

38th Annual Conference of the Society of Ethnobiology

*The Many Faces of
Ethnobiology*



May 6 – 9, 2015

University of California, Santa Barbara, CA



Society of
Ethnobiology

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Welcome to Santa Barbara!

The annual conference of the Society of Ethnobiology is an opportunity to disseminate research, learn about field methodologies, and connect with fellow scholars. This year our conference theme is focused on “the many faces of ethnobiology” as we encourage a wide-range of scholars who work with the relationships between culture, biology, and environments. Ethnobiology is a diverse field that is inclusive of anthropology, archaeology, botany, ecology, linguistics, natural history, nutrition, pharmacology, zoology, to name just a few. Across the range of disciplines, the Society of Ethnobiology embraces non-Western, native, and indigenous scholars as vibrant members of our research community. The 38th Annual Conference will showcase *the many faces of ethnobiology* through our sessions and special events.

This year, our conference is hosted in Santa Barbara, California, a coastal region with a rich archeological and cultural history. Some highlights of the 38th Annual Conference include:

- Plenary session titled “Ethnobiology of South-Central California: Past, Present, and Future” including reports on early archaeological sites in the local Channel Islands,
- Guest presenters on the Santa Ynez Chumash language revitalization program,
- Contributed papers in all areas of Ethnobiology,
- Distinguished Society [Awards](#),
- Two days of concurrent sessions,
- 2 exciting and unique field trips,
- Banquet at the Santa Barbara Museum of Natural History .

The 2015 Conference Organizing Committee (Amber VanDerwarker, Jan Timbrook, Allison Jaqua, and Liz Olson) are grateful to the many individuals and organizations that have contributed to this year’s event. We thank the Chumash Band for their warm welcome. The UCSB Department of Anthropology and College of Creative Studies have graciously funded our indigenous travel scholarships.

This year’s conference logo depicts a Chumash rock art figure as redrawn by Campbell Grant in the 1970s and is used for our Society of Ethnobiology Conference with the permission of Chumash Advisors.

About The Society of Ethnobiology

The Society of Ethnobiology is a nonprofit professional organization dedicated to the interdisciplinary study of the relationships of plants and animals with human cultures worldwide, including past and present relationships between peoples and the environment. Our interests encompass ethnobotany, ethnozoology, linguistics, paleoethnobotany, zooarchaeology, ethnoecology, and other related areas in anthropology and biology. We are committed to scholarly research and to inclusive relationships with communities with whom we work and with colleagues around the world. The Society hosts an [annual conference](#) with field trips, and offers three peer-reviewed [publications](#): the [Journal of Ethnobiology](#), a professional journal with two issues per year, [Contributions in Ethnobiology](#), a digital monograph series, and [Ethnobiology Letters](#), a digital publication for short contributions. We [award](#) excellence in ethnobiological research through our [Distinguished Ethnobiologist Award](#), and [Best Poster Award](#), and also recognize student research excellence through the [Barbara Lawrence Award](#) and the [Undergraduate Ethnobiologist Award](#).

Society of Ethnobiology Awards

Distinguished Ethnobiologist Award



The Society of Ethnobiology is proud to present the Distinguished Ethnobiologist Award 2015 to Professor Emeritus Cecil Brown of Northern Illinois University. Dr. Brown's impressive career highlights the depth and breadth of the Society. His extensive scholarship has made remarkable contributions to ethnobiology, including his innovative approaches to classification and nomenclature of biota; implicational universals in naming of plants; marking reversals in names of animals and plants; linguistic evidence for the origins of domesticates; and the origins of life form terms. He has been a very active member of the Society since its founding, having also served as President, and has a visible record of helping our younger members and collaborating with diverse scholars pursuing ethnobiological interests. The Awards Committee, on behalf of the Society of Ethnobiology, is honored to be able to present the 2015 Distinguished Ethnobiologist Award to Dr. Cecil Brown.

Undergraduate Ethnobiologist Award

Aidee Guzman is a student of Eve Emshwiller at the University of Wisconsin-Madison. She will be graduating this May with a Bachelor's of Science in Botany and Environmental Studies. She has completed two senior thesis research projects, one on the impacts of honeybee hive placement on cranberry pollination and one on the effect of Mexico-US immigration on the transmission of plant knowledge. Our awards committee was impressed by Aidee's coursework, her extensive research experience, and her leadership skills. She has even prepared and submitted an NSF-GRFP proposal with the support and guidance of Eve Emshwiller and Gary Nabhan for her upcoming graduate school plans upon graduation this May. Her ideas on ways to increase undergraduate student involvement in the Society were achievable and worthy of considering for implementation by the Society. She suggested several things, including faculty and graduate student SOE members mentoring undergraduates at their home institutions, a career panel for undergraduates (and graduates) at the conference, and formal pairing of students with mentors at the conference. We are pleased to have Aidee Guzman selected as the 2015 Undergraduate Ethnobiologist Awardee.



2015 Graduate Research Fellows

Ecological Knowledge Research Fellow

Maia Dedrick, PhD Student in Anthropology, University of North Carolina – Chapel Hill

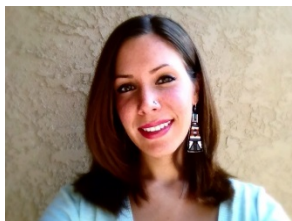


Maia Dedrick is a graduate student in anthropological archaeology at the UNC at Chapel Hill, studying with Dr. Margie Scarry and Dr. Patricia McAnany. Her dissertation research is a study of household foodways and economic activities within the community of Tahcabo, Yucatán, Mexico, over an extended period of time, from the Late Classic through Colonial periods (600-1800 CE). She grew up in a musical family in St. Paul, MN, and loves to play cello.

The Ecological Knowledge Research Fellowship will support Maia's ethnobotanical research on rejolladas, or dry solution sinkholes with properties advantageous for cultivation, within the community of Tahcabo. It will consist of interviews with owners of the rejolladas located in town and the collection of herbarium specimens and plant comparative material for future archaeological research. Interviews will address land tenure, garden maintenance, other uses of rejolladas, and their roles in agricultural intensification.

Indigenous Ethnobiologist Fellow

Blaire Topash-Caldwell, PhD Student in Anthropology, University of New Mexico



Blaire is an enrolled member of the Pokagon Band of Potawatomi Indians and is currently a graduate student in the anthropology PhD program at the University of New Mexico. Her ethnographic research focuses on Indigenous artisanship, traditional ecological knowledge, and natural resource management policy in the Great Lakes area. She has worked in the Department of Natural Resources for her tribe, specifically in Tribal Historic Preservation, and is currently a liaison the Ortiz Center for Intercultural Studies at UNM where she does community outreach and community-based projects with Pueblos in the Southwest.

The Indigenous Ethnobiologist Fellowship will support her research on Anishinaabe traditional black ash tree basketry in tribal communities in the Great Lakes area. Her focus is on the ways in which these activities inform and intersect with tribally-based natural resource management initiatives deployed to combat the spread of an invasive species called the Emerald Ash Borer. She is investigating the roles of traditional knowledge systems in these initiatives, as well as the relationship between Indigenous ecological strategies and larger natural resource management policy.

Urban Ethnobiology Fellow

Kerri Brown, PhD Student in Anthropology, Southern Methodist University



Kerri is a Ph.D. student in medical anthropology at Southern Methodist University in Dallas, Texas. She received her B.A. in anthropology and psychology from the University of Texas at Austin in 2011, and her M.A. in medical anthropology from Southern Methodist University in 2014.

The Urban Ethnobiology Fellowship will support Kerri's dissertation research in Rio de Janeiro on recently implemented policies governing the use and growth of medicinal plants in Brazil, and those policies' effects on cultural meanings surrounding medicinal plants at the local level. Specifically, she is interested in the ways that African diasporic communities use their knowledge of medicinal plants to gain recognition from the Brazilian government and the general public.

If you are interested in applying for one of the Society of Ethnobiology's Graduate Research Fellowships, see the announcement [here](#).

Schedule At-A-Glance

Wednesday, May 6, 2015

8:00am – 5:00pm	Board Meeting, Goodland Hotel Gaviota Room
6:00pm – 9:00pm	Conference Registration, Goodland Hotel
6:00pm – 10:00pm	Welcome Reception with cash bar, Goodland Hotel Rincon I

Thursday, May 7, 2015

7:30am – 9:30am	Buses running between Goodland Hotel and UCSB University Center (UCen)
8:00am – 5:00pm	Conference Registration , UCSB UCen
9:00am – 12:00pm	Plenary Session (Corwin Pavilion West)
10:20 – 10:40	Morning Break, Coffee/Tea in Corwin Pavilion East
11:30 am - 1:00 pm	Poster set-up in Corwin Pavilion East
12:00 – 1:00pm	Lunch Break
11:15 – 1:15	Student/Mentor Lunch (State Room)
1:00 – 4:30	Afternoon Sessions (most finish earlier) <ul style="list-style-type: none">○ What Do Birds Tell Us? How Ethno-ornithology Opens Doors to Understanding relationships with Others (Corwin Pavilion West)○ Climate Change and Adaptation (Harbor Room)○ The Ethnobiology of Traditional Fisheries: Bringing the past into the present (State Room)○ Cognition and Perception (Mission Room)
2:45 – 3:00	Afternoon Break, Refreshments in Corwin Pavilion East
3:30 – 5:30pm	Poster Session (Corwin Pavilion East)
4:00 – 6:00	Buses running between UCSB UCen and Goodland Hotel
7:00pm –	Student Social, The Nugget Bar and Grill (5685 Calle Real)

Friday, May 8, 2015

7:30am – 9:30am	Buses running between Goodland Hotel and UCSB UCen
8:00am – 12:00pm	Conference Registration
8:30am – 12:00pm	Morning Sessions <ul style="list-style-type: none">• Archaeology and Ethnobiology (Corwin Pavilion West)• Ethnobotany Part 1 (Harbor Room)• Spreading the Seeds: Innovative Approaches for Teaching Ethnobiology (State Room)• Ethnomedicine (Mission Room)
10:15 – 10:30	Morning Break, Coffee/Tea in Corwin Pavilion East
12:00 – 1:00pm	Lunch Break
1:00 – 4:00pm	Afternoon Sessions <ul style="list-style-type: none">• Traditional Ecological Knowledge (Corwin Pavilion West)• Ethnobotany Part 2/Ethnozoology (Harbor Room)• Method & Theory in Ethnobiology (State Room)• Ethnobiology Film Festival (Mission Room)
2:30 – 2:45	Afternoon Break, Refreshments in Corwin Pavilion East
4:15 – 5:30	Society General Meeting, Awards, and Distinguished Ethnobiologist Address by Dr. Cecil Brown (Corwin Pavilion West)
4:00 – 6:00	Buses running between the UCSB UCen, Goodland Hotel, and the SB Museum of Natural History for banquet
5:30	Bus #1 picks up folks at the Goodland Hotel (5:30pm departure time) and transports them to the SB Museum of Natural History for the banquet.
6:00	Bus #2 picks up folks at the UCSB Main Bus Loop (6:00pm departure time) and transports them to SB Museum of Natural History for the banquet.
5:30 – 9:30	Banquet at SB Museum of Natural History with a cultural presentation (2559 Puesta Del Sol Road, Santa Barbara)
8:30 – 10:00	Buses running from SB Museum of Natural History to Goodland Hotel

Saturday, May 9, 2015

7:15am – 7:00pm

Santa Cruz Island Trip

9:30am – 2:30pm

SB Botanic Garden (1212 Mission Canyon Rd, Santa Barbara)

PROGRAM KEY

** Indicates a Barbara Lawrence Award candidate.

CONFERENCE VENUES:

UCEN: University Center at University of California, Santa Barbara (UCSB)

Goodland Hotel

5650 Calle Real

Goleta, CA 93117

805-964-6241

<http://www.hotelgoleta.com/>

Santa Barbara Botanic Garden

1212 Mission Canyon Road

Santa Barbara, CA 93105

(805)682-4726

www.sbbg.org

Santa Barbara Museum of Natural History

2559 Puesta del Sol Road

Santa Barbara, CA 93105

(805)682-4711

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

Island Packers, Ventura Harbor

1691 Spinnaker Dr #105B

Ventura, CA

(805) 642-1393

(Call extension 307 at 5:30am to learn if there has been a weather-related cancellation of the boat.)

Santa Barbara Airbus

(805) 964-7759

Conference Shuttle

Daily Loops

Between Goodland Hotel and UCSB Main Bus Loop, a short walk from the University Center (UCEN) conference venue

Transportation will be provided by the Santa Barbara Airbus between the Goodland Hotel and UCSB on Thursday and Friday in the mornings between **7:30-9:30am** and in the afternoons between **4:00-6:00pm** in continuous loops. Morning picks up at the Goodland Hotel and drops off at the Main Bus Loop – afternoon picks up at the Main Bus Loop drops off at the Goodland Hotel.

Banquet

There are **two buses** to transport conference attendees to the Banquet at the Santa Barbara Museum of Natural History.

- The first departs from the Goodland Hotel at 5:30pm,
- The second bus departs the Main Bus Loop (following the General Meeting) at 6:00pm,
- One bus will depart the Museum at 8:30pm, and the second bus will depart at 9:30, to return conference attendees to the Goodland Hotel.

Santa Cruz Island Field Trip

Field trip participants need to board the bus by **7:00am**, which will at the Goodland Hotel. Departure time is 7:15am. The group will need to check in with Island Packers by 8:15am. If you are driving yourself (not taking the bus), the address is: 1691 Spinnaker Dr #105B, Ventura, CA. The boat will return to the harbor by 5:30pm. The bus will depart at **6:00pm** to return participants to the Goodland Hotel.

Santa Barbara Botanic Garden Field Trip

Field trip participants need to board the bus by **9:30am**, which will at the Goodland Hotel. Departure time is **9:40am**. The tour of the Botanic Gardens will begin at 10:00am and ends by 2:00pm. If you are driving yourself (not taking the bus), the address is: 1212 Mission Canyon Rd, Santa Barbara. The bus will depart at **2:00pm** to return participants to the Goodland Hotel.

Conference Program

Thursday, May 7, 2015

11:30am - 1:00pm **Poster Session Set-Up - Corwin Pavilion East**

Plenary Session - Corwin Pavilion West

Ethnobiology of South-Central California: Past, Present, and Future

Session Chair: Jan Timbrook

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|--------------|---|--|
| 9:00 | | Opening Remarks
Ernestine Ygnacio-DeSoto (Barbareño Chumash)
Dr. Bruce Tiffney (UCSB Dean of College of Creative Studies and Paleobiologist) |
| 9:20 | <i>Jon M. Erlandson</i> | Paleoindian Use of Shellfish on California's Northern Channel Islands |
| 9:40 | <i>Kristina M. Gill</i> | Paleoethnobotany and Native Plant Use on California's Northern Channel Islands |
| 10:00 | <i>Julia E. Hammett</i> | The Historical Ecology of Talepop, an Interior Chumash Settlement in the Santa Monica Mountains |
| 10:20 | Morning Break | Refreshments in Corwin Pavilion East |
| 10:40 | <i>John R. Johnson</i> | The Importance of Small-Sized Fishes in Chumash Subsistence |
| 11:00 | <i>Jan Timbrook</i> | The Rare Occurrence of Feathers in Chumash Baskets |
| 11:20 | <i>Nakia Zavalla,
Frank Dominguez</i> | Speaking About the World: S ^h amala Language Learning and Teaching |

12:00 -- 1:00pm **Lunch Break**

11:15am - 1:15pm **Student Mentor Lunch - State Room**

Concurrent Session – Corwin Pavilion West

What Do Birds Tell Us? How Ethno-ornithology Opens Doors to Understanding Relationships with Others

Session Chairs: Myrdene Anderson and Peter Reynolds

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|-------------|---|--|
| 1:00 | <i>Graciela Alcantara-Salinas,
Eugene S. Hunn</i> | Avian Biodiversity in Two Zapotec Communities in Oaxaca: The Role Of Community-Based Conservation in San Miguel Tiltepec and San Juan Mixtepec |
| 1:15 | <i>Andrew Gosler</i> | A Nightingale By Any Other Name: Cultural Trends in English Folknames Of Passerine Birds |
| 1:30 | <i>Kerry Hull, Rob Fergus</i> | Archetypal Harbingers: Ethno-Ornithology and the Ch'orti' Maya |
| 1:45 | <i>Marianne Ignace,
Ronald Ignace</i> | Understanding Secwepemc Bird Talk |
| 2:00 | <i>Mercy N. Muiruri,
Patrick Maundu</i> | Ethno-Ornithology as an Opportunity for Community Participation in Bird Conservation and Sustainable Use |
| 2:15 | <i>Robert Gosford,
Myfany Turpin</i> | Bird is the Word - Doing Ethno-Ornithology on Kayteyte Country |
| 2:30 | <i>Myrdene Anderson</i> | Discussant |
| 2:45 | Afternoon Break | Refreshments in Corwin Pavilion East |
| 3:00 | <i>Lorcán O'Toole</i> | The Eurasian Crane (<i>Grus grus</i>) in Ireland - Another Extinct Bird or a Key Species for an Ancient Belief System? |
| 3:15 | <i>Nicole Sault</i> | Birds of Life and Death: Changing Meanings for Hummingbirds, Vultures and Condors |
| 3:30 | <i>Felice Wyndham,
Karen Park</i> | Signifying Birds in Culture, Language and Ecology |
| 3:45 | <i>Hannah Sarvasy</i> | That Bird Speaks Nukna: Birdsong Translation on the Huon Peninsula, Papua New Guinea |

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|------|--|---|
| 4:00 | <i>Nancy J. Turner,
Jonaki Bhattacharyya</i> | Salmonberry Bird and Goose Woman: Birds, Plants and People in Indigenous Peoples' Narratives and Traditions in Northwestern North America |
| 4:15 | <i>Robert Gosford,
Myfany Turpin,
Felicity Meakins,
Felice Wyndham</i> | Ethnoornithology on the Wall - Bird Knowledge Posters from around the World |
| 4:30 | <i>Myrdene Anderson</i> | Discussant |

Concurrent Session - Harbor Room Climate Change and Adaptation

Session Chair: Jeffrey Hoelle

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|-------------|---|---|
| 1:15 | <i>Jeffrey Hoelle</i> | Seeing Like an Amazonian Deforester |
| 1:30 | <i>Julie Maldonado,
Liza Kachko</i> | Changing Land- and Seascapes: Impacts of Environmental Change on Livelihoods, Subsistence, and Knowledge and Use of Wild Plants in Coastal Louisiana's Tribal Communities |
| 1:45 | <i>Kimberly Kirner</i> | "Knowing is from the Old People": Stories of Water, Place, and Climate Change |
| 2:00 | <i>Edelmira Linares,
Robert Bye</i> | Ethnobotanical Experiences of Semillatón in the Sierra Tarahumara, Chihuahua, Mexico |
| 2:15 | <i>Claudia Comberti</i> | The Impacts of Climate Change in Amazonian Indigenous Communities: The Role of Human-Ecosystem Interactions in Supporting Adaptation and Resilience |
| 2:30 | <i>Cynthia Fowler</i> | Socioecological Processes in the Science of Planetary Change |
| 2:45 | Afternoon Break | Refreshments in Corwin Pavilion East |
| 3:00 | <i>Lisa X. Gollin,
Clay Trauernicht</i> | The Wicked Problem of Wildfires in Hawaii and the Critical Role of Place-Based Environmental Knowledge of Firefighters Responding to Novel Fire Regimes |

3:15 *Alex McAlvay, Robert Bye, Eve Emshwiller* Evolutionary Consequences of Traditional Plant Management of Weedy Field Mustard in Mexico

Concurrent Session – State Room

The Ethnobiology of Traditional Fisheries: Bringing the past into the present

Session Chairs: Dana Lepofsky and Valentina Savo

1:45 *Valentina Savo, Dana Lepofsky* Fishers’ Experiences with Climate Change: An Overview

2:00 *Megan Caldwell, Dana Lepofsky, Robert J. Losey* Ancient Marine Management in Northern Coast Salish Territory, British Columbia, Canada

2:15 *Todd J. Braje* Ten Thousand Years of Black Abalone (*Haliotis cracherodii*) Fishing along California's Channel Islands: Implications for Restoration Site Selection

2:30 *** Antonia Rodrigues, Iain McKechnie, Dongya Yang* Indigenous Rockfish Use and Modern Management on the Pacific Coast: Insights from Ancient DNA

2:45 Afternoon Break Refreshments in Corwin Pavilion East

3:00 *Joshua Ream* Utilizing Local and Traditional Knowledge (LTK) to Better Understand Stikine River Chinook Populations Over Time: A Case Study from Wrangell and Petersburg, Alaska

3:15 *Eleni Petrou, Dana Lepofsky, Dongya Yang, Robert Kopperl, Lorenz Hauser* An Interdisciplinary Investigation of Shifting Baselines in the Socio-Ecological System of Pacific Herring and Salish Sea Peoples

3:30 *Ariadna Burgos* Ethnomalacology Research Methods and Applicability: Integrating Local Knowledge to Assess Mollusc Diversity and Population Change in Coastal Ecosystems

Poster Session – Corwin Pavilion East

3:30pm – 5:30pm

- Adrian G. Alonso, Judith C. Espinoza, Elizabeth A. Olson, Jesus Juan R. Adame, Francisco Javier S. Michel* Medicinal Plants off Tecopatlán, Jalisco, Mexico: Description off e Uses and Environmental Availability
- Paige Bardolph* New Approaches in Informal Learning: Teaching Nature and Culture through Interdisciplinary Museum Exhibitions
- Rebecca Dean, Shelby Spry* Feasting, Paraphernalia, Tools, or Agricultural Pests?: The Meaning off Artiodactyls at the Marana Platform Mound Site, Arizona
- Francesca Formica, Elizabeth A. Olson* Community Development amongst the Chakra: An Analysis off State-Led Programs
- Elizabeth Gould* Is Ecotourism Both Culturally and Ecologically Responsible? A Look at Protected Areas in Central and Northern India, Nepal, and Bhutan
- Aidee Guzman* Effect of Mexico-United States Migration on the Transmission of Plant Knowledge
- Cassie Elizabeth Halls* Sharing the Knowledge: The Discourse and Practice of Indigenous Food Sovereignty in British Columbia And Washington
- Fiona Hamersley Chambers* The 'Lost' Berry Gardens: First Nations' Cultivation on British Columbia's Northwest Coast
- Kristin Hoppa, Kristina Gill* Plant Use at Diablo Valdez, Santa Cruz Island: Evidence from Macrobotanical and Starch Grain Remains
- Macdonald Idu, Joseph Erhabor, Timothy Odaro, Onuigbo Chike* Documentation of Medicinal Plants Used by the Idoma People-Benue State, Nigeria
- Allison Jaqua* What the Current Drought Can Tell Us about Prehistoric Water Scarcity on the Santa Barbara Channel Islands
- Sebastião Gabriel Chaves Maia* Representations of Rural Areas in Urban Space: Urban Agriculture and Conservation of Biodiversity, A Case Study in Piracicaba, Spain

- Andrew Miller* Traditional Knowledge of Mineral Resources and their Implications in Canadian Law
- Kaelyn Marie Olson, Rebecca Dean, Joseph Beaver* GIS Analysis of Artiodactyl Remains at Los Morteros
- Jessica Orozco* A Floristic Study of the South Fork Tule River Watershed, Southern Sierra Nevada, Tulare County, California
- Zoe Palenik, Madeleine McLeester, Kathleen Morrison* Analysis of Variety among *Zea mays* Pollen
- Richard W. Tate* Predictive Tools for Ethnobiology: Using GIS in the Caucasus Mountains
- ** Heather Thakar* Food & Fertility in Prehistoric California: A Case-Study of Risk-Reducing Foraging Behavior and Population Growth from Santa Cruz Island, California
- Ginvera Toniello, Dana Lepofsky, Kirsten Rowell* Productivity of Ancient Clam Gardens on Northern Quadra Island, British Columbia
- Emily Ubik, John M. Marston* Agricultural Implications of Wheat and Barley Grain Measurements at Ancient Gordion, Turkey
- Ernestine Ygnacio-Desoto, Julie Tumamait-Stenslie, Eleanor Arellanes Fishburn* We Are Chumash
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Friday, May 8, 2015

Concurrent Session – Corwin Pavilion West

Archaeology and Ethnobiology

Session Chair: Mallory Melton

- 8:30 *R. J. Sinensky* Shifting Climate, Shifting Strategies: Flexibility as Key to the Longevity of Early Farming Communities in the American Southwest, a Case Study from the Tucson Basin
- 8:45 *Daisy Martinez, Jessica Morales, Emily L. Whistler, René L. Vellanoweth* Preliminary Analysis of Ichthyofaunal Remains from the Tule Creek Village Site (CA-SNI-25): Ecology and Technology
- 9:00 *Paul E. Langenwalter, Daniel A. Guthrie, Brenda Bowser* Bone Bead Production and Technology from the Early-Middle Holocene Occupation at the Irvine Site (CA-ORA-64), Upper Newport Bay, Orange County, California
- 9:15 ** *Madeleine McLeester* Leaving the Longhouse: 17th Century Pollen Evidence for Native American Mobility and the Seasonal Round
- 9:30 *Amber VanDerwarker, Allison Gracer, Gregory Wilson* Farming Under Fire in the Central Illinois River Valley: Changes in Farming Strategies in Response to Intensified Warfare during the Mississippian Period
- 9:45 *Mallory Melton* Is the Grass Always Greener?: Examining the Long-Term Impacts of Migration on Subsistence Strategies among Native American Newcomers to the Protohistoric North Carolina Piedmont
- 10:00 *Barbara Voorhies* The Marsh Clam Almejeros of Costa Rica
- 10:15 Morning Break Refreshments in Corwin Pavilion East**
- 10:30 *Andrew R. Wyatt* “Me Gusta”: The Changing Role of Lacandon Maya Homegardens in Lake Mensabak, Chiapas, Mexico
- 10:45 *Dana Bardolph* Reimagining Pre-Moche Maize Agriculture

- 11:00 ~~Jade d'Alpoim Guedes~~ Modeling the Spread of Agriculture: An Example from the Eastern Tibetan Plateau
- 11:15 *Tricia E. Owlett* Finding Greener Pastures? Environmental Change, Prehistoric Herding, and the Spread of Sheep Pastoralism to the Ordos Region, Neolithic Northern China
- 11:30 *Nami Shin,* Reconstructing Late Bronze Age Agriculture at Kaymakçı, Western Turkey
John M. Marston,
Christopher H. Roosevelt,
Christina Luke

12:00 -- 1:00pm Lunch Break

Concurrent Session – Harbor Room
Ethnobotany, Part I

Session Chair: Jane Mt. Pleasant

- 9:00 *Erica Oberndorfer,* “Without plants, we wouldn’t be the same unique
Carol Gear, people” – A Look at the Broader Importance of Plants in
Gita Ljubicic, Makkovik, Nunatsiavut (Labrador, Canada)
Jeremy Lundholm
- 9:15 *Carla M. Burton,* Trade of Plant Products in Northwestern British
Philip J. Burton Columbia – Past, Present, and Future
- 9:30 *Alexandra Harwell* The Restoration of Ka’qsw, also known as Sweetgrass (*Schoenoplectus pungens*), in the Nisqually Delta: The Case Study of a Basketry Plant
- 9:45 *Ashley Blazina* Assessing the Viability of Biochar as a Soil Amendment in Traditionally-Burned Puget Sound Prairies
- 10:00 *Philip J. Burton,* Forest Planning Adjustments to Protect Traditional Non-Timber Resources in Northern British Columbia
Carla M. Burton
- 10:15 Morning Break Refreshments in Corwin Pavilion East**

10:30	<i>James R. Veteto</i>	Apple-achia: Biocultural Diversity in the American Mountain South
10:45	<i>Jane Mt. Pleasant</i>	But What Did They Really Eat? The Three Sisters as Food
11:00	<i>Araceli Aguilar-Melendez, Reyna Hernandez-Colorado</i>	How Chili Peppers, Food, Identity and Rituals are Intermingled in the Mexican Territory
11:15	<i>Robert Bye, Edelmira Linares, Alma Cruz, Adriana González, Delia Castro, Lucero Mera, Myrna Mendoza, Joel Rodríguez</i>	Diversity and Continuity of “Quelites” (Potherbs) in the Sierra Tarahumara, Chihuahua, Mexico
11:30	<i>Anju Batta Sehgal</i>	Hitherto Unknown Uses of Plants by Indigenous People of Himachal Pradesh

12:00 -- 1:00pm Lunch Break

Concurrent Session – State Room
Spreading the Seeds: Innovative Approaches for Teaching Ethnobiology

Session Chairs: Janelle Marie Baker and Valentina Savo

8:30	<i>John Richard Stepp, Karen Bailey, Jelena Brezjanovic, Marcus Briggs-Cloud, Margaret Clifford, Richard Tate</i>	Go Gator and Muddy the Water: Teaching and Doing Ethnobiology and Conservation
8:45	<i>Scott Herron</i>	Using Prezi Presentations to Teach Ethnobiology: An Open Source Innovation?
9:00	<i>Leslie Main Johnson, Janelle Marie Baker</i>	Electronic Ethnobiology: Connecting Students to Nature and Culture Online

- 9:15 *Michelle Baumflek* Making the Most of Diverse Learning Environments for Ethnobiology
- 9:30 *Marja Eloheimo, Korrena Cooper-Poe* Cultivating Relationality: Twenty Years in the Longhouse Ethnobotanical Garden at Evergreen
- 9:45 *George Ironstrack* Eewansaapita: Meehtohseeniwinki Ašiihkionki – A Myaamia (Miami Indian) Youth Program: “Living on the Land”
- 10:00 *Valeria Kuzivanova, Marvin McDonald* Dancing Wild Rice Anew: Young People and Eco-Cultural Restoration, Wabaseemoong Independent Nations, Canada
- 10:15 Morning Break Refreshments in Corwin Pavilion East**
- 10:30 *Michael P. Gonella, Daryl W. Baldwin II* Myaamia Ethnobotanical Research for Cultural Revitalization
- 10:45 *Joshua Ream* Herpetological Citizen Science and Service-Learning in Rural Southeast Alaska
- 11:00 *Gendron Fidji, Leanne Strickler* Aboriginal Youth's Perceptions of Traditional and Commercial Tobacco
- 11:15 *Jeanine Pfeiffer & San José State University students* Interactive Learning to Conserve Biocultural Diversity: University Students Engage Tribes
- 11:30 *Armando Medinaceli* Code of Ethics Latin American Society of Ethnobiology (SOLAE)
- 12:00 -- 1:00pm Lunch Break**

Concurrent Session – Mission Room

Ethnomedicine

Session Chair: Mark A. Wright

- 9:00 *Joseph Erhabor,* Common Medicinal Plants Used in the Treatment of
Timothy Odare Some Skin Diseases among the Itsekiri People of Warri
Macdonald Idu South Local Government Area of Delta State, Nigeria
- 9:15 *Mary Olanipekun,* Traditional Knowledge of Plants Used in Managing the
Joshua Kayode Health Status of Ruminant Animals in Ekiti State,
Southwestern, Nigeria
- 9:30 *Maya E. Miriam* Collaborative Ethnobiological Research with an
Aldasoro, Indigenous Mexican Community (Pjiekakjoo/"Tlahuica"):
Eugene S. Hunn TEK Survives in Close Proximity to Mexico City
- 9:45 ** *Tristesse Burton* The Pharmacognosy of American Indian Botanicals for
the Benefit of Women's Health
- 10:00 *Mark A. Wright,* "Building Blood": Plants in Medicine and Myth among
Kerry Hull the Mopan Maya of San José, Belize
- 10:15 Morning Break Refreshments in Corwin Pavilion East**
- 10:30 ** *Lena Easton-* Ayahuasca Use and the Positionality of the Shaman in
Calabria the Peruvian Amazon Rainforest
- 10:45 *Idayat Gbadamosi* Botanicals Used as Antimalarials in Southwestern
Nigeria
- 11:00 *Amit Kaur Puri* Biomedical Propects of Unconventional Green Leafy
Vegetables for Anemia Management
- 11:15 *Sharaibi Olubunmi,* Toxicological Evaluations of Aqueous Extract of
Oluwatoyin Ogundipe, *Nymphaea lotus* L. Leaves in Wistar Rats.
Anthony Afolayan

- 11:30 *Wei Xu, Min Xu, Zhong Zhen Zhao, Chi I. Chow, Xiao Ying Tian, Ting Ting Xiao, Nan Ding, Quan Xia, Xi Qiang Liu* The Effects of *Paeoniae radix alba* in Embryonic Development: In-Vivo and In-Vitro Studies
- 11:45 *Timothy Odaro, Ovuakporie-Uvo Oghale, Macdonald Idu* Common Plants Used for Traditional Orthopaedic Care among the People of Ozoro in Isoko North Local Government Area of Delta State, Nigeria

12:00 -- 1:00pm Lunch Break

Concurrent Session – Corwin Pavilion West Traditional Ecological Knowledge

Session Chair: Cassidy Adlof

- 1:00 *** Cory Whitney, Meej Vaj Vang Sin Min, Lê Hồng Giang, Vu Van Can, Keith Barber, Train Thi Lahn* Hmong Conservation; Lessons in Ethnobotany from the Elders of Long Lan, Luang Prabang, Lao People's Democratic Republic
- 1:15 *Bambang Hariyadi, Puspa Widia Wati, Mashuri Waite* Edible Fruit Knowledge Distribution among the Orang Rimba
- 1:30 *Clément Garineaud* Ethnophycology: When Names Reflect Seaweed Harvester's Knowledge and Practices
- 1:45 *William Balee, Steven A. Weber* Ethnobiology of Saps, Resins, and Latexes
- 2:00 *Cassidy Adlof* Effect of Harvest Practices on a Culturally-Significant Plant, *Salvia apiana* (White Sage)
- 2:15 *M. Kat Anderson, Jeff Rosenthal* An Ethnobiological Approach to Reconstructing Indigenous Fire Regimes in California: Focusing on the Foothill Chaparral as a Case Example

2:30	Afternoon Break	Refreshments in Corwin Pavilion East
2:45	<i>Shelly Davis-King</i>	Historic Cuisine of the Sierra Miwok
3:00	** Joyce LeCompte	Historical Ecologies of Swætíxʷtəd in the Duwamish-Green-White River Watershed of Washington State
3:15	<i>Carrie Calisay Cannon</i>	The Ethnobotany of Hualapai Food Harvesting Equipment
3:30	<i>Cory Whitney, Meej Vaj Vang Sin Min, Lê Hồng Giang, Vu Van Can, Keith Barber, Train Thi Lahn</i>	Learning With Elders Of The Dao, Hmong, Kinh, Lu, Ma Lieng, Sach, Tai, Tay, And Xinh Mun Ethnic Communities Of Northern Vietnam.
3:45	<i>Lauren Moscoe, Eve Emshwiller</i>	Distribution of Oca (<i>Oxalis tuberosa</i> ; Oxalidaceae) Diversity in Pisac, Peru, with respect to Folk Classification, Morphology, and Microsatellites

Concurrent Session - Harbor Room

Ethnobotany, Part II

Session Chair: Daniela Shebitz

1:00	<i>Julius Kulip, Piriyadharshini Maniam, Johnny Gisil, Boni Jaumin</i>	A Survey of Ethnobotanical Plants Used by the Dusun People inside 20 M X 20m Plots in Trus Madi Mountain Forest Reserve, Tambunan District, Sabah, Malaysia.
1:15	<i>Robin C. D. Currey</i>	Impact Evaluation of an Ethnoecological Approach to Home Garden Development
1:30	<i>Letitia M. McCune</i>	Seed Sovereignty, Conservation and Patenting: The Protection of Intellectual Property Rights

- 1:45 *Daniela Shebitz,* The Ethnobotany, Ecology and Biological Activity of Two
Alessa Vindas-Cruz, Pioneer Tree Species of Costa Rica's Secondary Forests:
Katherine Andrade *Simarouba amara* and *Vismia macrophylla*
- 2:00 *Leslie Main Johnson* An Ethnobiological Look at Snowshoes (Northwestern
Canada)
- 2:15 *Armando Medinaceli* Ethnobotany of Hunting: An Insight into Tsimane'
Traditional Hunting in Bolivian Amazonia
- 2:30 Afternoon Break Refreshments in Corwin Pavilion East**
- 2:45 *Catherine V. Nnamani,* Assessment of Diversity and Richness of Nectariferous
Ezike Nneka Plant Genetic Resources for Apicultural
Entrepreneurship in Nigeria and its Policy Implication

Concurrent Session - Harbor Room

Ethnozoology

Session Chair: Steve Wolverton

- 3:00 *Steve Wolverton,* Hunting, Herding, and Cultural Change along an
Clara Otaola, Elevation Gradient in the Andes of Western Argentina
Miguel Giardina
- 3:15 *Cyrus Harp* The Importance of Insects as Food for the California
Indians
- 3:30 *Christopher* Ethnozoological Aspects of Kani Tribals in the
Gunamony Agasthiamalai Region of the Western Ghats, Southern
India
- 3:45 *Aung Si* Documenting Indigenous Knowledge of Honeybees in a
Multilingual Community in Northern Australia
- 4:00 *Kristin Marie Paterakis* Voices of the Sea: Illuminating the Complex Relationship
between Sharks and Humans through Digital Storytelling
in Baja California Sur, Mexico

Concurrent Session – State Room

(Re)encountering Agency in the Anthropocene Garden: Multi-species Ethnography and the Ethnobiological Heritage of Contemporary Theories

Session Chair: Joyce LeCompte, Kay Lewis-Jones

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| 1:00 | <i>L. M. Rival</i> | How the Makushi Articulate Vital and Technical Processes in the Making of Manioc Beer |
| 1:15 | <i>María Gabriela Zurita Benavides</i> | Individual Relationship and Management of Plants in the Ecuadorian Amazon |
| 1:30 | <i>Joyce LeCompte, Melissa R. Poe, Rebecca McLain, Patrick Hurley</i> | Urban Foraging and the Relational Ecologies of Belonging |
| 1:45 | <i>Luci Attala</i> | The Importance of Being Eaten: Edibility, Blending Boundaries and the Porosity of Relationships between and across Species |
| 2:00 | ** <i>William Maxwell</i> | Tupelo and Red Oak: Cosmopolitical Citizens in the Land of the North Carolina Tuscarora? |
| 2:15 | <i>Kay Lewis-Jones</i> | Care of the Seed: Plant Conservation and Multispecies Fostering |
| 2:30 | Afternoon Break | Refreshments in Corwin Pavilion East |
| 2:45 | <i>Alex McAlvay, Raymond Pierotti, Eve Emshwiller</i> | The Many Faces of Anthropogenic Evolution: Reconciling Isolated Lines of Research on Human-Induced Selection under the Banner of Ethnobiology |
| 3:00 | <i>Kelly Kindscher</i> | The Melvin Gilmore Legacy and Model for Historical Ethnobotanical Research |
| 3:15 | <i>E. N. Anderson</i> | Chickens and Millet: The Significance of New Findings in Chinese Food Archaeology |
| 3:30 | <i>Kohanya Groff</i> | Beyond Consultation: A Call for “Tribal Science” in Policy Making |
| 3:45 | <i>E. N. Anderson</i> | Discussant |

Ethnobiology Film Festival – Mission Room
Interactive Learning to Conserve Biodiversity: University Students Engage Tribes

Produced by Jeanine Pfeiffer & Students

1:15 – 4:00pm

General Meeting & Presentation of Society Awards – Corwin Pavilion West

4:15 – 5:30pm

- Society of Ethnobiology General Meeting
- Presentation of Awards:
 - Undergraduate Ethnobiologist Award
 - Barbara Lawrence Award
 - Best Poster Award
 - Student Mentor Award
 - The Distinguished Ethnobiologist Award
- Distinguished Ethnobiologist, Dr. Cecil Brown, “Mentors, Collaborators, Colleagues, Consultants, Critics, and Friends in Pursuit of Ethnobiological Knowledge”

Banquet – Santa Barbara Museum of Natural History

5:30 – 9:30pm



5:30	Guests begin arriving
5:30-7:30	Museum exhibits, Store, and Ethnobotanical Garden open Cash bar
7:00	Welcome and Blessing in Fleischmann Auditorium Tri-tip dinner served
8:00-9:00	Samala Singers and Dancers from the Santa Ynez Band of Chumash Indians Julie Tumamait-Stenslie, Ventureño Chumash, songs and stories
8:30	Early bus departs for Goodland Hotel
9:30	Event concludes Second bus departs for Goodland Hotel

Saturday, May 9, 2015

Santa Cruz Island Trip

7:00am – 7:00pm

Meet at the Goodland Hotel main door at 7:00am. Bus departs at 7:15am. Registrants should dress appropriately to be outdoors for the entire day (i.e., dress in layers and be prepared for cold, heat, fog, wind, and sun). Hat, sunblock, day pack, sturdy hiking boots, and walking stick or trekking poles are strongly advised. Bring extra water and any snacks. Lunch provided. Food for purchase on boat.

Santa Barbara Botanic Garden

9:30am – 2:30pm



Meet at the Goodland Hotel main door at 9:30am. The bus departs at 9:40am. This will be an easy walk. Camera and binoculars recommended. Lunch is provided.

Presentation Abstracts

ADLOF, Cassidy cassidyadlof@sbcglobal.net

Effect of harvest practices on a culturally-significant plant, *Salvia apiana* (white sage)

Over the last 20 years there has been an increased demand for wild non-timber plant products (Cunningham 2001, Ticktin 2004). With the added stress of human-caused pressures, such as fragmentation, culturally important plants need to be examined to ensure their continued survival. *Salvia apiana* is a plant used in cleansing/purification ceremonies. This study examined 1. how different ethnic and spiritual groups acquire *Salvia apiana* and their harvest practices and 2. how plants respond to different harvest practices. Individuals were surveyed to learn about their harvest practices and combinations of harvest treatments were used on wild plants to examine their biological effect. Treatments included gathering technique (by hand, cutting, leaf only), amount (0%, 5%, 25%, 50%), and season (spring, summer). While different ethnic and spiritual groups acquire and harvest plants differently, these different harvest practices did not have a significant impact on plant size, leaf-volume ratio or flower abundance.

AGUILAR-MELENDZ, Araceli; Reyna HERNANDEZ-COLORADO capsicum04@mac.com

How chili peppers, food, identity and rituals are intermingled in the Mexican territory

Chilli peppers are part of the milpa system that give taste and identity throughout the preparation of food to the traditional and non traditional societies of Mexico up to date. Despite its cultural and economic importance, chilli peppers have been neglected by science. This contribution documents the complexity of the relationship of a versatile plant with dynamic cultures using as a excuse the preparation of food within ritual related festivities. This works tries to prove that in order to conserve chilli peppers we need to conserve the culture that goes with it.

ALCANTARA-SALINAS, Graciela; Eugene S. HUNN enhunn323@comcast.net

Avian Biodiversity in Two Zapotec Communities in Oaxaca: The Role of Community-Based Conservation in San Miguel Tiltepec, and San Juan Mixtepec.

Oaxaca is the most biologically and culturally diverse state in Mexico, a world megadiversity region. We document the avifauna of two Indigenous Zapotec communities, San Miguel Tiltepec, Sierra Norte, and San Juan Mixtepec, Sierra Sur. During several years of periodic ethnobiological field research we have recorded 313 species between them, 208 species in San Miguel and 191 in San Juan, lists that include a substantial fraction (approximately 40%) of the endemic species and species of special concern. The two communities contrast notably in their habitats but share deep roots in their local landscapes and traditions of conservative management. We also recorded Zapotec names and cultural beliefs and practices regarding birds and noted community attitudes and administrative practices that have sustained a rich mosaic of critical avian habitats. We suggest that Indigenous communities in Mexico and elsewhere, given certain preconditions, may provide critical human resources for biodiversity conservation going forward.

ALDASORO MAYA, E. Miriam; Eugene S. HUNN enhunn323@comcast.net

Collaborative Ethnobiological Research with an Indigenous Mexican Community (Pjiekakjoo/"Tlahuica"): TEK Survives in Close Proximity to Mexico City

The Pjiekakjoo are one of the smallest indigenous groups in Mexico. Their homeland is in the mountains southwest of Mexico City on the margins of the Lagunas de Zempoala National Park. They thus must respond to intense external social, political, and economic pressures. Nevertheless the community has developed and maintained a complex knowledge-practice-belief system (Traditional Environmental Knowledge (TEK)) that contributes substantially to the biocultural diversity of the region. Aldasoro Maya documented TEK through a collaborative and contextualized research project involving participant observation, interviews, and workshops. Of particular interest are local knowledge systems with respect to mushrooms, animals, and important useful plants. We argue that TEK should be recognized as essential for evaluating public policies, development projects, and the reinforcement of common property systems. Traditional knowledge systems represent an immense living cultural heritage that should be preserved through the active and empowered action of the people with active support of academicians.

ALONSO, Adrian G.; Judith C. ESPINOZA; Elizabeth A. OLSON; Jesus Juan R. ADAME; Francisco Javier S. MICHEL adrian.gtz.alonso@gmail.com

Medicinal Plants of Tecopatlán, Jalisco, Mexico: Description of Uses and Environmental Availability

This study seeks to generate and increase awareness of local medicinal flora of the west central region of Mexico and provide information about the potential utility of medicinal plants. The research was conducted in the town of Tecopatlán, Jalisco, which is located in the influence zone of the Sierra of Manantlán Biosphere Reserve. In order to characterize the traditional knowledge of the use of medicinal plants and the local environment, we interviewed thirty-four adults who reported a total of seventy-three unique medicinal plant species. The most commonly reported illnesses were diabetes, cough, and kidney problems. Local perspectives attributed the acquisition of medicinal plant knowledge to both individual life experiences and personal characteristics that indicated a potential to learn and use plants for healing. The documentation of shared cultural knowledge reinforces the value of the knowledge and provides a basis for conservation of the knowledge and sustainable use of the medicinal plants.

ANDERSON, E. N. gene@ucr.edu

Chickens and Millet: The Significance of New Findings in Chinese Food Archaeology

Recent findings in archaeology have considerably pushed back the dates for domestication of chickens, millets, rice, pigs, and other domestic life forms of eastern Asia. North China has taken a lead over south China, though this may change with further investigation. Early evidence of milking and stockraising in central Asia is relevant. To a cultural anthropologist working with modern uses of plants and animals, the new findings confirm my models and suppositions about the origins and development of agriculture: it happened when environmental conditions improved and food got more abundant, not during periods of scarcity; it probably involved trade and certainly contact with other groups; it took place in favorable locations at probable trade crossroads. Early items grown were those either storable or highly valued or both. Uses of many items tended to shift over time as more efficient systems were discovered. The development of food systems has to be understood in a context of induced biological development: changes were most likely when they removed bottlenecks that inhibited trade, contact, and efficiency.

ANDERSON, M. Kat; Jeff ROSENTHAL mkanderson@ucdavis.edu

An Ethnobiological Approach to Reconstructing Indigenous Fire Regimes in California: Focusing on the Foothill Chaparral as a Case Example

In this talk we will discuss the importance of foothill chaparral to the indigenous people of the western Sierra Nevada for food, clothing, basketry, firewood, medicines, cordage, household utensils, etc. Over 250 plants, insects, small and large mammals, reptiles, and birds that come from these shrublands were transformed into the food and material culture of tribes. The audience will learn about the tremendous stewardship legacy of Sierran Tribes: How the Sierra Miwok, Mono, Foothill Yokuts, Maidu and other cultural groups set fires in foothill chaparral for six ecologically-based cultural purposes. Through an ethnobiological analysis we will examine the suite of useful products that could be garnered from the chaparral community at each stage of its successional development after a disturbance by fire. We will show how a stand of chaparral offered a different set of raw materials and food and a different kind of animal habitat at each stage of its post-fire development. Creating this kind of mosaic on the landscape required using fire as a management tool with forethought, intention, and deep knowledge of fire's ecological effects.

ATTALA, Luci luci.attala@gmail.com

The importance of being eaten: edibility, blending boundaries and the porosity of relationships between and across species.

In an attempt to reject human exceptionalist and reductionalist tendencies, this paper considers how a more-than-human materialities perspective can support the aims of multi-species ethnographies that attempt to offer plants a voice. I do this by suggesting that edibility, the processes of ingestion and the behavioural consequences of assimilation of bodies into bodies enables a methodology with which to 'hear' plants as they communicate with their ingestors. Paying attention to how the condition of being edible provokes relationships, I explore not only the lively physicality of merging phyto-materials with human-animal fleshy bodies but also demonstrate how the permeability of bodily boundaries can be usefully repositioned as a locus of relationality and influence, in a world of agential materials. As a result of this direction, I also shine a light onto epistemological and ontological category/species boundaries that represent living beings as distinct and separate from each other.

BALEE, William; Steven A. WEBER wbalee@tulane.edu

Ethnobiology of saps, resins, and latexes

The ethnobiology of saps, resins, and latexes--from diverse trees in forests worldwide--concerns how people use and classify these species, and whether they are domesticated or not. The uses are not unlimited: they include food and gums (edible saps, resins, syrups, and gums); sealants (from resins in the *Burseraceae* and saps in the *Anacardiaceae*); and as generalized polymer with multiple uses (as with *Hevea brasiliensis* and numerous species of *Moraceae* and *Sapotaceae*). In many cases, the raw materials produced exhibit allergens, as in the case of the rubber tree (*Euphorbiaceae*), the fig tree (*Moraceae*), and the lacquer tree (*Anacardiaceae*). The uses of many of these trees diverge, a fact that is more salient depending on the particular species and its characteristics, suggesting the possibility of probably universally important and useful properties among diverse phyla of plants. Comparison can yield insights into the most suitable methods for helping maintain cultural traditions (as with traditional commodities produced from saps, resins, and latexes) as well as the most likely means of preserving the diversity of the relevant tree species themselves.

BARDOLPH, Dana dana.bardolph@gmail.com

Reimagining Pre-Moche Maize Agriculture

Understanding the relationship between maize agriculture and state development is a question that has long resonated with archaeological research interests. This paper examines the role of maize agriculture in north coastal Peru during the Early Intermediate Period (EIP, 400 B.C. to A.D. 800), prior to the development of a regional Moche political economy. Andean scholars have broadly discussed prehistoric subsistence strategies on the Peruvian north coast in relation to competition over intensifiable agricultural resources, increases in social stratification, and the development of complex political organization preceding the consolidation of the Southern Moche polity. However, the majority of these discussions take place in the absence of systematically collected subsistence data. I discuss recent paleoethnobotanical data from the Moche Valley and neighboring valleys, with the goal of illuminating various subsistence strategies that may have influenced Moche sociopolitical development. Maize, a highly productive and storable crop, likely served as an important precursor to state development during the EIP.

BARDOLPH, Paige pbardolph@theautry.org

New Approaches in Informal Learning: Teaching Nature and Culture through Interdisciplinary Museum Exhibitions

This poster explores ways in which museums with ethnographic collections can integrate environmental and cultural content through exhibitions, using a project currently under development at the Autry National Center in Los Angeles as a case study. A suite of two galleries and an accompanying ethnobotanical garden, slated to open in September 2016, has a focus on past and present relationships between California's indigenous communities and the environment. This poster provides an overview of interpretive themes and collection items selected for the project. It describes methods of content development, including consulting with cultural advisors from tribes across the state of California. This project can potentially serve as a model for other institutions with ethnographic collections from Native North America to teach both material culture and traditional ecological knowledge through a more interdisciplinary approach.

BAUMFLEK, Michelle mbaumflek@gmail.com

Making the most of Diverse Learning Environments for Ethnobiology

Ethnobiology is characterized by the study of applied, hands-on knowledge. However, new opportunities are arising for online courses that include ethnobiological concepts, suggesting the need for creative approaches in terms of both content and delivery. This paper will present reflections on teaching a Native Food Systems course in two distinct learning environments: a face-to-face Freshman Writing Seminar, and an asynchronous online course. I will discuss how learning outcomes, tools, resources and assignments were modified to take advantage of the strengths of each learning environment. Student evaluations of the educational process, as well as recommendations for new collaborative teaching resources will be discussed. I will also demonstrate the use of practitioner-based video case studies co-created with the NSF Conservation Bridge as an innovative, flexible tool for ethnobiological learning that is effective in-person or online.

BLAZINA, Ashley ashley.blazina@gmail.com

Assessing the Viability of Biochar as a Soil Amendment in Traditionally-Burned Puget Sound Prairies

The prairies of Washington's Puget Sound Lowlands were traditionally burned to help cultivate many edible and medicinal plants. In the mid-1800s, westward expansion and treaties made many prairies inaccessible to tribes. Lacking regular burns, some prairies were encroached by both native and invasive species, while others were reclaimed for agriculture. Today, 3 percent of the original Puget Sound prairies remain. Although restoration through prescribed burn protocols has been developed, Clean Air Act regulations severely limit the days and seasons that burns can take place. Biochar is a plant-based material similar to charcoal, and has been used in several Midwestern prairie restorations. My study will conduct growth pattern analyses of Puget Sound native and non-native prairie species planted in biochar-amended soil. Biochar may demonstrate the potential to provide prairie soil with many chemical properties seen in burnt prairies, as well as a new option to restore a culturally- and ecologically-important ecosystem.

BRAJE, Todd J. tbraje@mail.sdsu.edu

Ten Thousand Years of Black Abalone (*Haliotis cracherodii*) Fishing along California's Channel Islands: Implications for Restoration Site Selection

Identifying appropriate ecological conditions for population restoration is important for endangered species such as black abalone (*Haliotis cracherodii*) in California, but little information exists regarding restoration locations. Using a combination of archaeological and commercial fishing data, four optimal locations for restoration based on past relative abundances of black abalone were identified: northwestern, northeastern, and south-central San Miguel Island and west San Nicolas Island. These locations around California's Channel Islands have supported dense black abalone communities for 10,000 years and may offer optimal environmental conditions to enhance the success of black abalone restoration. The historical ecological strategy outlined here illustrates the promise of integrating prehistoric, historical, and modern fishery data to inform restoration of threatened and endangered abalone, oysters, and other shellfish around the world.

BURGOS, Ariadna alibertad@yahoo.com

Ethnomalacology Research Methods and Applicability: Integrating Local Knowledge to Assess Mollusc Diversity and Population Change in Coastal Ecosystems

Shell gathering is one of the most important activities performed by women and children in coastal livelihoods. Although shellfish might be considered to be of secondary importance in the overall diet of coastal societies, it plays a crucial role supplying proteins when faced with environmental fluctuation and seasonal inequalities. Shell gatherers have developed a solid corpus of ecological knowledge related to edible bivalves and gastropods through a long history of oral transmission and empirical experience. The aim of this paper is to describe the development of ethnomalacological research in two different — ecological, cultural and scientific — contexts in Asia and Oceania and to examine the applicability of local knowledge on marine molluscs in climate and coastal change monitoring.

BURTON, Carla M.; Philip J. BURTON symbios@telus.net

Trade of Plant Products in Northwestern British Columbia – Past, Present, and Future

Trade in plant products has been and continues to be an important part of First Nations cultures in northwestern British Columbia, Canada. Today a cash economy often replaces the traditional exchange of goods, but trade in culturally important plant products is still prominent. The trade

of selected plant products between the Nisga'a, Gitksan, Tsimshian and Haida First Nations in the past and as it currently occurs is presented. Traditionally, trade was dependent on plant distribution on each traditional territory. Today plant distribution continues to play a role in the exchange of species. The basis for current exchange includes historical and familial connections between nations but also includes modern venues such as a community (farmers') markets. Opportunities exist for the sustainable production and expanded marketing of specialized food, medicinal and cultural products. There is local support for continued cottage and First Nations enterprises, and growing concern about commercialization and exploitation by outsiders.

BURTON, Philip J.; Carla M. BURTON phil.burton@unbc.ca

Forest Planning Adjustments to Protect Traditional Non-Timber Resources in Northern British Columbia

Timber harvesting is one of the dominant agents of forest change on public lands, and is often in conflict with non-timber resource use. Across northern British Columbia, Canada, there is widespread foraging for berries, mushrooms, medicinal plants, furs and potable water by both Aboriginal and Settler communities. The boundaries of traditional territories historically managed by First Nations house groups are often appropriate in identifying the spatial arena for sustainability planning. Case studies are presented in which specific non-timber values can be protected simultaneously with management for timber. Altered forest management solutions include deferred harvesting and cut control, partial cutting or variable retention, using or avoiding the use of prescribed fire, reduced forest regeneration stocking levels, directing logging to certain forest age classes or stand types, and selective brushing and spacing. No one set of forest conditions or forest practices can support all non-timber values, so choices have to be made.

BURTON, Tristesse jones.tristesse@gmail.com

The Pharmacognosy of American Indian Botanicals for the Benefit of Women's Health

Hormone Therapy (HT) remains the standard pharmaceutical treatment for managing menopausal symptoms. However, since the Women's Health Initiative's negative report on HT in 2002, many women seek alternatives such as botanical dietary supplements (BDS). Black cohosh is one of the leading BDS that women take for menopause and it was also traditionally used by American Indians. Although black cohosh was extensively studied, there are still numerous botanicals historically used by American Indians that lack scientific investigations on safety, efficacy, and support for traditional use. In collaboration with the UIC/NIH Center for Botanical Dietary Supplements Research and the Chicago Botanic Garden (CBG), 15 plants were selected from 164 native plant species to evaluate potential benefits for women's health. This project seeks to identify (anti)estrogenic, chemopreventive, and anti-inflammatory activity of the studied plants, isolate the active compounds from the most active plants through bioassay-guided fractionation, and support traditional American Indian knowledge.

BYE, Robert; Edelmira LINARES; Alma CRUZ; Adriana GONZÁLEZ; Delia CASTRO; Lucero MERA; Myrna MENDOZA; Joel RODRÍGUEZ bye.robert@gmail.com

Diversity and continuity of “quelites” (potherbs) in the Sierra Tarahumara, Chihuahua, Mexico

Over 100 species of “quelites” (tender edible plant parts or “guilibá” in íarámuri) have been documented as a critical complement in the Tarahumara maize-bean-squash diet since the colonial period. Even with this extensive historical base, recent interviews and participant observations revealed new taxonomic records. These potherbs are floristic elements in both the temperate and tropical zones as well as members of natural and anthropogenic habitats. Some species are so important that they are subject to incipient domestication. Normally these greens are eaten fresh at the start of the rainy season and the excess is dried for later consumption. The quelite inventory includes many endemic species. Certain geographically widespread species are eaten only in the Sierra Tarahumara. Because of the decline in the availability of quelites, we are collaborating with the Tarahumara community through participatory research to rescue and reevaluate quelites as well as to increase their availability for home consumption and the local market.

CALDWELL, Megan; Dana LEPOFSKY; Robert J. LOSEY megan.caldwell@gmail.com

Ancient Marine Management in Northern Coast Salish Territory, British Columbia, Canada

On the Northwest Coast of North America, extensive ethnographic evidence indicates the extent to which the region’s First Peoples managed their marine and terrestrial ecosystems. Archaeologists, however, have been slower to consider more ancient evidence of management. This presentation explores the archaeological evidence of marine resource management in the traditional territory of the Northern Coast Salish, on British Columbia’s southern coast. We examine ancient marine management through a series of nested, spatial scales that include the analysis of zooarchaeological fish remains and intertidal stone and wood features. We argue that the construction of intertidal features and associated management of marine resources played a part in ensuring equal access to and sustained exploitation of a suite of marine resources throughout the late Holocene.

CAMPBELL, Breana; Todd BRAJE campbe13@rohan.sdsu.edu

Three Thousand Years of Human Impacts on California Mussels (*Mytilus californianus*): Historical Ecological Management Implications from the Northern Channel Islands

Zooarchaeological research on the Northern Channel Islands has demonstrated that fluctuation in average California mussel (*Mytilus californianus*) size through the Holocene is heavily influenced by human predation. These studies often rely on the measurement of whole shells from archaeological deposits, but can be limited due to taphonomic processes that fragment mussels. We recently developed a new method for estimating the total shell length of California mussels from hinge fragments and collected size data from Late Holocene archaeological deposits on the Northern Channel Islands. Our results were compared against records of paleo-sea surface temperatures and modern size data for California mussels collected in spring 2014. Our findings can be used as a proxy for California mussel size through the Late Holocene and used to establish deep historical baselines for the modern management of this critical intertidal marine resource.

CANNON, Carrie Calisay calisay17@hotmail.com

The Ethnobotany of Hualapai Food Harvesting Equipment

The Hualapai Tribe of Northern Arizona utilized specialized harvesting tools and implements made from local plants. These played a crucial role in resource acquisition that had been fine-tuned and perfected over millennia to meet the challenges of adapting to their landscape. The information presented will examine the types of tools and implements used for harvesting subsistence resources, both plant and animal. It will describe the plants from which the tools and harvesting implements were made, and for what resource they were used. It will describe what knowledge still remains in the community, and what has been lost in the past centuries. Investigating this little-examined arena sheds light on sophisticated tools and implements that were crafted using local plant materials, for highly effective harvesting techniques necessary to survive and thrive in a harsh environment of extremes, as well as what is needed to preserve these key cultural practices.

COMBERTI, Claudia claudia.comberti@ouce.ox.ac.uk

The Impacts of Climate Change in Amazonian Indigenous Communities: The Role of Human-ecosystem Interactions in Supporting Adaptation and Resilience

The Amazon rainforest is a climate change hotspot, with impacts relevant (and already evident) at local, regional and global scales. The ecosystem is changing. Numerous and diverse indigenous communities, with livelihoods and knowledge systems evolved through generations of close contact with the rainforest, are being forced to respond. Like many indigenous communities worldwide, they are amongst the first and more severely hit by environmental change. The situation thus offers a unique opportunity to investigate and improve understanding of the human-environment interactions that support resilience to environmental change. Given the pace of these changes and the risk of loss of cultural and environmental diversity, it is critically important to improve understanding of these interactions to better support positive adaptation. Ecological-anthropological research was undertaken in 2014-15 amongst four Tacana Indigenous communities of the Bolivian Amazon. The research focuses on the communities' perceptions of and responses to recent extreme events, such as the severe flood and ensuing drought of 2014, and changing rainfall patterns and rising temperatures; each a possible early example of climate change. Ecological impacts and changing interactions between these communities and their ecosystem are also studied. Research findings offer insights into the factors important in supporting the resilience of these and similar communities and their local ecosystems. Future challenges given the predicted acceleration in climate change impacts, and how positive adaptation can be supported in light of this, are considered. Finally, the potential significance of findings for understanding adaptation and resilience amongst human-ecological systems worldwide is considered.

CURREY, Robin C.D. robin.currey@gmail.com

Impact Evaluation of an Ethnoecological Approach to Home Garden Development

An ethnoecologist, an international development organization, and a microfinance institution developed and implemented a home garden development initiative blending ethnoecological and agroecological approaches to improve horticultural and home garden management practices in Kyrgyzstan for food security. Pre- and post-initiative, a cohort of 602 households, both participants in the development initiative and non-participants, were surveyed from eight villages to evaluate adoption rates and changes in income. Both pre- and post-surveys showed that there were significant rates of adoption for nearly all techniques with direct participants having higher rates of adoption of management practices that impact long-term yield-- and thus

income, sustainability and stability -- such as composting, thinning of fruits, grafting and seedling establishment. There was a direct link between the adoption of management techniques and increased household income. Targeting home gardens for agricultural development initiatives based on prior ethnoecological research and agroecological principles improves management practices and household income.

D'ALPOIM GUEDES, Jade jadeguedes@gmail.com

Modeling the Spread of Agriculture: An Example from the Eastern Tibetan Plateau

New data from the Eastern Tibetan Plateau allows us to understand how populations dealt with the challenges of moving crops into altitudinally constrained environments. Despite the interest in explaining the timing and the mechanisms via which agricultural products spread to the roof of the world, current models for the spread of agriculture to this region have been simplistic, and the presence of crop domesticates is often straightforwardly interpreted as indicating the existence of an agricultural system at the site. This is largely due to a fundamental lack of understanding of where crops could be grown in prehistory on the Plateau. Although it has generally been assumed that moving agriculture into this area was challenging, little work has specifically addressed the constraints imposed on humans as they moved crops into this area. Employing an agro-ecological niche model, we formally model the constraints that were faced by humans as they moved a series of crops into the Tibetan Plateau between the 4th and 1st millennium cal. BC. Based on the results of this analysis, we argue that sites that have been previously considered as engaged directly in agricultural production may have been more distantly connected to an agricultural lifestyle than previously thought.

DAVIS-KING, Shelly shellydk@frontiernet.net

Historic Cuisine of the Sierra Miwok

The first people of the California were fortunate to live in a place of environmental abundance. This was as true of the Pacific coast habitats as it was of those in the interior and mountains. The Miwok of the Sierra Nevada lived where there was an abundance of nuts, berries, greens, allium, birds, game, and more from which to create their menus, but they also constructed their own food niches to insure or improve survival. While long term storage and times of famine might affect the deliciousness of food, overall, the people had a very balanced and nutritious diet, and cared greatly about how and why they put foods together. This presentation will discuss some cooking techniques and recipes acquired from Sierra Miwok over the last 40 years, and will provide some observations on the intrusion of Spanish and Old World foods on their cuisine.

DEAN, Rebecca; Shelby SPRY rdean@morris.umn.edu

Feasting, Paraphernalia, Tools, or Agricultural Pests? The Meaning of Artiodactyls at the Marana Platform Mound Site, Arizona

The Marana Platform Mound site, near Tucson, Arizona, was a Hohokam Early Classic period community center (A.D. 1150-1350). Lagomorphs make up the majority of faunal remains from the site, while artiodactyls (deer, pronghorn antelope, and bighorn sheep) are a significant minority in the assemblage. Artiodactyl remains were brought to the site through human agency, but their location of origin and their meaning at the site is far from clear. Artiodactyl meat was certainly consumed, but spatial patterns of artiodactyl bones, cultural modifications of bone, ritual deposits of bone and antler, metric analyses, and bone representation combine to suggest that the meat from artiodactyls was consumed and shared very differently than the

meat of lagomorphs, and that the bones (and antlers) themselves were just as important – if not more important – than the meat.

EASTON-CALABRIA, Lena

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Ayahuasca Use and the Positionality of the Shaman in the Peruvian Amazon Rainforest

The shaman is a historically important cultural and healing figure in the Madre de Dios region of the Peruvian Amazon rainforest. Shamans work with the ayahuasca vine, a cultural medicine and strong hallucinogen. The knowledge of shamans and use of ayahuasca is changing with recent influxes of tourism. Research aims are to document the changing positionality of the shaman and effects of tourism on shamans' ethnobiological knowledge. The research question is: how do the local indigenous and touristic worlds position shamans and their ethnobiological knowledge, and how do shamans respond to pressures that arise at the intersection of these two worlds? Study locations are the city of Puerto Maldonado, Peru and three remote indigenous communities on the Las Piedras River, 50 to 200 kilometers from the city. These communities are part of the Yine tribe, and hunt and gather for sustenance. Methods used are participant observation, interviews, and visual/auditory anthropology. Data will be analyzed to improve understanding of local indigenous and touristic views of the shaman. The results of this research will be significant to understanding the shaman's current knowledge and role and effects of tourism on this role, as well as the impact of globalization on ethnobiological knowledge.

ELOHEIMO, Marja

Eloheimo@evergreen.edu

Cultivating Relationality: Twenty Years in the Longhouse Ethnobotanical Garden at Evergreen

This presentation revisits the Longhouse Ethnobotanical Garden at The Evergreen State College in Washington State twenty years after its inception. These years have presented resistance, required resilience, and demonstrated the powerful role an ethnobotanical garden can play as a teacher of relationality. In this presentation, eco-cultural-social relationality is discussed, teaching associated with the garden (and a forthcoming Indigenous Arts Campus) is described, and relational student outcomes are explored in several areas including identity and place, agency in community-based healthcare, concepts of medicine, and Indigenous authority. Student voice is heard.

~~ERHABOR, Joseph; Odaro TIMOTHY; MacDonald IDU ————— erhaborjoseph@yahoo.com~~

~~**Common Medicinal Plants used in the treatment of some skin diseases among the Itsekiri people of Warri South Local Government Area of Delta State, Nigeria —**~~

~~Ethnodermatological data were collected from the Itsekiri people of Warri South Local Government Area of Delta State between February and September, 2009. The study was carried out in 3 communities (Okorode Itsekiri, Okorode Urhobo and Ogbejaw) within the Local Government council Area. The data were gathered from 15 randomly selected Traditional healers/herbalists with the aid of a structured questionnaire. A total of 30 medicinal plant species belonging to 21 families and 30 genera were of ethnodermatological importance for the treatment of 17 skin diseases. Herbs and trees form the most used growth form and the fruit being the most cited plant part in a greater number of the remedy preparations. Most of the remedies were prepared from a single plant source with other ingredients and a few common plants. The contributions of this study towards the understanding, documentation and safeguarding of indigenous knowledge and the possible utilization of the plants for greater economic uses were also highlighted.~~

ERLANDSON, Jon M.

Paleoindian Use of Shellfish on California's Northern Channel Islands

California's Northern Channel Islands have produced some of the earliest evidence for seafaring, maritime adaptations, and aquatic resource use in the Americas. Here, I summarize what is known about patterns of Paleoindian shellfish use at ten Paleocoastal sites on San Miguel and Santa Rosa islands dated between about 12,200 and 11,000 calendar years before present (cal BP). These Terminal Pleistocene sites have produced shellfish remains that are mostly dominated by cool water and rocky shore taxa (i.e., red abalone, California mussel) harvested from rocky intertidal habitats. One site on eastern Santa Rosa Island has produced the remains of estuarine clams dated to ~11,100 cal BP, however, representing some of the earliest direct evidence for human exploitation of estuarine habitats in North America. The earlier assemblages also appear to be dominated by cold water species probably associated with a Younger Dryas cooling of sea surface temperatures in the northeastern Pacific. When considered as a whole, these Channel Island shellfish assemblages suggest that Paleoindian peoples regularly harvested a variety of shellfish from nearshore habitats on the Northern Channel Islands. Many of these sites are also associated with the remains of aquatic vertebrates and sophisticated hunting equipment that indicate a broad-based maritime economy that was probably supplemented significantly with terrestrial plant foods, especially carbohydrate-rich geophytes.

FORMICA, Francesca; Elizabeth OLSON formicaf@allegheny.edu

Community Development Amongst the Chakra: An Analysis of State-Led Programs

The Chakra is a traditional Ecuadorian household garden that is essential to the environmental, social, and physical health of small, rural communities. This poster analyzes the relationship between the Kichwa concept of the Chakra and community development programs, which seek to promote ecotourism and environmental conservation to preserve the cultural integrity in the Ecuador's Archidona region. This work presents an examination of the roles of traditional landowners (chagramamas y chagrayayas), state employees, municipality programs, and outside influences. The goal of this poster is to concretely define these relationships and analyze the effectiveness of the current programs to propose potential improvements for the benefit of the community and the municipality of Archidona, Ecuador.

FOWLER, Cynthia fowlerct@wofford.edu

Socioecological Processes in the Science of Planetary Change

This presentation seeks to further understandings of human encounters with socioecological change and also of the socioecological processes in the science of planetary change. In this presentation, I interpret the space-time involvements of social groups. Using one filter, I do basic science by examining the ways Indonesians construct the monsoonal landscapes which they communicate about, within which they move, and where they interact with other constituents of their environments. Using an alternate filter, I engage basic science by deconstructing the ways geospatial technologies produce scientists' visualizations of changing landscapes. Whose purposes do geospatial scientists serve in documenting the anthropogenic drivers of global environmental change? What is at stake in imaging land cover change? Who benefits and who does not benefit from geospatial science? This presentation both participates in and critiques Earth imaging projects.

GARINEAUD, Clément cgarineaud@mnhn.fr

Ethnophycology: When Names Reflect Seaweed Harvesters' Knowledge and Practices

If numerous research in ethnobiology have addressed the link between human societies and a specific part of the living world - mushrooms and ethnomycology, fish and ethnoichthyology - an important relationship for many coastal societies seems hardly studied: the one with seaweed. We intend to lay the foundations for an ethnophycology - knowledge, skills and representation related to seaweeds - based on the analysis of algal names collected during ethnographic observations and interviews conducted with collectors during an eight-month fieldwork in Brittany (France). Practiced for centuries in this coastal area, seaweed collecting has been subjected to profound socio-economic and technical changes. It brought new tools, new species harvested, new knowledge and new practices. The names used reflect the dynamics of traditional ecological knowledge (TEK) developed by the collectors, as well as the hybridization process.

~~GBADAMOSI, Idayat gita4me2004@yahoo.com~~

~~**Botanicals used as Antimalarials in Southwestern Nigeria**~~

~~In view of the cultural practice of the use of botanicals in treatment of diseases and the prevalence of malaria in Nigeria, this study investigated traditional recipes used in treatment of malaria in southwestern part of Nigeria. The respondents were 50 Traditional Medicine Practitioners with minimum of 10 years of experience in traditional medicine. The interview was conducted in Yoruba language. The recipes, plant parts used in regimen, methods of preparation and administration were recorded. This research documented 80 botanicals from 46 families and 60 traditional recipes. The most important plant family was Fabaceae. The frequency of priority species in recipes was *Carica papaya* L. (22%); *Xylopiya aethiopica* (Dunal) A. Rich. (18%); *Tetrapleura tetraptera* (Schumach. & Thonn.) Taub. (22%); *Alstonia boonei* De Wild (17%); *Morinda lucida* A. Gray (12%) and *Mondia whitei* (Hook. f.) Skeels (12%). This study presents a long list of antimalarial botanicals for future research activities.~~

GENDRON Fidji; Leanne STRICKLER fgendron@fnuniv.ca

Aboriginal Youth's Perceptions of Traditional and Commercial Tobacco

In Canada, smoking among Aboriginal youth is a public health concern. Aboriginal youth start smoking earlier and have higher prevalence rates than non-Aboriginal youth. The purpose of the study was to examine Aboriginal youth's knowledge on ceremonial and commercial tobacco, its cultural importance, and its health impacts. Study participants (grades 5 to 9, n= 25) attended workshops at the First Nations University of Canada, Saskatchewan. Workshops were taught by an Elder, a biologist, and a public health inspector and consisted of traditional teaching of tobacco in the Aboriginal culture, activities with native plants commonly used in ceremonies instead of commercial tobacco, and the health impacts of cigarette smoking and cessation options. Participants answered pre- and post-workshop surveys. Preliminary results indicate that participants recognized more traditional tobacco uses and identified more native plants after the workshops. Perceptions and beliefs were changed after the workshops.

GILL, Kristina M.

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Paleoethnobotany and Native Plant Use on California's Northern Channel Islands

The abundance and diversity of terrestrial plant resources on the northern Channel Islands off the Santa Barbara coast vary in terms of island biogeographic distribution. These plant resources provided food, medicine, and raw materials for island populations. However, island plant resources have long been described in the literature as “depauperate,” an idea based largely on direct field observations of a flora decimated by historical overgrazing practices, yet one that has greatly influenced our interpretations of archaeological data. A growing body of recent paleoethnobotanical research focused on carbonized plant remains indicates that prehistoric island plant resources were more abundant and diverse than previously thought. A remarkably consistent use of plant foods at the Diablo Valdez site (SCRI-619/620) on Santa Cruz Island is evident, with no significant change in densities of various plant foods over nearly 6000 years of occupation. Furthermore, plant remains from grassland habitats dominate the island archaeobotanical assemblages, and may support ethnohistorically documented landscape management of grasslands using fire. I discuss paleoethnobotanical data from various island sites dated to between 10,500 years ago and the Historic Period, providing important information about human responses to terrestrial paleoenvironmental change. These data also have implications for modern restoration and land management decisions.

GOLLIN, Lisa X; Clay TRAUERNICHT

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The Wicked Problem of Wildfires in Hawaii and the Critical Role of Place-Based Environmental Knowledge of Firefighters Responding to Novel Fire Regimes

In Hawaii wildfire occurrence is growing exponentially. The proportion of land burned annually is equal to or exceeds rates on the continental US. Anthropogenic ignitions in the Wildland-Urban-Interface; invasion of nonnative, fire-prone grasses; and a warming, drying climate all demand firefighters adapt to radically new variables. Orographic geography and microclimates add another layer of complexity to the Wicked Problem of Hawaii's inflammatory environment. Systems for predicting fire behavior based on mainland models are insufficient for Hawaii where grasslands ignite and spread fire more quickly in conditions of high humidity unprecedented in tropical grasslands worldwide. Place-based-knowledge of island microenvironments is essential to containment strategies. Through ethnographic research with firefighters and discussions with paniolo (Hawaiian cowboys-ranchers) —de facto first-responders—we show the evolving oral history among firefighters adapting to novel fire regimes; local taxonomies of grasses and the grass-fire-cycle, microclimates, natural-cultural resource considerations and observations of environmental change suggesting new models for fragile island ecosystems.

GONELLA, Michael P.; Daryl W. BALDWIN II

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Myaamia Ethnobotanical Research for Cultural Revitalization

This presentation describes the process related to revitalizing traditional plant knowledge of the Myaamia community of the upper Midwest U.S., Oklahoma, and Kansas. This process will be illustrated using three plants: myaamia miincipi (Corn, *Zea mays*), leninsi (Common milkweed, *Asclepias syriaca*), and ahsapa (Indian hemp, *Apocynum cannabinum*). Process steps will be covered, including: (1) Prioritization of Myaamia community research needs regarding traditional plants, (2) Traditional knowledge gathering methods, including examination of historical language documents, participatory research, and direct interviews with tribal members, (3) Working with Myaamia linguists to understand and reconstruct traditional plant knowledge from historic documents, and (4) Application of gathered knowledge to language revitalization and re-engagement of community members with the land.

GOSFORD, Robert; Myfany TURPIN; Felicity MEAKINS; Felice WYNDHAM bgosford@gmail.com
Ethnoornithology on the Wall - Bird Knowledge Posters From Around the World

In many cultures birds indicate events and elements in the environment and can be harbingers of news through their role in tradition and mythology. Birds can signal where water can be found, the presence of game or other food, seasonal events, as well as danger or bad news and as indicators of ecological and social events. First developed as part of the "Cultural Signs Project" at the Charles Darwin University in Australia, a template readily adaptable to illustrate local cultural and language knowledge of birds has been developed and applied by a number of Australian Aboriginal language groups and at least one European language (Welsh). These posters are the result of collaborative work with highly-skilled Aboriginal language speakers, ornithologists and linguists and have proven to be valuable for the elicitation of other aspects of local bird knowledge, including behaviour, habitats, breeding biology and links to cultural and traditional beliefs and customs. These posters are also suitable as a language aide in schools, as a means of transmitting cultural knowledge between generations and cultures and as a support tool for local land management programs.

GOSFORD, Robert; Myfany TURPIN bgosford@gmail.com
Bird is the Word - Doing Ethnoornithology on Kaytetye Country

The Kaytetye are an Indigenous people whose country lies 300km north of Alice Springs in Australia's Northern Territory. In April 2014 we—an ornithologist and linguist—conducted four days of fieldwork with senior Kaytetye speakers on their homelands to understand their knowledge of birds. In an effort to clarify a number of anomalous and outstanding issues in localized bird species identification and classification we used a multi-modal methodological approach: flash cards and audio files of birds restricted to the region. Here we present preliminary results of this fieldwork and analyze the effectiveness of these and other tools for the elicitation of bird identification and local traditional bird knowledge. In particular, we found that using bird calls as a stimulus for discussion revealed ecological knowledge such as temporal and spatial (height) distribution of birds, the use of bird names as personal names and onomatopoeic basis of many Kaytetye bird names.

GOSLER, Andrew andrew.gosler@zoo.ox.ac.uk

A Nightingale by Any Other Name: Cultural Trends In English Folknames of Passerine Birds

The etymologist, Michel Desfayes, collated c. 100,000 European folk-names of birds across 11 languages, mostly from diverse published sources, and analyzed their linguistic roots. Of these, c. 7,000 English names refer to the British avifauna. Many of these were published in *The Zoologist* around the mid-19th century. This paper reports on a preliminary analysis of 3,297 such names covering 78 English passerine birds. The names reflect appearance, size, voice, behavior, flight, nesting biology, place, habitat, seasonality etc. and indicate an intimate knowledge of birds. The names are phenetic, contextual and quasi-systematic in structure. Familiar species are referenced iconically in the naming of less familiar species. But they also indicate an affection for the birds, and suggest that particular forms of name, especially of the most familiar and iconic species were intended to aid children's learning of their birds. The significance of this to present cultural trends will be briefly explored.

GOULD, Elizabeth

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Is Ecotourism both Culturally and Ecologically Responsible? A Look at Protected Areas in Central and Northern India, Nepal, and Bhutan.

Is there a correlation between community involvement and satisfaction among local populations, and successful ecotourism? How do conservation areas and their consequent attraction of tourists affect local livelihoods and attitudes towards ecological protection? I visited a variety of protected areas in India, Nepal, and Bhutan, and observed the interaction between the local populations and the non-local staff and visitors at various lodges. This included environmental practices of staff, villagers, and visitors; attitudes towards conservation and local culture; community input into major environmental decisions; and whether impact evaluations were conducted. Although mostly based upon direct observation, I also asked open-ended questions to elicit general viewpoints and attitudes. I seek to understand if respect for local culture and true contributions from local populations helps to make conservation areas more successful. This measure of success is based upon conserving the land and its dependent species, as well as collaborative relationships with local populations.

GROFF, Kohanya

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Beyond Consultation: A Call for “Tribal Science” in Policy making

Popular buzzwords, “consultation”, “participation”, and “consent” infiltrate legal discourses that urge indigenous engagement in conservation and environmental policy processes. But what does such terminology really mean and what power comes with it? Does it provide a substantive means to translate political and scientific inclusion for indigenous peoples? Or is it simply a symbolic gesture - a transformation in policy discourse without implementation? At one matter is the difficulty long-established bureaucrats have in sharing power. At another is balancing a perceived dichotomized form of knowledge (indigenous knowledge versus Western science). A primary argument by California indigenes is that they are only allotted commenting privileges, a role with little power and influence to affect policy outcomes. Using a case study of the Marine Life Protection Act Initiative in California, this paper highlights goals and setbacks for including a “tribal science” that would allot California indigenes more meaningful participation in policy negotiations.

GUNAMONY, Christopher

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Ethnozoological Aspects of Kani Tribals in the Agasthiamalai Region of the Western Ghats, Southern India

Kanikkar is a tribal community living in the forests and its fringes of Agasthiamalai Biosphere Reserve of the Southern Western Ghats. The region is under the “Western Ghats - Srilanka Biodiversity Hotspot”. There are many settlements located inside the forests at various distances from general amenities. Kanikkar sustain themselves by hill agriculture within their settlements and supplement nutritional demands with wild edibles, hunting and fishing. The study is based on observations, interviews and personnel interactions with the tribals. The ethnozoological observations of Kanikkar include uses of 29 types of fishes, crabs, shrimps, clams and snails from the hill streams and other water bodies. It was observed that Kanikkar used 10 species of reptiles, 46 species of birds, 34 species of mammals, few insects and invertebrates for various purposes. The study also examines the type of tools used and the context of expeditions for harvesting resources and conservation implications.

GUZMAN, Aidee aguzman3@wisc.edu

Effect of Mexico-United States Migration on the Transmission of Plant Knowledge

Transmission of plant knowledge is affected by migration. Knowledge loss is especially important to rural communities whose diets are dependent not only on cultivated crops but on the local ecology. Ethnobotanical interviews using photographs of 20 wild or semi-wild Mexican plants were conducted to compare the plant knowledge and uses of the plants. Interviewees were Mexican immigrants in Yakima, Washington, and members from their place of origin, El Pedregal, Hidalgo, Mexico. This study examines how transnational migration affects plant knowledge present in a small rural community in Mexico and how migration affects plant use in the United States. I explore why the loss of ethnobotanical knowledge raises concerns for local ecosystem management and how some plant uses may only exist as cultural remnants.

HALLS, Cassie Elizabeth hallsc@uw.edu

Sharing the Knowledge: The Discourse and Practice of Indigenous Food Sovereignty in British Columbia and Washington

Food sovereignty is defined as a universal right to have control over the source and content of one's sustenance. The principles of food sovereignty are integral to Canadian First Nations' and Native American tribes' health, wellness, economic stability, and environmental consciousness. Cross-cultural knowledge sharing has been instrumental between native and non-native communities in defining food sovereignty. I address how the discourse and practice of food sovereignty has influenced the efforts of Native communities to reestablish their traditional food systems, and what role cross-cultural, participatory engagement and political alliance has within the food sovereignty movement. I argue that food sovereignty is a spatial and epistemological "contact zone" with points of commonality and contention. Through cross-cultural ethnographic accounts of scholars engaged with food sovereignty in Washington and Canada, I compile case studies of ally-ship and mentorship within specific communities. I develop guiding principles for "relational thinking" across boundaries of culture and ways of knowing. This response provides opportunities for productive and meaningful partnerships as well as ways to redefine and decolonize the language of the Food Sovereignty movement.

HAMERSLEY CHAMBERS, Fiona fionac@uvic.ca

The 'Lost' Berry Gardens: First Nations' Cultivation on British Columbia's NorthWest Coast

The past decade has seen a dramatic shift in our understanding of how British Columbia (BC) First Peoples managed landscapes and resources. No longer are these Peoples seen as 'passive hunter-gatherers' surviving in pristine natural environments. Rather, they are increasingly recognized as active agents responsible for managing complex ecological systems. Ethnographic evidence suggests that Northwest Coast First Peoples may have cultivated berry plants extensively in 'gardens', using practices such as burning, pruning, transplanting, fertilizing and the application of proprietorship to augment and significantly enhance fruit production. Today, however, few people know how these gardens functioned, or that they even existed. This poster describes my PhD research to identify, name, scientifically study and restore these 'lost' gardens. My poster provides background on the history of berry cultivation in this area, documents our search for the 'lost' berry garden of Roscoe Inlet, and showcases the experimental work I am conducting to test traditional management methods.

HAMMETT, Julia E.; Elizabeth REDINGER

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The Historical Ecology of Talepop, an Interior Chumash Settlement in the Santa Monica Mountains

Recent excavations at Talepop, CA-LAN-229, present an opportunity to revisit an important Chumash site complex and compare the archaeobotanical remains from 1000 year old deposits with those of more recent protohistoric and historic settlements ending with the last Chumash occupation around 1809. The Southern Coastal Californian landscape chronicles a comprehensive record of changes over time while highlighting the crucial role that fire plays in sustaining vegetation dynamics in the coastal mountains. Results from the plant analysis of Talepop deposits reveal patterns of plant use and possible resource management strategies that reflect broader changes in anthropogenic landscapes. Finally, a brief comparison of Santa Monica Mountain adaptations to several other cultural areas in California hints at a more comprehensive portrait of anthropogenic landscapes and historical ecology in California.

HARIYADI, Bambang; Puspa Widia WATI; Mashuri WAITE

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Edible Fruit Knowledge Distribution among the Orang Rimba

The Orang Rimba indigenous people of Bukit Dua Belas National Park in Sumatra, Indonesia are increasingly involved in shifting agriculture but still maintain their traditional practice of hunting and gathering. Both men and women are involved in collecting edible fruit in the forest. Children and youth also assist their parents in gathering wild foods. The involvement of the youth and children also means as a process to convey the Orang Rimba knowledge and tradition to the younger generation. This paper observes the distribution of knowledge of edible fruit among different sex and age groups in the Orang Rimba community. In general, all Orang Rimba have an extensive knowledge of the edible wild fruit. Adult men and women have similar levels of knowledge, while youth have significantly lower level of knowledge and children have the least knowledge of wild fruits.

HARP, Cyrus ~~_____~~ cyrusharp@berkeley.edu ~~_____~~

~~**The Importance of Insects as Food for the California Indians**~~

~~In aboriginal California, various insects were eaten. Ethnographic and historical data were analyzed to distinguish commonly eaten insects from uncommonly eaten insects. These data were analyzed to determine the ecoregions where insects were important food sources. The Indians of the foothill woodlands and valley grasslands used insects for food more than Indians in other ecoregions. In general, Orthoptera, certain caterpillars, and social Hymenoptera were the most eaten insects. Many other insects were eaten only when convenient to gather, and some were only eaten in great hunger.~~

HARWELL, Alexandra

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The Restoration of ka'q̄sx̄W, also known as Sweetgrass (*Schoenoplectus pungens*), in the Nisqually Delta: Case study of a Basketry Plant

In 2009, the Brown Farm Dike was removed in the Nisqually Delta resulting in the largest estuary restoration project in the Pacific Northwest through the reconnection of 308 hectares of reclaimed farmland with the natural tidal flow of the Puget Sound. The Nisqually Indian Tribe is an important partner in the restoration effort focusing on the restoration of 52 hectares on the east side of the Nisqually River. *S. pungens* is a culturally significant plant used in basketry that is common in wetlands across the United States. Typically, factors such as edibility and material use are not considered in restoration projects. The restoration of *Schoenoplectus pungens* in the Nisqually Delta is highly desired by the Nisqually Indian Tribe to reestablish a local gathering

ground for this plant. This study aims to evaluate the restoration potential for this plant within the estuary through the monitoring of planted stands in the area. Vegetative and site analysis of the estuary were done identifying local plant communities and the conditions for further site restoration.

HERRON, Scott herrons@ferris.edu

Using Prezi presentations to teach ethnobiology: an open source innovation?

This current generation of students, especially in the sciences, has come to expect PowerPoint presentations as the primary delivery mechanism for undergraduate education. Could Prezi presentations be a more dynamic alternative delivery software for both instructors and students? This presentation will discuss the benefits, challenges, and utilize a recent undergraduate course in Medical Botany to demonstrate. How does Prezi compare to PowerPoint, "Chalk and Talk", and other teaching strategies? This presentation hopes to open a dialog about how students learn, how teachers perceive student learning, and how we sometimes fall short on meeting the dynamic, digitally engaged Millennial Generation where they are at, online. The implications for intellectual property rights and open source verses closed courses will be explained and suggestions provided.

HOELLE, Jeffrey hoelleja@gmail.com

Seeing like an Amazonian Deforester

Amazonian research on human-environment interactions falls into two broad categories. A legacy of anthropological research examines the ways that indigenous groups use, categorize, and conceptualize their environment. On the other hand, environmental change research focuses on the destructive land use practices of migrant and non-indigenous groups. This presentation combines features of both approaches to examine of land use classification systems and the cultural values associated with forest and "non-forest" or "deforested" land in Amazonia. It draws on ethnographic and cognitive data collected among a range of land managers, stakeholders, and decision makers in the Amazon states of Acre and Para, Brazil.

HOPPA, Kristin; Kristina GILL kristinhoppa@gmail.com

Plant use at Diablo Valdez, Santa Cruz Island: Evidence from macrobotanical and starch grain remains

This paper considers both macrobotanical and starch grain evidence for terrestrial plant use at Diablo Valdez (SCRI-619/620) on Santa Cruz Island, California. This inland site consists of a rock shelter as well as an open-air living space, and was occupied from ca. 5900 years ago and into the Historic period. Macrobotanical remains were recovered from 140 liters of soil, while starch grain analysis was conducted on six bowl fragments. This paper contextualizes these results within a broader discussion of combining macro- and microbotanical evidence from four other sites on Santa Cruz Island. Starch analysis reveals a number of plants not represented in the macrobotanical record, demonstrating the importance of using combining these analyses.

HULL, Kerry; Rob FERGUS kerry_hull@byu.edu

Archetypal Harbingers: Ethno-ornithology and the Ch'orti' Maya

In this paper, based on our field research data among the Ch'orti', we describe the various ways in which the Ch'orti' interact with birds in daily life and in ritual contexts. We first examine local knowledge of birds, such as the cultural relationship between birds and spirits in Ch'orti' thought. Furthermore, we investigate the role of birds as messengers and harbingers, tracing the development of this notion from the Classic period of the ancient Maya to the present-day

Ch'orti'. Much more than simply a food source, birds are viewed as semi-divine seers, capable of foretelling a wide range of future events. Through an ethno-ornithological analysis we show how birds function as the principal messengers of future happenings, prognosticating positive and negative events such as love, sickness, death, and poor or successful hunting. Finally, we also discuss the use and presence of birds in ritual practice among the Ch'orti'.

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Documentation Of Medicinal Plants Used By The Idoma People-Benue State, Nigeria

An ethnomedicinal survey of plants used by the Idoma people of Benue state, Nigeria was carried out using a semi-structured questionnaire via oral interview of the Traditional Medicine Practitioners (TMPs) and knowledgeable respondents by random sampling at different sites within the Local Government Area. Fifty knowledgeable respondents were consulted for information on the plants used for curative purposes. A total of 63 plants belonging to 36 families were identified. Their botanical names, ailments treated, plants parts used, mode of administration and their pharmaceutical forms were provided. Data were analyzed in the forms of 'specific flora' and 'general floral'.

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Understanding Secwepemc Bird Talk

In the Shuswap language, Secwepemctsin, birds' talk to humans, and humans' talk to birds, is part of interacting with the land, the plants, animals, and the world around us, what we call Secwepemcúl'ecw. To a small extent, Interior Salish "bird talk" has been documented linguistically. However, beyond disciplines, and accounting not only for linguistic form but also for ecological interactions, we provide an account here of how Secwepemc bird talk operates on a variety of levels: 1) we hear bird talk on the phonological level - what language is "read" into bird song or "bird talk" that is translated into how Secwepemc speakers relate to such bird talk around phonetic/phonological and prosodic paradigms in a given language, 2) how were/are these translated and transliterated into human messages around representing lines of "character speech" or memorable lines, and moreover, 3) what ecological messages do such bird talk lines give us, and what knowledge can we draw from these - within and across the issues that face indigenous communities?

IMRAN, KhanY. D.; Nautiyal SUNIL; K. BHASKAR; K. P. RASHMI

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Impact of Culture On Biodiversity Conservation: A Review From Hindu Mythology

This paper focuses on the role of Hindu cultural beliefs in conserving biodiversity. According to Ishopanishad "This universe is the creation of the supreme power meant for the benefit of all His creations. Individual species must, therefore, learn to enjoy its benefits by forming a part of the system in close relation with other species. Let not only one species encroach upon the other's rights". Gods worshipped in the Hindu religion are symbolic of different organisms. The main aim of this paper is to understand the role of Hindu sculpture for conserving biodiversity. There are several evidences are showing positive links between cultural and spiritual aspects towards biodiversity conservation. The methodology followed was reviewing of Upanisads, Bhagavadgeeta and other mythological books of Hinduism. Also we approached various age group peoples to understand their views regarding cultural and spiritual aspects of biodiversity conservation. Most of the elderly people perceived that there are rituals and rules in Hinduism which favor conservation of biodiversity.

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Eewansaapita: Meehtohseeniwinki Ašiihkionki – A Myaamia (Miami Indian) Youth Program: “Living on the Land”

Myaamiaataweenki (the Miami language) ceased being spoken in the 1970s and was subsequently reclaimed from dormancy in the 1990s. In 2005, the Miami Tribe of Oklahoma created the Eewansaapita Summer Youth Educational Experience to teach tribal language and culture to Myaamia youth ages 10-16. A powerful example of the interwoven connections between language revitalization and the revitalization of ecological knowledge came in the 2013 program, which was titled: “Meehtohseeniwinki Ašiihkionki” (Living on the Land). This program focused on teaching the Myaamia lunar calendar system in connection with ecological processes that the calendar was historically used to track. This paper will summarize the process of revitalizing ecological knowledge from the linguistic records and transforming these materials into youth educational programming.

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What the Current Drought Can Tell Us about Prehistoric Water Scarcity on the Santa Barbara Channel Islands

Periods of drought have punctuated Southern California since before the region was inhabited. Debates on whether the Chumash adapted to their environment or were forced to make extreme socio-political change do not typically take potable water into detailed account. This poster compares data during the current drought on available water with the archaeological evidence for shifting settlement patterns, declining health and increased interpersonal violence during the Medieval Climatic Anomaly (AD 800-1350) on the Santa Barbara Channel Islands.

JOHNSON, John R.

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The Importance of Small-Sized Fishes in Chumash Subsistence

In 1542 Juan Rodriguez Cabrillo bestowed the name "Pueblo de las Sardinias" on the large coastal town of Syuxtun on the Santa Barbara waterfront, signifying that clupeids were a major component of the catch of Chumash fishermen. This inference is supported by the large quantities of clupeid vertebrae present in both coastal and inland archaeological assemblages during the Late Period. The recognition that small-sized fishes supplied a major source of protein in the Chumash diet has implications for our understanding of other aspects of native economy. Considerable labor must have been expended to gather plant fibers, make cordage, and manufacture nets used to capture sardines and other small species.

JOHNSON, Leslie Main

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An Ethnobiological Look at Snowshoes (Northwestern Canada)

Snowshoes are a key technology for getting around in places with significant winter snowpack. I examine materials, designs and traditional tools for making snowshoes in northwestern Canada. My presentation will focus on snowshoe design and materials for the Witsuwit'en and Gitksan of Northwestern British Columbia, the Teslin Tlingit of the Yukon and the Gwich'in from Teet'lit Zheh, Northwest Territories. The paper is based on interviews with two snowshoe makers and several other knowledgeable Elders, examination of extant snowshoes of various designs, and examination of traditional snowshoe netting tools in the (then) Canadian Museum of Civilization. Shapes, types of wood, and netting materials are key variables. Snowshoe frame materials included Douglas maple (*Acer glabrum* var *douglasii*), pine (*Pinus contorta*) or spruce, (*Picea* sp.) and birch (*Betula papyrifera*). Webbing included cowhide, deerhide or caribou hide

babiche, or sinew. Linguistic data on terms for snowshoes, materials and snowshoe tools were also collected.

JOHNSON, Leslie Main ; Janelle Marie BAKER janelle.baker@mail.mcgill.ca

Electronic Ethnobiology: Connecting Students to Nature and Culture Online

Athabasca University, a Canadian University founded in 1970, specializes in online distance education. Students come from a wide range of academic and geographical backgrounds, with some registered at traditional universities looking to complete their course requirements for example, with others coming from remote locations in the expansive Canadian north, including Aboriginal communities. Johnson designed an online undergraduate self-directed asynchronous ethnobiology course over a dozen years ago and has been teaching it since, with Baker joining her as a tutor (in the British sense) over seven years ago. Johnson also offers a graduate level ethnobiology course online. We will describe the structure and practicalities of the courses, followed by a discussion of the challenges and benefits of teaching ethnobiology online. In particular, we will focus on techniques used for engaging students from a distance with ethnobiology in their own lives, and in local, Canadian, and global contexts.

KAUR PURI, Amit inventionanddiscovery@gmail.com

Biomedical Prospects of Unconventional Green Leafy Vegetables for Anemia Management

The massive problem of iron deficiency leading to anemia has spread all over the world. Distribution of iron in five leafy vegetables viz. *Achyranthes aspera*, *Alternanthera sessilis*, *Amaranthus blitum*, *Cassia tora* and *Oxalis corniculata* were evaluated and the obtained amount of iron in them were compare with the other leafy vegetables. Future prospects of present work aims for eradicating anemia from the very root by increasing consumption of the iron rich green leafy vegetables.

KINDSCHER, Kelly kindscher@ku.edu

The Melvin Gilmore Legacy and Model for Historical Ethnobotanical Research

Melvin Gilmore (1868-1940) was a pioneering ethnobotanist who wrote over 60 papers and during his career studied the ethnobotany of the Arikara, Dakota, Lakota, Objibwe, Omaha, Osage, Oto, Pawnee, Ponca, and Winnebago, Potawatomi. He had Parkinson's disease in his later years at the University of Michigan and left some work unfinished. His field notes, correspondence, and papers at the Nebraska and North Dakota historical societies, the University of Michigan and Smithsonian archives are treasure troves of unpublished information. I will discuss library and research techniques I used for uncovering this historical information while discussing the rich history of his work. I photocopied and photographed several thousand pages of notes and organized them. There are providing insights to my current research on Echinacea, Physalis, and Ligusticum species, and on a Arikara tribal ethnobotany. I will discuss how similar techniques could be used with many other historical ethnobotanists.

KIRNER, Kimberly kkirner@csun.edu

"Knowing is from the Old People": Stories of Water, Place, and Climate Change

As part of an interdisciplinary project focused on understanding how climate change indicators are perceived and managed by various stakeholder groups, eight Paiute elders were interviewed about their local knowledge and experience of change in water availability and plant communities. Depth interviews and participatory mapping of 69 sites of cultural significance revealed interesting ways that folk knowledge of long-term environmental change may be transmitted through story-telling. While long-term environmental change is certainly perceived

and discussed in the narratives, contextualizing participants' voices historically and politically explains how and why "climate change" may be understood differently from the ways in which it is described by Western science and land and water management agencies. Finally, these preliminary interpretations are re-articulated with the broader research agenda, explaining how a broader, more inclusive perspective on climate change can productively inform future research.

KULIP, Julius; Piriyaadharshini MANIAM; Johnny GISIL; Boni JAUMIN — julkulip@yahoo.com

~~A Survey of Ethnobotanical Plants used by the Dusun People inside 20 m x 20m plots in Trus Madi Mountain Forest Reserve, Tambunan District, Sabah, Malaysia~~

~~The objective of this research was to investigate the diversity of ethnobotanical plants used by the Dusun people in Kaingaran village in three types of vegetations in Trus Madi mountain Forest Reserve, Tambunan District, Sabah, Malaysia. The three types vegetations surveyed were namely Lowland Mixed Dipterocarps Forest, Lower Montane Forest and Upper Montane Forest. Three replicates of 20 m X 20 m plots were established at each types of vegetation. A total of 230 ethnobotanical plants were enumerated, which comprised 86 species in 46 families. Shannon Weiner Diversity Index (3.403) and Simpson Diversity Index (0.9724) indicated that the Lowland Mixed Dipterocarps Forest has more species richness and was more diversified compared to other types of vegetation. The ethnobotanical plants can be classified to eight usage namely, medicinal, constructions, edible fruit, edible greens, animal fodder, handicraft, kitchen's utensils and firewood. This study had added 37 more species as new records of ethnobotanical plants found in Trus Madi mountain Forest Reserve. Keywords: Plot survey, ethnobotanical plants, Dusun people, Kaingaran village, Tambunan, Sabah, Malaysia.~~

KUZIVANOVA, Valeria; Marvin, MCDONALD — vkuzivanova@yandex.ru

Dancing Wild Rice Anew: Young People and Eco-Cultural Restoration, Wabaseemoong Independent Nations, Canada

The Wabaseemoong Independent Nations (WIN) community in northwestern Ontario, Canada, has a long tradition of harvesting wild rice. In the 1980s, this practice was disrupted, not only due to the destruction of the plant's habitat, but also due to socio-cultural and economic changes. In this paper, we discuss an eco-cultural initiative of WIN to restore both the plant and people's inter-relationship with wild rice. Young people, whose participation is required for long-term inter-relationship re-establishment, were actively involved. Data on their knowledge, motivations for participation, and perspectives on restoration were documented through interviews. Workshops for both Elders and young people helped to design a prototype of the wild rice camp, which was tested in 2014. Also, a workshop for teachers allowed for the identification of the school priorities. After this workshop, teaching materials were developed and potential links of wild rice knowledge to the Ontario curriculum were explored.

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Bone Bead Production and Technology from the Early-Middle Holocene Occupation at the Irvine Site (CA-ORA-64), Upper Newport Bay, Orange County, California

The production of beads cut from the limb bones of small animals has a long history in the California Culture Area, culminating in the Historic Period. The production of cut bone beads was occurring as early as ca 9000 B.P. at the Irvine Site, CA-ORA-64. These beads and associated production wastes comprise more than 80 percent of the 9,520 modified bone specimens recovered from the site. The beads were made from the bones of birds, rabbits and medium sized carnivores by cutting grooves around the circumference of each bone using bifacial stone

tools. Decoration in the form of one or more shallow grooves was added to some beads. Multiple forms can be defined using length and diameter, decoration, and external shape as criteria. Most of these beads were recovered from the earliest of the three periods of occupation at ORA-64, ca 9000 B.P. to 7300 B.P.

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Historical Ecologies of swätix^wtäd in the Duwamish-Green-White River Watershed of Washington State

This project used archaeobotanical, ethnographic, and historical evidence to enhance our understandings of the co-production of people, plants, and place in the historic Duwamish-Green-White River Watershed in Washington State. I compared the archaeobotanical record with regional ethnographies to analyze the role that plants played in pre-contact Coast Salish diets, and the interplay between the particular nutritional and ecological properties of plants and Coast Salish daily life. The primary goals of this project were 1) to augment the Burke Museum's Puget Sound Traditional Foods database with more information about plant use (both for food and as technologies), 2) to gain greater insight into indigenous stewardship of upland terrestrial habitats, and 3) to investigate the relationship between social networks and plant foods. The study provisionally affirms archaeological theories of resource intensification beginning ~2,500 – 3,000 years BP. The study also provides preliminary insight into the interplay between the location of particular plant foods in the watershed and Coast Salish social organization as documented in the ethnographic record. The higher proportion of root foods in the inland and montane sites gestures toward dietary differences between saltwater and inland villages, where carbohydrates may have played a more important role. This in turn may have shaped the extent to which landscapes were managed for culturally important root foods on the Enumclaw Plateau.

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Urban Foraging and the Relational Ecologies of Belonging

Through a discussion of urban foraging in Seattle, Washington, USA, we examine how people's plant and mushroom harvesting practices in cities are linked to relationships with species, spaces, and ecologies. Bringing a relational approach to political ecology, we discuss the ways that these particular nature–society relationships are formed, legitimated, and mobilized in discursive and material ways in urban ecosystems. Engaging closely with, and as foragers, we develop an ethnographically grounded 'relational ecologies of belonging' framework to conceptualize and examine three constituent themes: cultural belonging and identity, belonging and place, and belonging and more-than-human agency. Through this case study, we show the complex ways that urban foraging is underpinned by interconnected and multiple notions of identity, place, mobility, and agency for both humans and more-than-human interlocutors. The focus on relational ecologies of belonging illuminates important challenges for environmental management and public space planning in socioecologically diverse areas. Ultimately, these challenges reflect negotiated visions about how we organize ourselves and live together in cosmopolitan spaces such as cities.

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Care of the Seed: Plant Conservation and Multispecies Fostering

With seeds from over thirteen percent of the world's wild plant species already 'banked', seed conservation is a growing point of interaction between people and plants around the world. In this paper I will explore how the process of seed conservation may enable an intimacy within a liminal, multispecies space, in which seed conservationists work hard to learn about and care for their foster species. Examining the agency of the seed in the daily reality of the botanists and research biologists, I propose that 'the bank' offers suspension from the spatial and temporal disjuncture that can otherwise challenge human-plant relationships in the world beyond. In this context I ask what the study of human-plant relationships in the techno-science context can contribute to, and garner from more traditional ethnobiological research and suggest that liminality and ritual are an important part of this novel site of environmental interaction and multi-species respect.

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Ethnobotanical Experiences of Semillatón in the Sierra Tarahumara, Chihuahua, Mexico

Given the exceptional drought that wreaked social and economic disaster upon northern Mexico between 2010 and 2012, the Tarahumara community faced famine and the loss of planting seed stock for their traditional agricultural (mewachi). Collaboration among indigenous farámuri representatives, Mexican academic researchers (UNAM), Mexico's gastronomic community and local NGOs, and the country's governmental agencies (CONANP for natural protected areas, INIFAP for agricultural research, and national affiliates of the international FAO) established the project: "Semillatón, acompañando a la Sierra Tarahumara." Under controlled conditions, the initial phase augmented maize seed stock for five (of 12) races of maize (sunú) for distribution in the 2013 and 2014 agricultural seasons to 591 strategic indigenous producers impacting 2,234 local end users. Follow up activities include capacity building workshops, participative plant improvement, community seed banks, capture and management of rain water for domestic use (including irrigation), as well as technical adaptations that improve their traditional maize-bean-squash-quelite (edible greens) cultivation system.

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Representations of Rural Areas in Urban Space: Urban Agriculture and Conservation of Biodiversity, a Case Study In Piracicaba-SP

The representations of ruralities in urban support for the development of urban agriculture practiced especially in empty spaces in urban areas such as vacant lots and public areas, being practiced in like manner of family farming. From a new issue of agriculture can be practiced in rural or urban areas, this work is to focus discover the representations of rural areas in urban space emphasizing the different practices developed by these actors. Take into account the theoretical assumptions of pluriactivity and multifunctionality from the rural traditional agriculture, in this case applied to urban agriculture in Piracicaba-SP as a case study. The organizations of these urban gardens are examples of the application of the representation of rural areas in urban environments. It should be noted that the development of these activities helps an urban organization leading to a welfare site and contribute greatly to the local economy and conservation of agro-biodiversity.

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Changing Land- and Seascapes: Impacts of Environmental Change on Livelihoods, Subsistence, and Knowledge and Use of Wild Plants in Coastal Louisiana's Tribal Communities

Environmental and technological disasters, extractive industries, river mismanagement, and climate change are drastically transforming coastal Louisiana's sea- and landscape. These natural and human-initiated processes are threatening communities' ability to remain in the places where they have lived for generations. In the context of rapid environmental change, this presentation brings together two studies focused on the displacement, subsistence, and livelihood impacts and the changes in medicinal and edible wild plant knowledge and use in tribal communities in coastal Louisiana. It includes findings on loss of subsistence, cultural practices, plant use, and associated knowledge, as well as the strategies the tribes are using to adapt to a changing environment and a transforming subsistence-based livelihood.

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Preliminary Analysis of Ichthyofaunal Remains from The Tule Creek Village site (CA-SNI-25): Ecology and Technology

Archaeological evidence from the California Channel Islands has provided insight on the important role fish played in daily human subsistence practices. San Nicolas Island is home to a rich and diverse marine environment containing the largest kelp forest along the Southern California Bight. This study focuses on fish data from a late Holocene site, Tule Creek Village (CA-SNI-25), which contains residential features and a ceremonial complex. A detailed examination of the ecology of fishes present at CA-SNI-25 will allow for a comprehensive understanding of human harvesting at this site encompassing discussions of fishing technology and human procurement strategies. We provide a baseline of human-fish relationships from archaeological data collected from other Channel Island sites and link this data to the functionality and advances in regional fishing technology. By understanding human-fish relationships in a chronological context, we begin to explore large-scale patterns of fish harvesting practices along the Southern California Bight.

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Constructing Agricultural Niches in Pre-Contact Southwestern Ontario: A Look at Botanical Remains from Western Basin Tradition Sites

Human-plant interactions in southwestern-most Ontario during the early Late Woodland period (AD 1000 - 1300) are poorly understood. Until very recently, past peoples associated with the archaeological manifestation known as the Western Basin Tradition (WBT) were thought to have been hunter-gatherers, engaging with their landscape in stark contrast to their maize, bean, squash farming Iroquoian neighbors. While recent isotopic studies have revealed that, in actuality, these groups appear to be consuming similar amounts of maize, notions regarding supposed 'difference' in subsistence strategies and mobility surprisingly remain emphasized in our current understanding of these groups. This paper will provide an overview of paleoethnobotanical data which has informed the predominant WBT model, and provide a critique on the current framework. I suggest an approach to re-evaluating our previous constructs by looking at past anthropogenic landscape construction as a way to interpret interactions with their environment more meaningfully than in the past.

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Tupelo and Red Oak: Cosmopolitical Citizens in the Land of the North Carolina Tuscarora?

The Tuscarora artists of North Carolina fashion bread bowls out of tupelo wood (*Nyssa aquatica* L.) and mortars and pestles out of red oak (*Quercus rubra* L.) I explore to what extent one particular artist's work with these native plants strengthens his connection to the land, contributes to his Tuscarora identity, and potentially contributes to Tuscarora recognition claims (the Tuscarora of North Carolina have not been recognized by the government). I consider here the potential of these plants to become cosmopolitical citizens in a similar manner that Marisol de la Cadena observed plants and mountains perform this function among the people of the Andes. In other words, I consider in what ways the plants may be actively contributing to the tribe's identity and recognition claims. Simultaneously, I consider the work the artist does with the plants as an example of affective labor, in the tradition of Neera Singh.

McALVAY, Alex; Raymond PIEROTTI; Eve EMSHWILLER

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The Many Faces of Anthropogenic Evolution: Reconciling Isolated Lines of Research on Human-induced Selection under the Banner of Ethnobiology

Evolutionary research in ethnobiology needs to be effectively reconciled with other work concerning human-induced evolution. We suggest that these fields have been separated by different choices of organisms, interpretive lenses, disciplinary journals, and perceived consequences for human managers. Evolutionary ecologists provide numerous examples of evolution from selective fishing, hunting, timbering, and medicinal plant collection. These publications show minimal cross-citation with evolutionary research on ethnobiological topics (e.g. evolutionary effects of domestication and traditional resource management). We discuss opportunities for mutual enrichment between these compatible lines of research through a review of each literature and identify four promising areas for increased interchange: study systems, research questions, methods, and theory. We propose evolutionary ethnoecology as an umbrella term to unify these parallel research efforts with the hope that increased communication will contribute to a richer understanding of our evolutionary footprint.

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Evolutionary Consequences of Traditional Plant Management of Weedy Field Mustard in Mexico

We revisit a potential model system for evolution under traditional resource management: introduced field mustard (*Brassica rapa* L. *Brassicaceae*) in Latin America. With this system, we investigate whether various subsistence activities exert artificial selection on otherwise wild or weedy edible plants. Field mustard differs from commonly used systems in that it has abundant genomic resources and a short life-cycle, allowing for inferentially powerful research designs. We will discuss our integration of genetic, chemical, ethnographic, and morphometric analyses to address questions about the origins, ethnobotany, and human-induced selection of Mexican *B. rapa*. These efforts will focus on plants managed in Rarámuri, Tzotzil, and Mestizo communities, where field mustard has been incorporated into preexisting traditional management regimes and melded with post-colonial management practices. We expect this research to have implications for understanding subtle forms of anthropogenic diversity, mechanistic facets of domestication, and the formation of new management practices around newly encountered flora.

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Seed Sovereignty, Conservation and Patenting: The Protection of Intellectual Property Rights

Recognition of the importance of biodiversity for global food security and the community food sustainability movement has increased awareness of seed rights. The international treaties created to ensure the world's access to seed biodiversity includes access to seed banks for breeding purposes. Ethnobotanists are often required to deposit their studied plant material into government seed banks/herbariums. If the plants of Indigenous Peoples are then used for development of patented varieties are the rights of the originators of the seeds recognized? Their rights depend upon the recognition of Indigenous Peoples as plant breeders, the use of the multilateral system of the Plant Treaty to return benefits to local communities, and the recognition of the importance of plant patent's disclosure of origin requirements. This paper will review select international agreements and highlight how continued documentation of original use and development throughout conservation and breeding programs is paramount to ensuring their rights.

McLEESTER, Madeleine maddie@uchicago.edu

Leaving The Longhouse: 17th Century Pollen Evidence For Native American Mobility and the Seasonal Round

Historically, mobility and the seasonal round are often referenced as a central characteristic of indigenous identity within the American Midwest. Embedded within political negotiations throughout the colonial and post-colonial periods, the seasonal use of diverse resources is well established in the historical record; however, seasonal mobility has been problematic to investigate archaeologically because certain aspects of it are difficult to detect in the archaeological record. In this paper, I investigate seasonal mobility during the protohistoric period, just prior to European contact, through pollen analysis of sediment from a 17th century agricultural village, Oak Forest. In this study, pollen analysis provides a unique lens through which to capture protohistoric lifeways, and, in particular, demonstrates the seasonal actions of the site's inhabitants, actions that are not visible with other methods. This research suggests continuity with historical records in the seasonal, quotidian practices of a protohistoric community and the springtime procurement of firewood.

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Code of Ethics Latin American Society of Ethnobiology (SOLAE)

Since its conception in 2008, the Latin American Society of Ethnobiology (SOLAE) has been growing steadily, and includes members from 14 countries. As part of its commitment to the field of ethnobiology, an ethics committee was elected in 2012 with the mission to draft a Code of Ethics (CoE) for the Society to be presented for official approval at the IV SOLAE.

MEDINACELI, Armando manduche@gmail.com

Ethnobotany of Hunting: An Insight Into Tsimane' Traditional Hunting in Bolivian Amazonia

For the Tsimane' people, hunting and fishing (H&F) are a significant part of local livelihoods. In the villages of Cuchisama and San Luis Chico, H&F is practiced almost daily by adult men (>80% of hunting), and less frequently by male teenagers, women and children. A range of ethnobiological methods and reflection are being utilized with both villages to carry out a collaborative study on the use of plants in traditional H&F. While the project is ongoing, preliminary results show the use of over 20 plant ethnospecies utilized for the fabrication of bows, ropes, arrows, hunting indicators, and for fish poisons. The main objectives are the creation of educational publications and the production of a video documentary of the

fabrication and use of bows and arrows (in process), to be screened locally and internationally. Other H&F techniques are still in the process of being documented.

MELTON, Mallory melton@umail.ucsb.edu

Is the Grass Always Greener? Examining the Long-Term Impacts of Migration on Subsistence Strategies among Native American Newcomers to the Protohistoric North Carolina Piedmont

Migration not only has the potential to expose immigrants to immediate security threats from bellicose neighbors; newcomers who remain also face the daily challenges of surviving in unfamiliar and dynamic ecological and social landscapes. Using archaeobotanical, architectural, and bioarchaeological data from the Wall (A.D. 1400-1600) and Jenrette (A.D. 1650-1680) sites in Hillsborough, North Carolina, this paper will examine how initial safety concerns and European contact impacted the subsistence strategies of Native American immigrants to the region. In interpreting these data, I consider why certain foods were processed in these communities by women engaged in food production and collection and how adjusting to a changing social landscape may have influenced the exploitation of wild plants and the production of cultigens over time.

MESCHI, Renee rmeschi@pugetsound.edu

People, Plants, and Fungi: Examining the Ecological and Social Landscapes of the Swan Creek Park Food Forest

I begin with an outline of the ethnobotany of local Native American tribes. I then illustrate how waves of immigration intensified the complexity of the SCPFF site, incorporating nonnative and invasive plants to the site's biological narrative. I then outline a method for determining the informal names of plants and mushrooms that are important to today's diverse stakeholders, but difficult to translate because they are passed down through oral tradition. This research provides the basis for culturally and historically sensitive surveys and interviews that will allow for greater multicultural inclusion as the SCPFF develops.

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Traditional Knowledge of Mineral Resources and Their Implications in Canadian Law

Although most definitions of traditional ecological knowledge (TEK) consider local peoples' engagements with both living and non-living environmental constituents, far greater effort has been expended documenting human interactions with biotic members of environments rather than abiotic members. Indigenous peoples of North America have well-documented engagements in mining, using and trading geologic resources thousands of years prior to arrival of European colonizers. Using archeology, linguistics, oral traditions, ethnographic and history literatures, this paper explores Indigenous engagements with stone, mineral, metal and other resources as expressions in utilitarian, economic and cultural practices. In Canada, legal recognition of TEK has supported Indigenous claims to territorial title and access to resources. I examine Canadian legal precedents that suggest Indigenous peoples may have unrecognized subsurface rights to minerals. The importance of minerals to the Canadian economy and Indigenous community development, cultures and wellbeing suggests that understanding Indigenous relationships to minerals merits greater attention from ethnoecologists.

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Distribution of Oca (*Oxalis tuberosa*; *Oxalidaceae*) Diversity in Pisac, Peru, with Respect to Folk Classification, Morphology, and Microsatellites

Traditional crop diversity is vital to both agroecosystem sustainability and human health, and knowledge about varietal distribution and appropriate diversity metrics can strengthen efforts to preserve this biocultural resource. We use a case study of the Andean tuber crop oca (*Oxalis tuberosa*; *Oxalidaceae*) in Pisac District, Cusco, Peru, to assess household and community predictors of oca diversity, with diversity measured in terms of folk cultivars, morphotypes, and microsatellite-based genotypes. Results confirm expectations and informal observations that oca diversity is richest in more isolated communities and that rare varieties are most often conserved by elders. We evaluate opportunities and challenges associated with each diversity metric at this spatial scale, with special emphasis on traditional knowledge, phenotypic plasticity, and cost efficiency. Finally, we discuss the implications of our findings on both in situ and ex situ conservation efforts.

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But What Did They Really Eat? The Three Sisters as Food

Intercropped corn, beans, and squash, commonly called the Three Sisters, was a traditional cropping system used by the Haudenosaunee beginning in the 15th century and continuing into the early 19th century. While the agronomic characteristics of this system are well known, little attention has been paid to its food value. Could a diet depending largely on corn, beans, and squash supply the nutritional essentials for a Haudenosaunee community? I examine the food profiles of these three crops, in terms of energy (calories), protein, and some vitamins and minerals. The quantity of crops harvested largely determines the capacity of this cropping system to meet food needs. But, surprisingly, it also depends on when two of the crops, corn and beans, are harvested. I then compare the nutritional value of the three crops grown as monocultures with their food values when they are intercropped. The results are complex, but revealing.

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~~**Ethno-Ornithology as an Opportunity for Community Participation in Bird Conservation and Sustainable Use**~~

~~Bird habitats are increasingly under threat from a number of fronts. In Kenya, a high cultural diversity, represented by over 55 linguistically distinct indigenous community groups, poses a great potential in promoting sustainability by strengthening indigenous knowledge and practices that support conservation. Indigenous knowledge about birds can provide us with more tools for conservation. A community culture may have positive or negative impact upon the survival of affected species, and hence is of relevance to conservation. The loss of habitat shrinking populations of bird species is of global concern. Conservation should not, however, be carried out in isolation from people's livelihoods. The two are often in conflict and therefore a subtle balance of the two has to be found. Ethno-ornithology offers us an opportunity to arrive at a win-win situation, where we achieve conservation but also increase livelihood opportunities for people. The Swan Creek Park Food Forest (SCPF) in Tacoma, Washington is an ethnobotanical trail located in the city's most ethnically diverse neighborhood. My project is a portrait of the SCPF site's social and ecological landscapes, told via the historical connections between people and plants, and the ways in which they continue to affect one another.~~

NNAMANI, Catherine V.; Ezike NNEKA ————— drnnamanikate@gmail.com —————

Assessment of Diversity and Richness of Nectariferous Plant Genetic Resources for Apicultural Entrepreneurship in Nigeria and its Policy Implication —

The contemporary global economic meltdown has devastating effects on Nigeria. The search for alternative sources of national revenue aside from oil has become imperative for economic emancipation. Apiculture offers an unexploited succor capable of salvaging the people from abject poverty. A palynological evaluation of those palynotaxa which honey bees forage for pollen and nectar was carried out after standard acetolysis method. Results showed that these samples were highly diversified and rich in honey plants. A total of 9544.3 honey pollen, consisting of 39 honey plants belonging to 21 plant families and distributed within 38 genera were identified excluding 238 unidentified. Data from the analysis equally revealed that some of the predominant honey plants have multipurpose values to the cultural live of these local communities. Their policy implications were discussed and the accruing data provided a guide to the optimal utilization of floral resources for apicultural enterprise in these regions.

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The Eurasian Crane (*Grus grus*) in Ireland - Another Extinct Bird or a Key Species for an Ancient Belief System?

The dwindling Gaelic language is an ancient Indo-European language, spoken on the once isolated island of Ireland. Early Irish Manuscripts suggest Cranes were once the third commonest pet, after dog and cat. The arrival of Christianity and the 16th century extinction of Irish Cranes may have undermined its status. The Gaelic word for Crane is 'Corr/Cor'. Over a thousand Irish Place names begin with the prefix Cor, though 19th century English translations rarely mention the forgotten Crane. Other Gaelic words also hint at the importance of Cranes, as attested elsewhere in the world. For example, the phrase 'Corr Uimhir', arguably suggesting 'Crane Number', is translated as 'Odd Number' in modern literature. Gaelic language speculation may hint at an ancient relationship between Cranes and the unknown original Proto-Indo-European counting system. The Onomatopoeic name Cor, and cognates such as Kor and Gor and their ablauts, may reward expert international multi-disciplinary focus.

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“Without plants, we wouldn’t be the same unique people” – A Look at the Broader Importance of Plants in Makkovik, Nunatsiavut (Labrador, Canada)

Plants are vitally important to peoples in the Canadian North. In the Inuit Community of Makkovik, on Labrador’s north coast, plants make life and livelihoods possible for Makkovimiut (residents of Makkovik): “Without plants, we wouldn’t be the same unique people” (Mary B. Andersen). Plants as food, material, medicine, and habitat provide the means for self-sufficiency in a remote region where people “do for ourselves” (Elder Annie Evans). In documenting plant knowledge in Makkovik, we are also learning how plant practices nurture local culture and community well-being. Makkovimiut plant knowledge is practiced as part of daily life, and includes wooding, berry-picking, snowshoe-making, smoking trout, and tending plants. These practices are directed by cultural norms emphasising respect for land and wildlife, respect for Elders and neighbours, and the centrality of sharing. Through actively practicing plant knowledge, Makkovimiut reinforce the cultural values, techniques, and teaching traditions that maintain an interdependent and caring community.

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Common Plants Used for Traditional Orthopaedic Care among the People of Ozoro in Isoko North Local Government Area of Delta State, Nigeria

An ethno-orthopaedic survey among the Ozoro people of Delta state was carried out. Twenty respondents were interviewed using a structured questionnaire, and resulting data were generated through qualitative research technique. This research revealed that Isoko, Urhobo and Ijaw people practice traditional bone setting more than any of the other ethnic groups in Delta state. The survey revealed a total of 19 plants species belonging to 17 families and 19 genera. The administration of the plants were mostly external in the form of paste. The leaves were mostly the plant part used, followed by the root and stem bark. For each species, the botanical name, vernacular name, common name, plant part used, folk use and preparation were listed. The technique is today highly recommended for fast union of fractured/dislocated bones.

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Traditional Knowledge of Plants Used in Managing the Health Status of Ruminant Animals in Ekiti State, Southwestern, Nigeria

Field studies were conducted to investigate the medicinal plants used in managing health status of ruminant animals in the three senatorial districts of Ekiti State, Nigeria. Semi-structured questionnaires, personal and group interviews were used to obtain information from a total of 300 respondents. The results show that a total of 52 botanicals belonging to 29 families were used in treating different ailments affecting ruminant animals in the study area. It was observed that 44 of the botanicals were described as being abundant. The abundance of the botanicals was due to their being cultivated for various uses that included erosion control, provision of shade, wind break, boundary demarcation, animal fodder among others. Various sources at which the identified plants were derived ranged from forest area that constituted the primary source to common areas, household farms, and household areas while some were purchased. Thus, 60% of the plants species were found at the primary source and this form the highest among the various sources. The type of plants found in a location is dependent on the geographical vegetation of the location. Plants were easily found and relatively available at the forest vegetation than savanna areas. Eight out of all the botanicals were endangered. Thus, the examination of the initial growth of the endangered species revealed that plants the plants have relatively slow growth and poor survival rate. Thus conservation measures that could ensure sustainable availability of those species were proposed.

OLSON, Kaelyn Marie; Rebecca DEAN; Joseph BEAVER — olso6170@morris.umn.edu

GIS Analysis of Artiodactyl Remains at Los Morteros

The analysis of the use of artiodactyls in daily life, for food, and for ceremony has implications for cultural values, ceremonies, and methods of subsistence; in addition, the types of artiodactyls used for various activities have implications both for cultural practices as well as for prevalence at a given time. To further clarify existing data regarding the use of artiodactyls by the Hohokam, data from the Los Morteros site was submitted for analysis. Geographic Information System (GIS) analysis was run on the spatial distribution and the state of discovery of artiodactyl bones recovered in order to analyze distributions in time and location across the site. Results are for comparison and to supplement current understandings of this site.

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Toxicological Evaluations of Aqueous Extract of *Nymphaea lotus* L. leaves in Wistar rats

The aqueous extract of *Nymphaea lotus* L was evaluated for acute and sub-chronic toxicity in male wistar rats. For acute toxicity test, a single oral dose of 5000 mg/kg body weight of the aqueous extract was administered to rats for 14 days. There were no signs of toxicity, behavioural or physiological changes in the animals. Sub-chronic toxicity test was evaluated by administering oral doses of 0.5 ml of 50, 100 and 200 mg/kg body weight of the extract for 28 days while the control received 0.5 ml distilled water. Out of all the biochemical parameters studied, only alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), creatinine and chloride ion were significantly affected ($p < 0.05$) compared to control. The haematological parameters were also not significantly different ($p > 0.05$) from the control except white blood cells, lymphocytes and monocytes which were significantly elevated ($p < 0.05$) in the treated groups. Histopathological analysis did not show any sign of lesions or pathological changes in the organs that could be attributed to the treatment with the plant extract. These results suggest that aqueous extract of *Nymphaea lotus* may be safe for consumption at the doses tested.

OROZCO, Jessica

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A Floristic Study of the South Fork Tule River Watershed, southern Sierra Nevada, Tulare County, California

Due to the historical exploitation of tribes by scientists and anthropologists, access to tribal trust lands in California for the purposes of field research has been limited. For my master's thesis, I am conducting a floristic study of the South Fork Tule River (SFTR) watershed, located in southern Sierra Nevada in Tulare County, California. The SFTR originates near Slate Mountain, in Sequoia National Forest, and drains westward through the Tule River Indian Reservation (TRIR) into Lake Success. The watershed is ca. 118 sq. mi. and has diverse vegetation including giant sequoia groves. The objectives of my study are: 1) Document all plant species within the watershed. 2) Create a checklist of the flora. 3) Create a reference herbarium for the TRIR. Both botanists and tribal community members can benefit from the information generated from this study as we work together towards an improved understanding of the California flora.

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Finding Greener Pastures? Environmental Change, Prehistoric Herding, and the Spread of Sheep Pastoralism to the Ordos Region, Neolithic Northern China

Prior archaeological research in Northern China has shown that climatic conditions during the Late Neolithic period may have significantly grown colder and drier through time. This paper integrates paleoclimatic and archaeological data from the Shimao site in Shaanxi Province, Northern China to understand how climate change might have affected animal husbandry practices within this region. I will explore some of the possible adaptive responses that herders made to this new environment that likely affected the availability of fodder for animals. I suggest that the site's inhabitants pursued a subsistence regime that could maximize the available resources to produce a reliable harvest, while making possible the incorporation of new animal husbandry practices into household production schemes. Domesticated sheep may have been especially important as a means to produce a reliable food source in the contexts of environmental change.

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Analysis of Variety among *Zea mays* Pollen

Zea mays pollen is readily identified using a size range of 58 to 98.6 um, as established by Whitehead and Langham (1965). However, a closer analysis of *Zea* pollen size yields more descriptive data with regard to size differences among specific maize varieties. We analyze maize varieties from herbarium samples dating back to 1893 as well as contemporary hybrid and non-hybrid varieties grown in the Midwest. Statistical comparisons are made regionally, between Midwestern and Southwestern varieties, between hybrids and non-hybrids, and between the herbarium and contemporary samples. Preliminary results suggest significant regional differences, which have implications for how *Zea mays* pollen is identified in archaeological study of agriculture in these areas.

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Voices of the Sea: Illuminating the Complex Relationship between Sharks and Humans through Digital Storytelling in Baja California Sur, Mexico

An understanding of shark-human relationships is critical as an estimated 100 million sharks are killed each year for reasons including climate change, habitat destruction, by-catch and shark finning. Baja California Sur, Mexico provides an example of how global changes affect local communities that rely on the sea. Traditional knowledge is becoming more valued in the fight to conserve sharks. However, it is important to look at coastal peoples in Baja Sur as both information holders and as cultural entities that also need conserving. To more effectively incorporate local/traditional knowledge I employ the methodology and research process of digital storytelling to illuminate the realities and deconstruct common misrepresentations of both sharks and shark fishers. I explore individual experiences within the complex shark-human relationship to understand how forces of the larger social matrix affect local communities and cultures from past to present. I further discuss the potential of digital storytelling in empowering individuals to become agents of positive social and environmental change.

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An Interdisciplinary Investigation of Shifting Baselines in the Socio-ecological System of Pacific Herring and Salish Sea Peoples

Baselines of ecosystem health are often estimated from relatively recent observations of systems that have already been degraded by human activities. Pacific herring (*Clupea pallasii*) might be an example of 'shifting baselines', as commercial fishing depleted stocks before the onset of biomass estimates. Here, we present an interdisciplinary approach to reconstruct population diversity and human use of Pacific herring before industrial fishing. Specifically, we (1) synthesize local ecological knowledge to evaluate the cultural significance and abundance trends of herring, (2) investigate the genetic structure of extant herring populations, and (3) quantify relative contributions of different populations to pre-contact diets by analyzing DNA from archaeological herring bones. Interview data suggested that herring were more abundant in the mid-20th century than today and were an important source of food and bait. There was also evidence of shifting baselines in the perception of ecosystem health among fishers. Preliminary DNA data confirmed genetic differentiation among extant herring populations and demonstrated the feasibility of the ancient DNA approach.

PFEIFFER, Jeanine & San José State University students

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Interactive Learning to Conserve Biocultural Diversity: University Students Engage Tribes

Biocultural diversity is best understood through lived experience: by hearing personal testimony, participating in a hands-on event, or getting to know practitioners. In Dr. Pfeiffer's

San José State University Nature and World Cultures class, students focus on the evolution, conservation, and revitalization of biocultural diversity by partnering with Native Californian tribes and tribal communities to complete semester-long group projects. Student projects examine the dynamics of nature-culture connections including sacred sites, culturally significant species, and traditional lifeways. Student groups produce tribally-approved microdocumentaries, articles in newsmagazines, Wikipedia entries, and applied projects of cultural relevance, including bilingual animated stories in endangered indigenous languages. Our presentation will cover the mechanics of effecting successful partnerships and will include excerpts from student films, a copy of our co-authored article, and instructional handouts for educators interested in applying or adapting this approach in their home institutions.

PIEROTTI, Raymond pierotti@ku.edu

The First of the Dogmen: Central Asian Indigenous Peoples and Western Prejudice

One consistent bugbear of 'civilized' nations and societies is Dog-Men or Cynocephali. Dog-headed monsters inhabit the same border between fear and fascination as vampires and zombies today. Such creatures are always found at the far reaches of uncharted 'wilderness', both physical and psychological. I argue that these figures are based upon Indigenous peoples in Siberia, where men traditionally hunted with wolves or large 'wolflike' dogs, wore masks of dog skin when fighting, and were often absent from permanent encampments, leading to stories of 'Amazons' paired with Dogmen. Similar traditions continue, illustrated in Herzog's film, *The Happy People*, where men spend much of the year in hunting camps, accompanied by their wolflike Laikas, a primitive dog breed. DNA studies of Russian wolves and dogs show that there is no clear division as in other parts of the world. These may be the oldest 'dogs' known to humans.

PITTLE, Kevin kevin.pittle@biola.edu

Quantifying Interrelationships Among Cognitive Dialects Of Middle Eastern Drug-Plant Prescription Patterns

This paper quantifies similarity in overall pattern of multiple drug-plant prescription in Islamic ethnopharmacological systems and their ancient precursors. Fourteen sets of prescriptions or descriptions of medicinal attributes of drug plants composed between 1534 B.C. and the present were examined. For each source, patterns of grouping were identified by applying a hierarchical clustering program to a data matrix reflecting the source's drug plant prescription/attribute correlations. Resulting clusters were treated as pile sort results, shared groupings across sources were tallied, various means and functions of inter-source similarity were calculated, and degrees of overall similarity were modeled using various techniques. The resulting numerical taxonomy shows a clear relationship between proximity and shared history of contemporaneous localities and overall degree of similarity in practice. It also shows that degree of similarity between sources from different time periods correlates with relative strength of presumed relationships of descent and influence.

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Perceptions and Practices in the Modern World to Conserve Sacred Trees in Urban Ecology

Trees are one of the most vital and important resources that nature has bestowed upon the living beings, particularly, the human beings. Certain varieties of trees have always been worshipped traditionally, and parts of trees are used during practice of local cultural traditions. The present study is an attempt to understand the importance of 'Ashwath katte', associated cultural practices, beliefs and perceptions among the local people and its scientific relevance. Field survey was done in capturing perceptions among people in temples of Bangalore using a structured questionnaire. The research results indicate that among the socioeconomic groups the middle income group has strong faith in performing rituals at Aswattha Katte (87%) followed by the rich income group (7%) and poor income group (7%). This leads us to conclude that religious teachings and cultural traditions could be used in a positive sense for conservation of the environment and ecology.

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Herpetological Citizen Science and Service-Learning in Rural Southeast Alaska

Citizen science and service-learning programs can serve to acquire biological data, educate the general public, and inspire community-based conservation. In Alaska, these programs are particularly valuable in studying species for which limited population data is available and where funding is limited. I utilized an amphibian-oriented bioblitz (AmphiBlitz) and a high-school service learning program to obtain baseline population parameters for amphibians in three wetlands located in proximity to the Stikine River in Southeast Alaska. A total of 707 individual amphibians of 4 species (3 anurans and 1 urodele) were observed by 21 project participants. These data support the Alaska Herpetological Society's Stikine Long-term Amphibian Monitoring Program (SLAMP). Data collected at one site (Petersburg Muskegs) are to serve as a baseline for long-term monitoring to be conducted annually in partnership with the Petersburg High School. These methods successfully engaged the public in herpetological field research while acquiring valuable biological data.

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Utilizing Local and Traditional Knowledge (LTK) to Better Understand Stikine River Chinook Populations over Time: A Case Study from Wrangell and Petersburg, Alaska

Chinook salmon (*Oncorhynchus tshawytscha*) stocks have declined throughout Alaska in recent years. The State of Alaska has chosen twelve indicator stocks to monitor, including Stikine River Chinook salmon in southeast Alaska. As part of the Chinook Salmon Research Initiative that was implemented to better understand recent declines, local and traditional knowledge (LTK) was identified as an important source of observational information. This study documented the LTK of key respondents who participate in commercial, sport, and subsistence fisheries from Wrangell and Petersburg, communities located in proximity to the mouth of the Stikine River. Respondents offered insights on Stikine River Chinook migration, behavior, health, abundance, and habitat, as well as local perspectives on the management, conservation, and importance of this species.

REYNOLDS, Peter C. pcr@sallyglean.org

Is God a creationist? An Ethnobiological Analysis of the Tree of Life in Genesis

An important theme in English Protestantism is a literal reading of the Bible, interpreting its stories as factual descriptions of historical events. Thus, contemporary creationists explain the seven days of creation in Genesis as a page from God's daytimer. However, this story is better interpreted not as a sequence of days but as the successive branching of a tree—the tree of life. This interpretation is consistent with imagery presented elsewhere in the Bible and with Judeo-Christian iconography. The successive branching of the tree of life is more similar to the cladistic diagrams of evolutionary biology than to the calendrical series of fundamentalism. Also, the structural relations among plants and animals encoded in its branches exemplify the folk taxonomies long familiar to anthropology.

RIVAL, L. M. laura.rival@anthro.ox.ac.uk

How the Makushi Articulate Vital and Technical Processes in the Making of Manioc Beer

~~Building on my hypothesis that manioc is domesticated in the kitchen rather than in the field, I discuss Makushi beer brewing (southern Guyana) to show how nonhumans come to form an intrinsic part of the technical process. In particular, I detail the use of a domesticated fungus (*Rhizopus* sp.), and the identification of women brewers with bees.~~

RODRIGUES, Antonia; Iain MCKECHNIE; Dongya YANG arodrigu@sfu.ca

Indigenous Rockfish Use and Modern Management on the Pacific Coast: Insights from Ancient DNA

Rockfish (*Sebastes* spp.) play a significant economic, cultural and ecological role in Northeast Pacific fisheries today and dramatic declines in rockfish populations have resulted in several recent management efforts through marine reserves and closures. Zooarchaeological evidence throughout the Pacific coast indicates rockfish are ubiquitous; however, the morphological similarities of the numerous species in this genus prevents conventional species identifications and hinders our ability to link indigenous rockfish use with modern studies of rockfish ecology and conservation. This study is the first investigation of ancient DNA from archaeological rockfish remains, genetically identifying rockfish species from five archaeological sites (ca. 2500-250 BP) in a modern marine protected area. We use this approach to provide a clearer view of indigenously managed rockfish fisheries in deep time and highlight the relevance of such evidence in contextualizing modern day rockfish conservation efforts.

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Factors Influencing Useful Plant Richness on Land Managed by Small-scale Farmers in Windsor Forest, Jamaica

Free-listing, semi-structured interviews, guided farm visits and quantitative analysis were used to identify attributes of 16 farmers and their 51 farms and home gardens ("yards") that correlate with reported useful plant ethnovariety richness in Windsor Forest, a rural village in Portland Parish, Jamaica. On a per-unit area basis, home gardens contained more ethnovarieties than farms ($p=.018$), while overall, farms contained more ethnovarieties ($p=.012$), because of their larger size. Higher levels of theft were reported from farms than home gardens which are located closer to homes ($p=.001$). The use of chemicals had no effect on useful plant richness, except for a negative effect on tree crop ethnovarieties ($p=.065$). Age of a farmer had no effect on the richness or type of useful plants. These results underscore the complexity of agrobiodiversity conservation in rural Jamaica.

SARVASY, Hannah

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That Bird Speaks Nukna: Birdsong Translation on the Huon Peninsula, Papua New Guinea

Birds are known to bear strong cultural importance in Papua New Guinea. Further, the ways birdsongs are described in Papuan languages may hold clues to cultural and social history in Papua New Guinea. In English, some birdsongs are described with onomatopoeia: crows are said to caw. Other birdsongs, however, are commonly described through a type of homophonic translation—translating the avian vocalizations into sequences of English with similar rhythms and cadences. For instance, the barred owl, *Strix varia*, is said to call: Who cooks for you? These two ways of describing birdsongs also exist in the Papuan language Nungon. Some birdsongs that are translated into meaningful Nungon words relate to the bird's mythic or behavioral traits. Beyond this, Nungon speakers cite some birdsongs as homophonic translations into other Papuan languages, not into Nungon. Birdsong translations may serve as important parts of the reconstruction of human and avian pasts in Papua New Guinea.

SAULT, Nicole

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Birds of Life and Death: Changing Meanings for Hummingbirds, Vultures and Condors

Birds are messengers of meaning associated with both death as well as life. While they are airborne with a lightness of being like angels and spirits, their meanings carry great symbolic weight. This paper examines three key birds in the Americas to understand how their roles in life and death vary from one society to the next, how they hold multiple meanings in different contexts, and how these roles change over time within a society. The same bird may be connected with death and warfare in one context, and in another context be a sign of life and fertility. Examples are drawn from hummingbirds in Costa Rica, vultures in Mexico, and Andean condors in Peru.

SAVO, Valentina; LEPOFSKY, Dana

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Fishers' Experiences with Climate Change: An Overview

Fishers are front-line observers of climatic changes occurring both on the coast and in the sea and are among the first people to be affected by these changes. In order to analyze impacts and consequent adaptations of fishers to climate change, we synthesized data extracted from a global review of peer reviewed and grey literature. In total, we selected 261 studies covering 66 countries, representing approximately 380 communities. Fishers are observing changes in weather patterns, increase in temperatures and extreme events, but also coastal erosion, sea-level rise, and shifts in species range and behaviors. Fishers are also adjusting their lives to compensate for the effects of climate change, diversifying their livelihoods, protecting their coasts and using their knowledge of local environments. The lessons learned and practices adopted by fishers provide real-life examples of how to adapt in a changing climate.

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Hitherto Unknown Uses of Plants by Indigenous People of Himachal Pradesh

Ethnobotany is a holistic approach which involves reciprocal and dynamic aspect of interaction of indigenous people with plants and includes studies such as food, fibre, dyes, tannins, medicinal and other useful plants, harmful plants, taboos and magico-religious beliefs about plants, material use and act of domestication, conservation improvement or destruction of plants. Himachal Pradesh, a hilly state in India situated in North-West Himalaya between latitude 30°-3' to 33°-3'N and longitude 75°-3' to 79°E, is considered veritable emporium of medicinal and aromatic plants and diverse ethnic communities, viz., Gaddis, Gujjars, Kinners, Jads, Lahoulis, Spitiyas, Pangwalas, Swangalas. There are 16,997 villages of different sizes

covering around 55,678km² area under its 12 districts, having altitudinal range between 300-8,000m. The study highlights ethnic uses of 296 plant species belonging to 243 genera under 86 families (medicinal 263 species, edible 133 species, fodder 108 species, ornamental 67 species, sacred 48 species, magico-religious 34 species, fibre 29 species, veterinary ailments 123 species, miscellaneous purposes 84 species).

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Features of the Ethnobotanical Folk taxonomy of the Lisu in northern Thailand

Since the 1960s, there have been a number of studies seeking to investigate folk taxonomies based on the hierarchy described by Brent Berlin. In Thailand, while there are some recently published quantitative studies of some ethnic groups, only very limited work has been undertaken on the traditional botanical knowledge of the Lisu who live in the northern mountainous areas, and no examination of their ethnobotanical folk taxonomy has previously been conducted. Lisu is a Tibeto-Burman language with approximately one million speakers across Thailand, Myanmar/Burma, China and India. The aim of this project was to create an initial corpus of plant names and uses in Lisu, including their scientific determinations, as well as to investigate their folk taxonomy and other linguistic features. Plant information was collected from two villages over two field trips. This paper discusses the main features of the Lisu botanical folk taxonomy discovered as part of this project.

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The Ethnobotany, Ecology and Biological Activity of Two Pioneer Tree Species of Costa Rica's Secondary Forests: *Simarouba amara* and *Vismia macrophylla*

Costa Rica's Northern Zone has experienced decades of deforestation, resulting in a mosaic of grasslands, secondary forests and primary forests. We studied two pioneer tree species (*Simarouba amara* and *Vismia macrophylla*) that affect forest recovery following disturbance and are vital to the local community as medicines for infections. Sustainable harvesting practices and medicinal uses of these plants were learned through interviews with local healers who then assisted in conducting ecological and GIS surveys of 35 *Vismia* and 48 *Aceituno*. To preliminarily evaluate their medicinal efficacy, we conducted triplicate disc diffusion and 96-well plate assays and found the bark of both tree species affects the fungus *Candida albicans* in vitro and *Vismia* leaves show activity against gram-positive (*Bacillus subtilis*) and gram-negative (*Escherichia coli*) bacteria. As the area of secondary forests expands, these species offer local healers the opportunity to use secondary forests while permitting recovery following disturbance to proceed.

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Reconstructing Late Bronze Age Agriculture at Kaymakçı, Western Turkey

Identifying the reasons behind the various agricultural patterns of ancient societies can help to illuminate the role of human agency in agricultural production. By understanding the nature of the interaction between ancient societies and their environments we can see how cultural and environmental changes may affect human decisions in the types of crops grown. The analysis of the ancient botanical remains at Kaymakçı, a Late Bronze Age citadel in western Turkey, can provide insight into how environmental and social factors played into the agricultural production at the site. Preliminary analysis of the carbonized plant remains from the first excavation season at Kaymakçı show that wheat, barley, and pulses were the primary crops. In this presentation, we begin to reconstruct the agricultural system at Kaymakçı during the Late

Bronze Age and show its importance as a comparative study for other sites in the Aegean and Near Eastern worlds.

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Documenting Indigenous Knowledge of Honeybees in a Multilingual Community in Northern Australia

The numerous native honeybees of Australia are largely understudied, both from a biological and a linguistic point of view. Local biodiversity and species distributions are not well recorded, and as a result, linguists working on endangered languages in Indigenous communities have been unable to provide precise identifications for honeybee-related words in published dictionaries. Simultaneously, much honeybee-related language and traditional knowledge is slowly being lost from these communities, due to significant lifestyle changes. Here, I present some results of a project to document honeybee-related traditional knowledge in the remote Indigenous town of Maningrida in the Northern Territory, Australia. This highly multilingual community of around 2,000 people is home to over 10 very different languages, each with its own vocabulary and traditions relating to honeybees. I discuss the challenges and advantages of documenting traditional knowledge in such a field situation, and report on Indigenous perceptions of four honeybee species.

SINENSKY, R.J. robertsinensky@gmail.com

Shifting Climate, Shifting Strategies: Flexibility as Key to the Longevity of Early Farming Communities in the American Southwest, A Case Study from the Tucson Basin

Although the majority of the archaeological research on agricultural transitions has focused on primary places of plant domestication, most people adopted agriculture in a secondary fashion. My research examines how early farming groups located in secondary locales of domestication navigated the risks and benefits of agriculture and increasing sedentism. Early farming communities in the American Southwest quickly incorporated cultigens into their diet, but wild plant foods continued to play a significant role in the subsistence economy. Maintaining a flexible subsistence strategy was key for the survival and longevity of early farmers in the American Southwest. My research explores how San Pedro Phase (1200-800 BC) farmers living in the village of Las Capas, located in the Tucson Basin, navigated stochastic environmental conditions. I investigate the resource procurement strategies of residents during time periods both conducive and detrimental to irrigation agriculture to explore the risk management strategies employed by Las Capas residents.

STEPP, John Richard; Karen BAILEY; Jelena BREZJANOVIC; Marcus BRIGGS-CLOUD; Margaret CLIFFORD; Richard TATE jrstepp@cox.net

Go Gator and Muddy the Water: Teaching and Doing Ethnobiology and Conservation

The Tropical Conservation and Development (TCD) Program at the University of Florida is an interdisciplinary graduate certificate program focused on conservation and sustainable livelihood improvement in the Global South. The curriculum pays equal attention to praxis, skills and theory and embraces collaborative learning. One of the required core courses is entitled Ethnoecology and Conservation. This paper describes field projects undertaken by students in the course in collaboration with Alachua Conservation Trust, a grassroots conservation non-profit organization. 3 existing conservation areas were selected and an ethnoecology evaluation was conducted for each one. For each site the class surveyed and described useful flora and fauna; explored past (both prehistoric and historic) human use and occupation of the area; and examined contemporary human interactions. The projects allowed students to engage in

ethnobiological research while enhancing conservation in the region. The results will be used in educational outreach as well as interpretive exhibits.

TATE, Richard W. r.winslow.tate@gmail.com

Predictive Tools for Ethnobiology: Using GIS in the Caucasus Mountains

Geographic Information Systems (GIS) can streamline logistics prior to conducting ethnobiological fieldwork in complex biocultural contexts, affording a level of prediction concerning cultural plant use patterns. This is of special consideration when developing research projects in remote or distant study areas, where costly financial outputs make maximization of on-ground effort a priority. Using a combination of known locational data, edaphic information, and vegetation layers from the republic of Georgia, GIS analyses are used to predict habitat distribution of useful plants. Such applications present multifaceted assets for ethnobiological researchers by increasing the capability to anticipate plant use patterns among the country's peoples prior to fieldwork. Other benefits of pre-fieldwork GIS analyses include recognition of biogeographically incongruous use and absence of known endemic medicinals in local pharmacopeia. Application of this technology as a predictive tool represents a step forward in ethnobiological research methodology, offering fiscal incentives through maximization of on-the-ground research efficacy.

THAKAR, Heather B. thakar@temple.edu

Food & Fertility in Prehistoric California: A Case-study of Risk-Reducing Foraging Behavior and Population Growth from Santa Cruz Island, California

Integration of macrobotanical, faunal, geochemical and chronological datasets demonstrate temporal variation in foraging behavior on the Northern Channel Islands of California. Immediately prior to a period of significant and intrinsic population growth (ca 1500 cal BP) there is evidence of specialization in the exploitation of key plant and animal food resources and decreased population mobility. This paper explores the complex and dynamic interrelationships between foodways, the environment, and macro-demographic changes within prehistoric populations. Referencing recent ethnographic and demographic data from modern foragers, I argue that the adoption of novel risk-reducing foraging behaviors intimately associated with physiological mechanisms that regulate human fertility and mortality contributed to significant demographic increase. These results suggest that prehistoric human population growth did not always instigate major shifts in food acquisition, but rather was, in some cases, a product of subtle changes in the type, quantity, and quality of food resources upon which human foragers relied.

TIMBROOK, Jan jtimbrook@sbnature2.org

The Rare Occurrence of Feathers in Chumash Baskets

California Indians have long been considered among the finest basket makers in the world. While most basketry materials come from plant sources, some California peoples have also included animal materials -- porcupine quill overlay, bird quill stitching, and even whole feathers inserted to cover the basket's entire surface, as is particularly famous among the Pomo of northern California. What has not been widely recognized in the literature or among curators and collectors is that Chumash weavers of south-central California also on rare occasions included feathers in their weaving material. To date, only about half a dozen examples with feather quill stitching have been noted among the few hundred surviving baskets. Further, with no known cultural precedent among the Chumash, fluffy white feathers were inserted into the

coil foundation of one extraordinary basket. This presentation discusses the little-known use of feathers in Chumash basketry.

TONIELLO, Ginevra; Dana LEPOFSKY; Kirsten ROWELL gtoniell@sfu.ca

Productivity of Ancient Clam Gardens on Northern Quadra Island, British Columbia

Clam gardens are a form of ancient mariculture observed all along the Northwest Coast from Alaska to Washington. A dense concentration of clam gardens on northern Quadra Island, British Columbia had a significant impact on past ecological and social landscapes. The construction of clam gardens not only increased the area of clam habitat but also enhanced shellfish ecology, ultimately aiding in clam growth. In my research, I will assess the degree to which clam gardens increased ancient food production by 1) documenting total increase in clam habitat; 2) comparing the growth rate of clam shells from clam gardens and natural contexts; and 3) analyzing the sediments from clam gardens and natural clam habitats to determine the benefits of clam gardens to clam growth. Expanding our understanding of clam gardens will allow us to better understand the extensive ecological knowledge of marine environments held by coastal First Nations.

TURNER, Nancy J.; Jonaki BHATTACHARYYA nturner@uvic.ca

Salmonberry Bird and Goose Woman: Birds, Plants and People in Indigenous Peoples' Narratives and Traditions in Northwestern North America

Birds and plants are major components of biocultural diversity in the world. Both are recognized and named in virtually every language and feature in countless ways in people's systems of knowledge, practice and belief as sources of food, materials, and medicines and as ceremonial and religious symbols. However, these two major biological groups are also linked together, and their ecological associations are likewise reflected in cultural knowledge systems. In northwestern North America, there are many examples of the intersection of botanical and ornithological knowledge, reflected in people's vocabulary, narratives, belief systems and management practices. Here we provide diverse illustrations of this intersection in cultural knowledge of plant-bird associations. These examples link together observations of bird habits and habitats with particular plant species, and show how this complex integrated knowledge and experience have helped promote cultural richness and well-being for First Peoples of the region. Bird species from swans to hummingbirds and plants from edible root vegetables to nectar-producing flowers are exemplified as major representatives of ecocultural connections. Using these as lessons on the importance of interspecies ties to environmental and cultural integrity is a key to sustainable living into the future.

UBIK, Emily; John M. MARSTON eubik@bu.edu

Agricultural Implications of Wheat and Barley Grain Measurements at Ancient Gordion, Turkey

Free-threshing wheat (*Triticum aestivum*, *T. durum*) and barley (*Hordeum vulgare*) were staple cereal crops in the ancient Near East. What types of farming systems did people use to yield reliable harvests? The analysis and categorization of grain seed size and shape allows us to define cultivation techniques, such as irrigation, and potentially identify different varieties of each crop. In this poster, we present the measurements of more than 1,000 complete wheat and barley grains from the site of Gordion in central Turkey, occupied from the Early Bronze Age (2500 BCE) to the Medieval period (14th century CE). We compare this data to climatic records, previous grain measurement analysis from earlier periods at the site, and contemporaneous sites across the Near East, to shed light on environmental changes and agricultural practices

over time. This poster presents a comparative perspective on the value of seed measurements for reconstructing Near Eastern farming systems.

VANDERWARKER, Amber; Allison GRACER; Gregory WILSON vanderwarker@anth.ucsb.edu

Farming under Fire in the Central Illinois River Valley: Changes in Farming Strategies in Response to Intensified Warfare during the Mississippian Period

An examination of the effects of intensified warfare on subsistence strategies in the Mississippian-period Central Illinois River Valley (CIRV) demonstrates that safety concerns after AD 1200 were significant enough that villagers reduced foraging forays and narrowed diet breadth to focus on maize farming. Despite this shift towards a focus on maize, standard abundance measures reveal that farmers did not increase yields. We closely explore shifts in farming strategies through an examination of maize varieties. Metric measurements indicate that maize kernel size decreases significantly after AD 1200 and that an additional variety was added to the cultivation repertoire around AD 1250, alongside the common bean. We argue that size decreases in maize kernels resulted from earlier harvesting to offset food shortages. We further suggest that villagers dealt with the increasing risk of food shortage by adding beans and a new variety of maize to their system of food production.

VETETO, James R. jrveteto@email.wcu.edu

Apple-achia: Biocultural Diversity in the American Mountain South

With over 1000 documented landrace varieties, southern/central Appalachia has more infra-specific apple crop biodiversity than any other documented foodshed in the US. This presentation will provide a brief overview of apple diversity in the Appalachian highlands, farmer decision-making regarding varietal diversity in the face of environmental change, and culinary uses and cultural traditions associated with apples. Film clips from an upcoming documentary will illustrate the importance of heirloom apples to Appalachian culture and history.

VOORHIES, Barbara voorhies@anth.ucsb.edu

The Marsh Clam Almejeros of Costa Rica

The procurement and processing of small brackish water clams, *Polymesoda* spp., is a source of income for a handful of men living near the lower, tidal reaches of the Rio Tempisque. Procurement activities are scheduled according to the moon's phases, and clam processing takes place at riverside locations close to the shoals where the clams are harvested. In this study I investigate the efficiency of clam harvesting and processing with special emphasis on the archaeological implications of the activities of 21st century clammers, or almejeros.

XU, Wei; Min XU; Zhong Zhen ZHAO; Chi I CHOW; Xiao Ying TIAN; Ting Ting XIAO; Nan DING; Quan XIA; Xi Qiang LIU 13480359@life.hkbu.edu.hk

The Effects of Paeoniae Radix Alba in Embryonic Development: In-vivo and In-vitro Studies

Background: Paeoniae Radix Alba (PRA) is the dried root of *Paeonia lactiflora* Pallas (Paeonaceae). It was commonly used to treat miscarriages as a traditional herbal medicine in China and other countries. Aim: Since there is not sufficient evidence about PRA safety, this study aims to examine the impact of PRA aqueous extract in embryonic development with mice and embryonic stem cells (ESCs). Method: Pregnant mice were randomly assigned into 5 groups, i.e. mice were oral-treated with distilled water as negative control (G1), with PRA extract of 2/8/32g/kg/day (G2, G3 or G4), and with 3 doses of vitamin A of 200,00 IU/Kg as positive control (G5). Meanwhile, IC50 values for both embryonic stem cells (ESCs) and 3T3 cells were detected

by cytotoxicity assays. Results: (1) The resorptions and malformed fetuses in G5 were significantly higher than G1 ($P < 0.001$), whereas the maternal body-weight and uterus-weight were lower than G1 ($P < 0.05$); (2) there was no difference in the fetal body-weight, maternal relative body-weight gain, liver-, kidney-, or heart-weight, relative organ-weight, and histological examination among G1, G2, G3, G4 and G5; (3) there was no difference in IC50 values between ESCs and 3T3 cells among G1, G2, G3, G4 and G5. Conclusion: Orally administering aqueous extract of PRA at the dose of 32g/kg/day (12 times of human daily dose) to mice did not cause significant embryonic toxicity, maternal toxicity or cytotoxicity in mice. (This project was supported by the UGC-HKBU Matching Grant (40-48-095) and Natural Science Foundation of Guangdong Province (2015) and Hong Kong Baptist University FRG2/13-14/066). Keywords: Paeoniae Radix Alba; developmental toxicity; mouse; embryonic stem cell

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Xavante (A'uwẽ) Ceremonial Foods: Maize and Wild Starchy Root Vegetables

The indigenous Xavante (A'uwẽ) people of Central Brazil consider certain game meats, garden produce, and collected foods to be especially appropriate gifts in certain ceremonial contexts. Although they also may be eaten on other occasions, these are highly esteemed as gifts due to their mythological connotations, extraordinary healthfulness, and association with traditionalist values. In this paper I look at how Xavante produce, utilize, and understand maize and wild starchy root vegetables, which are some of the most highly esteemed plant foods among members of this ethnic group. Xavante families cultivate maize in relatively small quantities and direct most of the yield to the preparation of large loaves, which are commonly given as gifts on such occasions as ceremonial parenthood rites, marriage arrangement proposals, incorporation into age sets, rites of passage into adulthood, and spiritual rituals. Maize production was a key factor in scheduling the annual trekking cycle and continues to structure the annual ceremonial calendar. Wild starchy root vegetables (roots, tubers, and rhizomes), also given as presents at such conspicuous moments as incorporation into age sets and spiritual rituals, are considered the intellectual property of women, who collect them and protect the secrets of their identification. Xavante consider these two traditional plant foods central symbols of their ethnic identity and strategic dietary mechanisms for maintaining bodily and spiritual health.

WHITNEY, Cory; Vang Sin MIN (Meej Vaj); Lê Hồng GIANG; Vu Van CAN; Keith BARBER; Tran Thi LAHN

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Learning with Elders of the Dao, Hmong, Kinh, Lu, Ma Lieng, Sach, Tai, Tay, and Xinh Mun Ethnic Communities of Northern Vietnam

An applied human ecology and ethnobotany study of selected healers from the Vietnamese Dao, Hmong, Kinh, Lu, Ma Lieng, Sach, Tai, Tay, and Xinh Mun ethnic groups was undertaken to catalogue traditional uses and conservation practices related to biodiversity and plant use in Northern Vietnam. The study utilized the systems theory of biological human ecology, an approach developed by the indigenous peoples' networks of the Mekong region. Through ethnobotany field interviews the study gathered traditional knowledge of plants, including 27 climbers, 4 ferns, 29 herbs, 2 perennials, 24 shrubs, 24 trees, and 1 liana species. Plant importance was analyzed using quantitative indices. Findings offer support for the biological human ecology systems model and suggest that culture (especially spirituality) are an important contributor to plant conservation practices.

WHITNEY, Cory; Vang Sin MIN (Meej Vaj); Lê Hồng GIANG; Vu Van CAN; Keith BARBER; Tran Thi LAHN

whitney.cory@gmail.com

Hmong Conservation: Lessons in Ethnobotany from the Elders of Long Lan, Luang Prabang, Lao People's Democratic Republic

In 2012 and 2013 participatory ethnobotany explorations were undertaken with herbalists from the Hmong ethnic group of Long Lan village, in Luang Prabang, Lao People's Democratic Republic. These investigations into the knowledge and experience of indigenous elders of Long Lan and surrounding villages sought to identify the relationship between the spiritual-cultural practices and livelihood uses of indigenous plants and their conservation. Information about 74 indigenous plant species of 49 families was recorded including 25 herbs (17 perennial, 8 annual), 20 trees, 17 shrubs, 10 climbers, and 2 ferns. Analysis of quantitative ethnobotany scores indicated positive trends between uses and conservation practices for indigenous plants. The study suggests that the traditional Hmong cultural uses for plants may be a mechanism for the

conservation of biodiversity in the rapidly deteriorating forests of Luang Prabang in the Lao People's Democratic Republic.

WOLVERTON, Steve; Clara OTAOLA; Miguel GIARDINA

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Hunting, Herding, and Cultural Change along an Elevation Gradient in the Andes of Western Argentina

Hunter-gatherers occupied the lowland plains, the piedmont escarpment, and the upland river valleys of the western Argentine Andes during the late Holocene. As the regional human population increased over time, the upland river valleys provided a sustainable animal resource base – migratory guanaco (*Lama guanicoe*) populations browsing upon highly productive highland forage. Summer campsites are dominated by guanaco remains, and behavioral ecology of this species indicates that this ungulate prefers upland range in the region. Thus, guanaco migrated to lower elevations when winter snows became too deep to forage successfully. Contemporary herders take advantage of the same elevation gradient. Ethnoarchaeological research on middens from their winter and summer camps highlight remarkable patterns of animal resource use, similar to those of late Holocene hunter-gatherers. The seasonal distribution of net primary production in upland river valleys provides an environmental template that has resulted in sustainable animal resource use for thousands of years. Today, multiple social and environmental changes may undermine the lifeways of contemporary herders.

WRIGHT, Mark A.; Kerry HULL

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“Building Blood”: Plants in Medicine and Myth among the Mopan Maya of San José, Belize

Traditional exploitation of botanical resources by Mopan Maya of San José, Belize provides a major portion of the food, medicine, and raw materials for daily life. In this paper we describe the medicinal use of local plants for physical and psychosomatic disorders. Based on our fieldwork data we show a highly detailed indigenous knowledge of plants is widespread in this small community. Furthermore, we find that certain diseases are attributed to a folk understanding of properties of human blood. We describe how specific plants are said to affect the quality or nature of blood (i.e., it being too “sweet,” “strong,” “weak,” etc.) and local concepts of ways to moderately “strengthen” or “build” blood through plant use. Finally, we explore the connection between induced trauma and indigenous notions of disease immunity and the role of plants in remedying both.

WYATT, Andrew R.

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“Me Gusta”: The Changing Role of Lacandon Maya Homegardens in Lake Mensabak, Chiapas, Mexico

For the past three centuries the Lacandon Maya have led an isolated existence in the forests of southern Mexico, managing extensively cultivated outfields and intensively managed infield gardens. Lacandon household gardens supplied items for household use and trade, whereas outfields supplied staple foods. Recently, increased interaction with Mexican society has resulting in dramatic culture change. Systems of status and hierarchy are being reconfigured as the Lacandon become integrated with the Mexican and global economy. This talk discusses the results of ongoing fieldwork in the Lacandon Maya village of Lake Mensabak in Chiapas, Mexico and addresses the role of household gardens in a changing community. We are creating digitized maps of Lake Mensabak gardens by plotting the locations of each plant and tree, creating a more accurate accounting of the total cultigens and their precise location in relation to the household, and also providing a means of analyzing the use of garden space throughout the

community. Combining these maps with ethnographic interviews, we are developing a clearer understanding of how Lacandon gardens operate in a dynamic community.

WYNDHAM, Felice; Karen PARK ; John FANSHAWE

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Signifying Birds in Culture, Language and Ecology

Around the world people notice birds, talk about birds, and learn from birds. Birds are often identified as messengers, augurs, teachers, and beings that have the power to affect one's life and livelihood, especially with respect to ecological change, shifts in weather, and both good and ill future happenings. In this paper we review bird-human communication histories in several regions and culture groups, with particular illustration of Ayoreo ornithological knowledge in the Paraguayan Chaco, Rarámuri ornithology in Northwestern Mexico, and material from Great Britain and North America. Patterns emerge from preliminary analysis, such as the predominance of non-passerines in (culturally defined) especially communicative birds (cf. Boster, Berlin and O'Neill 1986), the tendency for communication to be perceived as moving from bird to person rather than vice versa, and the persistence of markers of ecological relationships in spoken language long after certain lifeworld interactions between humans and birds are lost.

YGNACIO-DeSOTO, Ernestine, Julie TUMAMAIT-STENSLIE, and Eleanor ARELLANES FISHBURN

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We Are Chumash

We are the descendants of people who have lived on California's Central Coast for thousands of years. We are Chumash. We survived the upheaval of the missions and those who followed. We remain part of this land. Our ties are strong and our roots are deep. This poster display was prepared in conjunction with an extensive multiagency archaeological and ethnohistorical study in the Cuyama region, Santa Barbara County, California.

ZAVALLA, Nakia, and Frank DOMINGUEZ

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Speaking About the World: S^hamala Language Learning and Teaching

The Santa Ynez Band of Chumash Indians located in the Santa Ynez Valley, Santa Barbara County, California, began a journey to reawaken our language about twelve years ago. Studying with linguist Dr. Richard Applegate using our ancestor María Solares's notes and cultural teachings that were recorded from 1914-1919 by J.P. Harrington, we have learned how our language conveys information and perspectives about the natural world around us. The S^hamala language Program has expanded and has been part of making history in the State of California. Today the program has five State S^hamala Language Credential Teachers who teach community and public school classes.

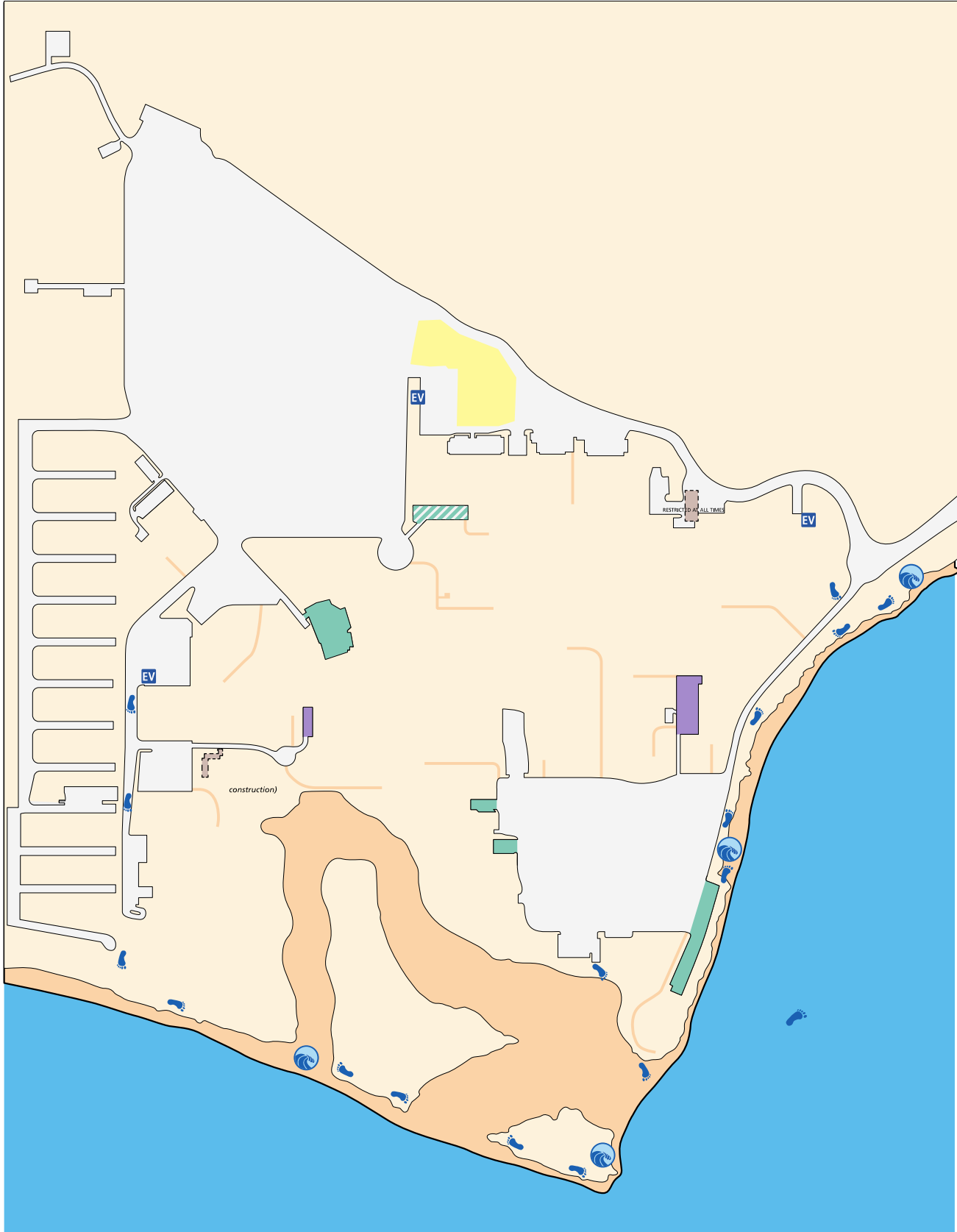
ZURITA BENAVIDES, María Gabriela

maria.gabriela.zurita@gmail.com

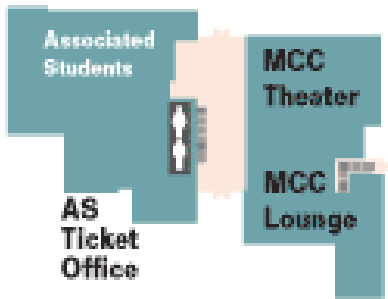
Individual Relationship and Management of Plants in the Ecuadorian Amazon

Some palm trees and lianas are, for Waorani people, landmarks of social and ecological history. The presence of these species and their recruitment in a determined forest patch enable storytelling of their forbearers' way of live and impact on the forest. This presentation aims to show how collective memory, inscribed in the landscape, reconciled with tradition ecological knowledge allows Waorani people to interpret the growth and transformation of the forest. Ethnographical and ethnobotanical research was carried out among two family clusters settled along the Nushiño River. Their family history was registered in the places where they continue to visit. The management and use of these plants also serves to keep their past alive. A list of 39

species served to construct a management practice typology useful to understand different ways of appropriate plants as well as the relationship between this indigenous group and plants. This presentation discusses relationship and management of individual plants instead of a plant population.



MAIN LEVEL



MEETING ROOMS

MAIN LEVEL

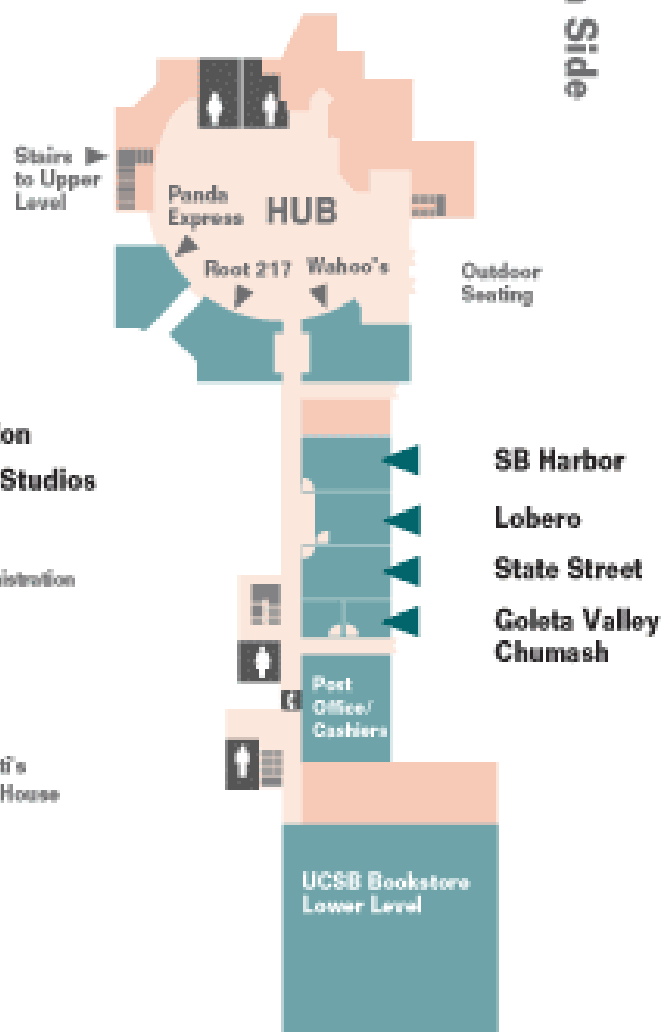
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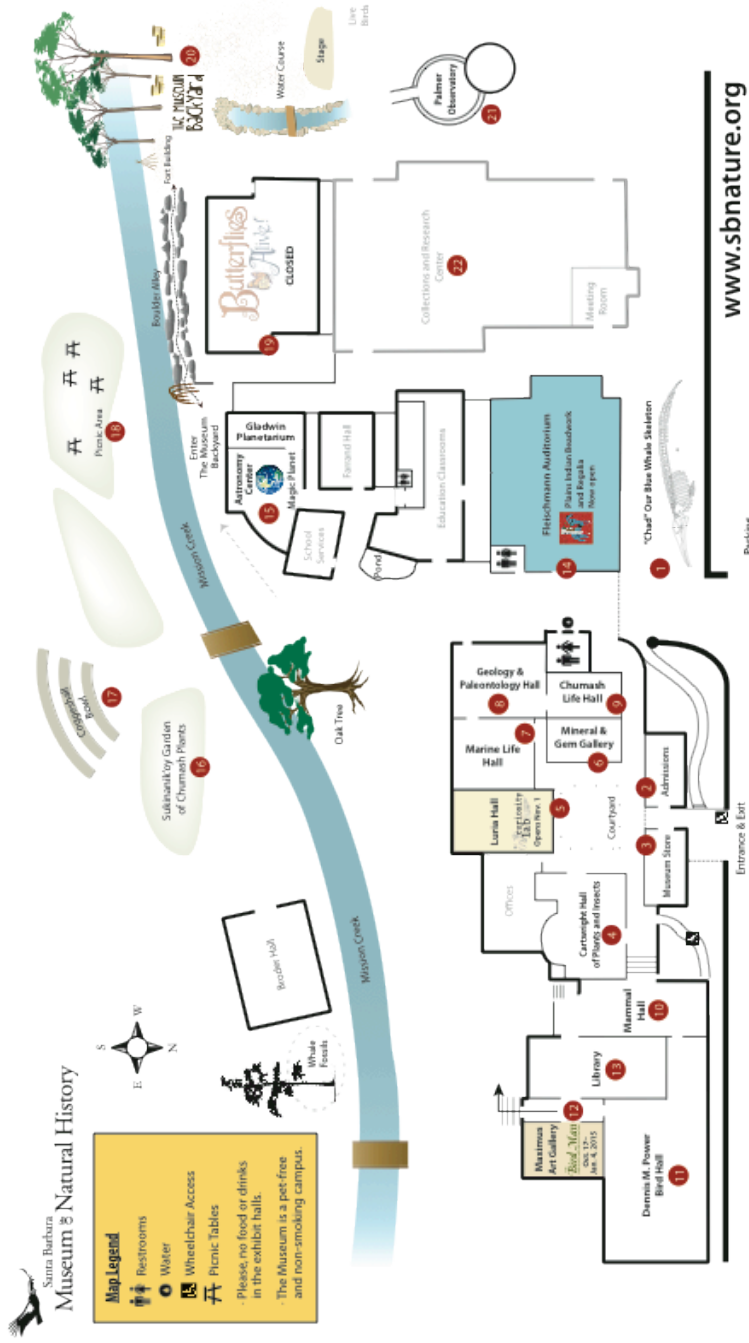
LOWER LEVEL

SB Harbor
Lobero
State Street
Goleta Valley
Chumash



LOWER LEVEL





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- Saguaro National Monument
- Organ Pipe National Monument
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- Kitt Peak Observatory
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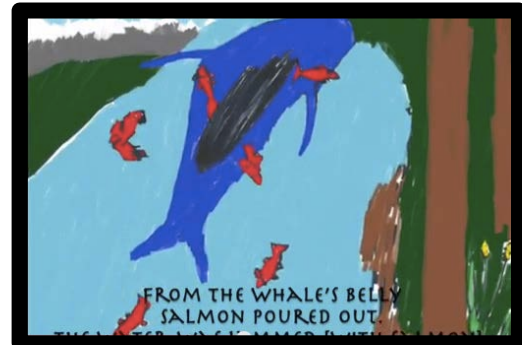
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Film Festival



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*Produced by San José State University's Nature and World Cultures Class
Dr. Jeanine Pfeiffer, Instructor*

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Waters

A Karuk Creation Story (2:10) A bilingual recounting of Karuk river origins. <https://www.youtube.com/watch?v=917-51lbhrl> Story by Vera Davis, featuring Ron and Mike Reed. Posted by Jack Kohler, 2010.

The Song of the Tiger Shark at Manankurra (Manankurra Kujika) (5:30) A song line of kujika belonging to the Rumburriya clan; a song line put into the Manankurra country by the Tiger Shark Dreaming, singing the cycad trees, people gathering water, the river and many other things. <http://artsonline.monash.edu.au/countrylines-archive/the-song-of-the-tigershark-at-manankurra/> Produced by Monash University, 2008.

The Dreamings from the Saltwater Country (Narnu-Yuwa ki Anthaa) (3:48) Dreamings from the Yanyuwa Saltwater Country (Narnu-Yuwa ki Anthaa) on the open sea out from the Wearyan River mouth. The Tiger Shark sing dolphins, dugongs, whales and a number of other creatures. <http://artsonline.monash.edu.au/countrylines-archive/the-dreamings-from-the-saltwater-country/> Produced by Monash University, 2010.

Aboriginal Water Values and Management in Northern Australia (14:16) The Tropical Rivers and Coastal Knowledge (TRaCK) research program documents Aboriginal values for aquatic resources were identified for the Daly River, Northern Territory and Fitzroy River, Western Australia. <https://www.youtube.com/watch?v=XMKYybtUJ-o> Produced by CSIRO; Narrated by traditional owner, Patricia Marrfurra McTaggar.

Fish Kill 2014? Yurok Youth Seek Answers. (12:18) Young people explore the history of the 2002 fish kill on the Klamath River and seek answers for preventing another disaster. <https://www.youtube.com/watch?v=CbHUb6aLizw> Seventh Generation Fund, 2014

In the Heart of Alaska's Salmon stronghold (4:33) The fishing village of Nondalton, Alaska sits fourteen miles away from the proposed Pebble Mine site. Water from the site migrates into the lakes and streams supporting millions of spawning sockeye salmon spawning. <https://www.youtube.com/watch?v=ymRUijKizwM> The Story Group, Ted Wood and Beth Wald, 2012.

Nez Perce Tribe Works to Revive Extinct Coho Salmon (5:49) Efforts to save the fish, declared extinct in the Clearwater basin in 1987. <https://www.youtube.com/watch?v=4nV9LjHZfAA> Directed/Written/Produced by Aaron Kunz and EarthFix Video, 2012.

The Whale in the Creek (5:50) An animated Kashaya Pomo story based on a true story told to Herman James by his grandmother. <https://youtu.be/mcRXGBOKvXg?list=PL1Stmqz-WdIO8TP2QAbvSvy3qglgitwZR> Produced by Dennis Yu, Janie Dusenberry, Lauren Malady, Patricia Andrews, and Edgar Garibay, 2014.

Lands

Hoopa Creation Story (1:26) A bilingual recounting of Hoopa origins and responsibilities.

<https://www.youtube.com/watch?v=J6Za2mp6x6Y> Posted by Indigenous TV; voiceover and translation by Kayla Carpenter.

Life Under the Oaks (6:15) A narration of traditional practices and culturally significant animal and plant species in Kumeyaay.

<https://www.youtube.com/watch?v=49ShOywlaQ4> Featuring Norma, Jon and Emilia Meza and Lupe Cota. Directed by Michael Wilken-Robertson. American Indian Studies program at San Diego State University, 2012.

Interview with Dolores Quintero (2:50) A Miwok elder speaks of her family's past and cultural traditions.

<https://www.youtube.com/watch?v=U7lfEXt4yUE> Video by Savannah Arjil, 2013.

Ghost Tribe (9:03) At least half of California's estimated 150,000 Native Americans lack official recognition by the federal government. The Winnemem Wintu tribe of Shasta County struggles to continue practicing its traditions without the legal rights and protections of federal recognition. <https://www.youtube.com/watch?v=mpuqR1hwmgs> Producer/Editor - Carrie Ching, Camerawork by Will Doolittle/Moving Image Productions, Reported by Marc Dadigan and Carrie Ching, Music by Guillermo Guareschi.

Wet Mouth (2:57) A spoken-word poem on traditional basketry. <https://youtu.be/osYNQt12ELY> Poet/Producer Dr. Jeanine Pfeiffer, 2014.

Biopic of Corine Pearce (10:00) Portrait of a Redwood Valley Pomo basketweaver. Producers Veronica Naranjo, Claus Strand, Jennika Uribe.

Bishop Paiute Tribe Native Seed Broadcast (3:28) A humorous look at the Bishop Paiute Water Quality Control Program's efforts to restore a degrade landscape. <https://www.youtube.com/watch?v=sZTdtiLeCNM> Bishop Paiute.Tribe Environmental Management Office, 2015

Who Speaks Wukchumni? (10:00) An elder keeping her language alive, composing a dictionary one letter at a time.

http://www.nytimes.com/2014/08/19/opinion/who-speaks-wukchumni.html?_r=1 Starring Marie Wilcox. Directed by Emmanuel Vaughan-Lee, produced by Adrienne Anderson and Emmanuel Vaughan-Lee. Edited by Adam Loftin.

How We Got Our Hands (4:29) An animated Wukchumni story of origin. <https://youtu.be/CSozqYhWHWA?list=PL1Stmqz-WdIO8TP2QAbvSvy3qglgtwZR> Narrated by Marie Wilcox. Video by Jennifer Malone, Patrick Bacungan, Nick Bellin, Itzel Coronel, Jeff Hartung, Sami Boutros.

Independent Film

The Non-Lead Hunter (23:57) A testimonial on responsible hunting by a field practitioner. The Non - Lead Hunter features Anthony Prieto, a lifelong hunter with a love of the outdoors and heart of a conservationist, on the hunt for wild pigs. This is a story of how small changes can have big effects to conserve wildlife for future generations. <https://vimeo.com/37272263> Produced and directed by Jeff Mcloughlin and Ethan Turpin.