporary land management practice.

* Barbara Lawrence Award submission

Liswanti, Nining, D. Sheil, M. Boissiere, M. Padmanaba, and I. Basuki. **Local Priorities for Biodiversity and Potential Conservation in Papua, Indonesia** (Session VII)

The near pristine tropical forest of Mamberamo watershed has a high biodiversity and is an important source of local livelihoods. We found potential for beneficial collaborations between indigenous people and those concerned about conservation. We documented the value local people placed on habitats, species, sites and the nature of their importance. Forest is valued for a wide range of uses and functions but unlogged forest is the most important. The forest is mostly undisturbed with little significant change in 30 years. Local aspirations and traditional customs could be used to protect important forest resources. Customary law and taboos already play a protective role. Our study show how local people's priorities can be used to support biodiversity conservation. It is a first step towards providing a local perspective that could guide decision makers, and stakeholders working towards conserving biodiversity, with planning and practices and how to respond positively to local views.

Lloyd, T. Abe and Leigh Joseph. **The Vancouver Island and Coastal Communities Indigenous Food Network** (Poster Session D)

The Vancouver Island and Coastal Communities Indigenous Food Network is a collective of passionate and dedicated members with a shared vision of a healthy future based upon reconnecting with First Nations cultural teachings and practices. Our membership is made up of health professionals, community development workers, members of the scientific community and culturally knowledgeable food managers and gatherers. We aim to build collaborative approaches to address issues of traditional food access and security. Moreover, we intend to do research, document and share the ancestral strengths that are deeply rooted throughout Vancouver Island for the vivacity of future generations. We engage First Peoples of all ages and strongly believe in the importance of continuing the transfer of traditional knowledge across successive generations. The Network promotes opportunities for First Nations and their youth and elders to revitalize traditional teachings and to breathe life back into these practices.

Logan, Amanda. **Cooking the Past? Food Security, History, and Change in Banda, Ghana** (Session IX)*

In this paper, I explore the historicity of recent foodways in the Banda region of west central Ghana as a starting point for understanding continuity and change in subsistence in antiquity. I will present preliminary results from an ethnoarchaeological study of food change that I conducted in the Banda area in 2009. In particular, I look at the mechanisms by which new foods and food technologies are incorporated and the rates of such changes. I suggest that some elements of food are slow changing because they act to remind people of their identities and origins, but also to cope with rare and severe food shortages. These data serve to link the present with the past, and provide insights as to the nature of culture change, and the relationship between ethnobiological studies, historical anthropology, archaeology, and development studies.

Lyman, R. Lee. (Session IV)

Session Discussant

Mackin**,** Nancy and Edosdi (Judy Thompson)**. Ethnobotanical Gardens: Connecting Learning to Communities and the Land** (Session II)

Ethnobotanical gardens, defined here as landscapes featuring culturally-relevant native trees and understory plants, are sources for the revitalization of traditional knowledge as well as sources for cultural and ecological restoration projects. We have undertaken two ethnobotanical gardens at Northwest Community College, Northern British Columbia, with the intention of 1) promoting the development of relevant curriculum that focuses on First Nations peoples and their relationship with the land, 2) connecting educational institutions to the land and the community through such curriculum, and 3) providing a source for plants that are culturally useful for foods, medicines, and technology and ecologically useful for restorations. Within these ethnobotanical gardens, we are working with the local Tsimshian Elders to add signage and brochures for teaching Indigenous names of plants and their uses. Elders and students will also be engaged in tradition-based plant propagation, management, and harvesting. Both gardens provide the college campuses and surrounding communities with the opportunity to learn about First Nations peoples and their connection to the land through their relationship with plants.

* Barbara Lawrence Award submission

Markin, Julia. **Archaeobotanical Data and the Origins of Political Complexity** (Session IX)

The connection between the intensification of subsistence practices and the increasing elaboration of political systems is "a topic of long-standing interest" (Scarry 1993a:87). In the Southeastern United States, the organizational demands of intensified production of native crops and of maize in particular resulted in the centralization of the political system through the consolidation of power by individual leaders. Later, centralization of power resulted in the formation of Mississippian chiefdoms. Integration of plant use and settlement information for the Woodstock phase (A.D. 800-1000) provides a foundation for understanding the political changes that ultimately led to the rise of political complexity in north Georgia in the Mississippian period. Recent archaeobotanical analyses indicate maize was present in features predating Woodstock but not as a dietary staple. Woodstock sees a dramatic increase in the presence of maize as well as the clustering of settlements into defined territories, signifying the beginnings of increasing political complexity.

Marston, John M. **Assessing the Long-Term Sustainability of Agricultural Systems: An Archaeological Case Study** (Session IX)*

Identifying how ancient societies made decisions about patterns of agricultural land use is important for understanding why some pre-industrial agricultural systems flourished and others collapsed. Agricultural strategies may be targeted towards short-term profitability at the expense of long-term sustainability, or vice versa, and local environmental and cultural factors influence how people balance both goals in agricultural planning. Archaeological data offer a unique diachronic perspective on the ephemerality or sustainability of agriculture in a particular place over hundreds or thousands of years. In this paper, I consider paleoethnobotanical, zooarchaeological, and phytogeographic evidence for coincident changes in landscape and agricultural practices at the ancient city of Gordion in central Turkey over a period of 2000 years. I argue that political shifts led to changes in risk-management strategies that had broad implications for the long-term sustainability of agriculture in the region.

Mathews, Bethany and Leroy Keener. **"The Greatest of all Delicacies": Waterlogged Archaeology and the Search for Ancient Food Preference on the Northwest Coast of North America** (Session V)

Excavations of waterlogged archaeological sites offer valuable glimpses into otherwise perishable evidence of the past. The ecofacts found at such sites on the Northwest Coast can bring archaeologists closer to understanding regional diet, but what can they tell us about food preference in the past? While archaeologists frequently rely on human nutritional needs to model food consumption, social complexity on the Northwest Coast likely influenced food production practices in idiosyncratic ways. For instance, the Sunken Village site, located near the lower Columbia River in Oregon, contains unique evidence of the extensive use of an aquifer location for acorn processing and storage in the centuries leading up to European contact. Ethnohistoric accounts indicate this plant food and associated processing techniques were uncommon but highly regarded. Excavations at the Q^{w}u?g^{w}es (Mud Bay) site, on the southern Puget Sound of Washington, suggest fall foods (acorns and hazelnuts) were an important part of the diet at this spring fishing camp. The ubiquity of these plant foods at the Q^{w}u?g^{w}es site is muddled by uneven abundance in the midden, which might be caused by waterlogged preservation conditions. In this paper we ask: "How can waterlogged ecofacts contribute to our understanding of ancient plant food choice?"

Mathews, Darcy and Peter Dady. **Fuel for Thought: An Introduction to Douglas-fir Culturally Modified Trees** (Session V)

While Douglas fir culturally modified trees (CMTs) occur throughout coastal southwestern British Columbia, these features remain poorly understood and largely undocumented. We suggest that Douglas fir bark was one of the premier sources of fuel among the precontact peoples of southwestern BC and was collected from living trees regularly for a multitude of purposes, such as food preparation and funerary ritual. Recent archaeological work at Rocky Point, on southern Vancouver Island, has identified numerous Douglas fir CMTs sites. Drawing on data from these new sites, and incorporating archaeological and ethnographic data from around southwestern BC, this paper introduces researchers to the recognition, morphology, ethnobotany and archaeology of Douglas fir CMTs.

McBride, Pamela J. and Nancy Akins. **Early Spanish Cuisine in the City Different** (Poster Session B)

The Palace of the Governors in Santa Fe, New Mexico served as home to governors, their families, and servants from the founding of the city in AD 1609/1610 until the pueblo revolt of AD 1680-1693. After the recapture of Santa Fe for the Spanish Crown in AD 1693, the Palace was reoccupied until the end of the Mexican period in AD 1846. Prior to the

* Barbara Lawrence Award submission

construction of the New Mexico History Museum behind the Palace of the Governors, the Museum of New Mexico's Office of Archaeological Studies excavated various features associated with the occupation of the Palace. Evidence from floral and faunal remains indicates the governors and their families dined from a combination of local wild and cultivated plants and animals, and imports brought from Spain and Mexico along the Camino Real.

McCarter, Joe and Michael Gavin. **An Estimate of Ethnobotanical Change from Malekula Island, Vanuatu** (Session X)

The erosion of traditional ecological knowledge (TEK) threatens the ability of current generations to sustainably manage resources and the capacity of future generations to adapt to changing conditions. Vanuatu displays astounding biocultural diversity, and TEK is vital to resource management throughout the archipelago. However, Vanuatu is experiencing rapid cultural and environmental change, and transmission of TEK is likely to be declining amongst an extremely young population. Here we present an estimate of ethnobotanical change from four communities on Malekula Island, Vanuatu. We utilize quantitative data, gleaned from freelisting exercises with 160 participants in salient ethnobotanical domains, to estimate change in depth and breadth of knowledge across age cohorts. We discuss socio-economic predictors of high levels of ethnobotanical knowledge, and contextualise the data by examining the results of detailed semi-structured interviews. Finally, we discuss the implications of these results for natural resource management on Malekula, in the context of wider cultural change in the Pacific.

McCune, Letitia M. **Agricultural Biodiversity, IPR and Benefit Sharing: The Native Seed/SEARCH example** (Session II)

For the past 25 years Native Seeds/SEARCH has been conserving the biodiversity of agricultural seeds from indigenous farmers, gardeners, vendors and communities of the Southwestern U.S. and Northwestern Mexico. A brief history of this non-profit group coupled with a description of the 1800 varieties and gathering locations will be presented. To help guide future work with Indigenous Peoples and the seeds that were collected from indigenous farmers, Native Seeds/SEARCH has begun a process to develop a new Code of Ethics and policies on intellectual property rights (IPR) and benefits sharing. An advisory panel has been created to assist the organization's Native American Committee in drafting these policies and developing dialogues with indigenous communities for input. Descriptions and applications of select Code of Ethics and IPR agreements will be reviewed in this presentation along with limitations and considerations for the continued benefit of Indigenous Peoples as well as biodiversity conservation.

McKechnie, Iain. **Assessing the Scale and Coherence of Ancient Hunting Economies On and Around Vancouver Island using Zooarchaeological Data** (Session IV)

One of the central challenges for zooarchaeologists is effectively communicating the complex relevance of their data to contemporary resource managers as well as other practitioners in the historical and social sciences. In coastal British Columbia there is an increasing wealth of zooarchaeological and archaeological information pertinent to understanding the ecological significance of aboriginal hunting practices, yet these data remain poorly integrated into modern ecosystem management perspectives. This paper addresses aspects of this disjuncture by outlining a methodological approach for conceptualizing ancient maritime economies on Vancouver Island. I compare mammalian assemblage data from ~50 coastal sites to illustrate the regional coherence, extent, and potential implications of ancient hunting practices. I conclude with a discussion about the interpretive potential and interpretive hazards of considering zooarchaeological assemblage data.

McLay, Eric. **In Search of Camas: Archaeological Correlates of Camas Root Intensification on Vancouver Island and Southern Gulf Islands, British Columbia.** (Session V)

Camas (*Camassia sp.*) is perhaps the most ethnographically-renowned plant species within the threatened Garry Oak meadows of southeastern Vancouver Island and southern Gulf Islands, British Columbia. Coast Salish Hul'qumi'num and Sencoten-speaking peoples are historically well-documented to have intensively harvested carbohydrate-rich camas lily bulbs, among other local plant roots, at a community-level scale for food, storage and trade, and camas has even been described as an economic 'staple'. The significance of camas for Coast Salish peoples' diet, subsistence economy and settlement patterns over time, however, is not well understood. To date, camas lily has yet to be identified in any archaeological context in coastal BC. This paper examines Coast Salish ethnohistorical accounts of camas use and outlines potential material correlates of camas and other root plant production in the archaeological record. Archaeological research in the Cowichan Valley and southern Gulf Islands is explored as comparative landscapes for different lines of material evidence to focus efforts in search for camas and, more importantly, to more fully understand the scale and influence of camas root intensification over time for Coast Salish cultures.

Meyer, Karen. **Honoring Who Came Before: Native American Ethnobotany at the Missouri Botanical Garden** (Session II)

Traditional Ecological Knowledge (TEK) is a rich part of the cultural heritage of the Native American Tribes in the United States. With a history that goes back thousands of years, American Indians have developed a vast knowledge of their plant resources. Until recently, ethnobotanical research conducted by the William L. Brown Center (WLBC), a division of the Missouri Botanical Garden, has focused on several countries outside of the United States. In 2009, the WLBC developed a new program which emphasized collaborative research with Native American Tribes in the U.S. During the summer of 2009, visits were made to four reservations, the Lake Traverse Indian Reservation (Dakota), Standing Rock Indian Reservation (Lakota), Crow Creek Indian Reservation (Dakota) and the Santee Sioux Indian Reservation (Dakota). During the time spent in this area, ethnobotanical research projects were identified by the potential benefit to each of the involved communities.

Miller, Andrew M. **Anishinaabe Views of Boreal Forest Fire, Forestry and Renewal** (Poster Session A)

This poster takes a step towards Aboriginal Forestry by examining indigenous understandings of physical and ethical processes involved in forest disturbance. Forest scientists promote incorporating biophysical legacies of natural disturbances into timber harvest practices to improve silvicultural sustainability. Anishinaabe elders from Pikangikum First Nation, Ontario have their own understandings of the processes and features that contribute to forest renewal. In this poster I present their understandings of the social and ecological impacts of clearcut forestry and forest fires in the boreal forests of northwestern Ontario. According to elders, modern forestry practices fail to reproduce healthy forests by churning the soil, planting trees in rows, introducing contaminants and using herbicides. The Pikangikum elders have shared empirical observations of forest succession following fire and the ethical guidelines presented in traditional teachings found in the Creator's Plan (***Keechee Manidoo Oonuhcheekayween***). These ethics and their observations of successional pathways present potential guidelines for aboriginal forestry that merit ecological investigation.

Moller, Henrik, Janet Stephenson, and Rachel Turner. **Cross-cultural Environmental Research and Management Partnerships: Progress and Challenges for Ethnobiology and Science** (Session II)

If done in the right spirit, Traditional Knowledge and science can create surprising dialogue and usefully challenge each other for more effective adaptive co-management. However better partnership is hampered by problems of lack of deeper understanding of each other's knowledge, contested definitions and lack of a shared language, and especially by presumptions (on both sides of the TK-science divide) that one knowledge system is always better than the other in all circumstances. Institutional barriers reduce the number and effectiveness of cross-cultural environmental problem solving and create unequal access to resources and warrants for application of knowledge. But perhaps the main debate concerns whether individual researchers and managers should partition their spiritual and belief domains from bio-physical understanding of how the world works. Do we need scientists to be more spiritual in outlook, analysis and understanding? Can TEK experts accept that science also helps form wisdom and ethical environmental management?

Moller, Henrik, Sam McKechnie, Corey Bragg, David Fletcher, Peter Dillingham, Jamie Newman, and Rosemary Clucas. **Mathematical modelling of Mātauranga Māori: Quantifying the Sustainability Value of Traditional Seabird Harvest Lore** (Session XI)

Mātauranga Māori (Traditional Knowledge of Māori) and ecology have been applied in partnership since 1994 to assess the sustainability of the traditional tītī ('muttonbird', sooty shearwater) harvest by Rakiura Māori in New Zealand. A firm teaching of the ancestors was to only harvest chicks and never disturb the adults. This is part of a wider Traditional Knowledge construct to "eat the babies and leave the breeding stock alone". Our Bayesian model simulated the comparative impact of harvesting shearwater adults, chicks and eggs. It predicted that many more eggs and chicks than adults could be harvested to have the same effect on the next generation's abundance. More examples of quantification of the value of traditional environmental knowledge for harvest sustainability could help debates on the relative efficacy of science and ethnobiology for sustainability and invite more respectful partnerships between lore, science, TEK experts and ecological managers.

Mollik, Md. Ariful Haque, Md. Nur Kabidul Azam, Md. Torikul Islam, Md. Asif Mahmood Chowdhury, Md. Rofikul Islam, A.T.M. Ali Azam, Shahnaaz Sharfuddin, Rownak Jahan, and Mohammed Rahmatullah. **Plant Species Used by the Folk Medicinal Practitioners of Brahmanbaria, Jhalakathi, Jessore, and Kushtia Districts, Bangladesh to Treat Diabetes Mellitus** (Session XII)

The objective of this present study was to conduct an ethnomedicinal survey in four districts of Bangladesh (Brahmanbaria, Jhalakathi, Jessore, Kushtia) to find out about the plant species used by the folk medicinal practitioners (Kavirajes) to treat diabetes mellitus. Following informed consent, interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method. Information on eight plant species was obtained from the Kavirajes. These plant species (with plant parts used given in parenthesis) included *Catharanthus roseus* (flower), *Coccinia grandis* (leaf), *Momordica charantia* (fruit, seed), *Diospyros discolor* (fruit), *Albizzia lebbeck* (seed, fruit), *Asparagus racemosus* (root), *Syzygium cumini* (seed), and *Curcuma zedoaria* (tuber root). Amongst the plant species obtained in this present study, *Catharanthus roseus*, *Momordica charantia*, and *Syzygium cumini* has been demonstrated by scientific studies to have considerable anti-hyperglycemic potential. Other plant species need to be studied for their potential in having phytochemical components with hypoglycemic activity.

Mollik, Md. Ariful Haque, Md. Shahadat Hossan, Abu Hanif, Md. Asifur Rahman, Ahasan Ahmed, Prozzal Roy, Muhammad Tazul Islam, Rownak Jahan, and Mohammed Rahmatullah. **A Survey of Medicinal Plants Used by the Rakhain Tribe, Bangladesh Which Can Serve as Food Supplements** (Poster Session C)

The Rakhain tribe inhabits the Chittagong Hill Tracts area and Patuakhali district in the south and south-east regions of Bangladesh. An ethnobotanical survey was conducted amongst the tribe. During the course of this survey, it was found that the tribal people use a number of medicinal plants or plant parts towards both treatment as well as prevention from occurrence of certain ailments. These medicinal plants therefore serve as food supplements. Medicinal plants were collected and appropriate botanical names obtained from the Bangladesh National Herbarium, where specimen copies were also deposited. These medicinal plants (with family name, plant parts used, and ailments treated given in parenthesis) included *Syzygium jambos* (Myrtaceae; leaf; rheumatic pain, muscle pain, urinary problems), *Syzygium cumini* (Myrtaceae; leaf, seeds; inflammation, burning sensations in the urinary tract, gastrointestinal problems, toothache, skin diseases), and *Dillenia indica* (Dilleniaceae; fruit, bark; fever, skin diseases, rheumatic pain, cold, fever, respiratory problems).

Mollik, Md. Ariful Haque, Munshi Ahsanul Khasru, Abdullah All Mamun, Md. Ziaul Haque, Dilara Ferdausi, Rownak Jahan, Mohammed Rahmatullah, and Mst. Afsana Khatun. **A Survey of Medicinal Plants Used by Traditional Healers of Madaripur district, Bangladesh** (Poster Session C)

Folk medicinal practitioners or Kavirajes use medicinal plants for treatment of various ailments in Bangladesh and this usage of medicinal plants vary from region to region. The objective of this present study was to conduct an ethnomedicinal survey amongst the Kavirajes of Madaripur district, Bangladesh. Some of these medicinal plant species (with ailments treated given in parenthesis) included *Sida cordifolia* (fever, spermatorrhea, paralysis), *Justicia adhatoda* (astringent, bronchitis), *Phyllanthus niruri* (urinary tract problems, jaundice), *Ficus hispida* (astringent, diarrhea), *Solanum xanthocarpum* (catarrh, fever, pain in chest, coughs), *Piper ornatum* (ulcer, biliary disorders), *Barleria prionitis* (fever, glandular swelling), *Hibiscus abelmoschus* (itches, tonic), *Desmodium gangeticum* (tonic, coughs, astringent), *Miscanthus sinensis* (nerve disorders), *Terminalia chebula* (jaundice, urinary troubles, coughs), *Terminalia arjuna* (heart disorders, tonic, astringent), *Ziziphus mauritiana* (coughs), *Mikania cordata* (chronic bronchitis, coughs), *Hibiscus rosa-sinensis* (emollient, aperient), and *Clitoria ternatea* (tonic, laxative). The medicinal plants present considerable potential for discovery and development of newer drugs.

Molnar, Zsolt, K. Hoffman-Puspokladany, and E. Voros. **Utility of the Nearly Science-independent Ecological Knowledge of Peasants in Steppe Conservation in East Central Europe (Hungary)** (Session VII)

Conservation biology in Europe rarely takes advantage of TEK. We studied the relationship between the ecological knowledge of herdsmen and scientific knowledge. 60 herdsmen and 25 professionals were interviewed in Central Europe in a steppe landscape. The landscape has not changed much since the last ice age, and has been utilized primarily by grazing. Unexpectedly more than 90% of plant names, 100% of habitat names, nearly 100% of the knowledge on habitats, and 80 % on landscape history are independent of scientific knowledge (cf. a large and 200 years old botanical institution is within 50 km; the steppe is a tourist destination and a National Park). Traditional

knowledge includes several elements that scientific knowledge doesn't (e.g. little is known on the changes during the last decades in the quality of pastures, the effects of the spread of reed and accumulation of dry litter, and extensive manuring).

Moreiras, Diana. **Thinking and Drinking Chocolate: Origins, Distribution, and Significance of Cacao in Mesoamerica** (Session IX)

Theobroma cacao has been known to have a very complex chemical composition which combines antioxidants, neuroactives, and stimulants. Further, specific environmental conditions are fundamental for the successful growth of the cacao tree, hence the cacao tree has only been encountered in parts of South and Central America and in the Northern part of Southern Mesoamerica. Due to the complexity of cacao, a controversy remains among scholars and specialists regarding the timing and the routes by which the cacao tree reached Mesoamerica. This paper explores the cultural and symbolic importance of *Theobroma* cacao across Mesoamerica in Pre-Columbian times by examining the origins of the consumption of chocolate by early Mesoamerican societies using the archaeological evidence of cacao residues found in ceramic vessels at the sites Paso de la Amada (Chiapas), El Manati (Veracruz), Rio Azul (Guatemala), Colha (Belize), and the Rio Ulua Valley (Honduras). In addition, this paper integrates the diverse distribution hypotheses on the *T. cacao* tree made by previous scholars and presents a possible distribution route of cacao by natural and anthropogenic forces.

Moss, Madonna L., Virginia L. Butler, and Thomas R. Thornton. **Herring Synthesis: Integrating Archaeology, Local Traditional Knowledge, and History in Southeast Alaska** (Session VIII)

Pacific herring is a bellwether species of North Pacific marine ecosystems. Today, herring roe fisheries are among the most lucrative, competitive, and controversial in the region. Over the millennia, Alaska Natives have fished for herring as part of their seasonal rounds, but since the late 1800s, the species has been subjected to intensive commercial harvest. To address the gaps in the historical and cultural ecological knowledge of southeast Alaska herring, the authors synthesized archaeological, ethnological, historical, and biological records with data from interviews with herring fishers with local and traditional knowledge (LTK). Our findings show that historical stocks were larger and spawning areas more numerous in the past, and that herring, even in highly productive Sitka Sound, are being managed in a depleted status. Maintenance of diverse spawning locations in southeast Alaska is critical to conserving intra-species biodiversity, and we recommend specific areas for protection and restoration.

Mueller, Jocelyn. **Including Local Voices in Global Discourse: Case Studies from Boumba, Niger** (Poster Session D)

Studies of traditional, indigenous or local knowledge reveal that these experiential place-based knowledge systems can provide valuable information for local-level policy and practice. Including local voices, knowledge and experts through participatory methods can refine globally-based initiatives to suit local realities, empower local actors and improve overall program success and sustainability. Based on interdisciplinary participatory research in Boumba, Niger, this paper highlights examples where the input of local knowledge and local actors also helped to refine conservation and development theory. We propose that through an iterative participatory process, local knowledge can both improve local actions and refine global discourse and theory.

Mt. Pleasant, Jane. **Cereal Grain Farming in Iroquoia and Europe: Explaining the Paradox of Productivity** (Session IX)

In the 17th and 18th centuries, Iroquois farmers produced three to five times more grain per unit land area than their European counterparts. Many scholars assume that the plow played a major role in advancing agriculture in Europe. But the Iroquois obtained higher grain yields and established a more stable agricultural system by *not* plowing. Their system of conservation tillage maintained high levels of soil organic matter, the key to a sustainable and productive cropping system. They also had the advantage of maize, which is uniquely suited to no-till conditions and inherently more productive than wheat.

Nagaoka, Lisa. **Evaluating the Assumptions Behind Pleistocene Rewilding** (Session IV)

Over 40 years ago, the Overkill Hypothesis proposed that predation by human colonists to North America caused the extinction of the Pleistocene megafauna. This model has been extended to contexts world-wide to explain extinctions. Recently, this model has been linked to conservation biology concerning appropriate benchmarks for species reintroductions. Overkill has been used to justify Pleistocene rewilding of North America holding that related taxa of extinct species should be reintroduced to restore biodiversity. Much of the argument assumes that island extinctions

are analogous to the North American context. These assumptions are examined here by comparing paleozoological data from New Zealand to the evidence from North America. Population declines and extinction following colonization are well documented in New Zealand. In addition, New Zealand has an extensive record of conservation efforts. Thus, the New Zealand case provides an appropriate point of comparison to assess the viability of Pleistocene rewilding in conservation efforts.

Negrelle, Raquel R.B. and Gomes C. Thiago. **Ethnobotanical Study as Basis for the Elaboration of Management Plan of Forest Reserve Embrapa/Epagri (RFEE) in Caçador, Santa Catarina, Brazil** (Poster Session A)

This study was carried from 2007 to 2009 in order to generate a socio-economic and ethnobotanical profile of the Forest Reserve Embrapa/Epagri's (RFEE) surrounding communities and investigate their relationships with the forest reserve and natural resources within this important Mixed Ombrofile Atlantic Forest reminiscent. Total of 82 households were approached through a semi-structured interview, resulting in 2065 citations for the use of 166 native species by the locals. *Araucaria angustifolia*, *Mimosa scabrella*, *Campomanesia xanthocarpa*, and*Ilex paraguariensis* were the most frequent species mentioned, while the main categories of use were respectively *food*, *medicinal*, *ornamental* and *tools*. The extensive use of *leaves, trunk*s, *fruits*, *boughs* and *roots* indicates a potential for non-timber products exploitation. Regarding local communities' relationships with the reserve, a vast majority recognized its local ecological and natural resource importance. These aspects must be considered as fundamental to generate innovative management strategies for the whole region, within ecological, social and economic spheres.

Nolan, Justin and Kelly Bannister (Chairs). **Developing a Code of Ethics for the Society of Ethnobiology – An Open Discussion** (Session VI)

The SoE's Ethics Session Organizers seek to establish a guidepost for the promotion of equitable partnerships in all contemporary arenas of ethnobiology. The primary goal of this session is to identify the scope of ethical commitments contained within and represented by our discipline; ethnobotanical, archaeological, paleo-ethnobotanical, ethnomedical, biomedical, ethnoecological, zooarchaeological, linguistic, and other related theoretical and applied perspectives are encouraged during the session. We hope to exchange viewpoints on what binds ethnobiological ethics meaningfully, in an open roundtable forum. Topics might relate to field research contracts, institutional and educational procedures, responsible data collection and management, intra-institutional collaborations, cultural heritage brokering, policy-making, and other concerns. A panel of voices will be charged with penning the "Society of Ethnobiology Code of Ethics", derived from the Session and vetted by our members, one with expressed commitment to maintaining responsible ethnobiological praxis for the intellectual and cultural enrichment of present and future generations.

Pande, Satish and Anvita Abbi. **An Ethno-Linguistic Perspective of Names of Birds in Great Andamenese Language** (Session XI)

Present Great Andamanese (PGA) is a moribund language and is on the verge of extinction. The current study is an outcome of the first-hand collected data in the interdisciplinary research in Linguistics and Ornithology. We present all the 14 avian Orders, 35 Families and 100 Species recognized by the Great Andamanese people including the current conservation status, threats and distribution of avian species, endemic to the region. Indigenous names in PGA language were analyzed linguistically and discernible categories were classified empirically. Since the identifiable categories include avian names with single, double and triple attributes the semiotic analysis of the names of birds exposes the world view of the Great Andamanese people. What emerges is a typology of attributes where each attribute signifies a distinct avian related morphological, ornithological and semiotic behaviour. The present study, which is first of its kind, is of immense historical nature and can be used in future to establish any relationship with other languages and tribes of the Andaman Islands.

Pande, Suruchi. **Indian Peafowl (Pavo cristatus) in Sanskrit literature and The Role of Indian Culture in its Conservation** (Session XI)

Sanskrit literature (chronologically going 5000 years back to *Vedic* literature) and Indian culture have paid significant attention to birds and their relation to human beings. Indian culture still is an existing, a vibrant and a living culture, having a peculiar structure of ideas, sensitivity, symbols, beliefs, sentiments and values that are passed on from one generation to another. I present my finding on our National bird - Indian Peafowl (*Pavo cristatus*) in relation to *Sanskrit* literature and how the Indian culture has offered a unique respectful place for the Indian Peafowl. The observations cover various aspects such as the oldest references, mythology, religion, traditions, augury, etymology,

lexicons, descriptive references correlating recent ornithological information, aesthetic appreciation, philosophical context, paintings, sculpture, music, dance, *yogic* postures and the reference in the *Ayurveda* (Indian system of medicine). To support this data, I have discussed the present status of Indian Peafowl; have given concrete examples of its conservation prevalent in the Indian community, to prove how the Indian culture has played an important, active and educative role in conservation.

Parks, Shaina. **Medical Ethnobotany in the Arkansas Ozarks** (Poster Session C)

The Arkansas Ozarks provide a diverse social and ecological context for examining medical ethnobotanical systems. Like other rural cultures of the US, the Ozark Mountain region is rapidly delocalizing, resulting in the fragmentation of folk medical knowledge. This study documents samples of remaining folk medical practices to ascertain general trends in the continuation of these customs. Ten residents of the Arkansas Ozarks and the Arkansas River Valley were consulted in the study. Successive free-lists were obtained from each expert, including each species' mode of preparation and therapeutic application. Semi-structured interviews were also used to further document specific uses of plants. Results suggest that folk medicine in Arkansas is often being practiced by individuals not born in the state and that between individuals there is a high level of similarity in plant usages.

Peacock, Evan. **Freshwater Mussel Remains and Their Use in the Conservation of an Imperiled Fauna** (Session IV)

Freshwater mussels are one of the most imperiled faunas worldwide. Mussel communities have been severely impacted in modern times by habitat change from damming, canalization, erosion, and pollution. Large sums of money are devoted to study and conserve of mussels, but this work suffers from a lack of historical data on pre-impact biogeography and community characteristics. Data derived from archaeological shell would seem to present a solution, as thousands of shell assemblages have been recovered from drainages of all sizes. There are a number of methodological issues that must be faced, however, including issues of bias, scale, and reconciling species identifications based on shell morphology with more recent taxonomic adjustments based on genetic analyses. These issues are addressed, and a case study using correspondence analysis is presented to show the utility of archaeological data for reconstructing clinal changes in mussel communities in the Tombigbee River drainage of Mississippi and Alabama.

Pengelly, Ryan. **Indigenous Development of Non-timber Forest Products: an Anishinaabe Perspective from Pikangikum First Nation, Ontario** (Session II)

Pikangikum First Nation initiated land-use planning and development in their traditional territory, including non-timber forest products (NTFPs). This research explored culturally appropriate products, procedures, and partnerships in NTFP development and commercialization, such as natural health care products, nutraceuticals, and forest foods. Methods included field trips on the land and interviews with elders and business leaders, participant observation in the community, and community meetings. If new products are developed, elders recognize the need for partnerships and external expertise to complement their traditional knowledge. Rather than identifying clear boundaries and direction, elders define appropriate development and commercialization vis-à-vis cultural, social, economic, and moral teachings. Through cautious, respectful, and cross-cultural learning and planning, partners are expected to build a "working relationship" with the community and elders. Partnerships and products must generate monetary and non-monetary benefits for the community such as joint ownership, job opportunities, functional products, and support of customary activities.

Pierson, Nova and Dana Lepofsky. **The Smaller Picture: Pre-Contact Forage Fish Use and the Strait of Georgia and Implications for Conservation** (Session IV)

For managers of marine resources off the Pacific Coast of North America, species such as salmon often serve as cultural and ecological keystones, indicating the declining health of once richly and diversely populated rivers and oceans. These anadramous fish were important in the lives and economies of the pre-contact peoples of the Northwest Coast, and continue to be cultural staples. Archaeofauna from Coast Salish village sites and seasonal camps along the eastern shores of Burrard Inlet, SW British Columbia, show that along with salmon and other large carnivores, prey fish such as herring, anchovy, and eulachon were commonly harvested. These small species have also been impacted by industrialization and commercial fishing. Paleodata from these middens provide important information about the diversity and abundance of species these waters once supported, with potential implications for habitat restoration and fisheries management decisions.

Proctor, Kate. I**ntroducing Traditional Blue Camas (Camassia leichtlinii and C. quamash) Cultivation Practices into a Garry Oak (*Quercus garryana*) Meadow Preserve in British Columbia: Ecological and Social Dimensions of Ethnoecological Restoration** (Poster Session A)

Integration of cultural restoration, including traditional food cultivation practices, with the restoration and management of anthropogenic ecosystems remains largely unexplored. Despite the fact that traditional blue camas cultivation, including harvesting and management at different scales, likely helped to shape and maintain the Garry oak meadow plant community, reintroduction of this practice is seldom incorporated into restoration or management projects. My research endeavors to clarify a number of uncertainties surrounding the compatibility of camas cultivation practices with ecological restoration and conservation of biological diversity. In a deep soil Garry oak meadow site, I simulated traditional Coast Salish camas harvesting practices in an area with existing blue camas populations. I will monitor the effects of this activity on the blue camas plant community, the overall plant diversity, and the soil ecology within my experimental plots. Another component of my research involves documenting the current interest, opportunities, challenges and potential approaches to introducing blue camas cultivation into parks or preserves. To investigate these questions I will interview interested individuals and land managers from Vancouver Island First Nations and non-First Nations communities.

Quave, Cassandra L. **Mal 'vjnt: Ritual Healing of "Wind Illness" in Southern Italy** (Session XII)

Mal 'vjnt, or *wind illness*, is an Italian folk illness characterized as an affliction of the skin resulting from passage through a spiritually "charged" space. Data was collected through extensive interviews with master healers from 6 villages in the Vulture-Alto Bradano area of Basilicata, southern Italy over different field research periods spanning from 2001-2009. In this paper, data is presented regarding the traditional diagnosis and treatment of *wind illness.* In particular, the importance of "magical" plants in both the diagnostic and therapeutic processes will be discussed. Moreover, temporal and spatial concepts of disease transfer and recovery within this folk-medical construct will be explored.

Quinlan, Robert and Marsha Quinlan. **Modeling Cultural Cognition of Medicinal Plant Use in Dominica** (Session III)

We use quantitative techniques adapted from and extending cultural consensus analysis to examine the dimensions of disease models and their corresponding herbal remedies in rural Dominica. Results show that properties of plants and illness yield principal components that closely map on to qualitative, emic explanatory models of illness reflecting humoral qualities, internal-external locus of illness, and illness chronicity. Quantitative data are further used to explore intracultural variation in cognition about plants and illness. We describe a multi-phase analytical and data collection process including free-listing tasks, PCA, and open-ended interviews in which local informants respond to principal components to help develop emically appropriate factor interpretations. Finally we critique the use of repeated measures from multiple informants in PCA that are appropriate for exploration of cultural cognition in ethnobiological domains.

Randklev, Charles and Benjamin Lundeen. **Prehistoric Biogeography and Conservation Status of Threatened Freshwater Mussels (Mollusca: Unionidae) in the Upper Trinity River Drainage** (Session IV)

In Texas, fifteen freshwater mussel (Unionidae) species are listed as threatened, of which nine are being considered for protection under the Endangered Species Act (ESA). Two threatened species are thought to occur in the upper Trinity River drainage of north central Texas: *Potamilus amphichaenus* and *Pleurobema riddellii.* The magnitude of decline of these species is unknown given the dearth of historical surveys. Using zooarchaeological remains, we provide evidence suggesting that *P. riddellii* was more widely distributed during the late Holocene (600 to 2500 B.P.) than it is today. *Potamilus amphchaenus* is absent from archaeological sites in this drainage but this is likely due to underlying taphonomic factors related to preservation. In addition, we document *Lampsilis satura*, which is outside of its modern range. Comparisons between zooarchaeological and modern / historical records for *P. riddellii* and *L. satura* indicate these species are good candidates for protection under the ESA.

Rempel, Sharon Lynn and Bob Wildfong. **Bringing Culture Back to Agriculture - Defining 'Value' for Heritage Seed Conservation** (Poster Session D)

Heritage seed are varieties that are part of a geographic and cultural landscape. The plants and their people have coevolved in place that has always changed with climate change, human and seed migration. Religious and spiritual

practices have included plants. Agritourism festivals, tours, local fairs, Slow Food, slow food and food security actions are based on the use of heritage seed. The seed will only be saved if there's 'value' attached to growing, selling and saving the seed. Agronomically the 'value' is always on yield. The variety's taste, color, adaptability to diversity of growing conditions and social celebrations are of huge local significance. Stories, songs and music set heritage seed into a context rooted in cultural diversity and celebration of 'life' and the seed cycle of sowing, growing, harvest and saving seed. To record and make accessible the information collected I will set up a database. The database will record the adaptability of varieties in various bioregions and provide opportunities for people to match varieties to their current and predicted climate conditions.

Rosania, Corinne N. **Utility of Paleozoological Data for Modern Management of Historically Extirpated North American Black Bears (*Ursus americanus*)** (Session IV)*

Human population growth and intensification of resource extraction during the 19th century changed the American landscape, and impacted the behavior and sometimes existence of native species. For instance, North American black bears (*Ursus americanus*) were extirpated from Missouri by the early 1900s. Modern efforts to restore this species to the region have studied extant populations in Arkansas and small relic populations in southeastern Missouri. These efforts can benefit from temporal knowledge gleaned from paleozoological data. Geographically, where did black bears live in the past? What resources were available and used by black bears? Stable carbon and nitrogen isotope analysis of skeletal remains of ten late Holocene black bears from Lawson Cave in central Missouri is used to reconstruct ursid diet and elucidate foraging behaviors. These results can benefit future black bear management by indicating appropriate regions (which can support the resource-use habits of black bears) for relocation programs.

Ross, Nanci J., Jan Salick, Zhendong Fang, and T. Abe Lloyd. **Effects of Climate Change on Alpine Plant Diversity and Traditional People in the Hengduan Mountains, China** (Session X)

We assessed species diversity and composition across precipitation and elevation gradients within the Hengduan Mountains, NW Yunnan Province, China. We also investigated biogeographic effects of the great river gorges (especially the Mekong (Lancang) River valley) on species distributions. The highest plant diversity and richness in the eastern Himalayas is found in Alpine environments. Furthermore, locally useful plants (e.g., Tibetan medicines) are most abundant in Alpine meadows. Thus, climate change that threatens alpine plants impacts both Himalayan biological and cultural diversity. Our data indicate that precipitation drives changes in species composition from SW to NE. We also found a variable effect of the river valley on high nival species versus lower alpine species. Working in collaboration with local scientists and Tibetan doctors, integrating this data with traditional land management practices will enhance the effectiveness of conservation and climate change mitigation strategies to preserve both the native biological and cultural diversity.

Salick, Jan, Anja Byg, and Robbie Hart. **Tibetan Cosmology of Climate Change** (Session X)

Climate Change is basic to Tibetan cosmology. Weather resides both in the emotional and material worlds. Dragons control the weather: Lu is a water spirit that lives in high alpine lakes, in water creatures, and sometimes under old trees. Offerings and prayers are ceremonially presented to Lu in order to control weather and disease. Tibetan Buddhism, however, differs from these beliefs, offering a parallel, potentially compatible pathway: good deeds, thoughts, and prayers will lead to good weather, health, and livelihoods, as well as release from material suffering. The Tibetan Calendar predicts the weather and agricultural cycles based on a combination of Tibetan astrology and pragmatic consultations with experienced farmers subscribing to traditional knowledge and observation. Common explanations for temperature warming include: too little faith and prayer, too many trees cut, too many people, and water pollution. Pollution, both spiritual and material, will bring on hardships of climate and weather, as well as of other aspects in our tenuous existence. Finally, it is apparent that Tibetans envision climate change as an integration of the moral, spiritual, emotional, and material universe, far more profound than our climate scientists or popular activists consider.

Salomon, Anne, Nick M. Tanape Sr. and Henry P. Huntington. **Weaving Traditional Knowledge, Historical Records and Quantitative Ecology to Illuminate the Causes of Shellfish Declines in Alaska** (Session VIII)

We investigated the relative roles of natural factors and shoreline harvest leading to recent declines of the black leather chiton (*Katharina tunicata*) on the outer Kenai Peninsula, Alaska. This intertidal mollusc is a strongly interacting grazer and a culturally important subsistence fisheries resource for Sugpiaq (Chugach Alutiiq) Natives. We

*Barbara Lawrence Award submission

took multiple approaches to determine causes of decline; field surveys examined the significant predictors of *Katharina* density and biomass across 11 sites varying in harvest pressure, and an integrated analysis of archeological faunal remains, historical records, traditional ecological knowledge, and contemporary subsistence invertebrate landings examined changes in subsistence practices through time. We propose that a spatial concentration in shoreline collection pressure through time, increased harvest efficiency, and the serial depletion of alternative marine invertebrate prey have led to intensified per capita predator impacts on *Katharina* and thus its recent localized decline.

Schollmeyer, Karen Gust and Jonathan C. Driver. **The Past, Present, and Future of Small Terrestrial Mammals in Human Diets** (Session IV)

Small terrestrial mammals have been a part of human diets throughout our history. The archaeological record indicates that in several times and places worldwide, their relative importance increased substantially with increasing human sedentism and population density. This paper examines factors linked to changes in the dietary use of small mammals (1 to 20kg), including their resilience under hunting pressure and their tolerance of various types of human disturbance on landscapes. We then explore links between archaeological data on the long-term use of small mammals worldwide, and contemporary hunting of wild small mammal species. These comparisons provide a perspective on the potential sustainability of aspects of contemporary small mammal hunting in regions where these animals remain a vital component of human diets.

Singh, Rani, Ashwini Kalyankar, and N.S. Tekale. **Quantification and Conservation of the Medicinal Plants Used by the Bhil-Bhilalas in Jhabua District of Madhya Pradesh** (Poster Session C)

Central India is one of those regions where the tribal population form a considerable part of the society. The Bhil-Bhilalas tribe of this region not only collect different types of ethnomedicinal plant species but many time uproot them for different purposes from their wild habitats resulting in to huge loss of biodiversity. The Urbanization and Industrialization is triggering the deforestation activities forcing hundreds of endogenous food and medicinal plants to disappear speedily from the treasury of traditional knowledge. The special efforts are urgently needed to protect this age old knowledge of ethnobiology associated with age old ethnic races in oral form. This paper focuses on the quantification of the medicinal plants used by this tribe, checking for the efficacy of individual plant species with preference and its availability in this region, perfect documentations and suggesting conservatory strategies for the rare species and executing development projects in this region.

Solanki, Meenakshi B., Ashwini A. Kalyankar, and N.S Tekale. **Role of Tribal Women in Conservation of Some Ethnomedicinal Plants** (Session XII)

Urbanization and industrialization activities are reclaiming precious forest areas of western India forcing thousands of tribal inhabitants to migrate to urban pockets. Tribal dependence on forest for health and nutrition is presently under stress because of ongoing deforestation activities resulting in an increasing rate of child malnutrition and mortality and an increased disease burden on mothers. To reduce the loss of biodiversity, we organized tribal women self help groups to promote the indigenous medicinal tree plantation in surrounding hamlets. The women groups were trained on Government farms to establish orchards of indigenous flora in each hamlet to grow large tree saplings and their free distribution to other women and youth force. We also introduced some exotic fruit trees in the forest to provide additional food security. This successful model is now being used in other hamlets. We believe that the empowerment of women is the only sustainable solution for conserving the ethnobiological species, which are quickly vanishing.

Spengler, Robert N. III. **Plants in the Diet of Mobile Pastoralists: Paleoethnobotany in Semerich'ye, Kazakhstan, from the Iron Age** (Poster Session B)

The geographic area encompassing the mountain-border between China and the countries of Central Asia has been a pivotal location in shaping Eurasian history, playing a major role in the spread of people as well as material and intellectual culture across Eurasia, specifically by means of the Silk Road. The role of agriculture in mobile pastoral populations in Iron Age (800 B.C.-A.D. 500) Central Asia has been an issue debated over for decades. I address this issue through a cross-site analysis of paleoethnobotanical remains recovered through flotation. Comparative archaeobotanical analyses from the recently excavated sites of Begash, Mukri, and Tuzusai in the Semerich'ye region of southeastern Kazakhstan elucidate patterns of plant use at each site through time and in environmentally different locals. The results show how different subsistence economies among different pastoral populations in the same time period and geographic region.

Stahl, Peter and Deborah Pearsall. **Late Pre Columbian Agroforestry in Western Ecuador: Integrating Archaeobiological Data** (Poster Session B)

Archaeobotanical and archaeofaunal assemblages recovered from 14 archaeological sites are integrated to explore the Jama-Coaque II polity's agricultural basis in Ecuador's western coastal lowlands between approximately AD 400 and AD 1430. Examination of the quantitative and qualitative composition underlying assemblage diversity suggests the accumulation and deposition of restricted categories of plants and animals, whose collective ecologies reveal the possibility of a landscape managed through a form of pre-Columbian agroforestry that combined domesticated annuals, perennial tree crops, and useful forest taxa.

Strauch, Ayron M., M.T. Ruraj, and Astier M. Almedom. **Traditionally Protected Catchment Forests and Ecosystem Services in Semi-arid, East African Highlands** (Session VII)

In resilient communities, locally-developed management strategies based on traditional ecological knowledge (TEK) maintain the flow of ecosystem services from common-pool resources despite perturbations to the social or ecological system. In rural East Africa, communities are heavily dependent on the consistent supply of water and forest products. The Sonjo, an ethnic group in the highlands of Northern Tanzania, have developed a unique system for protecting catchment forests that maintain these services. This study discusses the value of catchment forests to the Sonjo and examines their management for important ecosystem services. Vegetation and water quality data support the claim that TEK provides increased benefits over government strategies. A discussion of how this management can be integrated into a larger forest conservation scheme is then provided. Incorporating local resource management practices into formal conservation policies will help provide a voice to local populations without taking authority away from regional governments.

Talcott, Johanna. **Archaeological Cucurbits From the Salt Springs Site (8MR2322), Florida** (Poster Session B)*

Excavations at the Salt Springs Archaeological Site (8MR2322) in the Ocala National Forest, Florida, revealed a submerged, Middle Archaic (approx. 6000-3000 BC) black earth midden with exceptional organic preservation. Archaeobotanical sampling yielded an abundance of both bottle gourd (*Lagenaria* sp., Cucurbitaceae) and gourd/squash (*Cucurbita* sp., Cucurbitaceae) seed and rind remains, both significant plant resources with broad geographic and temporal distributions throughout prehistory. This poster presents preliminary descriptions and analyses of the archaeological cucurbits from Salt Springs, with discussions regarding their significance and implications, as well as directions for future research

Taylor, David and Gregory Anderson. **Taking a Little Bit of Home Along: "Viandas" (Starchy Crops) in the Diet of the Puerto Rican Population of Hartford, CT (U.S.A.)** (Session X)

We compare the diversity of "viandas" (starchy crops from roots, underground stems, and immature fruiting structures) in Hartford Puerto Rican markets with that of markets, "plazas de mercado", in Puerto Rico. Market inventories and interviews with produce vendors show a remarkable similarity in the total diversity of viandas in both sites. Hartford markets had 21 different vianda crops, in 16 species and 9 families, and in Puerto Rico only one additional vianda crop was found. However, in Hartford only 12 of these crops were present for at least 11 months out of the year, while availability of all vianda crops appears relatively continuous in Puerto Rico. The persistence of diverse vianda crops in the diet of Hartford Puerto Ricans is testimony to the cultural significance of diet to emigrants, and is extremely important to understand when interacting with this community.

Taylor, David and Steve Wolverton. **Science, Life, and Politics: Tools for Legitimizing Stories** (Session XV)

Panel Members:

Robert Figueroa – University of North Texas, Department of Philosophy and Religion Studies

David Taylor – University of North Texas, Department of English

Melinda Levin – University of North Texas, Radio, Television, and Film

Justin Nolan – University of Arkansas, Department of Anthropology

Gail Wagner – University of South Carolina, Department of Anthropology

The global environmental crisis represents the greatest common problem that humans have ever faced. Dealing effectively with this crisis requires bringing together scholarly research from multiple disciplines to address the whole

*Barbara Lawrence Award Submission

of the problem. Stories that scholars generate from research are opportunities to share 'common goods' and to solve 'common problems.' Scholarly disciplines represent a range of vignettes with their own evolutionary trajectories, each engaging in its own method of communication. In the face of the environmental crisis, much can be gained by cross-cutting these vignettes to share, critique, and create literary, artistic, scientific, and philosophical stories in new ways. Panel members will discuss the creation of environmental research stories from different backgrounds: literature, radio, television, and film, science, philosophy, and ethnobiology, which will be followed by an open forum for questions and comments. Such discussion represents a bridge between valuable research and outreach to broad audiences regarding the environmental crisis—that is, it represents facing the common problem for the common good.

Tekale, N.S., Meenakshi B. Solanki, and Ashwini Kalyankar. **Impact of Deforestation on Treasury of Traditional Knowledge** (Poster Session C)

In India, 8% of the population is tribal and live in and off the forest. Due to ongoing deforestation activities, the ethnic communities are pushed further into the forest leaving behind the older population and malnourished children confined in the hamlets. Deforestation is destroying the ethno-biological flora and fauna resulting in a heavy loss to the traditional treasury of oral knowledge associated with older ethnic community members. These tribal communities are dependent on indigenous species for health and nutrition. Infectious diseases and micronutrient deficiencies are increasing at an alarming rate with the burden of disease being carried by the elderly and children. This is the critical time to stop deforestation and allow tribal communities to maintain their harmony with indigenous plants and wild animals. This paper discusses the loss of plants and wild animals as a result of urbanization and industrialization pressures on deforestation in the Western part of India. We also provide suggestion for conservation.

Thakar, Heather. **Ancient Actions Predict Modern Consequences: Prehistoric Lessons in Species Specific Shellfish Exploitation** (Session IV)*

As modern humans grapple with the repercussions of their extensive environmental impacts, archaeologists are increasingly looking toward the past to understand the nature and extent of prehistoric human impacts on the environment. Thus, an emerging focus among coastal archaeologists centers on elucidating the inter-relationships between human subsistence and intertidal ecology that mediated prehistoric human impact on intertidal resources. Dense, anomalous concentrations of *Tivela stultorum,* commonly known as pismo clams, in midden deposits on Santa Cruz Island, California reflect a temporally discrete period of intensifying exploitation and decreasing productivity. Key differences in the ecology and life history of pismo clams make this species particularly vulnerable to over exploitation. Modern pismo clam populations have been similarly impacted throughout California. Recent archaeological investigation predicts the consequences of continued overexploitation; however, positive statewide regulation ensures that this resource will continue to be available for future coastal clammers.

Todt, Donn L. and Fiore Grey. ***Narcissus tazetta* var. chinensis: Biogeography of a Flower Associated with Lunar New Year Celebrations in East Asia and the Far West of North America** (Poster Session C)

A small, fragrant narcissus connects the cultures of the Mediterranean Basin, Western Asia, the Asian Far East the Far West of North America. The ancestral stock of the "Chinese sacred lily" (*Narcissus tazetta* var. *chinensis*) arrived in China more than 1000 years ago via the Silk Routes and/or via Persian/Arab sea trade routes. In China a horticultural tradition developed as the flowers became associated with lunar New Year celebrations. Early Chinese emigrants and sojourners maintained this tradition in frontier communities of the Far West. Relict populations of descendent plants still grow in scattered pockets within Far Western landscapes.

Toll, Mollie S. and Nancy J. Akins. **New Mexico Cuisine: Exploring the Complex Roots of a Regional Tradition in Old Santa Fe** (Session IX)

Recent archeological excavations from 17th to 20th c sites in downtown Santa Fe provide us with abundant new floral and faunal evidence. We are able to look at long term Puebloan farming, foraging, and hunting patterns as they interacted with new arrays of crops, livestock, and dietary expectations brought north along the Camino Real by Hispanic colonists and Mexican natives, and later by Anglo immigrants coming overland on the Santa Fe Trail and the railroad. Parallel patterns in plant and animal uses provide corroboration of attitudes and values about food.

Tuladhar-Douglas, Will**. Biocultural Diversity, Nonhuman Agents, and the Construction of 'Religious' Interactions** (Session III)

Just as the term 'biocultural diversity' joins together the biological and the cultural, it presumes a modern, Western distinction between the natural and the social that has been critiqued by Latour, Ingold and others. By presuming that culture is always human—and that the only social agents are humans—it closes out a wide range of nonhuman agents such as animals, gods and stones. While such nonhuman agency is usually relegated to the domain of 'religion' in Western analyses, animism is not particularly religious: it is simply part of ordinary life. In this paper I will look at how swallows, certain individual trees, goats and gods have and exercise social agency in the social-ecological systems around one town in central Nepal; and further show that some of their interactions with each other and with humans are classified as religious, but other interactions are not considered 'religious'.

Turner, Katherine. **Exploring New Mediums for Maintaining Social-Ecological Relationships: Gitga'at First Nation (Northwest Coast, B.C.) Perspectives on a Local Proposal for Cultural Tourism Development** (Session II)*

Many changes have taken place within Gitga'at society and the local economy in recent years. Of particular concern to the Gitga'at is falling participation in their spring and fall food harvest camps. Through the harvesting and processing of nutritionally rich and culturally meaningful foods, the camps provide important learning opportunities and help maintain the intergenerational continuity of knowledge and connection with local resources and environment. In order to counteract this trend, the community is exploring new ways to subsidize, support and provide renewed motivation for local participation. One proposal that has been put forward is to link the camps and other selected cultural activities with a locally owned tourism enterprise. My research explores community perspectives on this proposal. I focus particularly on understandings concerning appropriate uses of natural resources and the application and sharing of local and traditional knowledge for the purposes of this enterprise.

Tuxill, John. **The Social, Ecological, and Symbolic Significance of Kernel Colors in Maize**. (Session III)

Yucatecan farmers identify and classify local maize landraces according to time to maturation, ear size and shape, and kernel color. In the heartland of *Zea mays* in southern Mexico, household decisions about this staple crop are complex. Farmers typically evaluate a range of agronomic, economic, culinary, aesthetic, and symbolic aspects of maize when deciding what particular variety or varieties to plant. I draw on a case study from Yucatan, Mexico to explore the particular significance of kernel coloration in maize. In Yucatan, kernel color plays an important role in farmer selection of maize seed as an easily observed marker for a variety of agronomic and culinary properties of maize. For instance white-seeded maize is seen as producing the highest quality tortillas, while yellow-seeded maize is esteemed principally for its resistance to adverse environmental conditions, both in cultivation and in storage following harvest. Maize kernel colors also traditionally have had profound symbolic significance for the Maya, from Classic Maya imagery and iconography to contemporary ceremonial practices. As the social meaning of maize in Yucatan has shifted over time, the symbolic significance of maize colors has changed as well. The colors of maize are a reminder that crop varietal diversity is an expression of sociocultural patterns and priorities as well as of biology and environment.

Varga, Anna and János Bölöni. **Vegetation Dynamics and Ethnobiological Knowledge of Wood Pastures in the Carpathian Basin, Central Europe** (Poster Session A)

The wooded pastures are important elements of the traditional and historical landscape of Europe. Understanding the traditional ecological knowledge and the vegetation of the woodpasturing-system is needed for the conservation of the wooded pastures. We studied the landscape history, the traditional ecological knowledge and analysed the vegetation dynamics of abandoned and still used wooded pastures. Typical landscape has been formed by the management in both of the study sites, and. the grazing system was very similar as well. In both cases the grazing in forests was one of the basic components of a highly varied pasturing system; the whole activity was regulated by common rules. In case of abandonment, mosaic of open and closed shrublands and forest patches filled by saplings have developed.

*Barbara Lawrence Award submission

Wagner, Gail. T**eaching Science Through Ethnobiology** (Session XIV)

Join us during the Friday lunch slot for an informal and engaging discussion about science education achieved through ethnobiology. The forum is free of charge and is open to the first 20 people who sign up. A box lunch (vegetarian) will be provided. This forum is sponsored by the Open Science Network, an NSF-funded project that provides a collaborative forum for educators and students to create a new paradigm of science education through the medium of ethnobiology. Ethnobiology is integrative and interdisciplinary, bridging natural and social sciences, with potentially very practical applications. We invite multiple definitions of science, encouraging your input. The purpose of this project is to create new curricula and new ways of development that will keep scientific learning fresh, innovative, and engaging to each generation of students. An open-philosophy approach encourages everyone to contribute regardless of their level of experience, and uses an open-group evaluation model that develops educational resources as they are used and shared through the network.

Wisniewski, Josh. **So We Can Get Luck: Kigiqtaamiut Relational Management of Marine Resources** (Session VIII)

Kigiqtaamiut Iñupiaq hunters from Shishmaref, Alaska employ highly personal, individualistic, and adaptive management strategies in order to maintain consistent bearded seal (*ugzruk*) harvest levels during annually occurring spring subsistence hunts. Personal experiences with animals and the bio-physical world are continuously informed through ongoing engagements with, and in consideration of other hunters' stories and experiences, local history, older beliefs and empirical observations of animal behaviors and other natural phenomena. Hunters' ways of knowing do not limit the influential role of animals, and the physical environment in determining the outcome of hunts in response to human actions and intentions. Therefore in order to increase their possibilities for success some Kigiqtaamiut hunters seek to manifest "luck" though self-regulation in hunting practices, discourses and other aspects of hunting and daily life. Shared and intersubjective understandings form a central dimension of local management of bearded seal resources embodied in hunters' experiences and local hunting practices.

Wolverton, Steve. **Going to the Mountain: Applied Zooarchaeology in Environmental Science and Ethics** (Session IV)

In contemporary times humanity is faced with self-caused environmental problems. Conservation biologists and those with related interests face the challenge of communicating research outcomes to a public that is often divorced from science. Environmental philosophers, in contrast, confront not 'what do we (think we) know?' as do scientists, but ask 'what ought we do in the face of environmental problems?' The father of contemporary conservation, Aldo Leopold, understood that transcending the science of what we know to decisions based on what we ought to do, requires not just different knowledge, but a new scale of thinking—that beyond the scale of a human lifetime. To "think like a mountain" requires a shift in epistemological scale that is common in archaeology. Environmental philosophers agree that ecology must become 'deeper' to confront the global environmental crisis, and applied paleozoology is poised to go the mountain and provide time depth to modern conservation.

Wyllie-Echeverria, Sandy and Victoria Wyllie de Echeverria. **Cultural Value of the Seagrass Flora: A Global Story of Diverse Use over Time** (Session VIII)

Traditional use of thirteen seagrass species has been verified and it is clear that in many coastal regions this flora was, and continues to be, an important resource for rural coastal residents and indigenous people. Leaves provide building, stuffing and weaving material, cordage for nets and green mulch. Seeds or rhizomes were also incorporated into medicinal tonics. Patterns of use range from contemporary and ongoing to ancient. Specialized tools were developed and elaborate weaving patterns emerged to strengthen cordage. In sum, traditional use was, and remains, rich and diverse contributing important ecosystem services for local and indigenous coastal groups. We discuss how these findings can be used to enumerate the socio-cultural value of the seagrass flora while supporting the value of Traditional Ecological Knowledge as a means to safeguard ecosystem sustainability in the coastal zone.

Zorillo, Sonia and Francisco Valdez. **Corn and the Origins of Socio-Political Complexity in Highland Ecuador** (Session IX)

The Formative Period in Ecuador is traditionally viewed from the vantage point of the coast - from which a sedentary, agricultural lifeway spread to the highlands. New research at the Santa Ana La Florida (SALF) site, located on the eastern Andean slopes, questions this theory on the origins of socio-political complexity in the Ecuadorian highlands. SALF dates to the Early Formative Period and excavations here have produced the earliest stirrup-spout bottles in the Americas. Recent paleobotanical analysis has recovered maize starch from the interior of these bottles as well as from

other artifacts, indicating that people at SALF were growing maize contemporaneously with coastal Formative cultures. These results call into question traditional views on the stimulus for and directionality of complexity into the Ecuadorian Andes and renews interest in earlier theories of an Amazonian tropical forest cultural expansion (influence) as well as the transmission route(s) of maize into South America.

INDEX of PRESENTERS

Last Name, First Name	Affiliation	Session	Email Address
Abbi, Anvita		XI	
Abler, Rebecca	University of Wisconsin – Manitowoc	D	
Akins, Nancy	Museum of New Mexico	IX, B	
Almedom, Asteri M.		VII	
Anderson, Gene	University of California, Riverside	XII	gene@ucr.edu
Anderson, Gregory	University of Connecticut	X	
Anderson, Kat	NRCS, UC Davis	V	mkanderson@ucdavis.edu
Azam, A.T.M. Ali	University of Development Alternative, Bangladesh	XII	
Azam, Md. Nur Kabidul	University of Development Alternative, Bangladesh	XII	
Babai, Daniel			babai.daniel@gmail.com
Balée, William	Tulane University	III	wbalee@tulane.edu
Bannister, Kelly		VI	
Barker, Andrew	University of North Texas	IV	
Barta-Cole, Heidi	The Evergreen State College, University of Washington	II	
Basuki, Imam	CIFOR	VII	
Bermann, Marc	University of Pittsburgh	B	
Boissiere, Manuel	CIRAD	VII	
Bonzani, Renee M.	University of Kentucky	B	
Bragg, Corey	CSAFE, University of Otago, New Zealand	XI	
Brown, Frank	Heiltsuk Tribal Council and SeeQuest Development Co	VII	seequest1996@gmail.com
Brown, Jason	University of British Columbia	III	
Brown, Y Kathy	SeeQuest Development Co.	VII	canoe1993@gmail.com
Bruno, Maria C.	Smithsonian Institution, Washington University in Saint Louis	B	
Burlakoti, C	Center for Biological Conservation, Nepal	C	
Bussmann, Rainer W	William L. Brown Center, Missouri Botanical Garden	X, C	rainer.bussmann@mobot.org
Butler, Virginia L.	Portland State University	VIII	
Byg, Anja	University of Copenhagen	X	

Last Name, First Name	Affiliation	Session	Email Address
Caldwell, Megan	Department of Anthropology, University of Alberta	VIII	megan.caldwell@gmail.com
Capper, Mairi	Simon Fraser University	B	mmc24@sfu.ca
Carlson, Kitrina	University of Wisconsin - Stout	D	carlsonki@uwstout.edu
Carney, Judith	UCA Geography	VII	carney@geog.ucla.edu
Cates, Rex	Brigham Young University	XII	rex_cates@byu.edu
Chambers, Kim	Willamette University	X	kchamber@willamette.edu
Chowdhary, C.L.	Center for Biological Conservation, Nepal	C	
Chowdhury, Md. Asif Mahmood	University of Development Alternative, Bangladesh	XII	
Clucas, Rosemary	Dept of Mathematics & Statistics, University of Otago	XI	
Combes, Georgia	John R. Harper - Coastal and Ocean Resources Inc.	VIII	
Cozzo, David	Revitalization of Traditional Cherokee Artisan Resources	IX	cozzod@wcu.edu
Cullis-Suzuki, Severn	School of Environmental Studies, University of Victoria	VIII	severncullissuzuki@gmail.com
Dady, Peter	Archaeological Society of BC	V	
Dagbar, Y.B.	R.R Mehta College of Science C.L. Parikh College of Commerce	A, B	profashok9809@yahoo.co.in
de Ville, Naomi	REM, Simon Fraser University	A	naomideville@gmail.com
Diaz, Domingo	Panama City	X	
Diaz, Mario M.	CUNORI, University of San Carlos, Guatemala	XII	
Dick, A.	Kwakwakawakw	VIII	
Different Cloud, Linda	Sitting Bull College	VII	lakota_ethnobotanist@hotmail.com
Dillingham, Peter	Dept of Mathematics & Statistics, University of Otago	XI	
Driver, Jonathan C.	Simon Fraser University	IV	
Edosdi (Judy Thompson)	University of Victoria	II	
Eloheimo, Marja	The Evergreen State College, University of Washington	II	eloheimo@evergreen.edu
Espinoza, Luis V.	Benson Agriculture and Food Institute	XII	
Fletcher, David	Dept of Mathematics & Statistics, University of Otago	XI	
Forney, Andra	Unversity of Victoria	A	andraforney@gmail.com
Frazier, Jack	Conservation & Research Center, Smithsonian Institution	IV	
Fuentes, J. Alfonso	CSUCA, Guatemala	XII	
Fujimoto, Takeshi	University of Human Environments, Japan	X	fujimoto@uhe.ac.jp

Last Name, First Name	Affiliation	Session	Email Address
Ganguly, Ramunuj	West Bengal State University, India	C	rg.wbsu@sociologist.com
Garibaldi, Ann	Stantec	A	
Gavin, Michael	Victoria University of Wellington	X	
Gergel, Sarah	University of British Columbia	X	
Glenn, Ashley	William L. Brown Center, Missouri Botanical Garden	D	ashley.glenn@mobot.org
Glover, Denise	University of Puget Sound	III	deniseglover67@gmail.com
Gomes, Thiago	Oikos Ecology Laboratory, Universidade Federal do Parana	A	go.thiago@yahoo.com
Gonella, Michael	Santa Barbara City College	IX	gonella@sbcc.edu
Gordon, Ross	University of Alberta	VIII	gordon2@ualberta.ca
Gosford, Robert	Ethnoornithology Research & Study Group	XI	bgosford@gmail.com
Grey, Fiore	Independent	C	
Grieve, Sheila	Assiniboine Community College	D	grieves@assiniboine.net
Hammond, Dawn	Department of Social Anthropology, University of Pardubice, Czech Republic	C	
Hart, Robbie	Missouri Botanical Garden	X	
Hastorf, Christine A.	University of California, Berkeley	B	
Hawes, Kathleen	The Evergreen State College, University of Washington	B	aragalen@msn.com
Hebda, Richard	Royal British Columbia Museum	V	
Hoffmann-Puspokladany, Karoly		VII	
Holcombe, Sarah	Australian National University	II	sarah.holcombe@anu.edu.au
Hooper, David	University of Montana	V	david1.hooper@umontana.edu
Hunn, Eugene	University of Washington	XII	enhunn323@comcast.net
Huntington, Henry P.		VIII	
Ignace, Marianne	Simon Fraser University	III, A	ignace@sfu.ca
Ignace, Ron		A	
Innes, Aaron	Brigham Young University	XII	
Islam, Md. Rofikul	University of Development Alternative, Bangladesh	XII	
Jahan, Rownak	University of Development Alternative, Bangladesh	XII	
Jain, B.K.	M.G. Science Institute	A, B	
Janke, Terri	Terri Janke and Company	II	
János, Bölöni	Institute of Ecology and Botany of the Hungarian Academy of Sciences	A	
Johnson, Leslie	Main Athabasca University	XI	lmainjohnson@gmail.com
Jones, Christopher	University of Arizona Gila County Cooperative Extension	A	ckjones@cals.arizona.edu

Last Name, First Name	Affiliation	Session	Email Address
Joseph, Leigh	School of Environmental Studies, University of Victoria	D	
Joyce, Megan	University of North Texas	IV	
Kalyankar, Ashwini	Sion Ayurvedic Medical College	XII, C	
Karst, Amanda	Centre for Indigenous Environmental Resources	II, A	akarst@cier.ca
Kashyap, Arunima	Washington State University	B	arunima.kashyap@gmail.com
Katz, Esther	Institut de Recherche pour le Développement	IX	e.katz@orange.fr
Keddie, Grant	Royal British Columbia Museum	V	gkeddie@royalbcmuseum
Keener, Leroy	The Evergreen State College, University of Washington	V	
Kirby, Kate	University of British Columbia	X	kirbykat@interchange.ubc.ca
Komaromi, Reka	School of Anthropology and Conservation, University of Kent	D	rekomaromi@googlemail.com
Konwar, Loveleena	NGO - PAJHRA, India	X	lovelina100@yahoo.com
Konwer, Dolon	Tezpur University, India	X	
Kuhnlein, Harriet	McGill University	XIII	harriet.kuhnlein@mcgill.ca
Lacourse, Terri	University of Victoria	V	tlacours@uvic.ca
Lampman, Aaron	Washington College	III	alampman2@washcoll.edu
Langlie, BrieAnna	Washington University in St. Louis	B	blanglie@wustl.edu
Laurendeau, Geraldine	Université Laval	II	gl@landmuseum.org
LeCompte-Mastenbrook, Joyce	University of Washington	V	jklm@u.washington.edu
Lepofsky, Dana	Simon Fraser University	IV, VIII	dlepofsk@sfu.ca
Liswanti, Nining	CIFOR	VII	n.liswanti@cgiar.org
Lloyd, T. Abe	School of Environmental Studies, University of Victoria	X, D	talloyd@uvic.ca
Logan, Amanda	Museum of Anthropology, University of Michigan	IX	allogan@umich.edu
Luna, Krabe	The Evergreen State College, University of Washington	II	
Lundeen, Benjamin	University of North Texas	IV	
Lyman, R. Lee	Department of Anthropology, University of Missouri	IV	
Mackin, Nancy	University of Victoria	II	nma@telus.net
Markin, Julie	Washington College	IX	jmarkin2@washcoll.edu
Marston, John (Mac)	University of California, Los Angeles	IX	marston@ucla.edu
Mathewes, Rolf	Simon Fraser University	V	
Mathews, Bethany	Simon Fraser University	V	bethanymathews@hotmail.com
Mathews, Darcy	University of Victoria	V	dmathews@uvic.ca
McBride, Pamela	Museum of NM	B	ebotpam@msn.com
McCarter, Joe	Victoria University of Wellington	X	joe.mccarter@gmail.com

Last Name, First Name	Affiliation	Session	Email Address
McCune, Letitia		II	letitiamccune@msn.com
McKechnie, Sam	Dept of Mathematics, University of Aukland	XI	
McLay, Eric	Department of Anthropology, University of Victoria	V	coastresearch@shaw.ca
Meyer, Karen	Missouri Botanical Garden	II	karen2marie@hotmail.com
Miller, Andrew		A	ummil239@cc.umanitoba.ca
Moller, Henrik	CSAFE, University of Otago, New Zealand	II, XI	henrik.moller@otago.ac.nz
Mollik, Md. Ariful Haque	University of Development Alternative, Bangladesh	XII	mollik_bge@live.com
Molnar, Zsolt	IEB-HAS	VII	molnar@botanika.hu
Moreiras, Diana	University of British Columbia	IX	dianakm18@gmail.com
Morris, Joan	Songhees First Nation	I	
Moss, Madonna	University of Oregon	VIII	mmoss@uoregon.edu
Mt. Pleasant, Jane	Cornell University	IX	jm21@cornell.edu
Mueller, Jocelyn	Tufts University	D	jocelyn.g.mueller@gmail.com
Nagaoka, Lisa	University of North Texas	IV	lnagaoka@unt.edu
Negrelle, Raquel R.B.	Oikos Ecology Laboratory, Universidade Federal do Parana	A	go.thiago@yahoo.com
Newman, Jamie	CSAFE, University of Otago, New Zealand	XI	
Nolan, Justin	University of Arkansas	VI	jmnolan@uark.edu
Padmanaba, Michael	CIFOR	V	
Palanpur, Gujurat	Municipal Arts & Urban Bank Science College	A	
Pande, Satish	ELA Foundation	XI	pande.satish@gmail.com
Pande, Suruchi	ELA Foundation	XI	suruchipande@gmail.com
Parks, Shaina	University of Arkansas	C	ssp01@uark.edu
Patel, A.H.	Municipal Arts & Science College, India	B	profashok9809@yahoo.co.in
Peacock, Evan	Department of Anthropology and Middle Easter Cultures, Mississippi State	IV	
Pearsall, Deborah	University of Missouri	B	
Pengelly, Ryan	Natural Resources Institute, University of Manitoba	II	rdpengel@ucalgary.ca
Pierson, Nova	Simon Fraser University	IV	ngp@sfu.ca
Prestwich, Brad	Brigham Young University	XII	
Proctor, Katherine	School of Environmental Studies, University of Victoria	A	kproctor@uvic.ca
Quave, Cassandra	UAMS - University of Arkansas for Medical Sciences	VI, XII	cassy.quave@gmail.com
Quinlan, Marsha	Washington State University	III	mquinlan@wsu.edu

Last Name, First Name	Affiliation	Session	Email Address
Quinlan, Rob	Washington State University	III	rquinlan@wsu.edu
Rahmatullah, Mohammed	University of Development Alternative, Bangladesh	XII	
Randklev, Charles	University of North Texas	IV	
Rempel, Sharon	The Garden Institute of B.C.	D	slrempel@shaw.ca
Rosania, Corinne	University of Missouri, Columbia	IV	cnry7c@mail.missouri.edu
Ross, Nanci	Missouri Botanical Garden	X	nanci.ross@mobot.org
Rowe, Mark	Brigham Young University	XII	
Ruraj, M.T.		VII	
Salick, Jan	Missouri Botanical Garden	X	jan.salick@mobot.org
Salomon, Anne	REM, Simon Fraser University	VIII	anne.salomon@sfu.ca
Sam, Greg	Saanich First Nation	I	
Schollmeyer, Karen Gust		IV	
Sewid-Smith, D.	Kwakwakawakw	VIII	
Sharfuddin, Shahnaaz	University of Development Alternative, Bangladesh	XII	
Sheil, Douglas	ITFC	VII	
Singh, Rani		C	nstekale@gmail.com
Solanki, Meenakshi B.	C.B. Patel Research Centre, India	XII, C	nstekale@gmail.com
Spengler, Robert	Washington University in St. Louis	B	rnspengl@wustl.edu
Stahl, Peter	Binghamton University	B	
Stephenson, Janet	CSAFE, University of Otago, New Zealand	II	
Strauch, Ayron		VII	ayron.strauch@tufts.edu
Talcott, Johanna	The Pennsylvania State University Department of Anthropology	B	jbt143@psu.edu
Tanape Sr., Nick M.		VIII	
Taylor, David	University of Portland	X, XV	dwtaylor@gmail.com
Tekale, Nagesh	Centre for Advanced Studies, India	XII, C	nstekale@gmail.com
Thakar, Heather B.	University of California, Santa Barbara	IV	thakar@umail.ucsb.edu
Thiago, C. Gomes	Oikos Ecology Laboratory, Universidade Federal do Parana	A	go.thiago@yahoo.com
Thornton, Thomas F.	University of Oxford	XIII	
Todt, Donn	Independent	C	earthisenough@hotmail.com
Toll, Mollie S.	Museum of New Mexico	IX	mollie.toll@state.nm.us
Tuladhar-Douglas, Will	University of Aberdeen	III	w.t.douglas@abdn.ac.uk
Turner, Katherine	Natural Resources Institute, University of Manitoba	II	umturn22@cc.umanitoba.ca
Turner, Nancy J.	School of Environmental Studies, University of Victoria	VIII	nturner@uvic.ca
Turner, Rachel	CSAFE, University of Otago, New Zealand	II	

Last Name, First Name	Affiliation	Session	Email Address
Tuxill, John	Fairhaven Collenge of Interdisciplinary Studies, Western Washington University	III	john.tuxill@wwu.edu
Valdez, Francisco	IRD/Institute de Recherche pour le Développment, Instituto Nacional de Patrimonio Cultural, Ecuador	IX	
Varga, Anna	Eötvös Loránd University, Department of Plant Taxonomy and Ecology	A	varga.anna@gmail.com
Voros, Eva	KGRE	VII	
Wagner, Gail	University of South Carolina	XIV	gail.wagner@sc.edu
Washington, Michelle	Sliammon Treaty Society	VIII	
Webber, Steve	Washington State University	B	
Welch, John R.	Dept of Archaeology & REM, Simon Fraser University	VIII	welch@sfu.ca
Wildfong, Bob	Seeds of Diversity Canada	D	
Williams, Steven	Brigham Young University	XII	
Wisniewski, Josh	University of Alaska, Fairbanks	VIII	jwisniewski@alaska.edu
Wolverton, Steve	University of North Texas	IV, XV	wolverton@unt.edu
Wyllie de Echeverria, Victoria	School of Environmental Studies, University of Victoria	VIII	
Wyllie-Echeverria, Sandy	Friday Harbor Laboratories, University of Washington	VIII	zmseed@u.washington.edu
Zarrillo, Sonia	University of Calgary	IX	szarrillo@gmail.com
Zhendong, Fang	Shangrila Alpine Botanical Garden	X	